

**SEALTRON**  
**SUPPLIER QUALITY MANUAL**

SSQM-1

Rev. **E**

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To Our Suppliers:

For Sealtron, Inc. to be a preferred supplier to our customers, we must have a process in place that encourages, supports, and ensures our suppliers meet quality performance expectations. Sealtron's policy and goal is to continually improve quality levels. The Sealtron Supplier Quality Manual supplements Sealtron Purchase Order requirements and is intended to inform suppliers of requirements that we must flow down from our customers as well as to establish accountability for the product requirements and expectations.

Approved by:

Quality Assurance Manager  
Sealtron, Inc.

Plant Manager  
Sealtron, Inc.

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**Common Acronyms as-used within this manual**

QMS	Quality Management System
AS	Aerospace Standard
PO	Purchase Order
ASL	Approved Subcontractor List
DFAR	Defense Federal Acquisition Regulations
C of C	Certificate of Compliance
FOD	Foreign Object Debris / Damage
SCAR	Subcontractor Corrective Action Request/Report
FAIR	First Article Inspection Report
DPPM	Defective Parts Per Million
PFMEA	Process Failure Modes & Effect Analysis

**About this manual**

This manual is a supplement to Sealtron Purchase Order requirements. It is to be viewed as Sealtron contractual terms document and shall prevail over any local plant procedures and (or) documents, unless specifically noted in a Sealtron, Inc. Purchase Order.

For suppliers' purposes, this document is a controlled document and the official copy and revision level exists at Sealtron, Inc. This document is available in ".pdf" file form only. All printed/downloaded copies shall be considered uncontrolled. The latest released revision level can be found at:

<http://www.ametek-ecp.com/resources/quality-certificates>

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**Section A – General Quality Standards for Purchased Material**

**Purpose**

The purpose of this section is to define the additional supplier quality requirements for Sealtron. This manual is a supplement to Sealtron Purchase Orders and is a tier 1 document. This manual shall prevail over any local plant procedures and (or) documents.

**Scope**

This manual applies contractual terms to suppliers who directly provide Sealtron material (raw materials, production services, component parts and assemblies/systems) to Sealtron. These requirements are in addition to those specified in the purchase order, engineering drawings, and related specifications.

Ametek facilities supplying material to Sealtron are exempt from this manual and controlled via internal Quality Assurance Procedures (unless otherwise specified by Sealtron's customer).

**Responsibility**

The contractual obligations of Sealtron and the competitive and technical nature of the industry require that our suppliers' quality control systems will assure that materials and services meet the standards required. Each supplier must be aware of and enforce all drawing, specification and purchase order requirements.

**Terms**

**1. Quality Systems**

Requirements shall be in effect for those suppliers who directly supply material to Sealtron, service, and special process suppliers, regardless of tier.

- Special Process Suppliers - Special Process suppliers shall have a quality system that conforms to AS/EN9100 or accredited to AC7004 (by PRI-Nadcap), or be included on Sealtron customer Approved Supplier List (ASL).
- Calibration Suppliers - Calibration suppliers shall have a quality system that conforms to A2LA, ISO 17025 (Guide 25) or other country certifying body.
- Raw Material Suppliers - Raw material suppliers shall have a quality system that conforms to relevant industry quality standards; e.g.: ISO9001, AS9100, Nadcap, etc.; or by Sealtron evaluation.

Conformity to the above quality standards must be evidenced by either: third-party certification; or a Sealtron-approved assessment / survey and/or ongoing evaluation.

A supplier not meeting the above quality system requirement may be assessed at any time for reasons not limited to performance.

**2. Right of Access**

The supplier shall provide Sealtron, a Sealtron customer, or a specified third party (customer/regulatory agency), right of access to the facility and all records related to product ordered by Sealtron or one of its suppliers. Sealtron reserves the right for Sealtron, a Sealtron customer, or a specified third party (customer/regulatory agency), to perform an audit or inspection at the supplier's facility. Such verification shall not be used as evidence of effective control of quality. This verification does not absolve the supplier of the responsibility to provide acceptable product, and does not preclude any subsequent rejection by

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Sealtron or its customer. Acceptance of a Purchase order from Sealtron, Inc. constitutes agreement with the Right of Access section herein.

**3. Sub-Tier Selection/Control & Contract Requirement Flow-down to Sub-Tier Suppliers**

Sealtron reserves the right to specify or approve sub-tier suppliers contracted by its suppliers for work performed on Sealtron material. This includes but is not limited to special process, materials testing services, distributors, and other subcontractors. Suppliers shall flow down to its sub-tier contractors, all relevant quality requirements imposed by this manual and other contractual document, including government-regulatory and Defense requirements.

**4. Special Process Suppliers**

Regardless of tier, all suppliers shall use only Sealtron-approved special process suppliers, unless otherwise specified by contract.

Any supplier may request that a sub-contractor be added to the Sealtron ASL through the appropriate Sealtron supply chain contact, however, such sources may not be used prior to receipt of documented Sealtron Quality approval. Actual costs of approval for a new sub-contractor may be the responsibility of the requestor. For the processes listed below, all special process suppliers must be Nadcap accredited and approved by Sealtron, unless specifically exempted by contract terms exhibiting a Sealtron approval.

<i>Process</i>
Non-Destructive Testing
Heat Treating
Welding
Chemical Processing
Coatings
Material Testing Labs

**5. First Article Production Approval**

First Article approval from Sealtron is required. First Articles shall be performed by the supplier in accordance with AS/EN9102. Sample three (3) units randomly selected from a significant production run and must be produced utilizing production tooling, processing and cycle times. This approval includes dimensional and performance requirements and, in some cases, may also include specific visual and functional approvals. First Article Inspection reports shall be submitted. (Include: AS9102 Forms 1, 2, & 3; ballooned Sealtron drawing to same revision as shown on PO; Material Certs., C of C, Special Process Certs.. ALL items on the print should be ballooned. First Article Report packages should be directed to the Sealtron Buyer. The Buyer will direct the package to Sealtron Quality for processing.

