PrecisionPlus
SWISS TURNED COMPONENTS

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Precision Plus
Supplier Quality Manual

INTRODUCTION

Welcome to Precision Plus

Precision Plus is a manufacturer of precision machined products that serves industrial, defense, healthcare, micro-machining and aerospace markets.

Introduction to Manual

In today's manufacturing environment, product that is found to be non-conforming at receiving, or during production, causes serious disruptions of the production and shipping schedules, resulting in high production costs. Even the best Receiving Inspection program cannot detect all defective material. Precision Plus requires suppliers to control the quality of material shipped to Precision Plus, so that Precision Plus does not need to inspect the product when it is received.

This manual describes Precision Plus's expectations of its suppliers in order to ensure that purchased material meets Precision Plus's requirements. The Supplier Quality Manual and Appendix A - Supplier Quality Requirements (SQR) can be found on Precision Plus website https://www.preplus.com/supplier/. Suppliers are to ensure that they have the latest revision of both prior to accepting any PO from Precision Plus.

Scope

This information applies to all suppliers who have interest in doing business with Precision Plus who provide component manufacturing, raw material or any other processes or services that affect the quality of our product.

Precision Plus Quality Policy:

It is Precision Plus's policy to supply our customers with products and services of high quality, which meet or exceed their requirements. To achieve this, Precision Plus is committed to a process of continuous improvement of its products, services, employees, and quality management system.

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1.0 Quality Management System Requirements

1.1 Quality Management System

Each Precision Plus supplier is required to maintain an effective quality management system, preferably one that conforms to the latest ISO 9001 or AS9100 Quality Management System. In addition, the supplier must meet all other requirements of this manual. Other approved QMS to include but not limited to are NADCAP, A2LA, ISO17025.

1.2 Quality Manual and Procedures

The supplier, as requested, will furnish Precision Plus with a copy of the supplier's Quality Manual and supporting procedures. This includes detailed documents and work instructions specific to production of material for Precision Plus. This does not include any proprietary information.

1.3 Control of Sub-tier Suppliers

Suppliers are responsible for the quality of materials and components provided by their sub-tier suppliers and sub-contractors. Precision Plus suppliers must impose controls on their sub-tier suppliers that provide quality results and documentation comparable to the controls applied to suppliers by Precision Plus. The extent of the controls may vary, depending on the nature and complexity of the product and processes, but should normally include:

- Evaluation and qualification of sub-tier supplier facilities
- Control to ensure that raw materials used meet Precision Plus's requirements
- Controls to ensure that the sub-tier suppliers of components used are those approved by Precision Plus, where applicable.
- Ensure that sub-tier suppliers have an ESD control program that meets or exceeds the needs of Precision Plus if the parts or materials are ESD sensitive.
- Part qualification, including first article inspection and process capability studies of as applicable.
- Control of drawings/revisions
- Control of nonconforming material
- Corrective action program
- A continuous quality improvement program

Where appropriate, Precision Plus may specify the sub-tier suppliers that may be used, evaluate and qualify the sub-tier supplier's facilities, and assist the supplier in controlling the sub-tier supplier. Typically, this occurs when the sub-tier supplier is an essential component of the supply-chain process. *Precision Plus reserves the prerogative to evaluate the quality system and records of such sub-tier suppliers as necessary. In the event of Precision Plus's involvement, it does not absolve suppliers of the ultimate responsibility for the quality performance of their sub-tier suppliers.*

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2.0 Supplier Qualification Process

All suppliers of production materials to Precision Plus must be qualified suppliers. The extent of the qualification process is dependent upon the criticality of product purchased and other factors determined by Precision Plus. The qualification process in its most complete form consists of three parts:

- A questionnaire completed by the supplier.
- A quality management system self-assessment completed by the supplier, using the Precision Plus supplier assessment survey form. This is returned, along with the supplier's quality manual and documentation for review by Precision Plus.
- An on-site assessment by Precision Plus personnel or their authorized agents.

