	<h1>Supplier Quality Assurance Requirements</h1>	Control Number:	
		Revision Date:	Revision Level:
		TSS2-PI-SQAR-01	13
		6/13/11	

**1.0 Purpose**

The purpose of this document is to communicate the standard practices of TSS Technologies to its Suppliers and sub-tier Suppliers in order to ensure a consistent quality of deliverable goods. This Process Instruction provides all the necessary guidelines for assuring a mutually beneficial relationship between TSS Technologies and one of its most valuable assets, an effective Supplier base.


**2.0 Forms, Documents & Attachments**

- 2.1 TSS2-F-QA-DR-01, “Material / Part Deviation Request”
- 2.2 TSS2-F-QA-SCAR-01, “Supplier Corrective Action Request”
- 2.3 TSS2-F-QA-FAIR-01, “Supplier Inspection Report”
- 2.4 TSS2-F-QA-WRNT-01, “Part Submission Warrant”
- 2.5 TSS2-F-Label-FAI-01, “Parts Submission Label”
- 2.6 TSS2-F-QA-Supplier Evaluation “Supplier Evaluation”
- 2.7 TSS2-F-SQE-01 “Supplier Assessment”
- 2.8 TSS2-F-RoHS CofC-01 “RoHS Certificate of Conformance”

**3.0 Standard Quality Terms and Conditions**

- 3.1 The hierarchy of purchase documentation is as follows:
  - 3.1.1 Purchase Order
  - 3.1.2 Engineering Drawing,
  - 3.1.3 This document (TSS2-PI-SQAR-01)
- 3.2 The requirements of the Purchase Order, Engineering Drawing and this document, must be flowed down to all suppliers and their sub-tier suppliers.
- 3.3 No process changes are permitted without prior consent from TSS.
- 3.4 Failure to use TSS mandated/supplied documentation is cause for immediate rejection of the products and/or correspondence.
- 3.5 Supplier agrees not to disclose technical content contained in the procurement documentation or deliverable goods/services unless approved by TSS.
- 3.6 The supplier must have appropriate gauging to verify the conformity of the manufactured item.
- 3.7 TSS, its customers, and appropriate regulatory authorities have the right of access to the Supplier’s facility to determine and verify the quality of contracted work, materials, and all applicable records.
- 3.8 Suppliers must use customer approved special process resources when required.
- 3.9 Suppliers may be subject to Supplier Quality audits to assess processing and Quality compliance capabilities. The Supplier qualification process may utilize the Supplier Audit form as a tool to assess the Supplier’s capabilities.
- 3.10 It is the responsibility of the Supplier to ensure they are working to the latest revisions of all documents referenced in requirement 3.1 at the time of the order. Contact the TSS Purchasing Agent for revision clarification.
- 3.11 Shipments received more than three (5) working days prior to the Purchase Order due date may be rejected at the discretion of the Buyer.
- 3.12 Parts must be packaged with sufficient packaging material to preclude damage during transit. Metal-to-metal contact is prohibited at all times unless the material/surface is subject to subsequent machining by TSS.
- 3.13 Only authorized agents of TSS Technologies, Inc. are permitted to commit any company funds. The seller is hereby notified verbal orders and/or purchase orders and amendments by unauthorized personnel may result in nonpayment and potential disqualification as a supplier. Contact TSS Technologies for a complete listing of authorized agents.
- 3.14 Acceptance of a TSS Purchase Order constitutes acceptance of all terms and conditions stated in this document unless a written waiver is granted under the mutual concurrence of TSS Purchasing and Quality representatives. In the event the standard terms and conditions of the Supplier conflict with the terms and conditions of the Purchase Order and/or this document, the TSS terms and conditions shall prevail.

Reviewed By:	Ryan Miller	Date:	6/13/11	Approved By:	C. Steinke	Date:	6/13/11
<i>The personnel, noted above, have the responsibility for modifications to this document.</i>							

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3.15 TSS' requirements shall not be limited by any third party or "Industry Standards" unless specifically covered by written waiver prior to acceptance of the contract.

