

Blue Chip Engineered Products



Supplier Quality Manual

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A. Goal

The goal of this manual is to promote the development of a quality system that provides for Supplier continual improvement, defect prevention, reduction of variation, and minimization of waste.

B. Purpose

This manual describes Blue Chip Engineered Products Inc.'s quality system expectations for all suppliers. BCEPI is committed to working with suppliers in order to provide the highest quality and service at a competitive cost that benefits the final customer, the supply base, and themselves.

C. Approach

BCEPI is committed to operating within the guidelines of ISO 9001:2008 and therefore requires its product/service suppliers to be third-party certified to ISO 9001:2008 at a minimum. Suppliers who perform laboratory work must be third-party certified to ISO/IEC/EN17025.

D. Applicability and Suppliers Responsibility

BCEPI's Supplier Quality Manual applies to all suppliers of production material, parts, and services that directly affect parts shipped to BCEPI customers. BCEPI reserves the right to amend this manual from time to time. BCEPI will send all suppliers a current revision and the supplier is responsible for ensuring the most current revision is being used.

E. Implementation

All suppliers shall establish, document and implement a quality system based on the requirements outlined in ISO 9001:2008.

F. Zero Defects Policy

Blue Chip Engineered Products has a Zero Defects Policy, and does not accept any shipments containing nonconforming or defective material, parts, or services. Suppliers are required to monitor their shipments to ensure a quality level of zero parts defective.

Section 1: Supplier Approval Process

1.1 Supplier Approval Process

- 1.1.1 Prior to an initial purchase, all proposed new supplier are considered to be prospects. The Quality Manager issues a Supplier Survey and Approval Form for the prospect to complete.
- 1.1.2 The Material Review Team reviews the completed forms, along with the other information as detailed below, and determines whether to continue Supplier development with this prospect.
- **Quality System Certification:** Third-party registration to ISO 9001:2008 is a minimum requirement of key suppliers
 - **Sole Source Suppliers:** If a sole source supplier is qualified in every way except Quality System Certification, BCEPI mitigates risk by conducting a Quality System Basic Audit.
 - **Customer Required Suppliers:** If the supplier is a customer required supplier, they may be added to the approved suppliers list without further investigation.
 - **PPAP Submission:** All key suppliers providing services or purchased parts are required to maintain and/or submit PPAPs at the submission level requested by BCEPI.
- 1.1.3 Following the initial purchase, the material review team determines if the prospects initial performance was satisfactory, and if so, they are added to the approved suppliers list.

1.2 Supplier Removal from the BCEPI Approved Supplier List

- 1.2.1 The material review team may remove a supplier from the approved supplier list for any of the following reasons.
- Unacceptable quality performance on materials/services.
 - Unacceptable delivery on materials/services.
 - Unprofessional business practices.
 - Failure to comply with the BCEPI environmental or safety requirements.

Section 2: Supplier Quality Planning

2.1 Planning For Product Quality (Advanced Product Quality Planning)

The Automotive Industry Action Group (AIAG) has established a basis for an effective quality planning system in the Advanced Product Quality Planning (APQP) Reference Manual.

This planning process should include input from Management, Manufacturing, Engineering, Sales and Quality at a minimum. This advanced quality planning is initiated with the quotation process and is completed prior to the release of full production schedule.

BCEPI expects its suppliers to use Advanced Product Quality Planning, and to promote continual improvement. This planning should include education and training of employees in statistical problem solving techniques, error proof methodology, employee involvement, and analysis of cost of quality data.

2.2 Process Documentation

The supplier of manufactured products or services must prepare and approve the following documents in advance. A copy of some or all may be formally requested by BCEPI.

1. Process Flow
2. Control Plan
3. Process Failure Mode & Effects Analysis (PFMEA)

Once approved, the process flow becomes the authorized manufacturing method. Any proposed changes to the manufacturing process or parts must be communicated to BCEPI Materials Manager, and formally approved by BCEPI prior to their implementation.

The control plan must list specific control characteristics, and the related control activities for each characteristic. The control plan must also address the special characteristics that BCEPI adds to this list.

2.2.1 Control Characteristics and Special Characteristics

Control Characteristics are those product or process characteristics that the supplier controls in order to achieve product or process conformance to requirements

Special Characteristics are a subset of Control Characteristics. They are product or process characteristics designated by the customer, including governmental regulatory, safety, and/or selected by the supplier through knowledge of the product and process. BCEPI expressly details Special Characteristics that suppliers must control, and include in their written control plan.

Section 3: Supplier Manufacturing Process Validation

3.1 Process Capability

Adequate process capability must be demonstrated for characteristics stated on the control plan. Records shall be maintained as evidence of the ability to achieve planned results

- 3.1.1 As all product characteristics should meet engineering requirements, it is advised that the supplier monitor and control each of them including those not stated on the control characteristics list.
- 3.1.2 The supplier of products containing special characteristics may be required to submit process capability data periodically upon request.