Precision Plus periodically reevaluates suppliers through the use of quality performance data and/or on-site assessments.

2.1 New Supplier Questionnaire

In the early stages of the supplier selection process, potential suppliers are sent a questionnaire. This questionnaire solicits general information about the company such as location(s), size, capabilities, and financial stability as well as detailed questions regarding the Company's quality management system and quality history.

2.2 New Supplier Self-Assessment

When a new supplier is being considered, they are sent a quality management system self-assessment survey form. The supplier completes the self-assessment and returns it along with a copy of their quality manual and supporting documents. Precision Plus will review the quality manual, procedures, and survey to determine if the documented quality system meets Precision Plus's requirements.

2.3 On-Site Assessment

For suppliers of critical components, an on-site assessment of the supplier's facility is performed. The on-site assessment includes three components:

- A quality assessment to determine whether the supplier's quality management system is in place and functioning effectively.
- A business assessment to determine whether the supplier has financial resources, production capacity, and other business resources needed to fulfill Precision Plus's production needs.
- A technology assessment to determine whether the supplier has the needed technical resources, including production and inspection equipment, facilities, engineering resources, etc.

If the assessment team determines that the supplier meets Precision Plus's requirements, Precision Plus qualifies the supplier to bid on new business and supply production materials.

2.4 Periodic Reevaluation

Precision Plus periodically reevaluates current production suppliers through the use of quality performance data and/or on-site assessments. If requested, the supplier shall make their facility available for on-site process verification by Precision Plus personnel, with reasonable notice.

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2.5 Supplier Metrics

Suppliers will be measure on Quality and On-Time Delivery (OTD), see below goals:

- Quality
  - >95% (# of parts defective / # of parts delivered)
- On-Time Delivery: (5 Days Early and 0 Days Late on Dock)
  - OTD >95%: (# of Late Deliveries / # of Deliveries)

Percentage	Status
95.0 - 100	Partner
89.0 - 94.9	Good Standing
83.0 - 88.9	Marginal
0.0 - 82.9	Substandard

Suppliers not meeting the overall score of "Marginal" for three consecutive months may be moved to *PENDING* and an improvement plan from supplier may be requested. If appropriate, a Supplier Corrective Action (SCAR) can be issued and an on-site follow-up audit can be conducted. If no improvement is made after 6mos then a review is held with management to determine if removal of that supplier from the Approved Supplier List is appropriate and develop an exit strategy. All attempts will be made to develop a poor performing supplier.

3.0 Part Qualification

The supplier is responsible for submitting all First Article data requested by Precision Plus on the first article requirements checklist. Precision Plus and the supplier will agree on the number of the samples to be checked and submitted with the first article data. Where possible, all First Article documents should be submitted to the supplier quality engineer in electronic format (preferably Adobe Acrobat or Microsoft Office).

In some cases Precision Plus personnel may wish to be present during the initial production run. This will allow Precision Plus to validate and verify the process before any product is shipped

3.1 First Article Requirements Checklist

For each new or changed part, Precision Plus may send the supplier a First Article Requirements Checklist, listing the steps and information that must be submitted for qualification of the component or assembly for production. The checklist items selected are based on the type of component or assembly to be supplied.

3.2 Dimensional Inspection Report

Precision Plus notifies the supplier of the quantity of parts to be inspected, typically five from each tool or cavity. The supplier inspects or tests each sample for all dimensions, drawing notes, and specification requirements listed on the current revision of the Precision Plus drawing and/or specification. The supplier records the results on the First Article Report form or equivalent. The supplier numbers a copy of Precision Plus's drawing and/or specification to correspond with the supplier's results.

The dimensional inspection report must include the specification number, specified requirements, and the inspection/test results. A simple statement that the material meets the requirements is not acceptable. Each report must be traceable to the supplier's material, through lot/heat/coil/batch numbers or equivalent, and must be signed by the organization that performed the testing. For any requirements that the supplier does not have the equipment to inspect or test, the supplier may obtain reports from their sub-supplier or other test agency.

