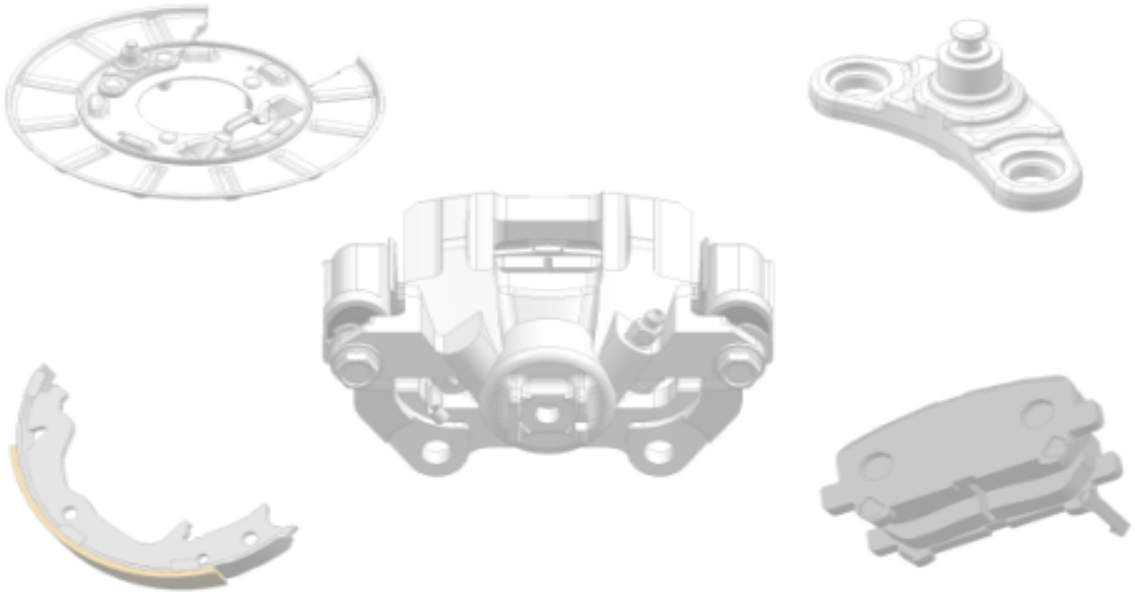
AKEBONO BRAKE CORPORATION NORTH AMERICA



"Building Quality Together"

Supplier Quality Assurance Manual

AKEBONO SUPPLIER QUALITY ASSURANCE MANUAL

AKEBONO is committed to quality through continual improvement in an effort to maintain a world-class quality system. This manual is based on a quality system intended to encourage and implement a spirit of cooperation and continual improvement. Akebono Brake Industry Co. Ltd of Japan is a world leader in the design and manufacture of technologically advanced, high quality, precision automotive brakes and components in both domestic and international markets.

AKEBONO's Suppliers performs a major role in our Quality System. Our quality depends on your products. It is our desire to encourage a partnership atmosphere that unites a strong Supplier/ Customer relationship that produces a quality, on time, competitive product.

The following facilities comprise the Akebono Brake Corporation located in North America referred to in this manual as AKEBONO. Requirements set forth in this manual are approved by Akebono Quality Management.

AKEBONO Brake Corporation (ABC) **310 Ring Road** **Elizabethtown, Kentucky 42701** **Ph. (270) 234-5500**
AKEBONO Engineering Center (AEC) - *R&D Center* **34385 West Twelve Mile Road** **Farmington Hills, Michigan 48331** **Ph. (248) 489-7400**
AKEBONO Brake Corporation– Glasgow (ABG) **1765 Cleveland Avenue** **Glasgow, Kentucky 42141** **Ph. (270) 678-1765 Fax: (270) 678-5659**
AKEBONO Brake Corporation- Elizabethtown (ABE) **300 Ring Road** **Elizabethtown, Kentucky 42701** **Ph. (270) 737-4906 Fax: (270) 737-3044**
AKEBONO Brake Corporation- Tennessee (ABCT) **780 International Blvd.** **Clarksville, TN 37040 USA** **Ph. (931) 553-6500**
AKEBONO Brake Corporation- South Carolina (ABCS) **201 Metropolitan Drive** **West Columbia, SC 29170 USA** **Ph. (803) 227-1300**
AKEBONO Brake Mexico S.A. de C.V. (ABM) **Av. Mineral De Valenciana 186 Fracc,** **Industrial Santa Fe, Guanajuato Puerto Interior,** **Silao, Guanajuato, C.P. 36275, Mexico** **Ph. +52 472-748-9116**