The purpose of first article inspection is to provide documented objective evidence that applicable materials or parts comply with the engineering and design specification requirements. First articles may apply to component parts, assemblies, stampings and completed products as contractually specified by the purchase order or contract. First articles are required whenever specified by the purchase order or the order meets one or more of the following criteria:

- PO Line item 0001 is present for the First Article Inspection to be done on listed quantity of parts.
- Initial production run of the part by a new supplier
- If a part has not been manufactured for more then two (2) years.

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- The engineering drawing revision on the purchase order has changed since the last first article performed by the Supplier (delta first articles may be applicable as determined by the Sealtron Quality Assurance Manager or his/her designee).
- As required by the Sealtron Quality Assurance Manager or his/her designee; or as specifically noted on the purchase order (Sealtron customers can flow down unique requirements concerning first articles, i.e., Honeywell, Parker, etc.).
- When PO First Article, FA, calls out for the Supplier to submit the inspection report and plan for approval by Sealtron prior to the first production run; they shall submit the documents for review and approval by Sealtron Quality. All subsequent part shipments shall have their respective completed inspection report accompany the shipments.

**6. Purchased Part Control**

Suppliers must certify, as part of sample submission, compliance with current constraints on restricted substances as specified by PO or contract, especially toxic and hazardous substances.

**7. Process Control for Key Characteristics**

Suppliers shall implement process controls approved by Sealtron Quality. Suppliers should use the recommended risk-management process tools (i.e., PFMEA, Control Plans, Process flow diagrams, etc.). SPC data, including quarterly Cp and Cpk summaries for key characteristics identified in the control plan, may be required with each shipment at the discretion of Sealtron. This will be specified on the applicable purchase order.

**8. Material Identification**

The supplier is required to establish a documented system for the control and traceability of all materials. The inspection and test status of all materials should be easily identifiable by the system, and documentation should include a description of any applicable containment areas and/or devices. Parts or products removed from the normal process flow must be positively segregated and clearly marked. In those cases where the Supplier elects to use more than one lot of raw material, the Supplier shall ensure, document and furnish positive traceability of each individual product to the raw material certification/test report that represents the raw material from which each of the products was manufactured.

**9. Sampling**

If sample inspection is utilized, sampling plans shall utilize a Zero Acceptance Number (C=0) Sampling Plan that also meets the requirements of ANSI ASQ Z.14 or 1.9 (attributes or variables respectively); 1% AQL, Normal Table. Sample inspection that reveals a defective characteristic will require 100% screening for that characteristic. The supplier may use reduced-frequency (sampling) inspection plans only when historical records indicate that a reduction in inspection can be achieved without jeopardizing the level of quality.

The supplier shall maintain quality records in sufficient detail to establish evidence that any sampling was representative, the required tests and verifications were properly performed, and that only material meeting specified requirements have been accepted for production and delivery to Sealtron. These records shall be available for review by Sealtron as required. Copies of individual records (inspection data) shall be furnished to Sealtron upon request.

**10. Outgoing Product Controls**

The supplier's quality plan must have sufficient controls to ensure that the product to be shipped conforms to Sealtron's physical, dimensional and visual requirements. These controls may include final

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inspection and dock audit (material, parts, and packaging) outlined in written procedures and detailed in individual instruction sheets.

**11. Source Inspection**

When invoked via contract/PO, the supplier shall support Source Inspection activities by Sealtron, Customer, or Government representatives. The supplier will contact the appropriate party for source inspection upon completion of the product in such cases.

Product shall not be shipped until source inspection has been completed including appropriate documentation. The supplier shall contact their buyer for support. This will be specified on the applicable purchase order.

**12. Drawing and Change Control**

The supplier's quality system must ensure that the latest engineering drawings and specifications are available at the manufacturing, test or inspection location. This includes applicable previous revisions if Sealtron contract/PO language requires other than the most recent revision(s).

- The written procedure(s) should indicate the method utilized for receipt, review or distribution of all changes and the method of recalling and disposing of an obsolete item.
- A review process must be established in that system to confirm that applicable drawings and specifications are at the latest revision level with the issuing source.

**13. Records**

The supplier must retain adequate quality system records, not limited to all advanced quality planning documents, process guidelines, laboratory test instructions, gauge/test equipment verification and calibration and performance test methods.

- In addition, the supplier must retain quality performance records, not limited to control charts, FAI, inspection and test results.
- At a minimum, the supplier must retain the records for the periods indicated herein and make them available for review as required:
  - Quality system records (control charts, inspection and test records, audit records) - 10 calendar years

Sealtron may require that the above records must be retained for longer than 10 years (The supplier will be notified via PO/contract when this is a requirement). The supplier agrees to transmit to Sealtron, those records kept in support of Sealtron work, in event that the supplier discontinues business operations.

**14. Changes to Process, Product, and/or Supply Chain**

Suppliers are required to obtain documentation of Sealtron approval prior to implementing any change. This requirement includes direct material suppliers, including distributors.

Applicable 'changes' include but are not limited to:

- Approved production processes
- Materials
- NDT and special processing

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- Change of sub-tier suppliers for raw materials, purchased components or services
- Change to test/inspection sequencing or methods
- For bulk material suppliers: Alternative source of raw material from new or existing suppliers
- For distributors: Alternative sources of component parts other than those previously qualified

The continuous improvement philosophy encourages process improvements. However, prior to any modification to a process being implemented, the supplier must complete all verifications and tests necessary (including preliminary capability studies) to ensure that a new process continues to yield components that meet specifications. First article requirements per AS/EN9102 always apply.

