COPYRIGHT STATEMENT

This QUALITY ASSURANCE MANUAL is the property of WireCo WorldGroup and intended for exclusive use by employees in the furtherance of a recognizable quality standard. All items contained within this document are STRICTLY CONFIDENTIAL.

The contents of this manual are made available to the customers or certification bodies only with the company’s permission. Excerpts from this manual cannot be disclosed to third parties without prior written authorization from an executive of the company.
The policies, procedures and documentation described in this manual are mandatory and are to be followed by all personnel employed by WireCo WorldGroup.
AMENDMENTS (ISO 7.5.2, API Q1 4.4.3)

The responsibility for maintaining, controlling and distributing this Quality Assurance Manual rests with the company’s Management Representative.

The CEO must authorize changes that result in the revising of this manual before incorporating it into the Quality Assurance Manual. Changes resulting in the revising of the Quality Assurance Manual are recorded on the Approval and Revision Record (below) and as indicated in the header of this document. Each change (or group of changes) increases the issue level of the whole of this manual. This manual is re-issued, per the distribution register, after each change has been incorporated.

The Quality Assurance Manual is structured to comply with the ANSI/ISO 9001:2015, ANSI/API Q1 and SAE AS9100D standards. The relationship of each standard and the facility it pertains to, are shown in the Table of Contents, Table T1 as well as in the body of the manual.

The Quality Assurance Manual is reviewed at least twice a year as part of the company’s management review process.

APPROVAL AND AMENDMENT RECORD

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<td>October 2003</td>
<td>Completely rewritten to comply with ISO 9001:2000</td>
<td>A</td>
<td>Ira L Glazer</td>
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<td>November, 2004</td>
<td>Revised paragraph 4.2.3, 5.3, 5.5.2, 7.3.1, 7.5.5, 8.2.2, &amp; 8.3.</td>
<td>B</td>
<td>Ira L Glazer</td>
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<td>August 2007</td>
<td>Revised the Q.M. to incorporate the Mexico, Canada and U.S. operations into one quality manual, and to detail API-Q1 and AS9100D supplement requirements.</td>
<td>C</td>
<td>Ira L Glazer</td>
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<td>October 2007</td>
<td>Adjustment to the manual to meet AS9100D requirements.</td>
<td>D</td>
<td>Ira L Glazer</td>
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<td>December 2007</td>
<td>Revised paragraph Q1 4.2.4.1; Q1 7.3.1.2: 7.3.7.1; 7.5.1.2; 8.2.4.2and added monogram requirement to meet the API-Q1 requirement. Replaced “WRCA” with “WireCo WorldGroup”.</td>
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<td>March 2009</td>
<td>Revised Table 2 on page 9. the Beaverton &amp; Kirksville columns, and routine review and adjustment to ISO 9001:2008</td>
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<td>G</td>
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<td>June 2011</td>
<td>Added Kinkel-Limbach (CASAR) operation, and consolidated Appendix A into the main body of the manual.</td>
<td>H</td>
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<td>Ira L Glazer</td>
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<td>2013</td>
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<td>Chris Ayers</td>
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<td>2017</td>
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<td>Edwin Meyer, José Gramaxo</td>
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Note: WireCo WorldGroup will not update hard copies of the Quality Assurance Manual issued externally. All external PDF copies shall be endorsed "UNCONTROLLED DOCUMENT" and signed by the Director of Quality Systems. This endorsement shall appear near the end of the manual.
Who Are We

WireCo WorldGroup is the world leader in manufacturing, engineering and distributing wire products and wire rope products, electromechanical cable, synthetic ropes, structural strand specialized assemblies, high tenacity fiber ropes and pre-stretched concrete strand. Our customers interest recognized WireCo WorldGroup globally in a wide range of market applications that includes oil and gas exploration, surface and underground mining, construction, fishing, marine, specialty lifting and suspension and the aerospace industry.

WireCo WorldGroup is an international corporation, with manufacturing sites located in:

- St. Joseph, Missouri, USA (Steel Wire Rope)
- Sedalia, Missouri, USA (Steel Wire Rope)
- Rosenberg, Texas, USA (Steel Wire Rope)
- Chillicothe, Missouri, USA (Steel Wire)
- Kirksville, Missouri, USA (Specialty Fabrication of Wire Rope Slings and Assemblies)
- Carrollton, Missouri U.S. Reel (Wood Reel Products)
- Montgomeryville, Pennsylvania, USA (Synthetic Rope and Strength Members)
- Cuautitlian, Mexico (Steel Wire)
- Vallejo, Mexico (Steel Wire Rope and Electromechanical Cable)
- Kirkel-Limbach, Germany (Steel Wire Rope)
- Maia, Portugal (Steel Wire Rope and Synthetic Rope)
- Wloclawek, Poland (Steel Wire Rope, Steel Wire and Steel Wire Band)

Royal Lankhorst Euronete, Brazil, Netherlands, Portugal (Synthetic and Natural Fiber Twines, Netting, Cords, Fabricated Ropes, High Performance Ropes and Cable)

In addition to these manufacturing sites, the company manages distribution centers in North America, South America, Asia, Australia and Europe. With true global reach, WireCo WorldGroup can deliver the right products for your equipment and application no matter where your worksite might be. All manufacturing facilities for the corporation are, at a minimum, ISO 9001:2015 certified. Additional quality certifications that some of our plants hold are: API (American Petroleum Institute), AS9100D (Aerospace), Lloyd’s Register, Cableway Directive 2000/9/CE, Korean and Russian Maritime Registration, and multiple U.S. Military standards and qualification.
THE SCOPE AND OBJECTIVE OF REGISTRATIONS
The quality management system (QMS) applies to all production facilities owned or operated by WireCo WorldGroup including the corporate headquarters. The scopes of WireCo WorldGroup quality registrations are described in the following table (T1):