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1. Revision History

Revision Date	Description	Comments
02/28/2005	Initial Publication – This manual supersedes Document No. 002 issued April 24, 2003.	Establish common requirements between Akebono Corporation North America, Akebono Subsidiaries, and Partnerships
05/02/2005	Reformatted document to PDF	none
4/4/2008	Added applicable form numbers to context of requirements. Redefined Quality Philosophy.	none
8/15/08	Deleted 1.67 Ppk requirement from page 13, Section 7.3.4.f.5 and added "should follow AIAG-PPAP Manual"…..; Changed the minimum capability study qty from 100 pieces to 125, see 7.3.4.f.6; Changed 7.4.B.2 from ten consecutive shipments to five, see page 18.	To align requirements with AIAG-PPAP and SPC Manuals and Customer-Specific-Requirements
7/14/09	Revised Pg 16 (5) to reflect PPAP status sheet ABC-F033 certified pallet. Revised Pg 14, 7.3 (m) to Mini-Tab preferred. For suppliers without Mini-Tab use form SPC 3x10 Gage Study ANOVA (#ABC-F093	none
11/12/09	Updated reflecting the release of ISO9001:2008 /TS16949:2009	No new requirements.
4/7/10	Added ABCT and ABCS to manufacturing sites (Pg 2-3). Added ABCT and ABCS to Section 9.0, Facility Specific Requirements (Pg 26).	none
12/13/10	7.3- o. Safe Launch Revision 7.3- 4. Limited & Full PPAP Approval revision 7.3-J, 2-3 Pre-Launch (Pre-Production) Control Containment Revision 7.4- 5, Quality Awards and Supplier of the Year Revisions 7.5- G, Service Agreement	Major Process, System Changes
8/2/11	Change and rewording of all sections to adhere to current processes and procedures	none
9/16/11	Change of Reference from ABC-W007 to ABC-E007 Elimination of Reference to ABC-F061 Reformatted Document (above section references invalid, for current reference see Table of Content)	none

6/12/12	Change of Terminology from “Technical Meeting Minutes” to “Supplier Kick-Off Meeting” (ABC-F050)	none
12/14/12	Revised Annual PPAP Resubmission handling, Akebono is now placing responsibility on supplier to complete annual layout and maintain evidence to be provided upon request. Changed SCR Rank explanation and added reference to PFMEA Severity criteria.	none
8/12/2014	Revised approach to align with ISO/TS 16949 manual to highlight Akebono Specific Requirements. Moved Production Part Approval Requirements to a separate document to clarify requirements more clearly.	Section numbering matches ISO/TS 16949 manual.
10/6/15	Section 7.5.5 changed e-mail address for packaging changes. Added to section 8.5.2.4 “(*Supplier requested extensions may be granted by Akebono SQA depending on justification for request. Ex: Corrective action will require purchase of new equipment scheduled for specified future date.)”	none
10/11/16	Updated section 8.5.2 removing reference to ABC-F128 as the form is superseded by the system generated SCR report from Elements. Reworded 8.5.2.1 to indicate problem solving shall be in accordance with automotive industry standard formats.	none

2. Scope and Application

This manual is intended to provide our valued Supply Partners with the basis for understanding the quality requirements of AKEBONO. It establishes the minimum quality requirements for all Suppliers of material and processing services purchased by AKEBONO.

This manual applies to all companies that have a contractual direct material purchase agreement with AKEBONO and is a supplement to all terms and conditions covered by purchase documents, specified warranty agreements, and requirements of engineering drawings/specifications and process instructions. The requirements set forth in this document are based on the ISO/ TS 16949 International Standard and the Automotive Industry Action Group (AIAG) requirements.

Suppliers are expected to have a quality system that is conforming to the ISO / TS 16949 Technical Specification. Conformity with ISO 9001 is the first step in achieving this goal.

AKEBONO and its customers reserve the right to visit Suppliers with the express purpose of reviewing all processes that pertain to the production of contracted products to confirm compliance with stated requirements.