**4.0 Standard Purchasing Terms and Conditions**

**PURCHASING TERMS AND CONDITIONS**

(1) **ACCEPTANCE**

Seller may accept this order in writing, or by the commencement of any work, or the performance of any services or the shipment of any goods purchased under this order. The acceptance by seller of this order is limited to the terms of the order. Any additional or different terms included by Seller are rejected unless expressly approved in writing by Buyer.

(2) **PACKING AND TRANSPORTATION**

Seller shall suitably pack, mark, and ship all materials according to common carriers' requirements (to secure the lowest transportation costs). No additional charges shall be made to buyer for packing, boxing, marking, shipping, drayage, or storage unless authorized in this order or in a separate writing by Buyer. Unless specified in this order, Buyer will not accept a COD shipment.

(3) **DELIVERY**

Deliveries shall be made in the quantities and at the times specified in this order or in supplementary schedules furnished by Buyer. Time is of the essence. Buyer may change delivery schedules or temporarily suspend scheduled shipments. If materials are shipped or received in advance of schedule, Buyer may return them to Seller at Seller's risk and expense. Seller shall not be liable for delays or defaults in delivery due to causes beyond its control and without its fault or negligence. If at any time Seller has reason to believe delivery will not be made as scheduled, Seller shall immediately give written notice to Buyer, stating the cause and duration of the anticipated delay. If delivery is not made as specified in this order, in addition to any other right or remedies, Buyer may terminate the contract as to all or any portion of the goods ordered, purchase substitute goods elsewhere and charge Seller with any loss incurred.

(4) **REJECTIONS**

If any of the goods are found at any time to be defective in material or workmanship, or otherwise not in conformity with the requirement of this order, Buyer, in addition to any other rights which it may have under warranties or otherwise, may at its option correct or have corrected the nonconformity at Seller's expense, or reject and return such goods at Seller's expense, such goods not to be replaced without suitable written authorization from Purchaser.

(5) **INSPECTION**

Work performed and material received is subject to inspection and rejection by Buyer. Payment for material or work shall not constitute acceptance. Rejected materials will be held at Seller's risk for a reasonable time and will be returned or disposed of according to Seller's instructions. The net proceeds of any disposition will be credited to Seller's account. No returned material will be replaced without Buyer's written replacement order.

(6) **MODIFICATION OF ORDER**

1. Buyer reserves the right to make changes in specifications or requirements of this order at any time. Buyer shall have the right to make changes in this order, but no additional charge will be allowed unless authorized in writing by Buyer. If such change affects delivery or the amount to be paid by Buyer, Seller shall notify Buyer immediately, and negotiate an adjustment in accordance with this "Modification of Order" clause.

2. In any event the maximum liability of the Buyer for obsolescence, scrapage, and/or rework resulting from any change shall be limited to the materials and parts in process at the time of the change and when such parts are within the Seller's normal manufacturing cycle required to meet the established delivery schedule. Buyer shall have no liability hereunder for cost of obsolescence, scrapage or rework of materials and parts which Seller has released for manufacture in advance of Seller's normal manufacturing process.

(7) **WARRANTY AS TO QUALITY**

Seller warrants that all materials and work covered by this order will: (a) be of good and merchantable quality and workmanship and free from defects; (b) conform to the drawings, specifications, descriptions, and samples furnished or specified by Buyer; (c) if a product of Seller is produced according to Seller's specifications, be suitable for its intended purposes. Without Buyer's written consent, no materials may be substituted for those specified; (d) free and clear from all liens and encumbrances;



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(e) fit for their particular purpose, if Seller knows or has reason to know of such particular purpose. The Warranties contained in this paragraph are in addition to the warranties provided by law including, without limitation, the Uniform Commercial Code.

### (8) WARRANTY OF COMPLIANCE WITH LAW

Seller warrants and represents that the materials and goods covered by this order will be produced, distributed, shipped, packaged and/or performed in compliance with all applicable federal, state and local laws and regulations, including without limitation, laws, rules and regulations including, without limitation, laws dealing with fair labor standards and public contracts. On Buyer's request, Seller agrees to furnish satisfactory evidence of compliance.