### **15. Internal & Sub-Tier Audits**

A supplier must conduct regular audits to ensure continued compliance with internal procedures and customer requirements; these audit activities should include internal and sub-tier suppliers.

To ensure internal audits are conducted appropriately and consistently, a supplier must have a procedure with established guidelines for conducting an audit. As a minimum, the audit procedure will establish:

- Responsibility
- Frequency
- Scope
- Distribution/review
- Corrective action

### **16. Foreign Object Debris/Damage (FOD) Prevention program**

Product suppliers must have a FOD program for the purpose of prevention, detection, and removal of foreign objects. The program should meet the following requirements as applicable:

- FOD prevention must be implemented in all areas as applicable and FOD training awareness must be given.
- Parts must be protected from handling damage in all areas; material handling awareness training must be provided to all employees and handling standards documented.
- Examples of FOD with regard to Sealtron purchased parts might be: dirt, debris, contamination of any sort, burrs, packaging particles, manufacturing dust/debris, etc.. Product delivered to Sealtron with FOD / contamination present, is subject to rejection / refusal.

### **17. Preservation – Packaging - Shipping**

Suppliers shall assure that materials are packaged in a manner that will prevent damage, deterioration, corrosion, and preclude moisture, foreign matter, or contamination damage, and as specified by drawing prior to shipping to Sealtron. Suppliers will be responsible for materials that incur shipping damage.

### **18. Nonconforming Material**

Suppliers shall begin containment action upon discovery/notification of a product nonconformance. For all non-conformances identified by Sealtron through a SCAR (Form F-QC6-1), and unless otherwise specified, the supplier shall submit a formal corrective action response with containment actions (within 24 hours) and corrective actions and mistake proofing (within 30 calendar days) from receipt of a corrective action request using Sealtron's 8D format (Form F-QA063) or similar format. If the product may have escaped their facility and have been shipped to Sealtron, the supplier will notify the buyer. See SCAR Form F-QC6-1 for more detail regarding expectations following detection of a non-conformance.

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- For product that has been found or suspected discrepant prior to shipment to Sealtron, all requests for approval for repair or to be “used as is” must be submitted to Sealtron for approval, following a material deviation request process. Material must be held at the supplier’s address pending receipt of documented Sealtron approval, prior to further processing and/or shipment of nonconforming material. Suppliers should use Form F-QA017 (Appendix D) or a comparable form.
- Mistaking proofing the process(es) that caused the non-conformance material shall be reviewed and implemented wherever applicable. All mistake proofing shall be documented in the SCAR report.
- Mistake proofing is of three Levels: 1 = Prevents error from every occurring / 2 = Warns that there was an error made / 3 = Prevents the error from leaving work station.

Failure to respond to a corrective action request may result in penalties up to and including suspension and/or removal from the Sealtron ASL.

**19. Counterfeit Parts Control ( Ref: AS5553)**

Suppliers are responsible for preparing and controlling to prevent all potential counterfeit parts/components that have been/ suspect of having their characteristic, specifications modified or misrepresented. “Suspect Counterfeit Parts / Materials” means any Parts / Materials that are suspected by testing, visual inspection or other information to be Counterfeit. If it appears different / not right, question it.

- Sealtron is to be contacted when any counterfeit parts have been determined by the Supplier and all necessary part information to be provided asap with containments both in house and at Sealtron’ s facility at Suppliers expense.
- Corrective actions (SCAR) to be provided to ensure that preventive measures are in place to eliminate counterfeit parts from entering Sealtron.

Sealtron expects that suppliers will buy from known sources that have proven trustworthiness regarding the integrity of their products. Remember, a change in source (see sect. 14) must be approved by Sealtron as well before doing so. Further Sealtron expects that suppliers will train employees regarding the risk of counterfeit product and materials. Here is a link to a presentation that includes some valuable resources / references:

<https://www.lockheedmartin.com/content/dam/lockheed/data/corporate/documents/suppliers/2016-11-08-Counterfeit-Avoidance-slides.pdf>

**20. Certification of Conformance (C of C)**

A signed Certificate of Conformance, acknowledging compliance with Purchase Order requirements, as well as conformance to drawing specifications is required with each shipment.

Suppliers are responsible for all PO terms and conformity characteristics per the PO/contract accepted, i.e., for tier 1 (direct) suppliers delivering a product which includes sub-contracted or special processes, all such processes must be indicated on the direct supplier’s certificate of conformance.

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**General Certificates / Raw Material Certificates**

A general certification of conformance, signed by the Quality Management Representative or designated company officer, shall be used for all parts and materials, unless otherwise indicated herein. If the supplier also supplies the raw metallic material, a copy of the original mill certificate shall be provided. Raw material certificates shall include both chemical and mechanical properties results. **Metallic raw materials shall comply with Sealtron’s material specification S-1160 unless noted otherwise on the purchase order. If you were not provided with a copy of S-1160 at issuance of the P.O., you need to request one to ensure compliance to same.**

**The C of C shall include:**

- a) Supplier Name
- b) Part number
- c) Drawing/specification revision
- d) Sealtron Purchase Order (contract) number
- e) Line/release number (when applicable)
- f) Quantity delivered
- g) Packing list/shipper number (when applicable)

When additional certifications / test reports are required for special processing, raw material, etc.; the requirements will be specified on the contract.

**21. DFAR Preference for Domestic Specialty Metals**

Where required by contract or PO, DFAR requirements shall apply. Specialty metals supplied to Sealtron and specialty metals used in the production of Sealtron components must be supplied from a qualifying country per US Government 252-225-7014 Preference for Domestic Specialty Metals as described in 252-225-7002-3(B)(1) and 225.1101(3). [Links to these documents provided at bottom of this section.](#)

“Specialty Metals” means:

Steel – With a maximum alloy content exceeding one or more of the following limits: manganese, 1.65 percent; silicon, 0.60 percent; or copper 0.60 percent; or, Containing more than 0.25 percent of any of the following elements: aluminum, chromium, cobalt, columbium, molybdenum, nickel, titanium, tungsten, or vanadium; Metal alloys - consisting of nickel, iron-nickel, and cobalt base alloys containing a total of other alloying metals (except iron) in excess of 10 percent; Titanium and titanium alloys; or, Zirconium and zirconium base alloys.