<table>
<thead>
<tr>
<th>Locations</th>
<th>Country</th>
<th>Standard</th>
<th>Scope</th>
<th>N/A (Exclusion)</th>
<th>N/A (Exclusion Justification)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camesa sales office, Cuautitlan &amp; Vallejo plants</td>
<td>Mexico</td>
<td>ISO 9001:2015</td>
<td>The design &amp; manufacturing of wire ropes, electromechanical cables, pre-stretched concrete strand and high carbon steel wire.</td>
<td>None</td>
<td>N/A</td>
</tr>
<tr>
<td>Camesa &amp; Vallejo plants</td>
<td>Mexico</td>
<td>API 9A SPEC,</td>
<td>Bright or Drawn – Galvanized Wire Rope; Mooring Wire Rope; Torpedo Lines, Well-Measuring Wire; Well-Measuring Strand; Wire-Guy Strand; Structural Rope and Strand</td>
<td>5.7.1.2, Servicing</td>
<td>5.7.1.2, Servicing - There are no Service Provision activities associated with the product that the company provides.</td>
</tr>
<tr>
<td>Headquarters, Chillicothe, St. Joseph, Rosenberg &amp; Sedalia plants</td>
<td>U.S.A.</td>
<td>ISO 9001:2015</td>
<td>The design &amp; manufacturing and supply of steel wire, wire rope, strand and fabricated products.</td>
<td>Service Provision</td>
<td>There are no Service Provision activities associated with the product that the company provides.</td>
</tr>
<tr>
<td>St. Joseph, Sedalia &amp; Rosenberg</td>
<td>U.S.A.</td>
<td>API 9A SPEC,</td>
<td>Bright or Drawn – Galvanized Wire Rope, Mooring Wire Rope; Torpedo Lines, Well-Measuring Wire; Well-Measuring Strand; Wire-Guy Strand; Structural Rope and Strand</td>
<td>5.7.1.2, Servicing</td>
<td>5.7.1.2, Servicing - There are no Service Provision activities associated with the product that the company provides.</td>
</tr>
<tr>
<td>Kirksville</td>
<td>U.S.A.</td>
<td>AS91000D</td>
<td>The Fabrication of Wire Rope Assemblies to Customer Prints and Specifications.</td>
<td>Service Provision (Post-Delivery Support)</td>
<td>There are no Service Provision activities associated with the product that the company provides.</td>
</tr>
<tr>
<td>CASAR</td>
<td>Germany</td>
<td>DIN EN ISO 9001:2015</td>
<td>The design and manufacturing of strand, rope and special wire rope for lifting applications.</td>
<td>None</td>
<td>N/A</td>
</tr>
<tr>
<td>CASAR</td>
<td>Germany</td>
<td>API 9A SPEC</td>
<td>Bright or Drawn – Galvanized Wire Rope</td>
<td>5.7.1.2, Servicing</td>
<td>5.7.1.2, Servicing - There are no Service Provision activities associated with the product that the company provides.</td>
</tr>
<tr>
<td>Phillystran</td>
<td>U.S.A.</td>
<td>ISO 9001:2015</td>
<td>The design &amp; manufacturing and supply of synthetic rope and assemblies.</td>
<td>Service Provision</td>
<td>There are no Service Provision activities associated with the product that the company provides.</td>
</tr>
<tr>
<td>Oliveira SA</td>
<td>Portugal</td>
<td>NP-EN ISO 9001:2015</td>
<td>Design, development and production of guy strand, steel wire ropes and slings, combination ropes, yarns and synthetic</td>
<td>None</td>
<td>N/A</td>
</tr>
<tr>
<td>Oliveira SA</td>
<td>Portugal</td>
<td>API 9A SPEC</td>
<td>Bright or Drawn – Galvanized Wire Rope</td>
<td>5.7.1.2, Servicing</td>
<td>5.7.1.2, Servicing - There are no Service Provision activities associated with the product that the company provides.</td>
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<td>Poland</td>
<td>API 9A SPEC</td>
<td>Bright or Drawn – Galvanized Wire Rope; Mooring Wire Rope; Well-Measuring Wire; Well-Measuring Strand; Wire-Guy Strand</td>
<td>5.7.1.2, Servicing</td>
<td>5.7.1.2, Servicing - There are no Service Provision activities associated with the product that the company provides.</td>
</tr>
<tr>
<td>Drumet</td>
<td>Poland</td>
<td>PN-EN ISO 9001:2015</td>
<td>Production and sales for domestic and export markets of wire, steel wire rope, staple band and related products.</td>
<td>None</td>
<td>There are no Service Provision activities associated with the product that the company provides.</td>
</tr>
<tr>
<td>Royal Lankhorst Euronete Group Lankhorst</td>
<td>Europe</td>
<td>ISO 9001:2015</td>
<td>Research, development, production and supply of natural and synthetic fiber twines, Netting, twisted and braided ropes, high performance rope and cables for offshore industry.</td>
<td>None</td>
<td>N/A</td>
</tr>
<tr>
<td>Royal Lankhorst Euronete Group Lankhorst Engineered Product</td>
<td>Europe</td>
<td>ISO 9001:2015</td>
<td>Design, production and delivery of plastic end products and plastic semi manufactured products</td>
<td>None</td>
<td>N/A</td>
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</table>

Table T1

<table>
<thead>
<tr>
<th>Process</th>
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<td>X</td>
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Quality Management System (4.1.1 - API-Q1)

<table>
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<tr>
<th>Process</th>
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<tbody>
<tr>
<td>Customer Related Processes</td>
<td>Sales Managers</td>
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<td>Design &amp; Development</td>
<td>Design Manager</td>
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<td>Fab Production Manager</td>
<td>X</td>
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<td>Packaging Delivery Distribution</td>
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</table>

WireCo WorldGroup has determined and established the processes that are required for documentation, implementation, and monitoring of process interaction. The company is striving to continually maintain and improve the Quality Management System (QMS).

The processes listed above and in Figure 1 supports the following:

- Understanding the Organization’s Quality Management System, including support processes,
- The Operation’s Product Realization,
- The Performance Evaluation – Measure Effectiveness, Analysis & Improvement.

These processes and methods are detailed in Quality Planning procedures, Table 2, Line 2 (T2-2).

The level 2 procedures and level 3 instructions constitute the methods by which the requirements are performed.
The cross reference of the elements of the governing standards and the Quality Management System is contained within the Table of Contents and in Table T2.

The sequence and interrelationship of the company processes, including maintaining responsibility for outsource processes that can affect product quality, are shown below in Fig.1, and also within each individual procedure and/or level 3 instructions (where applicable).
The criteria and methods needed to ensure that both the operation and control of these processes are effective, will be through Management Reviews (T2-4), scheduled Internal Audits (T2-18) combined with continual improvement activities, which can be a result of customer feedback (T2-17), internal corrective actions (T2-20) and project-related Preventive Actions (T2-20) based off risk assessment or opportunity for improvement.

The consideration to make resources available and information necessary to support our operation is made possible through monitoring of the company’s processes, together with measuring, analyzing and implementing actions to achieve planned results. We will continue to look for ways to improve the quality management system to achieve and maintain stated objectives in accordance with the requirements of the company’s policies. This policy will help to support our customers who may be operating from such standards as International Organization for Standardization (ISO), or American Petroleum Institute (API) or Aerospace (AS9100D).

Any processes that are outsourced to an external party which could impact product or service conformity are controlled. The controls are defined through the Purchasing Procedure (T2-9), and monitored through Receiving Inspection (T2-10) or by data analysis at Management Review (T2-4) processes. These include processes for management activities, provision of resources, product realization and measurement.
Documentation Requirements (API-Q1 4.4, AS9100D, ISO : 7.5, 7.5.1)

- The quality system has been established by the preparation, maintenance and implementation of documented procedures, records and instructions which comply with the company’s quality system. Personnel will have access to quality management system documentation through strategically controlled copies or through an electronic library system, which enhances the awareness of their relevant procedures (T2-1).

Quality Manual Documenting Quality Management System Scope (API-Q1 4.4.1, AS9100D, & ISO: 4.3, Q1-4.2.2.1)

- Quality Manual (this document) which details our company context, quality management system (QMS) scopes, exclusions, policies/procedures, quality policy, aims, objectives and interaction between identified processes that form WireCo WorldGroup Sites Quality Management System, together with references to the standards and the associated procedures or instructions listed in table T2. (The Table of Contents best shows how this manual complies with the applicable standards.)