### (9) SUSPENSION OF SHIPMENTS AND CANCELLATION WITHOUT CAUSE

On the Buyer's request, Seller shall immediately suspend shipments of materials and performance of work for reasonable periods. Also, the Buyer reserves the right to cancel this order in whole or part at any time without cause. Any extensions in times of delivery or performance, and any losses or damages resulting from suspension of shipments or partial or total cancellation of the order, shall be equitably adjusted between Buyer and Seller. The Buyer shall not be liable for failure to accept delivery of materials or performance of work due to causes beyond Buyer's control, including without limitation fire, flood, or other casualty, court orders, acts of governmental authorities, or strikes or other work stoppages. Seller will not be entitled to recover any incidental or consequential damages upon any cancellation or breach by Buyer under or related to this order.

### (10) CANCELLATION FOR CAUSE

Buyer may cancel this order in whole or part in the event of Seller's breach of any of the terms or conditions of the order, including without limitation the failure of materials or work to conform to the warranty as to quality under Section (7) or Seller's failure to make delivery as required under Section (3). Buyer may also cancel this order if Seller: (a) becomes insolvent; (b) files a voluntary petition in bankruptcy; (c) has an involuntary petition in bankruptcy filed against it; (d) has a receiver or trustee appointed for it; or (e) makes an assignment for the benefit of creditors.

### (11) BUYER'S RIGHTS ON CANCELLATION FOR CAUSE

In the event of cancellation under Section (10) and without prejudice to any other rights or remedies, Buyer has the right to: (a) refuse to accept delivery of material or performance of work; (b) return to Seller any materials already accepted, recover any payments made for the same and for freight, storage, handling, and other expenses incurred, and be relieved of liability for any further payments to Seller; (c) recover any payments made to Seller for undelivered or returned materials or work to be performed; and (d) purchase elsewhere and charge Seller with any resultant losses.

### (12) ASSIGNMENT: PARTIES AND SUCCESSORS BOUND

This order may not be assigned by Seller in whole or part without Buyer's written consent. This order and its terms and conditions are binding on the parties and their successors and assigns.

### (13) PRICE

#### (A) PERMISSION REQUIRED FOR PRICE CHANGE

All prices listed are firm and shall not be changed without Buyer's prior written permission.

#### (B) BUYER TO BENEFIT FROM PRICE DECREASE

In the event of a decrease in Seller's published prices for the products covered by this contract, the contract prices shall be reduced accordingly. The reduced price shall apply to all shipments made after the price change.

#### (C) EXTRA CHARGES

No charges of any kind shall be added to the prices and charges appearing on the face of this [order/contract], [without Buyer's written permission/unless the parties have agreed to such extra charges in advance].

#### (D) CLAIMS FOR EXTRA COMPENSATION

Before proceeding with any work or shipment involving potential claims by Seller for compensation above the prices and charges specified in this order, Seller shall submit to Buyer an itemized statement supporting the extra compensation and if Buyer desires to have the work done or goods furnished at the increased price or charge, Buyer's or purchasing agent will issue written instructions to Seller. Without written instructions to proceed, no claim for extra compensation will be allowed.

#### (E) CHARGES FOR SPECIAL TOOLING, DESIGN, OR RELATED SERVICES

All of Seller's invoices covering charges for special tooling or equipment, or design, engineering, research, or related services, shall be accompanied by a detailed list showing the charges for these items.

(14) GOVERNING LAW

Buyer and Seller hereby submit themselves to the Jurisdiction of the State of Ohio in connection with any cause of action arising under this contract. The validity, performance, construction and effect of this contract shall be governed by the laws of the State of Ohio.