Any specialty metals incorporated in articles delivered to Sealtron when this Manual is referenced by contract or Purchase Order shall be melted in the United States, its possessions, Puerto Rico or a qualifying country. (Reference DFAR) This requirement shall be flowed down to all sub-tier raw material sources.

<https://www.gpo.gov/fdsys/pkg/CFR-2016-title48-vol3/pdf/CFR-2016-title48-vol3-sec252-225-7014.pdf>

<https://www.gpo.gov/fdsys/pkg/CFR-2016-title48-vol3/pdf/CFR-2016-title48-vol3-sec252-225-7002.pdf>

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## **22. REACH and ROHS Compliance**

Since Sealtron, Inc. does business with customers in the European Community, it is the intention of Sealtron to fully comply with the REACH and ROHS reporting requirements. At the time of this writing, Sealtron reports that its product contains none of the restricted substances that are on the "candidate list." Furthermore, after the review of the list of restricted hazardous substances under ROHS, the products manufactured by Sealtron are ROHS compliant. To comply with the REACH and ROHS requirements, Sealtron requires that all suppliers to Sealtron also comply with these customer specific requirements. Periodically, Sealtron will send a communication regarding this compliance to its suppliers. Suppliers are required to complete and return the declaration(s) as requested. For additional information regarding REACH and ROHS:

### **REACH**

[http://ec.europa.eu/enterprise/sectors/chemicals/reach/index\\_en.htm](http://ec.europa.eu/enterprise/sectors/chemicals/reach/index_en.htm)

### **ROHS**

<http://www.rohs.gov.uk/>

## **23. Ethical Conduct / Business**

Delivering what we promise, practicing respect for all people, and conducting ourselves in an ethical, lawful manner in all we do are cornerstones of Sealtron's culture and business strategy. By expressing these principles in our work with customers, suppliers, our employees, and in our daily lives, we offer more value to our stakeholders. Sealtron uses these core values and our operating system standards to successfully embody:

- High personal and product standards,
- A spirit of teamwork and accountability in all we do,
- Inclusion and engagement in our daily work,
- A focus on training and development; and,
- Open, two-way communication.

Sealtron expects that our suppliers implement policies that are equivalent to the Sealtron Code of Business Conduct and Ethics

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#### **24. General / Awareness**

Suppliers' personnel performing process control and inspection functions shall be identified and given sufficient, well-defined responsibility, authority and the organizational freedom to identify and evaluate quality problems; and to initiate, recommend, and provide solutions to Sealtron.

It is the suppliers' responsibility to ensure that persons understand and are aware of their contribution to product or service conformity, their contribution to product safety, as well as the importance of ethical behavior.

- Suppliers must train their associates regarding how they can affect the outcome of the process or processes they are responsible for, and how non-conforming product escaping from the supplier's facility could impact customers and end user in the chain.
- Suppliers must train their associates regarding how they can affect product safety should they manufacture non-conforming product and the potential effect that could have on people at Sealtron and further downstream including the end users of the product that is manufactured.
- Suppliers must train their associates regarding their behavior, that it must be ethical and honorable at all times to ensure the integrity of the product that is shipped to Sealtron and its' customers.

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**Section B – Supplier Qualification & Approval**

**Introduction**

The goal of the supplier qualification process is to implement a systematic screening process to ensure that all Sealtron suppliers are capable of meeting the corporation's quality, delivery, cost and continuous improvement objectives. Assessment results from one HCC Industries / Ametek supplier quality management program may be sufficient endorsement for Sealtron to use that supplier without re-qualification. This is Sealtron's option and any such assessment may require additional surveillance for specific business needs.

**1. Sealtron Approved Subcontractor List (ASL) Requirements:**

Suppliers must maintain an approved quality management system and acceptable performance levels in order to retain active status.

- The supplier's quality system shall be assessed for initial approval using at minimum Sealtron's Subcontractor Survey. This may not have been used for long standing relationships.
- The supplier's operations may be assessed for environmental, health, and safety (EHS) per Sealtron's discretion.
- Technical assessments may be conducted for initial approvals.
- A supplier evaluation will be conducted no more than every 24 months to ensure ongoing supplier adherence to Sealtron expectations. The evaluation will consider the following: 1) On Time Delivery, 2) Quality & Condition of Received Goods, 3) Pricing / Cost, 4) Accuracy of QTY, 5) Responsiveness, and 6) Risk to Sealtron and it's Customers.

Sealtron reserves the right to schedule additional assessments based on factors not limited to risk or performance. The cost associated with audits performed as a result of risk induced by supplier performance or compliance issues may be charged to the supplier at Sealtron's option.

**2. Supplier Assessments**

Suppliers are subject to assessment for multiple reasons not limited to initial evaluation.

Audits and surveys shall be conducted on an as-needed basis determined by Sealtron, based on supplier performance for the purpose of verifying products, processes, or Quality Systems. Surveillance activities completed do not in any way prevent additional audit/surveillance activities. Sealtron reserves the right to conduct on-site assessments for any reason not limited to performance or risk evaluation.

- When an on-site assessment is required, supplier shall provide reasonable facilities and assistance, including all quality records and related documents for the purpose of conducting such audits or surveys.
- Any on-site audit may be performed by Sealtron personnel or by a second party hired by Sealtron. At Sealtron's option, a second or third-party audit to the applicable quality management system standard may be accepted in place of a regular audit. When used, all nonconformity noted in said audit must be closed and verified prior to the Sealtron request, to be acceptable in lieu of an on-site audit.

