ARC Colorado, Inc.

Supplier Quality Manual

Website Controlled Document: www.arcw.com

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Quality Policy Statement:

ARC Colorado strives to "Set The Standard" in Quality, Service, and Customer Satisfaction, through our continuous improvement mindset. Ownership of Quality resides with each employee, therefore:

- Each employee has ownership of the quality they output.
- Each employee should not accept defects, produce defects, or pass on defects.
- Each employee shall strive to meet our customer's requirements the first time, every time.

Scope

The Supplier Quality Manual defines the minimum requirements for suppliers doing business with ARC Group Companies. Suppliers are expected to conform to requirements as listed out or referenced in this Supplier Quality Manual, part specific work instructions and any regulatory or statutory requirements.

Definitions

1. **Attribute Data** - Dimensional data reported as Pass/Fail, Go/No Go.

2. **Certification of Compliance**: - A document provided by the supplier that accompanies each lot, stating that the scope of work outlined on the part specific work instruction has been met. See clause 1.5 for complete list of Certification of Compliance requirements.

3. **Corrective Action** - Action to eliminate the cause of a detected nonconformity or other undesirable situation.

4. **Deviation** - A change or shift in the process from what is usual, accepted, expected, or planned. Supplier must request a deviation when processes or run failures require changes from the norm.

5. **EPI**- Pre-production new product development lot identifier.

6. **Lot** - Definite quantity of an item/part produced under uniform conditions and passing as a unit through the same series of operations.

7. **MRR** - Material Rejection Report. Material is non-conforming to the applicable work instruction or regulatory requirements.

8. **Procedure** - A documented way to carry out an activity or a process.

9. **Process Controls**- The methods used to monitor and improve the quality output of a manufacturing process.

10. **Process Validation** – To establish by objective evidence that a process consistently produces a result or product meeting its predetermined specifications, when processed within the allowable window.

11. **Work Instruction** - A document containing detailed instructions that specify exactly what steps to follow to carry out an activity.

12. **Record** - document stating results achieved or providing evidence of activities performed.

13. **SCAR** - Supplier Corrective Action Request. Method by which non-conforming quality conditions are documented and reported to the supplier. A corrective action is required as a component of the response.

14. **Variable Data** - Dimensional data reported as exact measurement.

15. **OASIS** - Online Aerospace Supplier Information System

16. **FOD** -Foreign Object debris/damage. Contamination on surface of part (i.e. processing media, processing residue), handling, fixturing, or other objects which could potentially cause damage to parts.

17. **Cp –** Measures how well the distribution of the data fits within the tolerance band (USL-LSL) regardless of how centered the data is.

18. **CpK –** Measures how well the distribution of the data fits between the specifications limits taking into consideration distribution and centering of the data.

Quality Requirements

1. Procedure

1.1. General

1.1.1. Lot integrity must be maintained throughout all processing steps.

1.1.2. Parts must be handled in such a manner that dimensional and visual characteristics will not be affected.

1.2. Specification Flowdown

1.2.1. It is the responsibility of the supplier to flow down any applicable company requirements to sub suppliers of their process (i.e. raw material).

1.3. Process Control

- Suppliers should have, and adhere to, a documented system of process controls (ie; work instruction, FA direction). These controls form the basis for a quality plan that must be approved formalizing the process that must be adhered to until another plan is approved by the company.
- Suppliers are expected to record and hold data generated from these control measures as required in the Part Specific Work Instruction and section 1.9 of this Supplier Quality Manual.
- When requested, the supplier will provide evidence of capability.

1.4. Non-Conforming Product

1.4.1. Suppliers must request a deviation when processes or run failures requiring changes to an approved process.

- Suspected Lots will be placed on hold pending the company's response to the deviation request.

- The company's initial response may begin via email to speed recovery or enhance throughput. Formal written documentation must follow.
- Deviations requests are granted through Quality designee.
- If parts are non-conforming, the company reserves the right to reject and return at the supplier's expense.
- When requested by the company, non-conforming product, including NDT rejects, are to be returned to the company separate from conforming product and clearly identified with the company job number and reason for rejection.

