	<h1>Supplier Quality Assurance Requirements</h1>	Control Number:	
		Revision Date:	Revision Level:
		TSS2-PI-SQAR-01	18
		6/21/2017	

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.

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

Signature: _____.

Date: _____.


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 five (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.

Reviewed By: <i>Derrick Brooks</i>	Date: 6/21/17	Approved By: <i>David Wilzbach</i>	Date: 6/21/17
<i>The personnel, noted above, have the responsibility for modifications to this document.</i>			

	<h1>Supplier Quality Assurance Requirements</h1>	Control Number:	
		TSS2-PI-SQAR-01	
		Revision Date:	Revision Level:
		6/21/2017	18

- 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.

- 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.
- 3.16 TSS Technologies is an EEO-M/F/D/V employer.

4.0 SUPPLIER APPROVAL

- 4.1 "COMMERCIAL" CLASS PARTS REQUIRE 100% COMPLIANCE TO THE PURCHASE ORDER, ENGINEERING DRAWING, AND THIS DOCUMENT.
- 4.2 "Manufactured" class parts have the same requirements as "Commercial" class with additional requirements as identified by supplemental Purchase Order remarks.
- 4.3 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.

5.0 PRODUCT IDENTIFICATION

- 5.1 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.
- 5.2 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.

6.0 Control of Nonconforming Material

- 6.1 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.
- 6.2 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 Quality Engineer for disposition. The earlier the nonconformance is detected, the more disposition options are available.
- 6.3 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.
- 6.4 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.

7.0 Control of Records

- 7.1 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. 15.

8.0 Returns

- 8.1 The suppliers must respond to all Return Material Authorization (RMA) within 3 working days of the initial notification from TSS.
- 8.2 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).
- 8.3 Once RMA is received, TSS will debit the supplier for full purchase price of rejected parts and create a return PO.
- 8.4 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.

9.0 Corrective Actions

- 9.1 In the event that a Supplier Corrective Action Request is issued, an initial response (SCAR steps 1-2) is to be completed within 24 hours from the date of issuance
- 9.2 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.
- 9.3 Timely responses to issued SCAR's are an integral part of the overall Supplier performance review
- 9.4 Corrective actions issued as a result of part quality may result in the supplier being required to certify future shipments.
- 9.5 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."
- 9.6 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

10.0 Supplier Performance

- 10.1 Suppliers will be evaluated on the following elements:
 - 10.1.1 Quality
 - 10.1.2 On Time Delivery
 - 10.1.3 SCAR response time
- 10.2 Quality review is based upon formal rejections by TSS and end customer of TSS. Reports are generated monthly and reviewed by the Quality Engineer.
- 10.3 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. Suppliers not meeting an acceptable on time delivery will be reviewed in the Management review for further actions.
- 10.4 Supplier's response time to SCAR's are evaluated monthly by Quality Engineer. Any suppliers not submitting SCAR's on time will be assessed in the management review for further actions.
- 10.5 Suppliers not meeting TSS expectations will be heightened to Upper Management via the Management Reviews.
 - 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.
- 10.6 A Supplier may be suspended from the Approved Supplier Listing based upon the Supplier Performance Review

11.0 Supplier Assessment

11.1 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.

12.0 Supplier Placed on New Business Hold

12.1 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

12.2 Suppliers placed on hold may be issued a SCAR explaining the reason for the action.

12.3 Removal from the list is achieved through resolution of the SCAR which is acceptable to TSS.

13.0 RoHS Compliance

13.1 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.

13.2 Suppliers receiving blueprints with the RoHS requirement notation are to indicate RoHS compliance or lack of along with the quote package.

13.4 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

13.5 RoHS compliance or lack of is to be documented along with the std. FAI document set via TSS2-F-QA-WRNT-01

13.3 Questions or issues concerning RoHS compliance are to be directed to one of the quality contacts listed on the TSS website.

14.0 Calibration

14.1 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.

15.0 First Article

15.1 First article is required for engineering changes and new parts unless otherwise authorized by TSS Quality Engineer.

15.2 FAI will be noted on the PO and TSS Quality Engineer will specify the specific FAI requirements, including certificate of conformance, material certification, and/or packing slip of attached hardware .

15.3 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.

15.4 Do not submit production quantity parts until first article submission has been approved by TSS Quality.

15.5 First article may not be accepted if proper FAI label is not applied to the parts / packaging.

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 Flame cut edges must be cleaned of slag prior to welding.
- 2.2 Exposed edges of end plates, gussets, etc., that are not subject to additional machining must be smooth and free of obvious surface irregularities.
- 2.3 All sharp edges must be broken and burrs removed
- 2.4 The deposited metal must have properties equal to or better than the base material.
- 2.5 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.
- 2.6 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.
- 2.7 Inspection
 - 2.7.1 Welds must be visually inspected for the following conditions:
 - 2.7.1.1 Appearance
 - 2.7.1.2 Cold lapping
 - 2.7.1.3 Excessive penetration
 - 2.7.1.4 Burn through
 - 2.7.1.5 Surface porosity
 - 2.7.1.6 Spatter
 - 2.7.1.7 Bad tie-in
 - 2.7.2 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.
14	Updated section 15.0 to change RoHS C of C with PSW. Updated section 12.0 to discuss suppliers not meeting acceptable level of on time delivery in mgmt review.
15	Add 3.16, clarify material cert in Appendix A sections 007 and 008
16	Removed appendix A and section 5.0
17	Updated section 17.2 for attached hardware.
18	Removed Purchasing Terms & Conditions section 4.0; moved supplier signature block to cover page