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- Upon notification from Sealtron, any direct material supplier must submit a Quality Assurance Subcontractor Survey (Form QC60). This survey must be submitted to and approved by Sealtron prior to doing business with Sealtron. Supplier approval can be Conditional with FULL Approval to be granted based on monitored performance.

At Sealtron's option, calibration sources may submit A2LA, ISO 17025, or equivalent accreditation in place of a requested survey. Any third party providing certification to these standards must be accredited from a country-authorized entity such as ANAB (USA).

Initial assessment / evaluations: Sealtron will review all requests for supplier additions. During this review the Sealtron team will evaluate the supplier. Final approval and classification will be awarded by the Sealtron Quality and Materials function.

Periodic and risk-based assessment: Sealtron reserves the right to change approval status of a supplier at any time for reasons not limited to assessment results, performance, or risk to Sealtron's customers.

### 3. Granting Full or Conditional approval

Approvals may be made by capability (for example, machining, compounds, etc.), part number, facility location, or any combination thereof. Purchasing of any product or material requires an approval and inclusion on the Sealtron ASL.

Two types of approvals may be granted:

- **Approved**
- **Conditional**

Full approval status enables Sealtron to contract with a supplier at any time within the capabilities or commodity codes listed on the Sealtron ASL. Conditional approval status enables Sealtron to contract with a supplier that is pending a site survey and / or performance criterion. Supplier must submit a completed Subcontractor Survey (Form QC60). The Quality Manager with input from Material Control can elevate a supplier from Conditional to Approved based on performance. A supplier that is not approved or has been removed from the ASL will be designated as "**Disqualified.**"

At Sealtron's option, a Conditional approval may also be applied to a supplier that has been charged with deficiencies or noted as a Risk supplier during an on-site activity. In such a case:

- A corrective action plan may be requested by Sealtron within 30 days of receipt of the business assessment, audit summary, or other notification.
- All approved corrective actions must be closed and verified.

Conditional approval does not guarantee a supplier will be granted Full approval in any case.

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#### 4. Assessment Results

Upon receipt and review of any audit/survey report, the new or potential supplier must address all nonconformities. Failure by the supplier to provide a suitable response in the timeframe noted is sufficient cause for disapproval for further business.

### **Section C – Supplier Performance**

#### **Introduction**

The approval process is an ongoing, comprehensive supplier-monitoring feedback process that optimizes total cost and quality and minimizes process variation. It requires performance measurements and reporting and communicating with the supply base and features a method of recognizing high-performance suppliers.

After a supplier is granted Approval or Conditional Approval and are shipping product to Sealtron, the plant will monitor on-time delivery and product conformity. Issues which arise will be documented as appropriate. Corrective actions will be tracked by Sealtron Quality Assurance. Sealtron Material Control will oversee the plant's monthly supplier data. When a supplier's poor performance adversely affects Sealtron, the performance falls below acceptable levels and/or the supplier's performance places Sealtron at risk, Sealtron will assess the severity of the issue through plant generated data and provide additional supplier assistance through improvement activities.

#### **1. Performance Measurement**

Two methods of performance monitoring are used

Performance Requirements - For Suppliers shipping to Sealtron:

Minimum Performance Levels (12 Month Rolling Average)		
Quality	(for outside processing)	Delivery
500 DPPM or less	/ OR Lots Accepted %	93% On-Time or greater

- Suppliers exceeding 500 PPM or not attaining 95% OTD may, be subject to an on-site Quality System Assessment and be required to submit a Corrective Action Plan. If the supplier does not submit a corrective action plan, they may be subject to other actions including a risk-based assessment, pricing penalties or removal from the ASL.
- Once a Corrective Action Plan is accepted, the supplier must show improvement toward meeting the required measurable. A supplier that fails to show improvement may be removed from Sealtron's Approved Subcontractor List

In addition to these performance metrics, the supplier is also responsible to provide timely corrective action response and demonstrate commitment to continual improvement through improving performance trends.

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- **Calculating Performance Levels**

PPM levels for product quality will be calculated using the following formula:

$$PPM = \frac{\text{Number of defective parts} \times 1,000,000}{\text{Number of parts received}} \quad \text{OR} \quad \% \text{ Accepted (outside processing)}$$

Percentage on-time delivery will be calculated as follows:

$$\% \text{ OTD} = \frac{\text{PO line items on time} \times 100}{\text{Total number of line items expected}}$$

- **Counting Rules**

In order to ensure the uniform application of supplier quality standards, a set of consistent Measurable Counting Rules has been established for key quality indicators.

Counting rules have been defined for the following items. Additions or revisions to the counting rules may be made periodically or by specific contract terms.

Key Quality Indicator	Items To Be Counted
Quality disposition related to out-of-specification materials	<ul style="list-style-type: none"> <li>• In-process, Dock-to-Stock, or Delegate inspection rejections are counted on an accumulated basis.</li> <li>• Receiving Inspection.</li> <li>• A percentage will be reported based on the sample parts rejected at receiving inspection. If sorted by Sealtron or the supplier, only the defective parts will be counted.</li> </ul>
Delivery	<ul style="list-style-type: none"> <li>• Meeting window for on-time delivery. (Window is 5 early/ one late).</li> <li>• Meeting due date for on-time delivery classification (agreed Standard lead-time or agreed-upon due date if within the window).</li> <li>• Rejected quality lots (will be counted as a demerit against quality PPM only and will have no impact on delivery PPM or score).</li> </ul>

## **2. Supplier Report Cards**

While the key metrics above are expected levels of performance, it is expected that Sealtron suppliers ultimately strive for 100% quality and on-time delivery. Sealtron will provide Scorecard feedback to select ASL suppliers monthly based on criticality and / or risk. Sealtron will do a periodic re-evaluation and risk assessment of all ASL suppliers every 24 months per Sealtron Form F-QA077.