(15) CONFIDENTIALITY

All information which Buyer has divulged or may divulge to the Seller and any information relating to the product which may have come into the possession of the Seller in the course of carrying out Buyer's purchase order shall be treated by the Seller in confidence and shall not, without prior written consent of Buyer, be disclosed to any third parties, or be used for any purpose other than for the execution of this order.

## 5.0 Definitions

- 3.16 Attribute data – Part analysis, usually associated with attribute gaging (Go/No-Go type Plug, Thread) where compliance is measured in terms of Pass/Fail, Accept/Reject.
- 3.17 Bubbled Drawing (Ballooned Drawing) – An Engineering Drawing that has each characteristic numbered sequentially. The characteristics include all drawing dimensions, notes, referenced specifications, specialized treatments (coating, plating, heat treatment, etc.) and material type.
- 3.18 Buyer – TSS and its various business units (see Organization).
- 3.19 Capability Study – An analysis of a process that verifies the ability of that process to meet the specifications. The results of the study are usually expressed in terms CP, Cpk, or Ppk.
- 3.20 Critical Characteristic – A dimension on the drawing that if not within the specified tolerance band could compromise safety and/or result in product failure (see KPC and CTQ). The critical characteristic may be specified in the Purchase Order or the Engineering Drawing.
- 3.21 CTQ (Critical to Quality) – A feature that is critical to the function of the part or assembly (see KPC and Critical Characteristic). The CTQ may be specified in the Purchase Order or the Engineering Drawing.
- 3.22 Customer – The entity originating the Purchase Order to TSS.
- 3.23 Engineering Drawing – Graphical or digital representation of the finished product to be supplied to TSS. This term also encompasses any notes and/or specifications referenced therein.
- 3.24 FAIR – First Article Inspection Report. An inspection report that documents the compliance of the supplied part to the part print for all features, notes, and specifications. This includes material specifications and finishes (paint, plating, coatings, anodize, etc.)
- 3.25 Gage R&R – A measuring system analysis (MSA) that analyzes the variation of measurements of a gage (repeatability) and the variation of measurements by operators (reproducibility) in order to separate the variation due to the measurement system from the variation due to the process.
- 3.26 GD&T (Geometric Dimensioning & Tolerancing) – A drafting tool used to control part geometry. Symbols are used to define location, form, profile, orientation, and runout.
- 3.27 KCC (Key Control Characteristic) – A feature that affects the control of the KPC. The KCC (see major characteristic) may be specified in the Purchase Order or the Engineering Drawing.
- 3.28 KPC (Key Product Characteristic) – A feature that is critical to the function of the part or assembly (see Critical Characteristic and CTQ). The KPC may be specified in the Purchase Order or the Engineering Drawing.
- 3.29 Major Characteristic – A dimension on the drawing that if not within the specified drawing tolerance could affect fit, form, or function (see KCC). The major characteristics may be specified in the Purchase Order or the Engineering Drawing.
- 3.30 Nonconforming Material – Parts or materials that fail to meet the requirements of the Purchase Order, Engineering Drawing, or this document (TSS2-PI-SQAR-01). By this definition, material that is not identified or does not have the proper paperwork required by the Purchase Order is considered nonconforming.
- 3.31 Organization – TSS and its various Business Units (see Buyer).
- 3.32 Procurement Documentation – The Purchase Order, Engineering Drawing, and TSS2-PI-SQAR-01.
- 3.33 Purchasing Agent – The TSS Commodity Manager responsible for the purchasing function and the primary contact with the Seller (supplier) of good or services.
- 3.34 Seller – The supplier providing the goods or services.
- 3.35 Supplemental Requirements – Additional requirements that can be added to the Purchase Order.
- 3.36 Significant Processes – Processes that alter the base material such as heat treatments, coatings (plating, anodizing), EDM, ECM, plasma spray, etc.
- 3.37 Special Processes – Customer defined processes that are considered of such importance, product failure may occur without adequate controls in place to safeguard the process.

