
Trans-Tech Supplier Quality Manual

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Revision History

Rev	Name	Change	Date
1	Stacey Clayton	Initial Release	8/20/08
2	Stacey Clayton	Changed section 5.12 to match Skyworks Supplier Quality Manual. Cpk vaules should be ≥ 1.67 instead of 1.33 and an improvement plan must be available for those that are not for more than 2 quarters.	10/8/08
3	Stacey Clayton	Changed shall be fulfilled to should be fulfilled in section 4, removed requirement to know full mtrl. content in section 5.3.1, recommended Risk Mgmt. Policy instead of required, Changed 8D response time from 24 hr for 3 day to 10 days total, took written out of section 5.9.7 requirements, Added when requested to 5.10, removed requirement for resurvey every 5 years in section 5.11. Updated section 5.9.1 to allow TTI to take exception to the ISO / IEC 17025.	12/19/08 1/6/09
4	Stacey Clayton	Update section 5.9.1 so calibration and test suppliers should comply with ISO 17025, removed requirement for certification.	2/27/09
5	Stacey Clayton	Updated approvers. Replaced ISO9001:2000 reference with ISO9001.	11/11/09

1 Purpose and Scope

1.1 Purpose

The purpose of this manual is to define the basic quality systems and business procedures required of the suppliers who currently or potentially manufacture and/or supply production material and / or services to Trans-Tech.

This manual also defines quality requirements, business practices and applicable documents for these suppliers, in order to maintain their status as an approved supplier.

This manual, the Commercial Agreement, the Nondisclosure Agreement, and the Trans-Tech purchase orders are intended as the agreement on all the terms and provisions. This manual supersedes any prior written or oral agreements concerning any of the subject matter of this manual.

1.2 Scope

This procedure applies to Trans-Tech suppliers of Level 1 Materials and Level 4 Services that directly affect the form, fit, function, quality or reliability of the finished product.

2 Acronyms / Terminology and Description / Definition

Approved

The supplier status is such that Trans-Tech' Sourcing may buy qualified products from that supplier.

ASL

Approved Supplier List

Certificate of Analysis

Signed document that provides quantitative data for the items being delivered that certifies that the product conforms to all purchase order requirements and, reference specifications.

Certificate of Conformance

Signed document certifying that delivered products conform to all purchase order requirements and, reference specifications.

Disqualified

The supplier performance has proven unacceptable such that no further orders may be placed.

Level 1 Material

Material used in the manufacture of finished product and directly affects the form, fit, function or reliability of the finished product.

Level 4 Service

Service provided by an outside contractor that directly affects the form, fit, function or reliability of the finished product.

RMA

Returned Material Authorization: typically a requirement for returning nonconforming products to the supplier.

SCAR

Supplier Corrective Action Request: formal request for improvement issued by any member of the team.

SQE

Supplier Quality Engineer

3 Associated Documents

Access to Trans-Tech documentation can be obtained upon request.

Trans-Tech Documents

TT-WI-0137	Supplier Evaluation and Selection
TT-F0100	Candidate Supplier Procurement Survey
SQ04-0070	Supplier Product / Process Change Notice

National and International Standards

ISO 9001	Quality management systems – Requirements
ISO/IEC 17025	General requirements for the competence of testing and calibration laboratories

4 Supplier Qualification

Trans-Tech supplier expectations are defined in section 5. Conformance to these requirements is verified by means of supplier surveys, requested self-appraisals, and on-site assessments performed by Trans-Tech or a third party. All requirements in each applicable element should be fulfilled for a supplier to be considered qualified to provide materials or services to Trans-Tech. Detailed work instructions regarding this process can be found in **TT-WI-0137 Supplier Evaluation and Selection**.

5 Supplier Expectations

5.1 Corporate Policies and Objectives

It is the policy of Trans-Tech that materials and services used in the design and production of Trans-Tech products be procured in a professional and ethical manner that results in achieving the lowest total cost of ownership for Trans-Tech and for our customers. Further, all purchased materials and services must be in compliance with agreed upon requirements, be delivered on time, and have competitive lead times and prices

5.2 Regulatory Agency Compliance

It is the supplier's responsibility to ensure that their product is in compliance with all applicable regulatory agency and product safety requirements, and claims including that stated in supplier published product advertising, catalogues and data sheets. The supplier must be prepared at all times to substantiate compliance by providing copies of test reports and making records available for review if requested.

5.3 Environmental Supplier Specification

Trans-Tech, Inc. is committed to the protection and preservation of the environment in all its business operations. We strive to control impacts to the environment from business activities while promoting environmental improvement throughout our entities and associates. We have established specific requirements to which all Level I suppliers must comply with which ensure identified banned substances are not used in components or materials purchased by Trans-Tech.