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### **3. Charge Back Policy**

Sealtron retains the right to charge back costs associated with products that are not compliant to the requirements, per policy defined in the Sealtron Supplier Quality Manual and applicable purchase order (contract). This is not limited to administrative fees, rework, sorting, inspection premium freight and production disruption caused by the nonconforming product.

Sealtron Quality and Material Control have the responsibility and authority to settle all disputes with suppliers regarding the quality of their material. In some risk-based circumstances, suppliers may be required to contract with specified third-party inspection companies if quality performance falls below levels specified in the PO or contract. This will only be used in cases when the material / parts are immediately required to service Sealtron customers. Normal protocol is to return the product to the supplier for sort or replacement.

### **4. Failing to Maintain Approved Supplier Performance Requirements**

Any supplier that does not maintain acceptable performance requirements may be requested to submit a corrective action plan. Suppliers may be removed from the ASL for reasons not limited to performance at any time.

### **5. Quality Performance Rewards**

#### **Skip-Lot Inspection**

Material from suppliers that consistently meets performance requirements may be placed on a "skip-lot" reduced inspection program, as outlined in Sealtron document SWI-QA021. Escapes from a supplier will be cause for return to a normal or increased inspection level.

#### **Dock-to-Stock (Delegated Source Inspection)**

For suppliers showing the highest quality performance levels Sealtron may, at their discretion, implement a Dock-to-Stock program. This type of program will be defined and controlled by Sealtron and will require supplier inspection / conformance documentation.

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## **Section D - Appendices**

### **Appendix A**

#### **Document Review**

Sealtron will review this manual in order to review customer & regulatory compliance opportunities, integrate suggested changes, and ensure overall continuous improvement in its content & application.

Submitting recommendations

**Questions** concerning this manual should be directed to your respective Sealtron Buyer.

#### **Recommendations should be submitted to:**

Steven Nichter  
Quality Assurance Manager  
Steven.nichter@ametek.com

OR

Gloria Hamilton  
Plant Manager  
Gloria.hamilton@ametek.com

#### **General and Supplemental Terms and Conditions:**

Link to HCC Industries General and Supplemental Terms and Conditions

[http://www.ametek-ecp.com/-/media/ametek-ecp/v2/files/terms-and-conditions/sales/terms\\_and\\_conditions\\_sales\\_may\\_2015\\_sealtron.pdf?la=en](http://www.ametek-ecp.com/-/media/ametek-ecp/v2/files/terms-and-conditions/sales/terms_and_conditions_sales_may_2015_sealtron.pdf?la=en)

The latest revision for this manual can be found at:

<http://www.ametek-ecp.com/resources/quality-certificates>

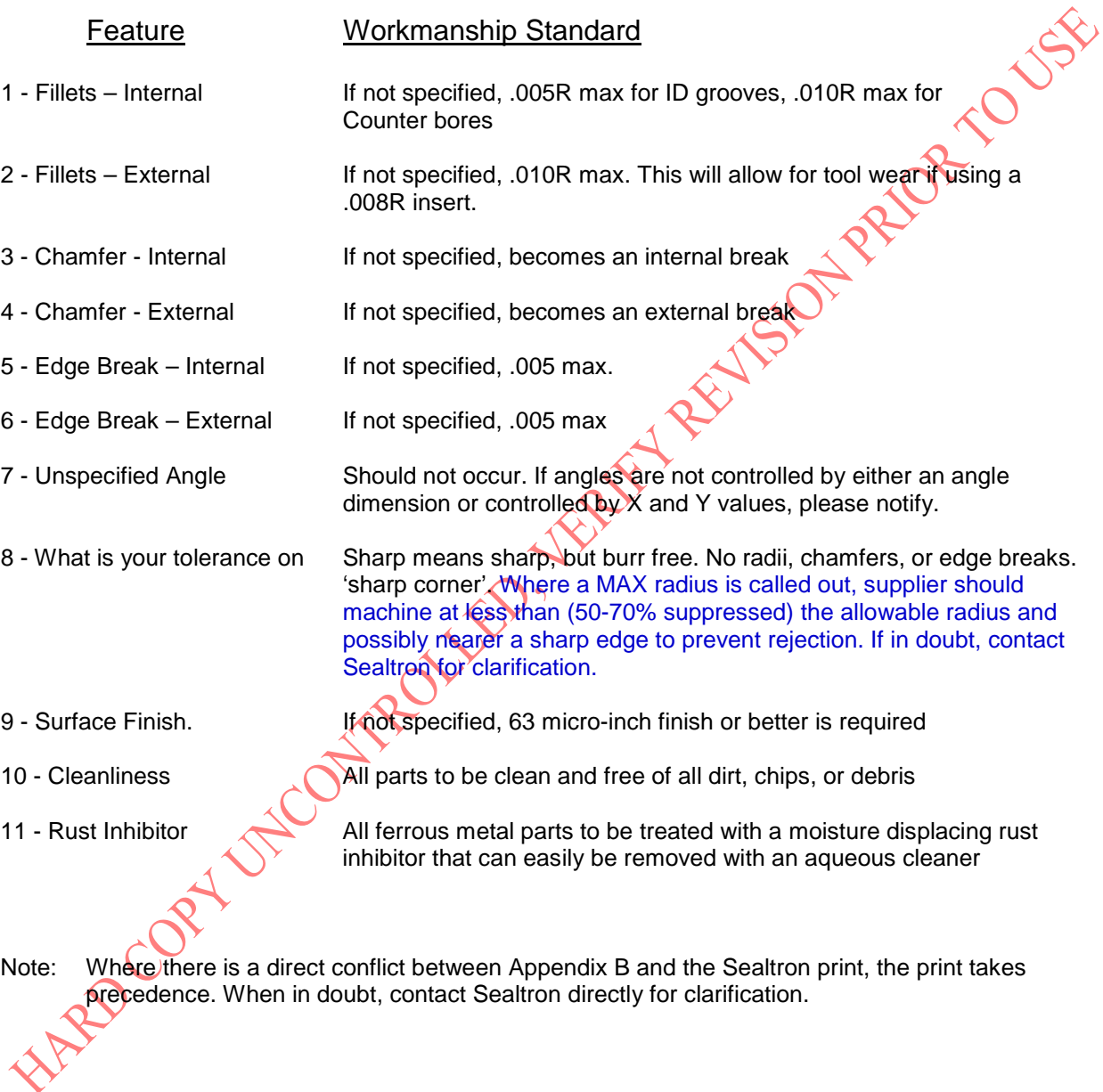
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**Appendix B: Workmanship Standards**