- 3.38 Warrant – Statement of part compliance provided by the seller.
- 3.39 Variable Data – The value **range** of the characteristic inspected. Variable data requires the use of gaging that provides measurable information (sizes, lengths, diameter, force, surface finish, torque, volts, amperes, etc.).
- 3.40 PFMEA – Potential failure mode and effects analysis
- 3.41 PFD – Process flow diagram
- 3.42 PCP – Process control plan

## 6.0 Supplier Approval

- 6.1 “Commercial” class parts require 100% compliance to the Purchase Order, Engineering Drawing, and this document.
- 6.2 “Manufactured” class parts have the same requirements as “Commercial” class with additional requirements as identified by supplemental Purchase Order remarks.
- 6.3 Part approval is based upon verification of part number identification, correct quantity, and review and approval of any specific requirements as noted in the Purchase Order.

## 7.0 Product Identification

- 7.1 All products delivered to TSS will be identified by the applicable part number and revision level. In some cases the location of part marking is noted on the drawing. If no location is designated on drawing, contact TSS Quality for direction.
- 7.2 All products delivered to the Suppliers and /or sub-tier suppliers with identification markings (e.g. tags, serial numbers, labels, containers, etc.), must remain identified throughout processing, and returned to TSS Technologies with the same identification markings intact.

## 8.0 Control of Nonconforming Material

- 8.1 Any requests to deviate from the P.O., Engineering Drawing and this specification, must be submitted to TSS for approval by the use of the Material / Part Deviation Request form (TSS2-F-QA-DR-01) prior to production.
- 8.2 As soon as a discrepancy is detected, a Material / Part Deviation Request form (TSS2-F-QA-DR-01) must be submitted to the appropriate TSS Purchasing Agent for disposition. The earlier the nonconformance is detected, the more disposition options are available.
- 8.3 No nonconforming material is to be shipped to TSS Technologies without an approved copy of the Material / Part Deviation Request form on file. A copy of this document must also accompany the delivered material. Non-conformances submitted to TSS Technologies by the use of the Material / Part Deviation Request prior to shipment will not be counted against the Supplier’s quality rating. Non-conformances detected without the submission of the Material / Part Deviation Request is subject to rejection and will be counted against the supplier’s quality rating.
- 8.4 Discrepant material found at TSS may result in containment at supplier’s premises. If directed by TSS Quality, attach “TSS2-F-QA-Containment-01” label to each container for 3 consecutive shipments verifying containment has taken place.

## 9.0 Control of Records

- 9.1 Records generated by suppliers will be in accordance with the Purchase Order or this document. All records not previously mentioned, as required by this document, and generated by suppliers and/or their sub-tiers need to be retained on the suppliers or the sub-tier supplier’s premises. All retained documents need to be protected, readily available (within 24 hours after requested), and remain on file for a minimum of 10 years. Prior to removal of any record, a TSS quality representative must be contacted. In the event of the sale or closure of the supplier or sub-tier supplier, TSS Technologies must be notified in advance in order to arrange storage of the affected records. Suppliers are required to maintain RoHS documents for a minimum of 10 years. See para. 14.

## 10.0 Returns

- 10.1 The suppliers must respond to all Return Material Authorization (RMA) within 3 working days of the initial notification from TSS.
- 10.2 If TSS is not notified with a specific decision or response within 3 working days, the supplier will be debited for the full value of the defective part(s) or service(s).
- 10.3 Once RMA is received, TSS will debit the supplier for full purchase price of rejected parts and create a return PO.

10.4 Replacement parts are to be submitted to TSS against the return PO as soon as possible and re-invoice TSS against the new replacement PO.