5.3.1 Environmental Management

The supplier shall:

- Ensure proper environmental controls in place to ensure hazards (i.e. wastewater, emissions to air, hazardous waste, etc.) are properly controlled to meet applicable regulatory requirements
- Place requirements on their suppliers to comply with applicable environmental regulations

5.4 Social Accountability

The Supplier shall be committed to ethical conduct, full compliance to applicable national and international laws and respect for human rights including:

- Having a written labor policy ensuring conformance to all applicable labor laws and requirements covering all of the following: freely chosen employment, child labor avoidance, working hours, wages and benefits, humane treatment, non-discrimination, and freedom of association
- Having a written ethics policy covering all of the following: business integrity, no improper advantage, disclosure of information, intellectual property, fair business practices, and protection of identity
- Place requirements on your suppliers to comply with applicable labor laws

5.5 Risk Management Policy

It is strongly recommended that the supplier have an up-to date Risk Management Policy ensuring that in the event of disaster or inability to perform, the supplier has a plan to take necessary action in order to minimize and or eliminate such risk, from Trans-Tech.

5.6 Notification of Product Quality or Delivery Issues

5.6.1 Non-Conforming Product

Delivery of product to Trans-Tech not meeting supplier's internal manufacturing specifications for measurements as identified on the control plan, acceptance criteria, outlier limits or Trans-Tech specifications requires:

- Supplier to review non-conformance through a cross functional Material Review Board (MRB) to determine acceptability of shipping material to Trans-Tech.
- Issuance of a Non-Conforming Material Report (NCMR) to the Trans-Tech' Supplier Quality Engineer specifying nature of non-conformance, associated data with non-conformance, and supplier's MRB explanation of why supplier believes the non-conformance will not impact Trans-Tech' product performance, quality or yield.
- Approval of the NCMR by Trans-Tech Quality Department.

5.6.2 Product / Process Changes

The Supplier shall have a process to manage and track changes in requirements and product data. This shall include revision history documentation of the resulting changes in engineering documentation.

The Supplier shall notify Trans-Tech of product or process changes made after the product has been approved in accordance with the requirements of **SQ04-0070 Supplier Product / Process Change Notice**.

5.7 Product Identification

The Supplier shall have a system of manufacturing control such as a route card, run card, control software, etc, used for the identification of products with regard to type, lot or serial number, and their status during all stages of production and test. The shipments containing finished products shall be labeled according to relevant Trans-Tech' specifications.

5.8 Product Traceability

The Supplier shall have a system for ensuring finished product traceability back to factory, date code and lot or serial number as specified by Trans-Tech. The Supplier shall also have a system for identifying and tracing critical raw materials back to the source. When appropriate, traceability requirements shall be implemented at the request of Trans-Tech.

5.9 Quality Plan

Trans-Tech will continuously strive to improve Quality and provide world-class products to our customers. To ensure we are able to meet and maintain this objective, Trans-Tech expects the following elements to be present with its suppliers. In the event the supplier does not have an element of this plan, Trans-Tech will at its discretion, decide if we want to work and assist the supplier to develop the missing element. The Quality plan may be reviewed by the Trans-Tech

Supplier Quality Engineer prior to a supplier being qualified. For existing suppliers, Trans-Tech Quality Engineers may work with the supplier to document and/or develop an acceptable Quality Plan.

Trans-Tech intent is to purchase material from suppliers on a Dock to Stock Program. This is a process where Trans-Tech receives parts and materials from suppliers and uses them with a minimum of internal inspection and test costs, or losses resulting from the supplier's fault non-conformances. Trans-Tech will not accept the cost of excessive testing and poor quality, and will not pay the cost of our suppliers doing extensive testing or the resulting poor yields and escapes.

The intent is to emphasize process capability improvement and controls and/or monitors that will have the greatest impact on quality and reliability and ultimately zero defects, zero repeat issues and cost of ownership goals. The Quality Plan will normally consist of the following elements as a minimum however, additional requirements may be requested by Trans-Tech:

5.9.1 Quality System

Suppliers are expected to have an effective quality system in place that assures consistent on-time delivery of conforming product. System should be based on **ISO 9001**. Calibration and Testing Laboratories should comply with **ISO/IEC 17025** or operate per OEM procedures.

5.9.2 Failure Mode and Effect Analysis (FMEA)

It is strongly recommended that the supplier develop a Process or Product FMEA and use those results to determine the appropriate test and inspection points as well as appropriate control methods.