**Sealtron Workmanship Standards**

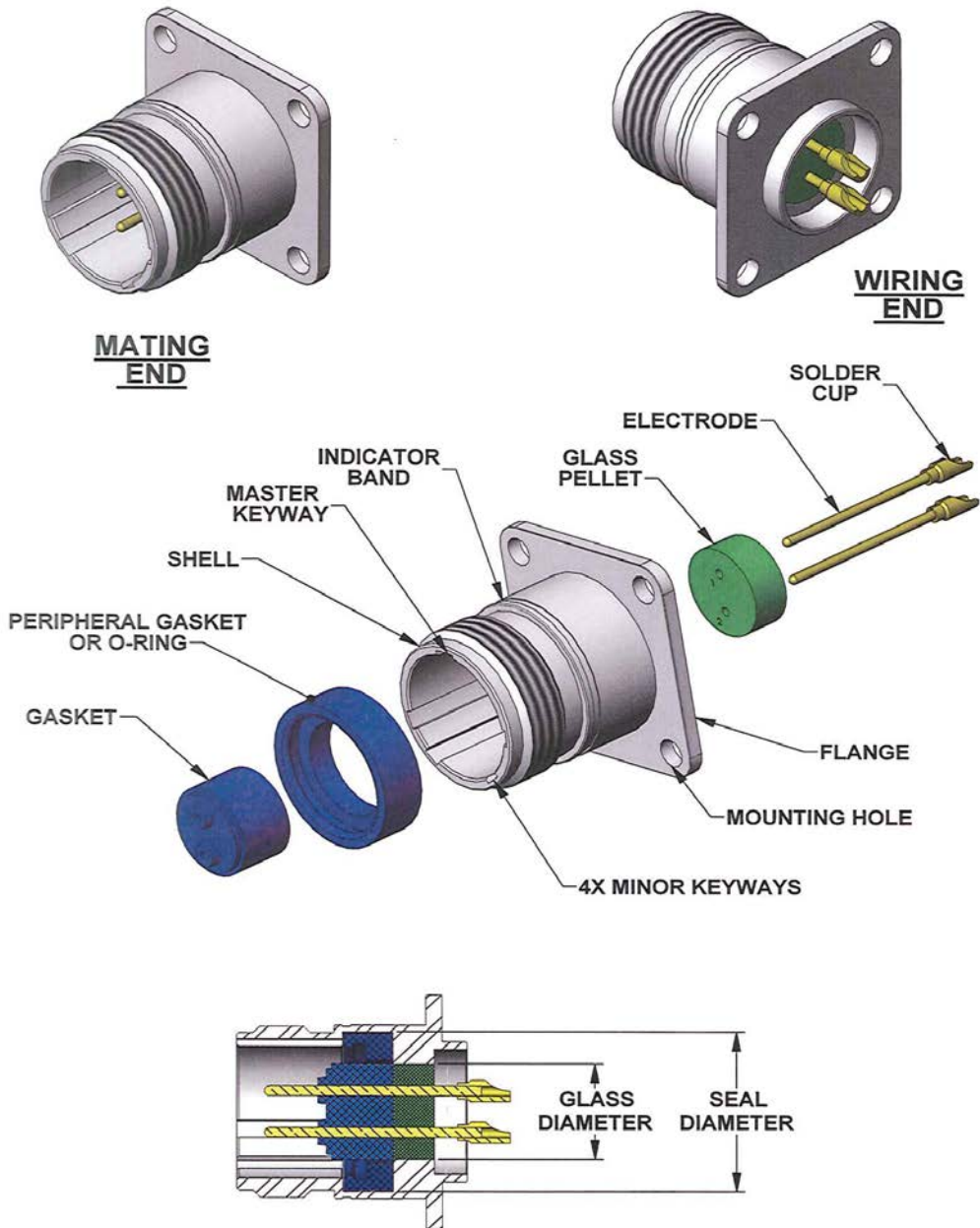
<u>Feature</u>	<u>Workmanship Standard</u>
1 - Fillets – Internal	If not specified, .005R max for ID grooves, .010R max for Counter bores
2 - Fillets – External	If not specified, .010R max. This will allow for tool wear if using a .008R insert.
3 - Chamfer - Internal	If not specified, becomes an internal break
4 - Chamfer - External	If not specified, becomes an external break
5 - Edge Break – Internal	If not specified, .005 max.
6 - Edge Break – External	If not specified, .005 max
7 - Unspecified Angle	Should not occur. If angles are not controlled by either an angle dimension or controlled by X and Y values, please notify.
8 - What is your tolerance on	Sharp means sharp, but burr free. No radii, chamfers, or edge breaks. 'sharp corner'. Where a MAX radius is called out, supplier should machine at less than (50-70% suppressed) the allowable radius and possibly nearer a sharp edge to prevent rejection. If in doubt, contact Sealtron for clarification.
9 - Surface Finish.	If not specified, 63 micro-inch finish or better is required
10 - Cleanliness	All parts to be clean and free of all dirt, chips, or debris
11 - Rust Inhibitor	All ferrous metal parts to be treated with a moisture displacing rust inhibitor that can easily be removed with an aqueous cleaner

Note: Where there is a direct conflict between Appendix B and the Sealtron print, the print takes precedence. When in doubt, contact Sealtron directly for clarification.