3.2 Production Part Approval Process (PPAP)

At the time of the RFQ the manufacturer will be notified if a PPAP is required. If requested the supplier shall submit samples and the appropriate signed Part Submission Warrant (Level 3 minimum for manufactured parts or services prior to full production release. In addition, any or all of the following may be required by BCEPI

- Print and dimensional roadmap.
- Dimensional layout reports on at least six PPAP pieces per tool.
- Capability study report on at least thirty PPAP pieces per tool.
- Gauge R&R Study on each gauge or other measuring device.

3.2.1 Process Sign-OFF

If deemed necessary by BCEPI, a PSO run using production tooling may be conducted at the Suppliers production facility.

Section 4: Supplier Manufacturing Control

4.1 Supplier Quality Control

The Supplier must demonstrate conformance for all material, dimensional and processing requirements. This conformance must be established in accordance with process capability objectives described in section 3.1 of this manual. Material Suppliers must provide an appropriate product certification in the format given in Appendix 1 or equivalent.

4.1.1 Sub-Tier Suppliers Quality Control

4.1.1.1 Sub-Tier Supplier designated by the Supplier

The supplier is fully responsible for the quality requirements of their Sub-Tier Suppliers, and must ensure that these requirements are adequately communicated to their Suppliers. When a Sub-Tier Suppliers product or process affects listed control characteristics, it is the responsibility of the Supplier to adequately define and monitor the control system for these characteristics in their control plan.

4.1.1.2 Sub-Tier Suppliers designated by BCEPI

When a Sub-Tier Suppliers product or process affects listed control characteristics, it is still the responsibility of the Supplier to adequately define and monitor the control system for these characteristics in their control plan, and notify BCEPI if BCEPI supplied material or parts do not conform to product requirements.

4.1.2 Verification of Supplier Product

BCEPI reserves the right to inspect all product and services received; BCEPI encourages suppliers to provide statistical data as means of product acceptance.

When purchased product is to be verified at a supplier's facility, the Materials Manager makes specific arrangements for inspection and a method of release as agreed to by the Supplier and BCEPI

4.1.3 Rework/Repair Approval and Control

Suppliers who find it necessary to preform rework or repair material, parts or assemblies must have appropriate process documentation and quality inspection in place. Reworked or repaired parts must conform to the original contracted requirements.

4.1.4 Deviation for Nonconforming Product/Material

Authorization to ship such material must be approved in writing by BCEPI prior to making the shipment. Suppliers are required to monitor their own shipments to ensure an out-going quality level of zero parts defective.

4.1.5 Shipments of Suspect or Nonconforming Products/Materials

In the event that suspect or nonconforming material has been shipped without BCEPI formal approval, the Supplier must notify BCEPI immediately. Sorting/rework is preformed as necessary by the Supplier, their agent, or BCEPI. All sorting/rework expenses are the responsibility of the Supplier.

4.2 Tooling Management

Unless specifically exempted by BCEPI, the Supplier must establish and implement a system for production tooling management, including any tooling supplied by BCEPI

The Supplier must establish an inspection and prevention maintenance procedure for all tooling which if worn or damaged, could result in the production of nonconforming product. Tooling inspection and preventive maintenance records must be documented and made available upon request.

All tooling remains the property of the party who provided the funding for the original tooling. All proposed revisions to BCEPI-supplied tooling must be formally approved by BCEPI prior to implementation.

4.3 Product Identification and Conformance Status

Each container, box ,coil, or pallet of parts or material shipped to BCEPI or directly to a BCEPI customer, must carry full identification, including BCEPI part number, lot number, heat number, quantity, shipment date, and deviation number where applicable. If a barcode is required by BCEPI, the supplier must use a barcode system that is compatible with BCEPIs barcode system.

In addition, products must be shipped on a lot basis. The Suppliers identification for (lot) must be acceptable to BCEPI and identification must permit traceability back to all related manufacturing and inspection records.

Suspect or nonconforming product/material must be clearly identified as such to prevent in adverted shipment to BCEPI or a BCEPI customer.

4.4 Product/Material Packaging

As applicable, adequate packaging must be used to protect BCEPI product/materials at all times. If packaging is provided by BCEPI, it must be protected from damage and inspected on a regular basis.

4.5 Inventory Control

The Supplier must establish an internal system to accurately control all BCEPI-contracted products and materials, and as applicable BCEPI-supplied products and materials. First-In, First-Out inventory control must be effectively implemented and maintained. Inventory figures must be made available to BCEPI upon request.

4.6 Material Handling and Storage

The Supplier must establish an internal system to prevent damage or deterioration to BCEPI products/material through out their operations.

4.7 Delivery

Delivery requirements must be clearly understood and communicated within the Suppliers organization to ensure that shipments of product /material will meet all BCEPI requirements.

Suppliers that fail to meet 100% on time delivery performance may be issued a BCEPI Corrective Action Request to improve delivery performance. Failure to improve delivery performance or to submit a response to the corrective action request could result in removal from the BCEPI Approved Supplier List.

4.8 Red Tags/Corrective Actions

BCEPI issues a Red Tag when Supplier product/material is received that fails to conform to BCEPI requirements. Disposition of these products/materials may include return to supplier, or scrap by BCEPI. Suppliers are debited for the cost of the parts and any related shipping and administration costs. Suppliers must also replace the nonconforming product/material according to the original schedule.