5.9.3 Production Part Approval

Trans-Tech may request suppliers to conform to a production part approval process.

5.9.4 Corrective Action and Failure Analysis

Trans-Tech will use a Supplier Corrective Action Request (SCAR) as the trigger to engage the supplier for a request for containment, root cause analysis, corrective action and verification. All responses from supplier need to be in an 8D or equivalent format. The containment, root cause and corrective action plan shall be provided within 10 days of the receipt of samples, as applicable. The actual deployment and verification may take longer based on the complexity of the problem.

5.9.5 Document Control System

Trans-Tech requires suppliers to have a Document control system in place. Suppliers must ensure that the latest Trans-Tech specifications, work instructions, and other related documents are maintained in this system

5.9.6 Internal Quality Audits

Suppliers shall perform internal quality audits in accordance with documented procedures and control plans. The supplier shall review audit results, plan corrective action and perform follow-up verification of corrective action effectiveness.

Periodically, the supplier may be requested to share details of the internal audits and follow-up items with Trans-Tech Supplier Quality Engineer.

5.9.7 Work Environment

Suppliers shall determine and manage the aspects of work environment needed to achieve conformity to product requirements. Examples of aspects include but are not limited to temperature, humidity and cleanliness.

Suppliers shall address product safety and means to minimize potential risks to employees especially in manufacturing process activities including:

- maintaining an occupational safety and health program that enables the organization to identify and control workplace hazards and risks
- senior management commitment to provide and maintain a safe and healthful workplace for employees

- establishing and maintaining plans and procedures to identify the potential for, and responses to, incidents and emergency situations (e.g. written emergency action plan)
- maintaining and routinely testing life-safety systems (e.g. fire, smoke, toxic gas, critical exhaust, back-up power, etc.) to assure their reliability and readiness
- appropriately segregating, storing and handling hazardous materials to minimize hazardous materials incidents

5.9.8 Problem Resolution, Escalation and Key Contacts

The Quality Plan will also define who has authority for resolving quality, technical and supply issues and the escalation process to the next level of management in the event that a decision can not be reached at any level.

The supplier is expected to designate a key contact person and will furnish their name, daytime phone number, and email address. This individual will be the owner for taking action on quality alerts and assuming all reports and corrective action request are rendered to Trans-Tech in a timely fashion. The supplier will be responsible for the assuring the availability of this individual or a that back-up is available to Trans-Tech at all times.

5.10 Reports

When requested, all shipments must be accompanied by a certificate of conformance and/or certificate of analysis traceable back to the items being delivered.

The supplier may be requested to provide periodic reports or summary reports of inspection or test results. The Trans-Tech Supplier Quality Engineer may review the metrics and reporting formats and frequency. Additionally the supplier may be requested by Trans-Tech Supplier Quality Engineer to provide periodic summary reports of FA and evaluation results on SCARs / RMAs. These will need to be in the format prescribed by Trans-Tech Supplier Quality Engineer.

5.10.1 Calibration Reports

Calibration reports must include evidence of conformance to requirements. Calibration shall be performed in accordance with manufacturer's specifications unless otherwise noted on the purchase order (see 5.9.1). The calibration report shall include as a minimum the following information:

- Equipment identification, including the measurement standard against which the equipment is calibrated
- Any out-of-specification readings as received for calibration/verification
- A statement of conformity to specification after calibration/verification

5.11 Supplier Self Assessment Survey

TT-F0100 Candidate Supplier Procurement Survey needs to be completed by the supplier during the initial supplier evaluation and will be kept on file by Trans-Tech. This form will also be used as the template for on-site audits performed by Trans-Tech. An updated survey may be requested by the Trans-Tech Supplier Quality Engineer if deemed necessary.

5.12 Capability Indices

The supplier should establish a procedure to assure that critical Cpk's are ≥ 1.67 . This procedure may be reviewed by the Trans-Tech Supplier Quality Engineer. For those critical Cpk's which are < 1.67 for two consecutive quarters, the supplier will have documented improvement plans that shall be made available to Trans-Tech upon request.

5.13 Control of Trans-Tech Owned Product or Equipment

Secondary materials (such as carrier tape, trays, packaging, etc.) and consigned material provided or specified by Trans-Tech shall be verified to meet Trans-Tech requirements and fit for use before being accepted.

Custom equipment and/or tooling purchased by Trans-Tech shall remain the property of Trans-Tech.

Trans-Tech owned equipment, tools, test correlation parts, secondary materials or consigned material shall be controlled, stored, handled and maintained in a manner that protects them from loss and damage.