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Appendix C: Basic Connector Nomenclature



USE

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**Appendix E: Machined Shells Special Requirements**

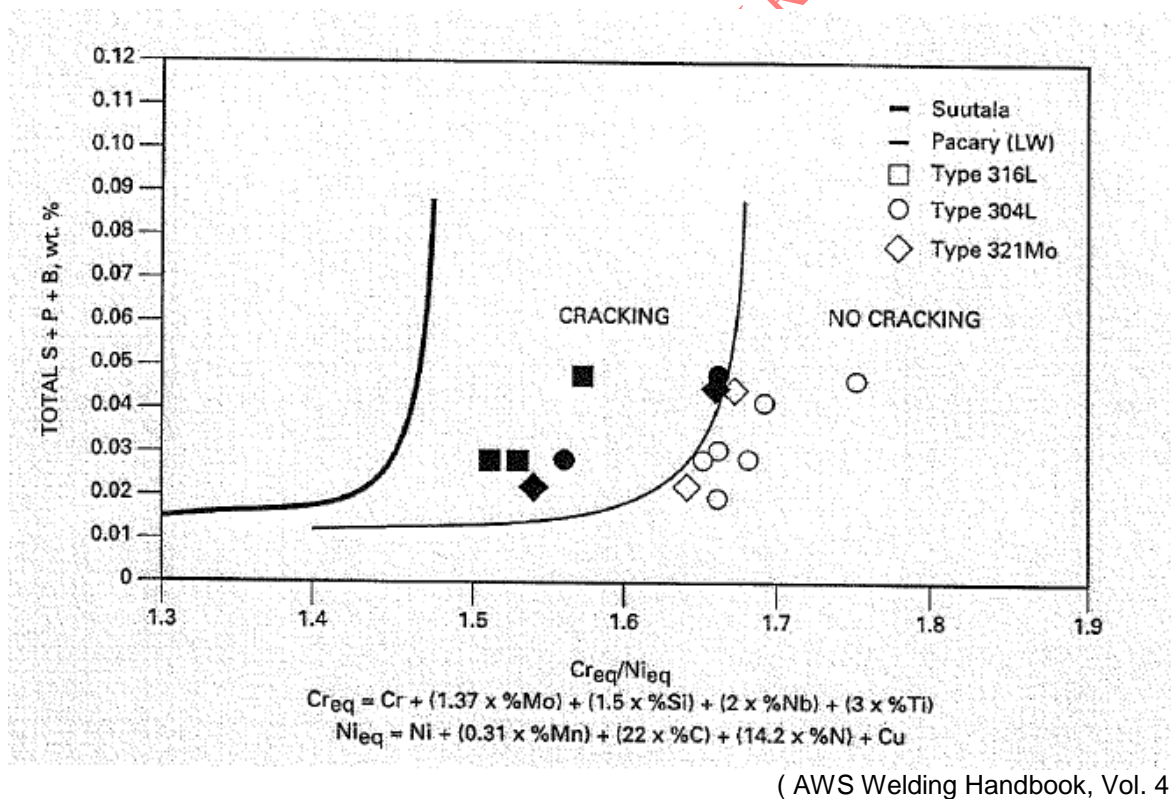
Coolants, Lubricants, and Corrosion Inhibitors:

Some formulas for machining process liquids and post machining inhibitors to prevent corrosion/rust may contain chlorine / chlorides. Chlorides are corrosive in nature and if present on Sealtron product can present a corrosion concern for our customers as well. Sealtron encourages all shell machining suppliers to understand the fluids used in their processes and refrain from using these type products.

Shell Material: Refer to Sealtron Specification S-1160 for raw material requirements. (request from Buyer)

Shell Material: (\* 304L and 316L Stainless Steel)

Machined connector shells that have a circular flange without mounting holes (such as those with a square flange w/drilled or pierced hole) are often to be welded by a pulsed laser type welding process at Sealtron’s customer location. When the pulsed laser welding process is used, and the material type is 304L, the Cr<sub>req</sub> / Ni<sub>req</sub> RATIO can become very important to control to prevent Sealtron customers from having subsequent cracking concerns during and after the laser weld process. Therefore, Sealtron specifies that 304L stainless steel used for these type connector shells must have a Cr<sub>req</sub> / Ni<sub>req</sub> RATIO that exceeds 1.68. For more information regarding this requirement, contact Sealtron, Inc. directly or reference the AWS Handbook as referenced below.



- Cracking range of SS with pulsed laser welding is extended to Cr/Ni ratio of 1.68
- Cracking due to solidification of primary austenite.

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## Revision History

### Rev D; 03/20/2017 SGN

1. Page 3: Revised second paragraph and added SSQM-1 URL link.
2. Page 4 thru 8: Revised per blue text entries.
3. Clarified first paragraph section 18, Page 9 (blue text entries).
4. Pages 10-11; Added blue text items for added information / clarity.
5. Pages 12-15; Added blue text items for added information / clarity.
6. Added SSQM-1 URL link and revised Terms and Conditions Link.
7. Added reference to Sealtron Material Spec. S-1160 on pages 10 & 20.

### Rev E; 10/31/2017 SGN

1. Page 9: Revised
2. Page 10: Added DFARs Links
3. Page 11: Added Sect. 23 re; Ethical Conduct / Business
4. Page 12: Added requirements in General section regarding supplier employee Awareness regarding conformity, product safety, and ethical behavior.
5. Page 15; Revised OTD Goal to 93%
6. Page 18: Revised Workmanship Standard #8. Added for clarification.

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