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Parts inspected for the dimensional inspection report are randomly selected from a production run of parts. The minimum quantity for the production run is agreed upon between the supplier and Precision Plus. The parts must be produced under volume-production conditions, including material, machines, tooling, processing parameters, cycle times, etc. Any exceptions to the volume-production conditions must be approved in writing by Precision Plus, and included in the data package submitted to Precision Plus.

3.3 Material Certification/Test Report

When requested, the supplier must provide a material certification/test report. This report must include the specification number, specified material and/or physical requirements, and the inspection/test results. A simple statement that the material meets the requirements is not acceptable. Each report must be traceable to the supplier's material, and must be signed by the organization that performed the testing.

4.0 Gage Repeatability & Reproducibility (R&R) Studies

For those characteristics specified by Precision Plus, the supplier must perform gage R&R studies using procedures described in Measurement Systems Analysis published by AIAG. Precision Plus must approve R&R values greater than 10 percent of the tolerance.

Normally for variable gages, three different operators measure ten samples three times each. For attribute gages, the Attribute Gage Study (long method) is required. Precision Plus must approve any alternative methods.

4.1 Gage Correlation Studies

For characteristics specified by Precision Plus, the supplier must perform a gage correlation study. This consists of the supplier identifying, measuring and recording a specified number of production parts. The supplier then sends the parts to Precision Plus for measurement. Precision Plus compares their measurements with the supplier's measurements to determine the correlation between the gages.

4.2 Process Capability Studies

Process Capability (C_{pk}) is a comparison of the inherent variability of a process output to specification limits *under statistically stable conditions*. There are a number of techniques for assessing the capability of processes. Precision Plus suppliers must use methods defined in Statistical Process Control (SPC) published by AIAG for determining process capability and process performance, unless an alternate method is approved in writing by Precision Plus.

A Cpk of at least 1.67 is required for Precision Plus critical dimensions.

4.3 Failure Modes and Effects Analysis (FMEA)

When requested, the supplier must perform a Process Failure Modes and Effects Analysis (PFMEA), and submit it for approval. For parts and assemblies that are designed by the supplier, the supplier should also perform a Design Failure Modes and Effects Analysis. The PFMEA considers all reasonably foreseeable potential failure modes of each process. Based on the potential seriousness and likelihood of the problem, the supplier develops manufacturing controls. The PFMEA should be a living document, and should be updated when process changes occur, or when defective material is produced. PFMEA methods and examples can be found in Potential Failure Mode and Effects Analysis published by AIAG.

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4.4 Control Plan

When requested, the supplier must develop a control plan, and submit it for approval. The control plan and is a detailed description of the supplier's proposed processing steps required to produce the part, and the controls that are put into place to control the quality at each step. The control plan must include all in-house processing, external processing, inspection, packaging, and shipping. Suppliers may use their own format. Measuring devices and fixtures designed and built to check Precision Plus parts must be identified with a gage number and drawing, and must be listed on the control plan.

The control plan must include all critical characteristics. Where detailed instructions are required, the supplier details those instructions in a work instruction, or equivalent, which must be listed in the control plan. Inspection methods, sample sizes, and sampling frequencies should be based on the process capabilities, seriousness and likelihood of potential non-conformances, and process stability. Critical characteristics that do not meet Precision Plus's process capability requirements must be inspected 100%, unless Precision Plus approves alternate control methods in writing.

4.5 Electrostatic Discharge (ESD) Susceptibility

When components or assemblies supplied to Precision Plus are susceptible to ESD, the supplier shall establish ESD susceptibility information for them. Procedures, methods, and equipment used for determining the ESD susceptibility shall be provided to Precision Plus. ESD failure modes shall be considered in PFMEAs, and ESD controls shall be included in control plans and packaging.

4.6 Safety Data Sheets (SDS)

As applicable, Safety Data Sheets (SDS) must be provided during First Article process.