## 11.0 Corrective Actions

- 11.1 In the event that a Supplier Corrective Action Request is issued, an initial response (SCAR steps 1-2) is required within 24 hours from the date of issuance.
- 11.2 A final response to the SCAR is required within 14 business days from the date of issuance. The Supplier can request an extension from TSS based upon the time required to implement systems or secure hardware/equipment used to implement the identified action(s). Acceptance of the extension request is at the sole discretion of Quality Management.
- 11.3 Timely responses to issued SCAR's are an integral part of the overall Supplier performance review
- 11.4 Corrective actions issued as a result of part quality may result in the supplier being required to certify future shipments.
- 11.5 As noted on form TSS2-F-SCAR-01, "Generation of a Supplier Corrective Action Request as a result of non-conforming product may result in a charge of \$200 being assessed."
- 11.6 Supplier corrective actions may be initiated for the following reasons:
  - FAI failures
  - Repeat occurrences for the same cause
  - Rejects due to critical dimensions or features
  - Multiple product rejections for various quality causes
  - The non-conformance results in a formal or non-formal complaint from a TSS customer

## 12.0 Supplier Performance

- 12.1 Suppliers will be evaluated monthly on the following elements:
  - 10.0.1 Quality
  - 10.0.2 On Time Delivery
  - 10.0.3 SCAR response time
- 12.2 Quality review is based upon formal rejections by TSS and end customer of TSS.
- 12.3 On Time Delivery is calculated based upon the receipt date versus the Purchase Order due date. It is imperative the Buyer and Seller agree upon the delivery date prior to order acknowledgement. Purchase Orders must be amended as necessary to reflect changes in due dates.
- 12.4 Supplier's response time to SCAR's are evaluated (see Section 11.0 above).
- 12.5 Suppliers not meeting TSS expectations will be heightened to Upper Management via the Monthly Management Review.
  - The suppliers on this list may be asked to complete an action plan or issue corrective action.
  - If repeatedly on the list, TSS may perform a supplier evaluation using TSS2-F-QA-SupplierEvaluation to rate the supplier and document the deficiencies which will require action from the vendor.
- 12.6 A Supplier may be suspended from the Approved Supplier Listing based upon the Supplier Performance Review

## 13.0 Supplier Assessment

- 13.1 An onsite audit or supplier self evaluation may be required prior to issuance of the first PO using form TSS4-QA-SQE-01. The audit will be reviewed by a Quality Engineer. If issues are found, the audit will be reviewed by a cross functional team to determine if further actions are necessary.

## 14.0 Supplier Placed on New Business Hold

- 14.1 A supplier may be placed on new business or no-quote hold for the following reasons:
  - Multiple product rejections for various quality causes
  - Repeat occurrences for the same cause
  - Negative trends in quality or delivery
  - Multiple missed shipments
  - TSS product returned from the customer for supplier causes
  - Lack of or insufficient SCAR response
  - FAI failures

- 14.2 Suppliers placed on hold may be issued a SCAR explaining the reason for the action.
- 14.3 Removal from the list is achieved through resolution of the SCAR which is acceptable to TSS.

## **15.0 RoHS Compliance**

- 15.1 When compliance to the Restriction of Hazardous Substances regulation is a requirement (reference Directive/95/EC implemented 8/13/04), suppliers are obligated to supply TSS with documentation to support declaration of compliance or lack thereof.
- 15.2 Suppliers receiving blueprints with the RoHS requirement notation are to indicate RoHS compliance or lack of along with the quote package.
- 15.4 Suppliers requiring RoHS documentation for their products are required to retain copies of all originals for a minimum of 10 years. A TSS quality representative must be contacted prior to removal or destruction of RoHS documentation
- 15.5 RoHS compliance or lack of is to be documented along with the std. FAI document set via TSS2-F-RoHS CofC-01
- 15.3 Questions or issues concerning RoHS compliance are to be directed to one of the quality contacts listed on the TSS website.

## **16.0 Calibration**

- 16.1 Suppliers are to ensure all inspection, test and measurement equipment are calibrated. Records from calibration are to be maintained. The measuring devices are to have a label attached with calibration due date.

## **17.0 First Article**

- 17.1 First article is required for engineering changes and new parts unless otherwise authorized by TSS Quality Engineer.
- 17.2 Requirements will be passed down to suppliers by noting specific numbers on PO from Appendix A.
- 17.3 If manufacturing a new part or a new revision level and there is no FAI requirement noted on PO, contact TSS Quality Engineer for direction.**
- 17.4 Do not submit production quantity parts until first article submission has been approved by TSS Quality.
- 17.5 First article may not be accepted if proper FAI label is not applied to the parts / packaging.