Control of documents and forms (API-Q1 4.4.2, 4.4.3, 4.4.4, AS9100D, & ISO: 7.5.2)

All documents that form part of the Quality Management System are controlled per Document Control (T2 - 1).

These controls consist of defined methods to:

- Approve for accuracy prior to issue. List document identification, changes and the current revision status.
- Periodically re-review procedures for accuracy.
- Properly format and uses of media, depending on originate of country (Table T2).
- Ensure the availability at the point of use.
- Ensure all documents remain protected, legible and readily identifiable.
- Ensure all documents or requirements of external origin are identified and their distribution controlled.
- Prevent the unintended use of obsolete documents or to suitably identify those documents that are retained for any purpose.
- Ensure all updated existing documents go through an approval process as did the original release.

Control of records (API-Q1 4.5, AS9100D, ISO: 7.5.3)

The company’s level 2 procedures listed in T2-1 ensure the maintenance of quality records that provide objective evidence of conformity to requirements, or effective operation of the Quality Management System. These records, including outsourced activity records are controlled, stored and protected under suitable conditions to ensure legibility, and are readily identifiable and retrievable. The record retention is listed within the site procedure shown in T2-1. The minimum retention time will meet the requirement of quality standards like AS9100D, ISO 9001:2015 and API-Q1. Established documentation will reference responsible parties, record storage, retention time and disposition of records.

In addition, for our aerospace process, procedures shall define the control of records created by and/or retained by our suppliers (T2-1).
Management Responsibility

Management commitment (API-Q1 4.2.1, AS9100D, ISO: 5.1, 5.1.1)

Executive Management have developed and implemented the Quality Management System, which is committed to continually improving its effectiveness to support the organization business processes through leadership, commitment and active involvement in an on-going basis by:

- communicating to the organization the importance of meeting the customer needs as well as statutory and regulatory requirements through orientation and further on-going training as required per Management Resource (T2-5),
- establishing the quality policy and communicating to all through this Quality Manual, regular communication and on-going training,
- ensuring that quality objectives have been established with key performance indicators, conducting Management Reviews (T2-4), and
- ensuring the availability of resources to implement, maintain and improve the management system.

Customer Focus/External Organizations (API-Q1 4.1.5.2, AS9100D, ISO: 5.1.2)

WireCo WorldGroup ensures that requirements of external origin are determined and achieved through accurate communication both internally and externally to enhance customer, or external satisfaction, as per Customer Communication (T2-7) and Customer Satisfaction (T2-17). This is achieved through an initial review to identify any risk, and ensure statutory and regulatory requirements related to the product or the supply of the product and any additional requirements are determined prior to the organization’s commitment to supply. This is also achieved through performance review, which measures the processes, feedback, documented-plans, (when required) and product conformance. The results are reported to management during the regular site management meetings.
WireCo WorldGroup is a global leader in manufacturing, engineering, and distributing wire rope, synthetic rope, specialized assemblies, wire products and electromechanical cable. The products we design and manufacture provide added value to our customers and reduce their operating risk. Our Quality Policy and its execution provide the assurance to our customers that they will have a consistent experience across all brands, products and markets. With our range of quality solutions, we build customer loyalty and maintain our market leadership position. Adherence to our quality policy has also led to the recognition of various standards organizations including API, ISO, AS9100D, Lloyds Registry, and Safety Plus Environmental requirements.

This is achieved by:

- Continuously working with our employees, suppliers and customers to enhance the company’s image, reputation and social standing.

- A positive commitment to comply with Customer, Statutory, Regulatory and Quality Management System requirements. The maturation of tiered branding strategy in each industry providing multiple branding options for our customers.

- Supporting quality objectives through plant quality goals and measurable.

- Strive to continuously improve the effectiveness of the systems, safety, environment, processes, products, and services and achieve objectives and measurable targets.

- Enhancing management structure for a global organization. Developing and training all employees to continually improve the teamwork and involvement necessary to the success of the individual and a global organization.

- Continue to improve by doing it right the first time.

This policy is reviewed as part of Management Review for its continuing suitability and objectivity and provides the framework for setting and reviewing quality system objectives and targets.

This policy is mandatory for all parties associated with WireCo WorldGroup in the drive toward continuous improvement and therefore is communicated and understood at each relevant function and level throughout the organization.

Executive Officers, WireCo WorldGroup: Edwin Meyer, and José Gramaxo
PLANNING

Quality Objectives (API-Q1 4.1.3, AS9100D, ISO: 6.2, 6.2.2)

The quality objectives, including those needed to meet the product or service and customer requirements, have been established at relevant functions and levels within the organization. These quality objectives are planned to achieve their measurable per Company Objectives (T2-3). They will be monitored, communicated, and consistent with the Quality Policy.

Quality Management System Planning (API-Q1 4.1.4, AS9100D, ISO: 6.1, 6.3)

Planning and approval of the Quality Management System and its subsequent amendments is performed by the company management team in order to meet the requirements of the applicable standards (ISO 9001:2015, API Q1 and AS9100D), which is described in Quality Planning (T2-2) and supported in Company Objectives (T2-3). The integrity of the Quality Management Policy is maintained when changes to the quality management system are planned and implemented per Document & Record Control (T2-1).

Responsibility, authority and communication (API-Q1 4.2, 4.1.5.1, 5.11.3, AS9100D, ISO: 5.3)

Executive Management defines the roles, responsibilities, accountability and authorities of the management levels throughout the company. This is communicated to the management levels and is reflected in the role and responsibility chart (Fig. 2 below). WireCo WorldGroup will notify the customer of changes to the company’s organization systems, when required by the customer. This organization chart is supported by the multi-level organization chart located in the company Intranet System. This is accomplished through initial and on-going training. They are reviewed on an annual basis as part of an individual performance assessment by the head of each department, monitored by HR per Management Resource (T2-5).

These members of Executive Management are committed to providing adequate resources to maintain the management system in order to satisfy customer needs and the manufacturing needs, through planning and established company goals.
Responsibility and execution of the quality system is delegated to a management representative in each area of the company's operation system, and to their owners of documentation for each global plant of operation.

Quality representatives have authority and responsibility of accepting or rejecting components, product containers, packaging, in-process material, finished product and materials in process, labeling and the authority to review production records in order to assure that all requirements have been satisfied. Representatives impose the same acceptance or rejection control processes on finished and packaged product from an outsourced company.

Management representatives will be responsible for written procedures and the control of these procedures.

The scheduling of internal audits is the responsibility of the geographical WireCo WorldGroup operation’s quality representative to ensure process conformity.

Responsible people of each area that integrate quality have the authority to:

- take actions in order to prevent nonconformities of the product, process and the quality system,
- record and identify any problem related to the product, process and quality system,
- initiate recommendations or provide solutions using the proper channels,
- verify implementation, and
- ensure that procedures affected by an implementation are reviewed by the people who use them and revise as needed.