4.7 Agency Approvals and Compatibility Reports

The supplier is responsible to provide the proper agency approval test reports per Precision Plus requirement. Examples are UL, CE, FCC, TUV, etc. The supplier is also responsible for agency test reports from their sub-supplier or other outside test agencies.

The suppler is responsible to submit test results that verify compatibility as required (USB, 1394 etc.). Testing may be done by the supplier or by a test facility certified by the supplier.

4.8 Packaging & Labeling

The supplier must adequately plan for packaging of material shipped to Precision Plus. The supplier will provide a documented packaging plan including container size, number of parts per container, packaging configuration, etc. Packaging will be designed to provide protection from any damage that may occur. For static sensitive components, ESD packaging shall be provided. Packaging, labeling, and shipping materials must comply with the requirements of common carriers to secure the least transportation costs.

4.9 Traceability

The supplier must plan for traceability of components. The supplier will provide a written plan specifying how components will be marked with serial or lot numbers and date codes if required, or how containers will be identified with lot numbers or date codes if component marking is not required. The plan will also include sizes of lots or batches. Where possible, batch sizes should be minimized to aid in containment should quality problems be found.

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5.0 Manufacturing Control

5.1 Process Control

Precision Plus suppliers are required to control all manufacturing processes in accordance with the control plan, which is approved during part qualification.

4.2 Statistical Process Control

Where specified in the control plan, the supplier is required to apply effective statistical process controls. Effective controls must include:

- The control chart displays control limits that are correctly calculated (specification limits may not be used as control limits).
- The control chart is at the process area, visible to the operator, or persons who are responsible for controlling the process.
- For each out-of-control condition, actions are taken to bring the process back into control. Actions taken to bring the process back into control are recorded.
- Product produced during any out-of-control condition is sorted, scrapped, reworked or dispositioned through the supplier's material review process

4.3 Process Performance Requirements

Process Performance (P_{pk}) is the comparison of the actual process variation to the specification limits. When required to submit process performance data to Precision Plus, the supplier must report process performance using the following method:

Critical Characteristics: A P_{pk} at least 1.33 is required. Any critical characteristic failing to meet the minimum requirement requires a containment plan and an improvement plan.

Other Characteristics: A P_{pk} of at least 1.00 is required. The supplier is not required to calculate and report process performance for non-critical characteristics, unless requested by Precision Plus. When specified by Precision Plus, other characteristics failing to meet the minimum requirement also require a containment and improvement plan.

4.4 Process Improvement

Out-of-control or unstable processes (which have assignable causes) and processes that do not meet the minimum C_{pk}/ P_{pk} requirements must be identified and corrected and require 100% inspection to the 1.67 Cpk is met. The Supplier must also improve processes with low yield rates.

4.5 Lot Control

A lot consists of product of one part number and revision that are made at the same time, under the same processing conditions, from the same heat lot of raw materials. The primary purpose for identifying lots is to determine the scope of actions that must be taken when problems arise during further manufacturing or with customers. Each container of material shipped to Precision Plus must be identified with the Supplier's lot number. Inspection records must be traceable to lot numbers.

The following are typical conditions that result in a change of lot numbers:

Change of part number or revision
Change of part number or revision of components

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Interruption of continuous production (Set-ups)
Change to a different heat lot of raw materials
Significant Process changes (Machine platform changes)

4.6 Traceability

Traceability ties finished product back to the components used in the product. When traceability is specified, the traceability marking should be effective down to the individual component, i.e., lot code, batch or serial should be identifiable throughout Precision Plus's processes.

4.7 Workmanship

When workmanship standards are not referenced on Precision Plus drawings or specifications, the supplier is expected to follow industry-accepted standards (e.g. ANSI, IPC). When in doubt, consult with Precision Plus for clarification.

4.8 Safety

At no time should any customer, or person at a Precision Plus facility, be exposed to hazardous material or situations that are not inherent in a component's structure. Residues, films, out-gassing products and packaging materials should comply with OSHA (Occupational Safety & Health Association) standards. For items with inherent hazards, safety notices must be clearly observable. As applicable, MSDS sheets must be provided during the First Article process.