## **APPENDIX A – Supplemental Purchase Order Requirements**

### **QUALITY REQUIREMENTS**

- 001 – Special/significant process(es). Supplier must be currently approved by TSS for these processes.
- 002 – Quality System approval required prior to a new supplier’s acceptance of this order. Contact the Purchasing Agent to schedule a Quality System audit or self audit.
- 003 – Certificate of Conformance required with shipment.
- 004 – Material certification(s) required with shipment of first articles and by TSS request afterwards. Certification must be performed by an approved laboratory.
- 005 – Part serialization may be required. Contact TSS Quality Assurance for serial number scheme approval.
- 006 – Gage R&R study required with first articles. Study must be conducted on gages used to evaluate all CTQ’s, KCC’s, Major, and Critical Characteristics.
- 007 – For first article, first part or revision, Part Warrant (TSS2-F-QA-WRNT-01, Level 3) completed and submitted with five (unless otherwise specified by the customer) sample parts, bubbled Engineering Drawing, Dimensional report on TSS format unless prior approval granted (TSS2-F-QA-FAIR-01) and Certificate of Conformance for materials & coatings (plating, paint). Attach FAI Parts Submission Label (TSS2-F-Label-FAI-01) to parts shipping container or shipping Documents. When submitting upper level assemblies - include certification documentation (drawings & material certs) for all manufactured items that make up an upper level assembly where applicable. Supporting documentation on commercial or catalogue items is not required.

008 – For first article, first part or revision, Part Warrant (TSS2-F-QA-WRNT-01, Level 3) completed and submitted with five sample parts, bubbled Engineering Drawing, Dimensional Report on TSS format unless prior approval granted (TSS2-F-QA-FAIR-01), PFD, FMEA, PCP, Gage R&R and capability studies on KPC's, CTQ's, Major and Critical Characteristics, and Certificate of Conformance for materials & coatings (plating, paint). Include certification documentation (drawings & material certs) for all manufactured items that make up an upper level assembly where applicable. Supporting documentation on commercial or catalogue items is not required. Attach FAI Parts Submission Label (TSS2-F-Label-FAI-01) to parts shipping container or shipping Documents.

009 – Provide 100% inspection data on KPC's, CTQ's, Major and Critical characteristics indefinitely.

## PURCHASING REQUIREMENTS

100 – Seller shall not make material commitments or production arrangements in excess of the amount or in advance of the time necessary to meet forecast and communicated release signals. Buyer requests that Seller hold one release of finished product and one in process for readily available shipments to be released on Kanban basis. Buyer will not be responsible for termination and/or cancellations of items produced ahead of normal running production lead times unless prior written authorization is approved by Buyer. This includes any cost liability or expenses relating to raw materials, WIP, and finished goods.

101 – Order acknowledgement via e-mail/fax required.

102 – Early shipment acceptable.

103 – Shipments will not be accepted more than five (5) working days early-

## ENGINEERING REQUIREMENTS

200 – Technical plan to be submitted and approved by Buyer prior to processing of material.

## SHIPPING REQUIREMENTS

300 – TSS to approve shipping method prior to delivery.

301 – Packing Slip must include a unique Packing Slip number, Purchase Order number, TSS part number and include the line and release number shipped against.

302 – Supplier must ship collect via Carrier specified on Purchase Order.

## MISCELLANEOUS REQUIREMENTS

400 – Buyer reserves the right to terminate and Purchase Order or any portion thereof if delivery is not made when and as specified in such Purchase Order or if Supplier fails to deliver articles, machines, products, components, materials and/or services which conform in all respects to Buyer's specifications or otherwise fails in the due performance of each and all of the within Terms and Conditions of any Purchase Order.

401 – Contact TSS Purchasing Agent prior to shipment.