**Management Representative (API-Q1 4.2.3, AS9100D 5.3)**

Executive management has appointed regional management representatives who, irrespective of other responsibilities, has the responsibility and authority that includes:

- ensuring that processes needed for the quality management system are established, implemented and maintained through Internal Audits, Management Reviews, and feedback,
- reporting to executive management on the performance of the quality management system and any needs for improvement, or initiating actions to minimize occurrence of nonconformities, (via risk analysis which may be supported by preventive action process) and
- ensuring the promotion of awareness of customer requirements throughout the organization, and the flexibility to access upper management to resolve quality management issues.

**Communication (API-Q1 4.1.5.1, 4.1.5.2 AS9100D, ISO : 7.4)**

Management levels will ensure that appropriate and effective communication within, or external to the organization takes place through regular management meetings at which heads of departments are charged with communicating relevant matters (i.e. customer needs, legal and other applicable requirements) to all of their managers or subordinates.

**Management Review (API-Q1 6.5, AS9100D, ISO: 9.3, 9.3.1, 9.3.2, 9.3.3) (Q1-6.5.1, Q1-6.5.2, Q1-6.5.3)**

Executive management and the management team review the organization’s Quality Management System, at a minimum once per calendar year. Other intervals that are different from this manual will be called out in the site procedure per Management Review List in T2- 4. This is done to ensure that the quality management system continues to be suitable, adequate, effective and align with the company goals. This review includes supplier performance, internal/external audits, process performance, analysis of customer satisfaction or feedback, status and progress of preventive/corrective actions, activities from previous management review, opportunities for improvement, risk assessment, the review of changes to quality standards or other applicable requirements, and changes that could affect the Quality Management System, including the quality policy and objectives (Company Objectives, T2-3).

Records from management reviews are maintained and made available to all pertinent personnel which includes the assessments of any decisions and actions related to the improvement of the effectiveness of the Quality Management System and its processes, improvement of product related to customer requirements, and any identified resource needs.

Selected output will, when appropriate, be communicated to others in the WireCo WorldGroup organization.
Resource Management – Knowledge and Capability of the Organization

Provision of resources (API-Q1 4.3.1, 5.11.2b), AS9100D, ISO: 7.1, 7.1.6)
The organization has determined and allocated the resources to implement and maintain the Quality Management System and continually improve its effectiveness.

Executive Management has committed WireCo WorldGroup to actively pursue all channels of communication to identify internal resources capability or constraints to meet customer requirements, therefore enhancing customer satisfaction. This is accomplished by monitoring our internal and external organization performance or changes to the processes or essential personnel, so to give support in completing projects and/or contracts. (See Quality Planning T2-2, Company Objectives T2-3, Customer Related Processes T2-6, Customer Communication T2-7, Design & Development T2-8, Customer Satisfaction T2-17 and Internal Audits T2-18).

Human Resources (API-Q1 4.3.2, 4.3.2.1, AS9100D, ISO: 7.2)
All personnel performing work that can affect conformity to product requirements or providing internal and external service within the scope of the quality management system are deemed competent on the basis of appropriate education, training, skills and/or experience, per Management Resource T2-5.

Competence, awareness and training (API-Q1 4.3.2.2, 4.3.2.3, AS9100D, ISO: 7.2, 7.3)
WireCo WorldGroup sees our personnel as a very important asset. Our global organizations strive to provide our staff with the best solution for a company base and a global awareness through training, which builds the competence level. Each geographical operation will:

- determine and document the necessary competence for personnel performing work affecting conformity to product or service requirements,
- where applicable, provide contractual training or take other actions to achieve the necessary competence,
- evaluate the effectiveness of the action taken,
- ensure that its personnel are aware of the relevance and importance of their activities and how they contribute to the quality management system and achieving its quality objectives, and
- maintain appropriate records of education, training skills and experience.

Support for our personnel competence is through control procedures, which characterize training needs and series-training (where applicable, frequency) for employees supporting the quality management system.

Infrastructure (API-Q1 4.3.3, AS9100D, ISO: 7.1.3)
WireCo WorldGroup has established a work environment to achieve conformity applicable to the manufacture of our product line. This work environment includes:

- buildings, workspace and associated utilities,
- physical or environment conditions and other factors (when required),
- process equipment (hardware and, where applicable, software), and
- supporting services (such as transport or communication or information system)

Safe work areas and appropriate environmental protection (T2-23).

It is the responsibility of the department manager to ensure all necessary resources are made available for the required tasks to be performed. This is reviewed on an on-going basis as part of daily communication with all personnel under their charge and at Management Review T2-4.

WireCo WorldGroup also recognizes the importance of a good preventive maintenance (PM) program to address equipment types, frequency and responsible personnel to minimize the risk of not meeting the customer requirements. The company PM methods are covered within the documented procedures, which supports the Production & Service Provision (T2-11).

Work environment (API-Q1 4.3.3, AS9100D, ISO:7.1.4)
Adequate working environmental conditions necessary to achieve physical, environmental and product objectives are provided for the condition under which work is performed per Production & Service Provision T2-11. These conditions, as required, are continuously monitored and communicated as part of Management Review T2-4.
Product Realization

Planning of Product Realization (API-Q1 4.1.3, 4.1.4a(b), 4.1.5.2d), 4.3.1, 4.4.1, 4.4.4, 5.2, 5.3, 5.5, 5.7.2, AS9100D, 8.1.1 and ISO: 6.1.2, 8.1)

The planning and development of processes and procedures to achieve the customer contractual objectives and compliance with internal and external standards are performed prior to commencement of the contract when possible, or on an ongoing basis where developments only become known during the life of the project. Documented procedures listed in Customer Related Processes (T2-6), Production & Service Provision (T2-11) and/or Design & Development (T2-8) provide the direction in achieving this task.

The planning is consistent with the requirements of the other processes within the Quality Management System, including customer requirements. When applicable, the planning will comply with any statutory and/or regulatory regulations. Risk assessment of the facility, equipment, raw-material, delivery, personnel, and detection of nonconforming material after delivery are considered during the planning of product realization.

As part of the initial planning phase the following, as appropriate, are determined:

- Quality objectives and requirements for the product (e.g., safety, reliability, capability, resource) as required through design and development, legal or customer specifications.
- The need to establish processes, proper work environment, documents, resources, contingency plans to ensure customer needs, and any change to the management system specific to the product.
- The required verification, validation, monitoring, measurement, inspection and test activities specific to the product and the criteria for product acceptance.
- The compilation of the necessary records to provide objective evidence that the realization processes and resulting product meet requirements.

These points are normally considered while creating a manufacturing schedule. A WireCo WorldGroup Quality Plan will be developed and documented where contractually required. Requirements coming from external sources will be translated into the product realization.

Note: As appropriate to the company and the product, the company shall plan and manage product realization in a structured and controlled manner to meet the customer requirements.

For our aerospace process 8.1.1 (Risks):

We ensure that any risk (e.g., new technology, short delivery time scale) have been evaluated.