4.9 Maintenance

The supplier must maintain all facilities, manufacturing machines, tools, measuring devices, and other equipment in such a manner that the supplier can support Precision Plus's production requirements, and the quality of parts manufactured for Precision Plus is not degraded in any way.

4.10 Electrostatic Discharge (ESD) Controls

If the supplier furnishes ESD-sensitive materials, the supplier must maintain an effective ESD program that meets all requirements for the material produced.

6.0 Drawings/Changes

6.1 Drawing and Change Control

The supplier must have a documented system for assuring that the latest Precision Plus drawings are in effect at their facility. The supplier's quality management system must contain a documented procedure that describes the method used for the receipt, review, distribution, and implementation of all changes to drawings and specifications. In addition, the procedure must address control of obsolete drawings and specifications. A documented procedure should also detail the method used to contain new or modified parts until approved by the customer.

6.2 Process Changes, Engineering Changes

Suppliers must have systems in place to control changes to drawings, specifications, processes, or produced parts. Systems should be capable of handling changes being requested by the customer, and also changes requested by the supplier.

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NOTE: The First Article approval process is directed at a given part number for a specified revision level produced in a specific area of the manufacturer's facility. **Suppliers may not make any changes in their process, location, material, or to the part without written approval from Precision Plus.** The supplier must formally request a process change on all Precision Plus components.

6.3 Supplier Process Change

A Supplier Process Change to a released part, process, drawing, or specification must be approved by Precision Plus prior to making the change. Precision Plus encourages changes for process improvement with the stipulation that before the change, the supplier thoroughly reviews their FMEA and control plan to assure that all process-related issues have been addressed and resolved.

The originator of an process change includes the following information:

- Drawing or part number
- Drawing or part title
- Description of problem or recommended change
- Reason for change or "rationale"
- Proposed effective date

The supplier submits the process change with the revised FMEA and control plan (if applicable) to Precision Plus for evaluation of the following:

- Supplier-demonstrated process capability and stability
- Comparison to First Article data
- Industry standards
- Supplier process engineering capabilities
- Supplier's adherence to control plan

After Precision Plus has completed the review, and concurs with the supplier, Precision Plus will notify the supplier as to the final disposition of the process change and part submittal requirements and dates.

When monitoring is required, the appropriate markings must be identified on the lots etc. for a specified time frame as decided jointly with Precision Plus and the supplier.

6.4 Supplier Deviation Request

A supplier is never permitted to knowingly ship product that deviates from the print, specification limits, or design intent without written authorization from Precision Plus. If such a condition exists, the supplier may request Precision Plus to allow shipment of the product. This is accomplished by initiating a Deviation Request.

If directed by Precision Plus, the supplier must send samples of non-conforming items to Precision Plus for evaluation. The cost of any testing required to determine the acceptability of the product will be charged to the supplier. Precision Plus will determine the item's acceptability and what corrective actions (if any) are required beyond the deviation. If approved, Precision Plus will send a written deviation approval to the supplier.

The deviation is only intended to be an interim action and **is not** to be construed as an engineering change. The supplier must begin work immediately to correct the condition in question. This must be accomplished within the time frame stated on the deviation. Failure to comply with the mutually agreed upon closure date for the deviation may result in the supplier's rating being affected.

In all cases, the supplier must fully contain all product suspected of being non-conforming at their facility. In addition, the supplier may be required to sort any suspect product at Precision Plus. Precision Plus may also request a Corrective Action to be submitted with the deviation request.

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Any parts sent to Precision Plus that have been approved on a Deviation must be clearly identified on the box / container, Cert of Compliance, Packing Slip or other appropriate markings decided jointly by Precision Plus and the supplier.

7.0 Packaging & Labeling

7.1 Packaging

Each supplier must adequately plan for packaging. Precision Plus encourages supplier-initiated packaging improvements. Suppliers will provide packaging that provides protection from any damage that may occur. Packaging, labeling, and shipping materials must comply with the requirements of common carriers, in a manner to secure the lowest transportation costs.