3. AKEBONO's Quality Policy:

"Quality 100" is ABC"

Akebono

Achieve 100%:
Safety & Quality
Delivery
Customer Delight

Brake

Brake Experts Dedicated 100% to:
Ownership of Own Work Quality
Designs with Quality–Built-In
Processes with Quality-Built-In

Corporation

Committed 100% to Continual Improvement:
Of People/Processes
Of Designs/Technology
Compliance with Requirements

4. Quality Management System

4.1. General Requirements

AKEBONO requires Suppliers to establish, document, implement, and maintain a quality management system, and continually improve its effectiveness in accordance with the requirements of ISO 9001.

4.1.1 TS 16949 Supplemental applies

4.2. Documentation Requirements

4.2.1. General - ISO 9001Requirements

4.2.2. Quality Manual - ISO 9001 Requirements

4.2.3. Control of documents - ISO 9001 Requirements.

4.2.3.1. Engineering Specifications - Per TS 16949, additionally, AKEBONO drawings are identified by the following prefixes:

4.2.3.1.1. PROTOTYPE

- OB = **Disc Brake**

- OC = **Drum Brake**
- PX = **Friction Pad Assemblies**
- 0M = **Wheel End**
- 9X **= Common Component Parts**

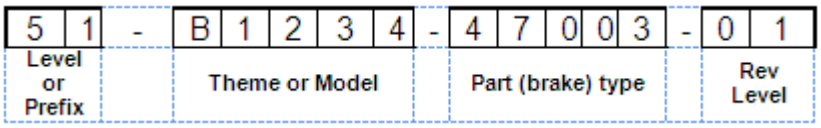
4.2.3.1.2. **PRE-PRODUCTION**

- AB = **Disc Brake**
- AC = **Drum Brake**
- PZ = **Friction Pad Assemblies**
- AM = **Wheel End**
- 9Z **= Common Component Parts**

4.2.3.1.3. **PRODUCTION**

- 51 = **Disc Brake**
- 52 = **Drum Brake**
- P1 = **Friction Pad Assemblies**
- 63 = **Wheel End**
- 90 = **Common Component Parts**

4.2.3.1.4. AKEBONO drawings have the following nomenclature:



4.2.4. Control of Records – ISO 9001Requirements

4.2.4.1. Record Retention - The retention of records shall satisfy statutory, regulatory and customer requirements.

4.2.4.1.1. Quality Records shall be maintained for a minimum of ten years. This applies to PPAP, evidence of on-going product conformance (material and reliability), change control records, purchase orders, and traceability.

5. Management Responsibility

5.1. Management Commitment

Suppliers shall be prepared to provide upon request, evidence of their organization's commitment to the development and implementation of the quality management system and efforts to continually improve its effectiveness by communicating the importance of meeting customer as well as statutory and regulatory requirements within the supplier's organization.

5.2. Customer Focus

Suppliers shall develop and document processes with the purpose of enhancing customer satisfaction. Top management shall monitor customer satisfaction as published on the AKEBONO Supply Partner Performance scorecard and take action when appropriate.

5.3. Quality Policy

ISO 9001/ TS 16949 Requirements

5.4. Quality Planning

ISO 9001/ TS 16949 Requirements

5.5. Responsibility, Authority and Communication

ISO 9001/ TS 16949 Requirements

5.6. Management Review

ISO 9001/ TS 16949 Requirements

6. Resource Management

6.1. Provision of Resources

ISO 9001/ TS 16949 Requirements

6.2. Human Resources

Per ISO 9001/ TS 16949 requirements, with emphasis on ensuring that personnel are aware of the consequences for nonconformity to quality requirements of automobile brake components.

6.3. Infrastructure - ISO 9001 Requirements

6.3.1. Plant, facility and equipment planning - TS 16949 Requirements

6.3.2. Contingency plans – Per TS 16949. Additionally, plans shall be made available for review upon request.

6.4. Work Environment - ISO 9001Requirements

6.4.1. Personnel safety to achieve conformity to product requirements – Per TS 16949, potential safety risks should be considered in the planning of manufacturing processes.

6.4.2. Cleanliness of premises – In accordance with TS 16949 requirements, suppliers are expected to provide a work environment in a state of order, cleanliness, and repair consistent with the product and manufacturing process needs to ensure achievement of product conformity.