## **APPENDIX B- Drawing Interpretation/Workmanship Requirements**

### **1.0 General Requirements**

- 1.1 Parts are to be protected during all phases of manufacturing and shipping to eliminate nicks, gouges, etc. Metal-to-metal contacted must be avoided and is grounds for rejection of material at Receiving and/or Inspection. Surfaces are to be protected against corrosion and contamination.

- 1.1.1 Requirement 1.1 does not apply to suppliers of raw material (castings, forgings, bar/plate/round stock, non-machined weldments) where subsequent machining operations will remove material from the affected surfaces unless mandated by supplemental Purchase Order requirements.
- 1.2 Parts are to be free from foreign objects. Internal passages, blind holes and blind tapped holes, where foreign objects can become entrapped, must be inspected and any detected foreign objects must be removed prior to shipment to TSS.

**2.0 Welding Requirements**

- 2.1 Actual joint design, method of fit, type of welding, welding sequence, filler material, etc., is the responsibility of the individual welder.
- 2.2 Flame cut edges must be cleaned of slag prior to welding.
- 2.3 Exposed edges of end plates, gussets, etc., that are not subject to additional machining must be smooth and free of obvious surface irregularities.
- 2.4 All sharp edges must be broken and burrs removed (see 1.3 above).
- 2.5 The deposited metal must have properties equal to or better than the base material.
- 2.6 Where full penetration double-welded butt joints are specified, back chipping or gouging must be employed unless the welding process used is such that full penetration is obtained.
- 2.7 Fillet welds must be made with equal legs and full penetration to the root. The throat of a fillet weld must be equal to or greater than the thickness of the thinnest member being joined.
- 2.8 Inspection
  - 2.8.1 Welds must be visually inspected for the following conditions:
    - 2.8.1.1 Appearance
    - 2.8.1.2 Cold lapping
    - 2.8.1.3 Excessive penetration
    - 2.8.1.4 Burn through
    - 2.8.1.5 Surface porosity
    - 2.8.1.6 Spatter
    - 2.8.1.7 Bad tie-in
  - 2.8.2 Any welds that do not pass the visual weld inspection are subject to rejection and return to the supplier for rework/replacement.

**Change History**

Rev. #	Description of Change
0	Initial release- Changed from QA-038 to reflect new labeling system. Added Control of Records and Returns sections to the document.
1	Added Section 6, Raw Material Suppliers. Changed inspection report references to “TSS4-AS-9102-01”.
2	Major changes to the entire document.
3	Changes to section 3.5, 3.6, 3.14, 4.2, and 7.1.
4	Added Purchasing “Standard Terms and Conditions”. Added Quality clarification of documentation for upper level assemblies (021, 022).
5	Removed all suppliers will be approved on a part number basis from section 6.0 and changed section 11.0 to supplying supplier scorecards to top 5 suppliers monthly instead of all suppliers twice annually.
6	Revised section 11.0 “Supplier Rating” to change supplier rating formulas and add section 12.0 “Supplier Evaluations”
7	Revised appendix A, para. 21 to state that the five pc. sample size may be modified by customer requirements.
8	Multiple changes to the supplier scorecard section and in Appendix A, the quality requirements.
9	Added para. 13 in entirety.
10	Added language to 11.6 to list reasons for issuance of SCAR’s. Added to Appendix “A”, line #4 to allow for suppliers to request use of their FAI forms.
11	Para. 9 has RoHS record retention added and record retention period defined. Para. 14 has been added in its entirety for the purpose of communicating the supplier’s responsibility with regards to RoHS compliance.
12	Review and updated entire document. Add supplier signoff (suppliers grandfathered prior to 11/17/10), calibration, first article section 17, containment label and additional details for returns. Delete sections of product identification and appendix B.
13	Updated section 12.0 from Supplier Rating to Supplier Performance – removed monthly scorecards, but replaced with monthly review of suppliers.

**Supplier review and acceptance of TSS2-PI-SQAR-01 if required by TSS Quality Engineer:**

**Signature:**\_\_\_\_\_.

**Date:**\_\_\_\_\_.