Packaging for ESD sensitive items must meet appropriate ESD packaging requirements. Contamination is a serious concern to Precision Plus. Packaging must protect the components from contamination, including fibers from the packaging materials.

Expendable materials and packaging must be legal and safe for standard "light industry" disposal. The preferred maximum weight of manually handled packs is 40 lbs. The maximum acceptable weight is 45 pounds, unless approved by Precision Plus in writing.

Whenever possible, only one part number and one supplier lot is to be packaged in a shipping container. When more than one part number or lot number is packaged in a shipping container, each part number and/or lot number must be separately packaged (i.e. bags or boxes) inside the container, with each labeled as to the contents.

7.2 Labeling

Each shipping container or inside package must contain the following information:

- Precision Plus part number (if no Precision Plus number exists, supplier part number is used)
- Quantity
- Supplier's Name
- Purchase Order Number
- Lot identification
- Required ESD Susceptibility Label on packaging for ESD sensitive items, using the Electronic Industries Association Standard symbol or equivalent.

8.0 Corrective Action System

Precision Plus requires suppliers to utilize a closed-loop corrective action system when problems are encountered in their manufacturing facility, or after nonconforming product has been shipped to Precision Plus. Deviation requests may also require a corrective action.

8.1 Corrective Action Process Approach

The corrective action system utilized should be similar to the process outlined below this is considered an 8D RCCA methodology. The focus should be on identifying the root cause(s) of the problem and taking action to prevent its recurrence.

- Use a team approach
- Describe the problem
- Contain the problem
- Identify and verify root causes(s)

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- Implement permanent corrective actions
- Verify corrective action effectiveness
- Close the corrective action

8.2 Supplier Corrective Action (SCAR)

Precision Plus issues a Supplier Corrective Action Request (SCAR) to a supplier when non-conforming parts are found at incoming inspection, in production, in test, or by a Precision Plus customer. They can also be issued as a result of a supplier audit. The supplier is required to respond by returning the SCAR back to Precision Plus with the "Team Response" fields completed. The following provides a brief outline of the SCAR procedure that suppliers to Precision Plus should comply with:

- Precision Plus requires that the supplier take immediate containment action upon notification of the nonconformance. The supplier must submit a written response to Precision Plus, reporting the Supplier's initial observation and defining the interim containment plan within 48 hours of notification. The Supplier's Initial Observation is an acknowledgement that the Supplier has been informed of the problem, and has begun to gather information about the problem.

- The containment plan must clearly define the containment actions at the supplier's facility to assure that no nonconforming product is shipped to Precision Plus. If suspect product has already been shipped, the supplier must address all suspect stock in transit and any stock at Precision Plus. The supplier will assist Precision Plus in identifying customer risk by identifying all suspect lot numbers and associated quantities involved.

- Within 2 weeks after the original notification, the supplier must report the results of the Supplier's investigation into the cause of the problem.

- Within 3 weeks from the initial notification date, the supplier must submit the corrective action to be taken to prevent recurrence of the problem, and the effectivity date (the date the corrective action will be implemented.). Actions such as "train the operator," "discipline the operator," or "increase inspection," are typically not acceptable corrective actions.

- The supplier is required to keep Precision Plus informed of progress towards implementing the corrective action. When corrective action implementation is complete, the supplier and Precision Plus verify that the corrective action is effective in preventing the problem's recurrence.

9.0 Dock-to-Stock (DTS)

Precision Plus utilizes a Dock-to-Stock program to reduce the problems associated with receiving nonconforming product from suppliers, while minimizing incoming inspection and speeding up the process of moving product to production.

Suppliers with all parts on DTS and high ongoing quality performance are Preferred Suppliers. Preferred Suppliers are given first opportunity to quote for new business and are given preference for increased volumes when consolidating suppliers for multiple-source items.