7. Product Realization

7.1. Planning of Product Realization

In addition to the requirements of ISO 9001/ TS 16949, Suppliers shall ensure the effective and efficient operation of product realization and support processes and related processes. Relevant activities, actions, and resources shall be defined in order to achieve customer satisfaction through all phases of product realization.

7.1.1. Planning of Product Realization – Quality planning is conducted in accordance with the AIAG Advanced Product Quality Planning and Control Plan manuals.

7.1.1.1. A *Supplier Kick-Off Meeting (#ABC-F050)* will be scheduled and conducted by the appropriate Buyer to ensure all requirements for new part launch are communicated to and understood by Supplier. Preferred attendance: Representatives to cover Commercial, Manufacturing and Quality

7.1.2. Acceptance Criteria – Per TS 16949

7.1.3. Confidentiality - Suppliers are required to sign Confidentiality agreements.

7.1.4. Change Control – Per TS 16949

7.2. Customer Related Processes

7.2.1. Determination of requirements related to the product – Suppliers are required to participate in design reviews and will have the opportunity to clarify any questions about the intended use of the component. The supplier is therefore expected to fully understand the intended use prior to the acceptance of a contract.

7.2.1.1. Customer designated special characteristics – Akebono drawings may contain special characteristics and in some cases specified methods of control. During the development of the Safe Launch plan additional Special Characteristics may be established. The deployment of special characteristics within the suppliers' manufacturing process is required.

Akebono drawings use these symbols to designate special characteristics:		
▽	Safety Characteristic	Safety related product characteristics for which variation out of specification could affect the product's safety or its compliance with government regulations.
◇	Key Characteristic	Key related product characteristics such as fit, performance or appearance, for which variation out of specification could affect customer satisfaction with the product or the ability to build or process the part.
	SPC Control	The characteristic shall be controlled through Statistical Process Control (SPC) methods.

A	Monitoring Control	The characteristic shall be controlled through monitoring methods developed and agreed upon during the APQP process.
B	PV Control	The characteristic shall be controlled and verified through the initial Product Validation (PV).

7.2.2. Review of requirements related to the product - ISO 9001 / TS 16949 Requirements

7.2.3. Customer Communication - The ABC Purchasing and ABC Supplier Quality Representative will coordinate a Supplier Kick-Off Meeting (ABC-F050) with Suppliers as appropriate.

7.2.3.1. To facilitate ongoing communication, suppliers will be required to complete and return a Supplier Contact Profile (ABC-F034).

7.2.3.2. Requirements related to the product extend to agreements as stated in the contract and *Purchase Order Terms and Conditions*.

7.2.3.3. Any requirements differing from the quotation shall be resolved.

7.2.3.4. ABC Purchasing is the approving authority for changes to a Purchase Order (PO) that revises the terms and conditions, packaging specification requirements, quantity, delivery, and/or cost requirements from the original contract agreement.

7.2.3.5. Effective arrangements must be implemented to facilitate efficient communications, electronic or other with AKEBONO regarding product information, inquires, production orders, and feedback; including quality, delivery, and cost concerns.

7.3. Design and Development

This requirement includes product and manufacturing process design and development and focus on error prevention rather than detection.

7.3.1. Design and development planning - In addition to ISO 9001/ TS 16949 requirements:

7.3.1.1. During Manufacturing process design and development, consideration shall be given to “Special/ Critical” characteristics identified internally, by Akebono and by customers of Akebono.

7.3.2. Design and development inputs - ISO 9001 / TS 16949 Requirements

7.3.3. Design and development outputs - In addition to ISO 9001 / TS 16949 Requirements, during manufacturing process design and development, theoretical capacity calculations may be required.

7.3.4. Design and development review

In addition to ISO 9001 / TS 16949 requirements, product and process design reviews will be held periodically with the supplier to ensure effective communication and progress according to plan.

7.3.5. Design and development verification

7.3.5.1. Product / Process designs shall be verified by line trials etc., validated by the Run @ Rate and initial lot containment activities in accordance with planned arrangements. (ABC-F052 or approved equivalent) Records shall be maintained and available for review as required by AKEBONO.

7.3.6. Design and development validation - ISO 9001 / TS 16949 Requirements including

7.3.6.1. Design and development validation – Supplemental – Validation Testing shall be performed in accordance with specified requirements, including timing.