In addition to, or rather than a Red Tag, BCEPI may issue a written Corrective Action Request to the Supplier, and Supplier response is required as detailed below. The response must include:

1. Root cause of the nonconformance (within 15 days of issue)
2. Immediate steps taken to control the nonconformance(within 24 hours of issue)
3. Proposed permanent corrective actions to be implemented (within 15 days of issue)
4. Permanent corrective actions implemented (within 30 days of issue)
5. Verification of actions implemented (within 30 days of issue)
6. Follow-up to assess effectiveness (within 30 days of issue)

All costs associated with shipping, handling, processing, reworking and inspection of nonconforming material, is debited to the supplier.

Section 5: General Supplier Quality System Requirements

5.1 Supplier Performance Rating System

5.1.1 Performance Rating Frequency

Supplier performance ratings are communicated to High-Volume Key Suppliers on a quarterly basis, and annually to all other Key Suppliers.

5.1.2 Performance Rating Criteria

In support of BCEPIs Supplier development process, BCEPI monitors Key Suppliers with respect to the following criteria:

5.1.2.1 **Quality:** ppm Level (measured in parts or pounds per million rejected)

5.1.2.2 **Delivery Performance:** On Time Delivery (measured in percent received on time).
100% On Time Delivery means up to 3 days early and 0 days late.

5.1.2.3 **System:** Effectiveness of the Suppliers Corrective Action Request System (measured in percent received on time)

The Supplier Performance Rating is based on a percentage system for each of the three categories listed above. The overall rating is the average of the three percentages (each accounts for one third of the total rating). Each Key Supplier is assigned a status based on the rating score as follows.

Rating Percent	Supplier Status
95-100	Preferred
90-94	Acceptable
80-89	Improvement Required
70-79	Probationary
<70	Unacceptable-Re-Source

To meet minimum requirements, a Supplier must maintain a rating of 90% or higher. In the event that a Supplier rating falls below 90%, the Supplier must submit a written performance improvement plan to the BCEPI Materials Manager within 30 days, and they will be targeted for development. This plan must detail the actions and projected completions dates to improve performance to an acceptable level. Meetings may be held at BCEPI or the supplier's facility to improve and review the improvement plan. The Supplier fails to achieve the necessary performance rating, the material review team will initiated a search for a qualified alternate source, and remove the current supplier from the Approved Supplier List. BCEPIs procurement of goods and services is limited to those Suppliers on the Approved Suppliers List who have demonstrated their commitment to quality and delivery.

5.2 Continual Improvement

The Suppliers Management has the primary responsibility for continual improvement, and shall provide leadership in the improvement process. Suppliers are expected to continually strive for improvements in their Quality System and reduction of process variation. Goals to reduce process variation, quality, scrap, rework, and customer returns should be established.

5.3 Material/Product Received at BCEPI or a BCEPI Customer

The Supplier shall ensure that all materials/products being received by BCEPI or its customers conform to the requirements specified in applicable specifications, documents or records. Incoming material may be withheld from use pending verification by one or a combination of the following methods.

5.3.1 Receiving Inspection:

The incoming material is controlled through inspection/analysis of results. Records are maintained to provide evidence of conformance to specification.

5.3.2 Supplier Controls

Supplier records must exist that verify product/services conformity to requirements. All records that substantiate the Suppliers control methods must be available for review upon request.

5.4 Supplier In-Process Material/Product Control

The Supplier must maintain inspection system and/or test that verify conformance to all requirements. In-Process controls and associated records must be readily available for review by a BCEPI representative.

5.5 Drawing and Change Control

The Supplier must maintain the latest BCEPI supplied drawings along with process and material specifications. The Supplier should have a documented system that provides for (1) the issue of all new or revised documents, (2) the recall and replacement of those that are obsolete, and (3) a system to evaluate compliance.

5.6 Inspection, Measuring and Test Equipment

The Supplier must provide and maintain the required inspection, measurement, and test equipment. Such equipment shall be calibrated at assigned frequencies to appropriate reference standards that are traceable to the National Institute of Standards and Technology (NIST) or equivalent international certification sources.

5.7 Audits (System/In-Process/Final)

The Supplier must conduct audits that are independent of in-process and final inspection. The audit frequency and sample ensure the integrity of the Suppliers inspection and test systems.

Dock audits of ready to ship product must be conducted on all shipments, and audit records are to be made available upon request.

5.8 Technical Support

The Suppliers must have adequate support personnel and equipment, on-site and/or through service contracts and consultants, to effectively provide products/services, and to support analytical problem solving.

APPENDIX 1

Products/Material Certification

Suppliers who provide any raw material such as strips, coils, bars, castings, forgings, non-metallic parts and/or services such as heat-treatment, plating, coating, and other contracted services must supply certification on a lot basis to the BCEPI Materials Manager.

Measurements and test must be performed to determine the chemical, mechanical, and harden-ability properties specified in applicable material specifications. Results must be documented to certify specification conformance.