For our aerospace process 8.1.2 (Configuration Management)

Configuration management of each component is provided by the customer in the form of their print which is controlled through the Customer Service contract review documented process.

Customer Service’s Order Confirmations are derived from the customer print and verified through the contract review process. The print and order confirmation are controlled throughout the manufacturing process.

WireCo WorldGroup ensures that the components issued to production will match the production Pick List, which is derived from the order confirmation and customer print. No components will be used without confirming it against the Pick List.

Once the components are assembled, the results become the customer’s part number (T2-21). For our aerospace process 8.1 Control of Work Transfers is make possible per Production & Service Provision (T2-11).
**Customer-related processes** (API Q1 5.1, AS9100 & ISO 8.2)

**Determination and review of requirements related to the product** (API-Q1 5.1.1 - 5.1.5, AS9100D, ISO: 8.2.2, 8.2.3, 8.2.4)

Executive Management, along with management representatives, determine the requirements specified by the customer, including legal and other applicable requirements, plus risk assessment associated with delivery and, when applicable, post-delivery activities. Consideration is also given to requirements not stated by the customer but necessary for specified or intended use, where known. Statutory and regulatory requirements related to the product or the supply of the product and any additional requirements are determined prior to the organization’s commitment to supply. A formal contract review per Customer Related Processes (control procedures listed in T2-6) is performed to ensure that standard and non-standard products:

- requirements, including special requirements, are defined,
- contract or order requirements differing from those previously expressed are resolved, and
- the organization has the ability to meet the defined requirements and identify any risk.

Records of the results of the review and actions arising from the review are maintained.

Where the customer provides no documented statement of requirement, the standard requirements are confirmed by the organization before acceptance.

In the event of requirement changes, the relevant documents are amended and relevant personnel are made aware of the changes in requirements.

**External Communication (Customer)** (API-Q1 4.1.5.2a)b)c), AS9100D, ISO: 8.2.1)

Management representatives ensure all necessary communication with the customers is performed per Customer Communication (T2-7), in relation to all activities relating to the supply of the product or associated services including product information, execution of inquiries, contracts of order handling, including amendments, customer feedback via Customer Satisfaction (T2-17), and customer complaints via Corrective Action (T2-20) and using customer supplied product or property per Customer Property (T2-14).

**Design and Development** (API-Q1 5.4, ISO: 8.3)

> For our aerospace process, WireCo WorldGroup customers control the design on all of their products that are produced by WireCo WorldGroup fabrication plants. WireCo WorldGroup fabrication plants simply provide a manufacturing service for OEM customers.

**Design and Development planning** (API Q1 5.4.1, 4.5.2d), 5.4.3d), ISO 8.3.1, 8.3.2)

The design and development is based on the safety and product function. The Product Development Department, in conjunction with other branch plants or departments, is responsible for planning and controlling the design and development of projects per control procedure Design & Development (T2-8).

During the design and development planning, the following requirements are determined:

- the appropriate design and development stages/activities,
- the methods of review, verification and validation that are appropriate to each design and development stage/activities; final review (listed in Design and Development review),
- the proper authorities and responsibility for ensuring that adequate interface exists between the different groups involved in the design and development (internal and/or external), to ensure effective communication and the clear assignment of responsibility, and
- the planning results are updated, as appropriate, as the design and development progresses. The design documentation, (design package) shall include methods, assumptions, formulas and calculations.

When applicable, WireCo WorldGroup will establish a level of control expected for design and development process by customer and other relevant parties or procedure for the outsourcing of design and development.
Design and Development inputs (API-Q1 5.4.2, ISO 9001:2015 8.3.3)

Inputs relating to requirements are determined and objective evidence are maintained as appropriate for:

- all functional and performance requirements,
- any applicable statutory, regulatory requirements, specification or standards, environment/operational condition
- information derived from previous similar designs, where applicable, and
- other requirements including customer requirements, legal.

These inputs are reviewed for any risk, adequacy, completeness, no ambiguities and no conflict with other inputs.

Design and Development outputs (API-Q1 5.4.3, 5.4.6, ISO 9001:2015 8.3.5)

The documented outputs of design and development will be verified against the design and development input and approved prior to release. Outputs are:

- To meet the input requirements,
- To identify components for the design and provide appropriate information for raw-material management,
- To contain or reference product acceptance criteria, and results of applicable calculation, and
- To specify key characteristics of the product that are essential for its safe and proper use.

Other requirements that are directly tied to a customer request (e.g. packaging and labeling) will be monitored and verified through the contract review. Customer drawing and their part-list are maintained by the customer.

Design and Development review (API-Q1 5.4.4, 5.4.5, 5.4.6, ISO 8.3.4)

At suitable stages, systematic reviews of design and development projects are performed and recorded in accordance with the design and development plan to:

- evaluate the ability of the results of design and development to meet requirements, and
- identify any problems and propose necessary actions before progressing to next stage.

Participants in such reviews include representatives of functions concerned with the design and development stage(s) being reviewed. Records of the results of the reviews and any necessary actions are maintained.

The approval of the design supported by validation is conducted by an individual other than the person or persons who developed the design.

Design and Development verification (API-Q1 5.4.5, ISO 9001:2015 8.3.4)

Verification is performed to ensure that the design and development outputs have met the design and development input requirements. Records of the final review, results of the verification and any necessary actions are maintained.

Design and Development validation (API-Q1 5.4.6, ISO 8.3.4)

Design and development validation is performed to ensure that the resulting design is capable of meeting the requirements for the specified application or intended use, where known. Wherever practical, validation may include testing, per customer request and will be completed prior to acceptance or implementation of the project. Records of the results and any necessary actions are maintained.

Control of Changes (API-Q1 5.4.7, ISO 9001:2015 8.3.6, 8.5.6)

All design and development changes are identified and recorded. The changes are reviewed, verified and validated as appropriate, and approved before implementation. When appropriate, the review of design changes shall include evaluation of the effect of the changes on constituent parts and product already delivered. All design changes will maintain the same control as the original design and development.

Records of the results of the review of changes and any necessary actions are maintained per Documentation & Record Control (T2-1).
Purchasing (8.4, Q1-5.6)

Purchasing process (API-Q1 5.6.1.1, 5.6.1.2, 5.6.1.3, 5.6.1.4, 5.6.1.6 5.11.2c), AS9100D and ISO: 8.4.1)

The organization ensures that raw components or outsourcing activities that make up the final product or assemblies will meet documented specification per control procedures Purchasing (T2-9) and Verification of Purchased Product (T2-10). The type and extent of control applied to the supplier and their product or activities are dependent upon the critical role of the supplier which can affect the subsequent product, or the final product or service.

Suppliers are evaluated and selected based on their ability to supply product or activities in accordance with requirements, (Purchasing T2-9). The criterion for selection, evaluation and yearly re-evaluation have been established, and the criteria will include the following:

- Supplier quality management system meets WireCo WorldGroup assigned requirements,
- Inspection of the supplier’s final product by WireCo WorldGroup upon delivery (first article or trial-runs),
- Supplier self-evaluation report, or site surveillance,
- Changes to critical supplier.