7.3.6.2. Prototype Program

7.3.6.2.1. In addition to the requirements of ISO 9001/ TS 16949, Prototype requirements will be included with the prototype order. In addition to Drawings, inspection requirements will be communicated at the time of order using form ABC-F353, the inspection results must be provided as instructed. A ballooned drawing shall be provided in instances where 100% layout has been requested using ABC-F031 or equivalent.

7.3.6.2.2. Prototype samples that do not meet design requirements must be approved in writing (Deviation) by the design responsible engineer (refer to contact on ABC-F353).

7.3.6.2.3. In addition to any other labels, a minimum of two "**Special Handling Required"** (ABC-F046) labels, printed or copied on "**ORANGE PAPER"** must be attached on adjacent sides of each container. The Special Handling Required label is not a substitute for, but in addition to the standard Bar Code Labels.

7.3.6.2.4. **When Prototype Samples are shipped on a skid, they must not be combined with any production approved materials.**

7.3.6.2.5. Contact the ABC Prototype buyer if there are questions concerning Prototype Samples labeling or shipping requirements.

7.3.6.2.6. Additional documentation including a Prototype Control Plan may be required. These additional requirements will be communicated through the prototype buyer.

7.3.6.3. Product approval process

Per ISO / TS 16949 requirements, Akebono must require our suppliers to conform to the product and manufacturing process approval procedure required by our customer. Refer to "Akebono Customer Specific Requirements for PPAP", Document number ABC-M002A, for specific information.

7.3.7. Control of design and development changes

7.3.7.1. Planned changes to process and/or material must be submitted in writing using Supplier Process Change Request (SPCR) form (ABC-F057). This requirement is inclusive of sub-supplier changes.

7.3.7.2. All requests shall be submitted as early as possible to: SupplierPCR@akebono-usa.com.

7.3.7.3. The supplier responsible section must be filled out completely to avoid immediate rejection.

7.3.7.4. Submissions will need to include sufficient information for Akebono to evaluate; instances where additional information has to be requested will only delay the process.

7.3.7.5. Each SPCR will be evaluated and given an initial disposition which will be communicated back to the originator. This communication step is NOT authorization to proceed; it is acknowledgement of receipt and indication of either rejection or the continuation of the requested change within the Akebono change management process.

7.3.7.6. As the SPCR advances through the Akebono process you will be contacted to work out change management details such as, PPAP requirements, submission timing, and implementation timing.

7.3.7.7. Change implementation timing can be sensitive in our industry and as such, it is expected that the Supplier will adhere to established dates confirmed after change request approval. Failure to maintain schedule could delay the PPAP approval and subsequent implementation.

7.4. Purchasing

7.4.1. Purchasing processes

In addition to ISO 9001 / TS 16949 requirements, Akebono uses the following tools for initial and on-going selection and evaluation.

- Prospective / new suppliers are required to complete and submit a Supplier Pre-assessment Survey (#ABC-F051) issued by ABC Purchasing or ABC Supplier Quality.
- Quality Systems and/or Process Audit(s) are completed, by ABC Supplier Quality or another qualified Akebono associate.
- Supplier shall permit Akebono to conduct onsite assessments as deemed necessary to confirm their ability to supply products in accordance with requirements.

Formal Quote requests are communicated via an electronic Request for Quote (RFQ) and should contain all available information necessary for an accurate quote. The RFQ package may contain specifications or other critical information not found on the drawing. Suppliers must provide quotation details that include breakdown for quoting piece price and tooling cost respectively. Additionally, the breakdown should include tooling/production capacity in units per hour, hours per day and days per week, any new equipment or plant expansion if needed or planned, and any exceptions to quality assurance specifications.

7.4.1.1. Statutory and regulatory conformity

Applicable Statutory and regulatory requirements include but may not be limited to the following:

- Material Safety Data Sheet (MSDS) for component and/or other items such as rust preventatives, oils, adhesives, etc. shall be submitted.
- IMDS Submissions for Environmental compliance are required and are submitted via MDSystem.com as identified below.
  - On initial PPAP Submission
  - Revised Drawing Releases (Pre-production level to Production level part number)
  - Supplier or sub-supplier changes, Mass change > 5%, Material / Chemistry change(s) including coating/plating etc.