Precision Plus administers the DTS program on a part-by-part basis. DTS applies to all material and components purchased for use in released product at Precision Plus. It does not include pre-released parts, samples, prototypes, pilot runs, First Articles for new tooling, and other low volume applications. DTS material will be moved directly into production, bypassing incoming inspection.

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9.1 Dock-to-Stock Requirements

The supplier attains Dock-to-Stock status with each proposed part by meeting the following criteria:

- For non-critical parts, the part achieves DTS status upon First Article qualification, assuming all other requirements are met as detailed below.
- For critical parts, the supplier must be qualified through an on-site quality management system assessment. At Precision Plus's discretion, the formal on-site assessment may be waived with a fully completed supplier self-assessment.
- For critical parts, the most recent five lots received must have passed all incoming inspections
- The part must have no outstanding supplier corrective action requests (SCARs) for issues affecting form, fit, function, reliability, or customer acceptance.
- The 5-lot requirement may be waived for a part if any of the following conditions are met, the provided a mutual agreement is reached between Precision Plus and the supplier:
  - The part was modified from an existing part on DTS by a part number or revision change, and the changes did not affect form, fit or function.
  - The part has less than 5 lots received within 5 years.
- For products that are considered commercial off the shelf items (COTS) or Standard Hardware from a supplier, Precision Plus will determine if that product may be placed as DTS immediately. This decision is based on the supplier test and manufacturing process/capability and availability of equipment to do meaningful testing.

If a supplier produces a part in more than one facility, each facility must qualify individually for DTS.

9.2 Dock-to-Stock Suspension

The supplier is placed on DTS suspension when any of the following conditions occur:

- A lot fails an incoming inspection audit.
- A supplier-caused CAR is initiated for an issue affecting form, fit, function, reliability, or customer acceptance.
- The supplier fails a quality management system assessment.
- A control plan audit shows the supplier is not following their approved control plan.

If DTS is suspended, Precision Plus personnel investigate and determine whether the suspension extends to other part numbers furnished by that supplier, issues a Supplier Corrective Action Request (SCAR), if a SCAR has not already been issued, and works with the supplier to correct the problem.

When the supplier's DTS status is returned to good standing, Precision Plus notifies the supplier of the change in status.

If a supplier does not implement effective corrective action, or if the supplier is put on suspension repeatedly, Precision Plus determines whether the supplier's DTS status should be discontinued. This decision may also include a decision to move the business to an alternate supplier.

Supplier Monitoring

Precision Plus continually monitors its suppliers to ensure they continue to meet Precision Plus's requirements, and to ensure that the supplier continues to ship acceptable parts. This may consist of:

- A quality management system and product surveillance audit at the supplier's facility
- An on-site audit of the supplier's control plan
- A random incoming inspection audit of a batch of product
- Source inspection of product at the supplier's facility
- First Article Inspection
- Review of supplier-furnished data packages
- A supplier progress review meeting conducted periodically at the supplier's site or Precision Plus to review supplier performance and progress

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10.0 Audits

10.1 Supplier Audits

Periodically, Precision Plus may audit the supplier's quality management system. The supplier must make their facility available for on-site process verification by Precision Plus personnel at any time, with reasonable notice. This may be a full or abbreviated documentation and on-site audit. The purpose is to evaluate any changes that may have occurred in the supplier's quality management system, and to assess the supplier's continuing commitment to quality improvement.

Periodically, Precision Plus may also audit the supplier's continuing conformance to the control plan approved in the First Article process.

10.2 Inspection Audits

Precision Plus expects its suppliers to furnish material that conforms to all requirements, and that does not need to be inspected when Precision Plus receives it. Material that has not achieved Ship-to-Use status, or that is on DTS suspension is inspected on a lot-by-lot basis. Precision Plus uses a C=0 sampling plan (see example in Appendix 1) that rejects the entire lot when a single non-conforming part is found in the sample. At Precision Plus's discretion, in order to meet production requirements, 100% sorting may be done as necessary at the supplier's expense.

Precision Plus may inspect product at the supplier's facility to detect potential problems prior to shipment. Precision Plus may also inspect product at sub-tier suppliers.