Records of the results of evaluations, a list of approved suppliers with scope approval and any type of control or waivers are maintained.

<table>
<thead>
<tr>
<th>Our aerospace process shall be responsible for the quality of all products purchased from suppliers, including customer-designated sources (T2-9).</th>
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<tbody>
<tr>
<td>WireCo WorldGroup will:</td>
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<tr>
<td>• maintain a scope of the supplier approval in the company supplier register database,</td>
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<tr>
<td>• periodically review the supplier performance, these reviews shall be used as a basis for establishing the level of controls to be implemented,</td>
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<tr>
<td>• define the necessary actions to take when dealing with suppliers that do not meet requirements,</td>
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<tr>
<td>• ensure, where required, WireCo WorldGroup and all suppliers use customer-approved special process sources,</td>
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<tr>
<td>• ensure the function having responsibility for approving supplier quality system has the authority to disapprove the use of sources,</td>
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<tr>
<td>• determine and manage risk when selecting suppliers,</td>
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<tr>
<td>• Inform suppliers to apply appropriate control to their suppliers, and</td>
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<tr>
<td>• maintain current copy of supplier documentation.</td>
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</table>
Purchasing information (AS9100D and ISO 9001:2015, 8.4.3, Q1-5.6.2)

Purchasing information shall describe the adequacy information on the purchase order, including where appropriate:

- requirements for approval of product, product type, grade, specification, or other relevant technical data,
- the supplier interactions with WireCo WorldGroup QMS,
- procedures, processes and equipment, requirements for qualification of personnel, and
- Quality Management System requirements.

Assurance of the adequacy of specified purchase requirements prior to their communication to the supplier is maintained.

WireCo WorldGroup aerospace process, when appropriate, will include:

- the identification and revision status of specification, drawing, process requirements, and other relevant technical data,
- requirements for design, test, inspection, verification (including production process verification), and related instruction for acceptance by WireCo WorldGroup, and as applicable critical items with key characteristics, and
- requirements needed for the supplier to notify WireCo WorldGroup of nonconforming product,
  - arrange for organization approval of supplier nonconforming material,
  - notify WireCo WorldGroup of changes to special product and/or their processes
- requirements for test specimens for design approval,
- records retention requirements,
- right of access by WireCo WorldGroup, our customer, and regulatory authorities to all facilities involved in the order and to all applicable records, and
- requirements for the supplier to flow down to sub-tier suppliers the applicable requirements in the purchasing documents, including key characteristics where required.

Verification of Purchased Product (API-Q1 5.6.3, AS9100D and ISO 9001:2015: 8.4.2.)

Inspection and verifying activities necessary for ensuring that purchased product and product-activity meeting specified requirements have been established and are detailed in the Level Two Procedure Verification of Purchased Product (control procedure listed in T2-10) according to the risk identified.

WireCo WorldGroup’s aerospace process shall verify as per this section of the quality manual, (T2-10) which may include the following:

- obtaining objective evidence of the quality of the product from suppliers (e.g. accompanying documents, certificate of conformity, test reports, statistical records, process control,
- inspection and audit at supplier’s premises,
- review of the required documentations,
- inspection of products upon receipt, and
- delegation of verification to the supplier, or supplier certification.

Where purchased product is released for production use pending completion of all required verification activities, WireCo WorldGroup will identify and record released product to allow recall and replacement if it is subsequently found that the product does not meet requirements.

WireCo WorldGroup will utilize test reports to verify purchased product. The data in those reports shall be acceptable per applicable specifications. When applicable, WireCo WorldGroup shall periodically validate test report of raw material.

When WireCo WorldGroup delegates verification to a supplier, WireCo WorldGroup shall define the requirements of delegation and establish and maintain a register of delegated suppliers.

Where WireCo WorldGroup or its customer intends to perform verification at the supplier’s premises, the intended verification arrangements and method of product release are contained within the purchasing information.
**Production and service provision (5.7, 8.5) Note:** For several of WireCo WorldGroup certified sites there are no servicing activities associated with the product that WireCo WorldGroup provides. If in the event a service provision process is required, it will be developed and documented, (refer to Table T1).

**Control of production and service provision (API-Q1 5.7.1.1, 5.7.1.3, 5.7.1.4, AS9100D and ISO 9001:2015: 8.5.1)**

Production (planning, design, manufacture, assembly, monitoring, test and delivery) are performed under controlled conditions listed in the following control procedures: Document & Record Control (T2-1), Quality Planning (T2-2), Customer Related Processes (T2-6), Design & Development (T2-8), Production & Service Provision (T2-11), Validation of Processes & Products (T2-12), Identification & Traceability (T2-13), Product Preservation (T2-15), Control of Monitoring & Measuring Equipment (T2-16), Control of Non-Conforming Product (T2-19). Controlled conditions include, as applicable.

Production orders will use routing steps within their manufacturing shop paper system. This documentation will identify and control processes throughout manufacturing. The shop paper as applicable shall include: current control, and design criteria, product characteristics, acceptance criteria, accountability, evidence of completion, special instructions or special utilities control, workmanship, or suitable equipment for production and inspection, materials to be used, the implementation of product release, delivery and as applicable post-delivery activities.

At a minimum, production capability is monitored through product quality and quantity output.

```
Our aerospace process will monitor and removal of foreign object.
AS-8.5.1.1 will be followed by our aerospace process listing (T2-11)
AS-8.5.1.2 will be followed by our aerospace process listing (T2-11)
AS-8.5.1.3 will be followed by our aerospace process listing (T2-11)
```

**Validation of processes for production and service provision (8.5.1, API-Q1 5.7.1.5)**

Processes or service where the resulting output cannot be verified by subsequent monitoring or measurement, or as a consequence are validated through activities prescribed at the design, or production planning phase. This may include, where applicable, any processes where deficiencies become apparent only after the product is in use.

Validation shall demonstrate the ability of these processes to achieve planned results.

The organization has established arrangements for these processes at appropriate stages including, as applicable:

- defined criteria for review and approval of the processes,
- approval of equipment, documentations and qualification of personnel,
- suitable resources for measuring-activities, infrastructure and environment,
- use of specific methods, operation parameters, acceptance criteria,
- records, and
- revalidation.

**Production**

- The manufacturing of finished products that WireCo WorldGroup produces has no special processes associated to them.
- When required, WireCo WorldGroup will document and validate special processes.

**Service**

- Currently the product that WireCo WorldGroup produces does not require a service provision process.
- When required, WireCo WorldGroup will document and validate service provision.
**Identification and traceability (API-Q1 5.7.3, 5.7.4, AS9100D and ISO 9001:2015: 8.5.2)**

The maintenance of product identification for inspection and/or test status and material traceability is made possible through the control procedures of Identification & Traceability (T2-13). The product lot number identification and its status are maintained with respect to monitoring and measurement requirements. Traceability controls shall demonstrate the ability to track lot numbers of finished product from a customer order confirmation, back through the manufacturing process, to the origin of raw material records. A control process maintains the unique lot identification configuration and traceability records and, if required, the process has the ability to control the replacement of identification/traceability marking/records. The tracking of the product status is managed through the company's management resource planning data system.