  Knowledge regarding *IMDS submission is part of doing business. A supplier needing assistance should use the public pages of mdsystem.com and also enroll in training. The following address provides initial introduction/training to suppliers on inputting IMDS. https://public.mdsystem.com/web/imds-public-pages/reading/*

- Conflict Minerals: Supplier must report compliance to HR4173 Regulation 1502 regarding prohibition of Conflict Minerals. (where applicable)

7.4.1.2. Supplier quality management system development - Suppliers are expected to have a quality system that is conforming to Technical Specification ISO / TS 16949.

7.4.1.2.1. Suppliers are required to provide evidence of 3rd party registration. Failure to provide a current (non-expired) certificate may result in New Business Hold.

7.4.1.3. Customer-approved sources - TS 16949 Requirements

7.4.2. Purchasing Information

7.4.2.1. Purchasing information will be communicated via a Purchase Order.

7.4.3. Verification of purchased product

In addition to TS 16949 Requirements,

7.4.3.1. **Incoming product conformity to requirements-** In addition to TS 16949 requirements, suppliers are required to maintain quality records and traceability to the raw material certificates of analysis as appropriate.

7.4.3.2. **Supplier Monitoring** - TS 16949 requirements.

7.5. Production and service provision

7.5.1. Control of production and service provision

7.5.1.1. **Control plan** – In addition to TS 16949 requirements, notification is required when updating the control plan and prior to implementation. Appropriate notification methods include communication via a SPCR, or an approved Supplier Corrective Action Report and may require a new PPAP.

7.5.1.2. **Work instructions** – TS 16949 Requirements

7.5.1.3. **Verification of job set-ups** – TS 16949 Requirements, includes the recommendation to perform Last-off-part comparisons.

7.5.1.4. **Preventative and predictive maintenance** – TS 16949 Requirements

7.5.1.5. **Management of production tooling** - In support of TS 16949, a Purchase Order for tooling will normally be accompanied by a purchase order for a specific quantity of parts manufactured or processed by the tooling.

7.5.1.5.1. Upon receipt of a tooling PO, the Supplier will prepare a critical path schedule showing the main elements of the schedule including both start and completion dates.

7.5.1.5.2. The schedule must include the following elements: Tool design, Tool build, Sample run, Data acquisition (layout, testing, etc.), PPAP submission

7.5.1.5.3. Suppliers may be expected to provide an updated schedule as specified during the Supplier Kick-Off Meeting.

7.5.1.5.4. Unless otherwise negotiated, Suppliers are responsible for and shall provide lifetime maintenance of tooling. This should be clearly indicated in the quotation process.

7.5.1.6. **Production scheduling** – In addition to TS 16949 Requirements, suppliers are expected to comply to purchase orders, release quantities, due dates, and to utilize forecasts and production releases to establish a production schedule that ensures on time delivery. Release dates are the date of shipment arrival. Shipments implemented on a milk-run pick-up system will have a specified window.

7.5.1.6.1. A Supplier must notify the affected Production Control Scheduler as soon as it appears that a shipment may be late or short of the quantity due.

7.5.1.6.2. Any shipment not ready for pick up within the defined window will be considered incomplete, leaving the supplier responsible for freight cost to meet release requirements.

7.5.1.6.3. Unless agreed to in writing by either Production Control, quantities specified on releases must be exact to avoid delivery performance infractions.

7.5.1.6.4. Releases will be in multiples of the established standard quantity. All containers must contain the standard quantity set up for that part

7.5.1.6.5. Excessive over-shipments (above 10%) and excessively early shipments (more than two days early) are subject to return at Supplier cost.

7.5.1.7. **Feedback of information from service** - TS 16949 Requirements

7.5.1.8. **Service agreement with customer** - TS 16949 requirements

7.5.2. **Validation of processes for production and service provision** - TS 16949 Requirements

7.5.3. **Identification and traceability** – In addition to TS 16949 Requirements, Records of lot control shall be retained for a minimum of 10 years unless otherwise stipulated in writing.

7.5.3.1. **Identification and traceability – supplemental** - TS 16949 Requirements

7.5.4. **Customer property** – ISO 9001 Requirements

7.5.4.1. **Customer owned production tooling -** In addition to the requirements of ISO 9001/ TS 16949, property owned by a customer shall be identified as required by the owner. Property includes but is not limited to tooling, gages, test equipment, inspection jigs, dunnage, intellectual property and data.