11.0 First Article Inspection

The supplier must perform First Article Inspections, compliant to AS9102B format, of each part to verify conformance of the part to the specification. This is also required if an engineering change affecting form, fit, or function occurs. The First Article requirement is not applicable to COTS or Standard Hardware parts.

For all sub-components, the manufacturing supplier is responsible to ensure that the components that make up each assembly are qualified and monitored through the supplier's own part qualification system.

At the discretion of Precision Plus, First Article can be requested at any time. Considerations such as component volume, program life cycle and supplier/part performance are used in the decision to pull in the requirement for First Article. If production has lapsed for more that 2yrs that a First Article will be required to verify conformance of the part to the specification.

12.0 Supplier-Furnished Lot Documentation

Precision Plus may require the supplier to furnish inspection, test, process performance, or other quality data with each shipment to ensure that the product meets Precision Plus's requirements. When data submission is required, the data must accompany each shipment, or be e-mailed or faxed to Precision Plus at the same time the lot is shipped. All documentation must be clearly identified with Precision Plus's part number, and the supplier's lot number.

When specified by Precision Plus, the supplier must submit monthly data packages. Data packages typically consist of copies of control charts and process capability calculations for specified characteristics.

Once the supplier has completed two consecutive quarters of data submissions, the supplier may request elimination of the data submission if records show that the characteristic consistently satisfies Precision Plus's requirements for process stability and process performance, and if the characteristic has caused no problems in Precision Plus's production. Precision Plus will notify the supplier in writing if the data submission may be discontinued.

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13.0 Order of Precedence

When there is a conflict between documents regarding supplier quality requirements the order of precedence is:

1. Purchase Order
2. Drawing
3. QS315FM Supplier Quality Manual
4. Appendix A Supplier Quality Requirements

Appendix 1

C = 0 SAMPLING PLAN

	.010	.015	.025	.040	.065	.10	.15	.25	.40	.65	1.0	1.5	2.5	4.0	6.5	10.0
LOT SIZE	**SAMPLE SIZE**															
2 to 8	*	*	*	*	*	*	*	*	*	*	*	*	5	3	2	2
9 to 15	*	*	*	*	*	*	*	*	*	*	13	8	5	3	2	2
16 to 25	*	*	*	*	*	*	*	*	*	20	13	8	5	3	3	2
26 to 50	*	*	*	*	*	*	*	*	32	20	13	8	5	5	5	3
51 to 90	*	*	*	*	*	*	80	50	32	20	13	8	7	6	5	4
91 to 150	*	*	*	*	*	125	80	50	32	20	13	12	11	7	6	5
151 to 280	*	*	*	*	200	125	80	50	32	20	20	19	13	10	7	6
281 to 500	*	*	*	315	200	125	80	50	48	47	29	21	16	11	9	7
501 to 1200	*	800	500	315	200	125	80	75	73	47	34	27	19	15	11	8
1201 to 3200	1250	800	500	315	200	125	120	116	73	53	42	35	23	18	13	9
3201 to 10,000	1250	800	500	315	200	192	189	116	86	68	50	38	29	22	15	9
10,001 to 35,000	1250	800	500	315	300	294	189	135	108	77	60	46	35	29	15	9
35,001 to 150,000	1250	800	500	490	476	294	218	170	123	96	74	56	40	29	15	9
150,001 to 500,000	1250	800	750	715	476	345	270	200	156	119	90	64	40	29	15	9
500,001 and over	1250	1200	1112	715	556	435	303	244	189	143	102	64	40	29	15	9

*Indicates entire lot must be inspected
NOTE: The Acceptance Number in all cases is ZERO.

PrecisionPlus
SWISS TURNED COMPONENTS

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Revision Change Sheet

DATE CHANGED	PAGE(S)	DESCRIPTION of CHANGE	APPROVAL
10-30-2018	All	New Release	Kevin T. Gable
12-07-2018	6	Added Sect 2.5 Supplier Metrics. Previously missing	Kevin T. Gable