*Note: As appropriate, as material acceptance authority media are used (e.g., stamps, signature, electronic signatures, passwords), the production site will establish appropriate controls for the media.*

**Customer Property (API-Q1 5.7.4, 5.7.5, AS9100D and ISO 9001:2015: 8.5.3)**

Care is exercised with customer property (e.g., property or data) while it is under WireCo WorldGroup control. Documented control procedures, Customer Property (T2-14) detail this process. The items are identified, verified as being acceptable, proper preservation for safeguarding. If any customer-owned item is lost, damaged or otherwise found to be unsuitable for use, it is reported to the customer and records maintained.

**Preservation of product (API-Q1 5.7.6.1, 5.7.6.2, AS9100D and ISO 9001:2015: 8.5.4)**

Material conformity including marking or labeling is maintained during internal processing and delivery to the intended destination per Preservation of Product policies listed in (T2-15). This preservation as applicable to identified constituent material includes recording of lot identification, handling, packaging, storage, removal of foreign objects, shelf life control, control of hazardous material and protection. Preservation also applies to constituent materials in assigned locations to be assessed at specified intervals.

**Control of monitoring and measuring resources and equipment (API-Q1 5.8, AS9100D, ISO: 7.1.5, 7.1.5.1, 7.5.1.2)**

WireCo WorldGroup has identified key critical measuring criteria for product that the organization produces. This indicates what monitoring and measuring equipment is required to provide evidence of product conformity. Control of this equipment is per the control procedures Control of Monitoring & Measuring Equipment (T2-16).

Processes have been established to ensure that monitoring and measurement equipment are registered and identified by: type, unique identifier, their location and a method with acceptance criteria that can be carried out in a manner that is consistent with the monitoring and measurement requirements, and calibration under applicable environmental conditions.
Where necessary to ensure valid results, company’s measuring equipment, employee equipment (if allowed) and customer equipment are:

- calibrated or verified at specified intervals, or prior to use, against measurement standards traceable to international or national measurement standards; where no such standards exist, the basis used for calibration or verification is recorded,
- adjusted or re-adjusted as necessary,
- identified in order to determine calibration status by the user and the calibration system,
- safeguarded from adjustments that would invalidate the measurement result, and
- protected from damage and deterioration during handling, maintenance and storage.

In addition, WireCo WorldGroup will evaluate and record the validity of the previous measuring results when the equipment is found not to conform to requirements. Appropriate action on the equipment and any product affected is taken. Records of the results of calibration and verification are maintained. Currently the organization makes mechanical measurements, but when applicable the company will confirm computer software application prior to the usage monitoring and measuring specified requirements.

Measurement, analysis and improvement (API-Q16.1, 6.3b), AS9100D and ISO: 9.0, 9.1)

The monitoring, measurement, analysis, evaluation and improvement processes have been planned and implemented per Quality Planning (T2-2), Company Objectives (T2-3), Management Review (T2-4), Customer Satisfaction (T2-17), Verification of Purchased Product (T2-10), Validation of Processes & Product (T2-12), Internal Audits (T2-18), Corrective Action (T2-20) and/or Preventive Action (T2-20). They will indicate:

- what needs to be monitored and measured,
- when to perform monitoring and measuring, and
- analyzing the results from the monitoring and measurements.

This includes determination of applicable methods. Statistical techniques are used as part of Verification of Purchased Product (T2-10) and Validation of Processes and Products (T2-12).

Monitoring and measurement of processes (API-Q1 6.2.3, AS9100D and ISO 9001:2015: 9.1.1)

Suitable methods have been applied to monitor and, where applicable, measure the Quality Management System processes per Verification of Purchased Product (T2-10) and Validation of Processes & Product (T2-12). These methods demonstrate the ability of the processes to achieve planned results. When planned results are not achieved, actions are taken as appropriate to ensure conformity of the work performed, and ensure that the product was not affected, per Corrective Action (T2-20).


Customer satisfaction (API-Q1 6.2.1, AS9100D, ISO: 9.1.2)

As one of the measurements of the performance of the Quality Management System, information relating to customer perception is monitored to determine whether the customer requirements have and are being met. The methods for obtaining and using this information are detailed in procedures listed in Customer Satisfaction (T2-17).
**Analysis of data (ISO 9001:2015, AS9100D 9.1.3, API Q1 6.3)**

Appropriate data is collected and analyzed to demonstrate the suitability and effectiveness of the Quality Management System and to evaluate where continual improvement of the effectiveness of the Quality Management System can or is being made per the documentation listed in **Company Objective (T2-3)**, **Management Review (T2-4)**, **Customer Satisfaction (T2-17)**, **Internal Audits (T2-18)**, **Corrective Action and/or Preventive Action (T2-20)**. This includes data generated as a result of monitoring and measurement and from other relevant sources.

The analysis of data provides information relating to:

- effective planning,
- customer satisfaction,
- conformity to requirements,
- nonconformities and product failure identified after delivery or use,
- characteristics and trends of processes including opportunities for preventive action or risk analysis,
- quality objectives, and
- supplier's performance.

**Internal audit (API-Q1 6.2.2.1, 6.2.2.2, 6.2.2.3, AS9100D, ISO 9001:2015: 9.2)**

At a minimum, internal audits are scheduled once within a calendar year. The planning and conducting of a process audit, including outsource process is to monitor and determine whether the Quality Management System per **Internal Audits (T2-18)**:

- conforms to the planned arrangements, to the requirements of the applicable standards (e.g., API-Q1, AS9100D, ISO 9001:2015), and to the Quality Management System requirements established, and
- are effectively implemented and maintained.

An audit program is established showing a schedule plan that is in line with the identified processes and sequence of performing the processes **Quality Planning (T2-2)**. This takes into consideration the status and importance of the processes and areas to be audited, as well as the results of previous audits. The audit criteria, scope, frequency and methods are defined in **Internal Audits (T2-18)**. All auditors have been trained and are selected to perform audits based upon their independence from the activity being audited.

The responsibilities and requirements for planning and conducting audits, and for reporting results and maintaining records are also defined in **Internal Audits (T2-18)**.

The management is responsible for the area being audited, and is to take timely corrective action to detect, then eliminate nonconformities and their causes. Follow-up activities include the verification of the actions taken and the reporting of verification results. A summary report is made as part of **Management Review (T2-4)**.

**Product Confirmative (API-Q1 5.7.4, 5.7.7.1-5.7.7.3, 5.9, AS9100D, ISO: 8.6)**

Planning, design, manufacture, fabrication, inspecting and/or testing of characteristics are implemented, monitored, measured and recorded to verify that specified requirements/standards are being met. These are carried out at appropriate stages during product realization. Trends are reported as part of **Management Review (T2-4)** to initiate any necessary **Corrective/Preventive Action (T2-20)**.

All measurement and testing is performed per **Verification of Purchased Product (T2-9)** and/or **Validation of Processes & Product (T2-12)** from information planned and designed per **Quality Planning (T2-2)** and/or **Design & Development (T2-8)**. Final acceptance is performed by a Quality representative.