7.5.4.1.1. AKEBONO owned property shall be permanently marked and identified by theme number unless otherwise specified. (R*eference 4.2.3.1.4)*

7.5.4.1.2. Tool Acceptance Report (#ABC-F036), is required to document Akebono owned tooling. The form must be completed and provided with the PPAP submission.

7.5.5. **Preservation of product** - Preservation of product begins with a robust packaging plan. The planning for production packaging begins during the design review process and when the supplier is responsible for packaging they are expected to bring a proposal to the Kick-Off meeting. General Packaging and labeling Requirements are listed below but are subject to negotiation with the final requirements established by an approved Packaging Data Sheet (ABC-F045)

- Skids should not exceed 48” x 48”, the proposed size should be selected to take up the minimum amount of trailer space.
- Maximum weight per individual container is 35 lbs. unless approved in advance in writing. An individual container for this purpose is one meant to be lifted by a

human such as cardboard box or returnable tote. This weight limit excludes bulk containers.

- Bar Codes must be produced using AIAG B-10 compliant, CODE 39 BAR CODES. Labels are required on at least two adjacent sides of the container. White is the default color, alternate colors may be requested or proposed. Sample packaging and labels may be required in advance of product shipment.
- When Master labels are used, they must NOT be attached to individual containers, when allowed, a mixed load label for each part number on the skid is required on two sides.
  - For mass production parts, each shipment must include a master bar code label for each part number in the shipment.
  - Multiple master labels may be placed in an envelope with the packing list. (A separate sheet with the required bar coded data may be substituted for the master labels if approved in advance by the receiving plant.)
- Upon approval, ABC buyer will submit a copy of the Packaging Data Sheet (ABC-F045) to the Supplier for inclusion with the PPAP submission. If the parts are symmetrical in shape, with the same intended packaging, only one Packaging Data Sheet is required; however, samples of all bar code labels must be submitted.
- Where suppliers are responsible for packaging design, they assume product preservation responsibility and are expected to conduct packaging design validation trials, prior to use in shipping PPAP parts. Akebono approval of the Packaging Data Sheet does not absolve the supplier of this obligation.
- Packaging changes may be submitted using a Supplier PCR (ABC-F057) emailed to "SupplierPCR@akebono-usa.com". A revised Packaging Data Sheet (ABC-F045) should be included with the request.
- If Akebono furnished returnable containers are in need of repair, return container EMPTY, labeled to the attention of "Material Control" and state nature of problem.

7.5.5.1. Storage and inventory - TS 16949 Requirements

7.6. Control and monitoring and measurement equipment - ISO 9001 Requirements

7.6.1. Measurement system analysis – In addition to ISO / TS 16949 Requirements, Gage R&R studies shall be ANOVA method unless otherwise approved. Attribute studies for Go/ No-Go gages are to be included. ABC-F093 (Gage Study ANOVA Method) may be used, however Mini-tab is preferred.

7.6.2. Calibration/verification records - TS 16949 Requirements

7.6.3. Laboratory requirements

7.6.3.1. Internal laboratory – TS 16949 Requirements

7.6.3.2. External laboratory – TS 16949 Requirements

8. Measurement analysis and improvement

8.1. General

In addition to ISO 9001 Requirements, Layout and functional testing shall be done annually.

8.1.1. Identification of statistical tools – TS 16949 Requirements

8.1.2. Knowledge of basic statistical concepts – TS 16949 Requirements

8.2. Monitoring and Measurement

8.2.1. Customer satisfaction – ISO 9001 Requirements

8.2.1.1. Customer satisfaction – supplemental

Supplier performance scorecards are compiled monthly and sent to all active direct material suppliers as one measure for your evaluation of customer satisfaction.

8.2.2. Internal audit - ISO 9001 Requirements

8.2.2.1. Quality management system audit – TS 16949 Requirements

8.2.2.2. Manufacturing process audit – TS 16949 Requirements

8.2.2.3. Product audit – TS 16949 Requirements

8.2.2.4. Internal audit plans – TS 16949 Requirements

8.2.2.5. Internal auditor qualification – TS 16949 Requirements, evidence of auditor training to include processes based auditing, OEM Core Tools and Customer Specific Requirements (i.e. Akebono's Supplier Quality Manual and other formal communication from Akebono.)

8.2.3. Monitoring and measurement of processes – ISO 9001 Requirements

8.2.3.1. Monitoring and measurement of manufacturing processes

In addition to ISO / TS 16949 Requirements, Akebono communicates manufacturing process capability requirements on ABC-F050 during the supplier Kick-off meeting. Unless otherwise specified, Supplier must meet the requirements of the AIAG PPAP manual.

8.2.4. Monitoring and measurement of product – ISO 9001 Requirements

8.2.4.1. Layout inspection and functional testing - TS 16949 Requirements

8.2.4.2. Appearance items - TS 16949 Requirements

8.3. Control of nonconforming product – ISO 9001 Requirements

8.3.1. Control of nonconforming product – supplemental - TS 16949 Requirements

8.3.2. Control of reworked - TS 16949 Requirements

8.3.3. Customer information - TS 16949 Requirements

8.3.4. Customer waiver – In support of TS 16949 Requirements, whenever the product or manufacturing process is different from that which is currently approved, a Deviation request (ABC-F059) submission is required from the supplier. In the event that a request is approved, quantity, duration, and product identification terms will be provided as part of the authorization notification.

8.4. Analysis of data – ISO 9001 Requirements

8.4.1. Analysis and use of data – TS 16949 Requirements

8.5. Improvement

8.5.1. Continual improvement – ISO 9001 Requirements

8.5.1.1. Continual improvement of the organization – TS 16949 Requirements

8.5.1.2. Manufacturing process improvement – TS 16949 Requirements

8.5.2. Corrective action – The need for corrective action will be indicated on a Supplier Concern Report (SCR). A SCR is the official communication tool used to inform a supplier of a nonconformance. It will indicate the level of response required as well as any immediate actions that should be taken to protect the supplier from further exposure as well as Akebono and our customer.

Suppliers will be charged for sorting and/ or reworking of their product. Charges shall include but are not limited to the following:

- Administrative Cost for any discrepant material received at AKEBONO.
- Any sorting/rework activity at an hourly rate including travel and shipping cost.
- Associated line downtime incurred by specific Akebono plant site.
- Necessary tool replacement or machine repair that is associated with the nonconformity.
- When applicable, third-party containment may be required at the supplier's expense.

8.5.2.1. Problem solving – A standard automotive industry problem solving report, such as 8D, is required for evidence of effective root cause determination, correction, prevention, and verification.

8.5.2.2. Error proofing - TS 16949 Requirements

8.5.2.3. Corrective action impact – TS 16949 Requirements

8.5.2.4. Rejected product test/analysis – In addition to TS 16949 Requirements, timely corrective action response is required. Typical expectations are:

- 24 hours – Containment in place
- 14 days – Root Cause identified and report provided
- *30 days – Irreversible permanent corrective action implemented and effectiveness verified (*Supplier requested extensions may be granted by Akebono SQA depending on justification for request. Ex: Corrective action will require purchase of new equipment scheduled for specified future date.)

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8.5.2.5. Containment – Special Labeling or tags may be required for shipments during and after corrective action process. Plant Site SQA will communicate requirements and duration to Supplier.

8.5.3. Preventative action – ISO 9001 Requirements

9. Facility Specific Requirements

Documents listed below detail specific requirements for the following facilities:

AKEBONO Brake Corporation –Glasgow (ABG) 1765 Cleveland Avenue Glasgow, Kentucky 42141 Ph. (270) 678-1765	Packaging and Labeling Specification- *Document #**ABC-F088***
AKEBONO Brake Corporation -Elizabethtown (ABE) 300 Ring Road Elizabethtown, Kentucky 42701 Ph. (270) 737-4906 Fax: (270) 737-3044	Product Preservation and Packaging Requirements- *Document #**ABC-F087***
AKEBONO Brake Corporation -Tennessee (ABCT) 780 International Blvd. Clarksville, TN 37040 USA Ph. (931) 553-650	
AKEBONO Brake Corporation -South Carolina (ABCS) 201 Metropolitan Drive West Columbia, SC 29170 USA Ph. (803) 227-1300	
AKEBONO Brake Mexico S.A. de C.V. (ABM) Av. Mineral De Valenciana 186 Fracc, Industrial Santa Fe Ⅱ, Guanajuato Puerto Interior, Silao, Guanajuato, C.P. 36275, Mexico Ph. +52 472-748-9116	