Evidence of conformity with the acceptance criteria is maintained. Records indicate the person(s) authorizing release of product. When required WireCo WorldGroup will present records at the time of delivery.

Customer acceptance and/or project completion does not proceed until all the planned arrangements have been satisfactorily completed (unless otherwise approved by a relevant authority, and where applicable by the customer).
Control of Non-Conforming Product (API-Q1 5.7.4, 5.10.1-5.10.5, AS9100D, ISO: 8.7, 10.2)

Material or product that does not conform to specified product requirements are identified and controlled to prevent unintended use or shipping to a customer. The controls and related responsibilities and authorities for dealing with nonconformities and any consequences are defined in Control of Non-Conforming Product (T2-19). When nonconformities are detected after delivery, appropriate actions are taken to determine and correct the effects, or potential effects, of the nonconformity, again per Control of Non-Conforming Product (T2-19).

Actions are taken by one or more of the following ways:

- by taking action to eliminate the detected nonconformity
- by authorizing its use, release or acceptance under concession by a relevant authority and, where applicable, by the customer,
- by taking action to preclude its original intended use, delivery or application,
- by taking action appropriate to the effects, or potential effects.

Records of the nature of nonconformities and any subsequent actions taken, including concessions obtained, are maintained.

The evaluation and releasing of nonconforming material will include one or more of the following:

- rework and re-verification to demonstrate conformity to the requirements,
- re-grade to alternative application (downgrade)
- reject, scrap or remake,
- release under concession, as long as the product satisfies customer needs and design acceptance criteria (DAC) or a change in the DAC makes the product compliant.

Field nonconformances are analyzed and documented per Control of Non-Conforming Product (T2-19) as stated above. Documentation of field nonconforming material is reported to the manufacturing site to facilitate the root cause. Customer notification will be processed immediately, in the event nonconforming material not meeting DAC has been delivered. WireCo WorldGroup will maintain records of such notification.

WireCo WorldGroup aerospace facilities also recognize that nonconforming product includes customer return of nonconforming product.

The authority for making disposition of nonconforming product is the responsibility of the management team of the production site, along with the management representatives associated with the nature of the nonconforming product, materials manager and Quality.

Disposition of use-as-is or repair will show the authorization from the original equipment manufacturer (OEM) customer approving the disposition.

Product disposition as scrap will be identified and positively controlled.

When a contract or regulatory specification requires, WireCo WorldGroup will provide for timely reporting of delivered nonconforming product that may affect reliability or safety. The report will clearly describe the nonconformity, parts affected, customer part number quantity and date of delivery.
Improvement (API Q1 6.4, ISO 9001:2015 and AS9100D 10.0)

Continual improvement (10.3, Q1-6.4.1, 5.11.2d)

WireCo WorldGroup is committed to continually improve the effectiveness of the Quality Management System through the use of documented quality policies (T2-20), quality objectives, audit results, analysis of data, corrective and preventive actions and management review.

Corrective Action (10.2, Q1-6.4.2)

Actions are taken to correct nonconformities, and to eliminate their causes both internally and within supply chain, in order to prevent their recurrence. This is made possible through a global documented process listed in Corrective Action (T2-20). The corrective action(s) taken is (are) appropriate to the effects of the nonconformities encountered.

The procedure defines the requirements for:

- reviewing nonconformities (including customer complaints),
- determining the causes of nonconformities,
- evaluating the identified root causes to determine and implement action needed to correct the problem and to prevent reoccurrence,
- recording the results of action taken for effectiveness at the time specified by the designated personnel, and
- referencing to new or changed controls within the quality management system.

Aerospace facilities also recognize that corrective action can flow down to our suppliers, when it is determined that the supplier is responsible for the root cause, and specific action where timely and/or effective corrective action are not achieved. Determine if additional nonconforming product exists based on the causes of the nonconformance.

Preventive Action (Q1-6.4.3)

The means for determining the actions needed to eliminate the causes of potential nonconformities in order to prevent their occurrence can be found within the company’s Preventive Action Procedures (T2-20). Preventive action, when taken, is appropriate to the effects of the potential problems.

The Procedure defines the requirements for:

- determining potential nonconformities and their causes, or opportunities for improvement,
- evaluating the need for action, including immediate or short-term action to prevent occurrence of a nonconformity,
- recording the results of action taken for effectiveness at the time specified by the designated personnel, and
- referencing to new or changed controls within the quality management system.
API Monogramming Requirements

The quality representative for the license site is responsible for the overseeing of the method for applying the API monogram, and removing the API monogram if the finished product is subsequently found to be in nonconformance with API-9A specifications.

Licensed facilities will refer to their local documented procedure referenced in T2-22, which specifies the marking process for the application of the API monogram, including the license number and date of manufacture.
ENGINEERING WIRE ROPE FOR YOUR APPLICATION IS A HIGHLY SPECIALIZED FIELD – WITH EXACTING STANDARDS – THAT WE GLADLY LIVE BY. ACROSS THE ENTIRE WIRECO WORLDGROUP ORGANIZATION, WE DRAW FROM OUR GLOBAL POOL OF TALENTED ENGINEERS TO DRIVE RESULTS FOR YOUR APPLICATION.

WIRECO’S STRENGTH LIES IN OUR GLOBAL PRESENCE. WITH MANUFACTURING AND DISTRIBUTION CENTERS AROUND THE WORLD, WE OFFER CUSTOMERS THE GLOBAL AVAILABILITY OF PRODUCTS, TECHNICAL EXPERTISE AND SUPPORT THEY NEED.

OUR MANUFACTURING STANDARDS TYPICALLY EXCEED THE MINIMUM DESIGN STANDARDS FOR A WIRE ROPE. WE TAKE AN ACTIVE ROLE IN INDUSTRY ASSOCIATIONS THAT DEVELOP WIRE ROPE SPECIFICATIONS AND STANDARDS, SUCH AS ASTM A1023.

WE APPLY THOROUGH DESIGN AND MANUFACTURING CONTROLS – INCLUDING COMPLETE MATERIAL TRACEABILITY. AND WE ARE THE ONLY MANUFACTURER IN THE WORLD THAT IS OPL QUALIFIED, API SPEC 9A CERTIFIED, AND REGISTERED TO BOTH ISO 9001 AND AS-9100 QUALITY SYSTEMS.

SO, LOOK TO THE BEST: WIRECO WORLDGROUP. WE’RE DEDICATED TO MATCHING AND ADVANCING WIRE ROPE TO YOUR DYNAMIC APPLICATIONS THROUGHOUT THE WORLD.

WITH A GLOBAL MANUFACTURING AND DISTRIBUTION BASE, ALONG WITH OUR UNMATCHED TECHNICAL EXPERTISE, THE WORLD IS OUR WORKSITE.

816.270.4700
info@wirecoworldgroup.com
2400 West 75th Street
Prairie Village, KS 66208
fax: 816.270.4707
www.WireCoWorldGroup.com