COUNTERFEIT PARTS For suppliers, the organization must plan, implement and control processes, appropriate to the organization and the product for the prevention of counterfeit or suspect counterfeit part use and their inclusion in products delivered to the customer.

1.4.2 Suppliers ensure that counterfeit goods are not delivered. The purpose is to develop a robust process to prevent the delivery of counterfeit commodities and control commodities identified as counterfeit.

1.4.3 Suppliers purchase products to be delivered or incorporated as goods to buyer directly from the authorized distributor chain or authorized reseller. These products are traceable to authorized distributor chain, aftermarket manufacturer, or authorized reseller that identifies the name and location of the supply chain to the direct source of the product. If goods can only be acquired from independent distributors or brokers in cases of diminishing material supply (DMS) or obsolescence, written notice shall be provided to this facility Quality Lead and Buyer prior to procurement of these goods. After written approval from this facility is received by supplier, goods may be subjected to testing and screening process appropriate to the commodity using an approved third party laboratory. Records of evidentiary tests and inspections performed that ensure verification of the goods are provided for review and approval from Quality prior to delivery. Written notice is not required for raw material purchased from independent distributors or brokers, but products must be able to provide commodity level traceability. The Supplier provides written notification to Quality and Buyer if the supplier becomes aware or suspects that it has furnished Counterfeit Goods within 24 hours. Supplier provides Quality and Buyer, upon request, the

supply chain traceability to an Original Manufacturer or authorized distributor chain that identifies the name and location of the supply chain from the manufacturer to the direct source of the product. Suppliers have a process in place to ensure Counterfeit goods are contained and do not reenter the supplier chain.

1.5. Certification of Compliance

1.5.1. A certificate, to accompany each lot, stating that the parts supplied complies with the requirements of the part specific work instruction.

The certificate must include, but is not limited to the following items:

- The company purchase order number
- The company work instruction number and revision alpha identifier
- Company tracker number
- Quantity
- CpK data sheet if required by part specific work instruction
- Ship Date

1.5.2. Two copies of the certification shall be sent to the company. A hardcopy shall be enclosed with the parts, affixed to the outside of box one. The second copy shall be emailed along with certs and data to ospcerts@arcw.com. Include Company Tracker number (ex: MJ0001234, EPI0001234, or RCLM001234) and part number in the subject line of this email.

Suppliers providing certificates of analysis are required periodically to validate returned blind sampling of their material for compliance and traceability.

1.5.3. Suppliers who ship directly to the company's customers or drop ship to another supplier must adhere to the requirements of 1.5.2.

1.6. Calibration

1.6.1. To ensure conformance to specifications of shipments to the company, only calibrated gages and equipment can be used to certify product.

- If calibration system does not exist, gages used to check product conformance shall be verified prior to use. The company may supply gages to check product conformance.

- Records of calibration must be maintained as well as records showing compliance to measurement standards and traceability to NIST.

1.7. Change Control

1.7.1. Suppliers are expected to maintain a process for change control.

- The company must be notified of any changes that affect form, fit, or function including changes to the location of processing, major changes to the equipment used to process the parts, changes to qualification techniques or changes to suppliers of raw material or process media/chemicals. All changes must be denoted.

1.7.2 Approval by a company designee is required prior to implementing any changes.

1.8. Validation

1.8.1. When required by the PO or part specific work instruction, suppliers are expected to submit Validation (IQ, OQ, PQ) of the process using the following guidelines.

IQ Installation Qualification- Establishing by objective evidence that all key aspects of the process and ancillary system installation adhere to the manufacturer's approved specification and that the recommendations of the supplier of the equipment are considered. *Items listed below are required for minimal compliancy.*

- Equipment/System Description
- Preventive Maintenance
- Equipment Calibration
- Calibrated Test Instruments
- Utilities
- Safety
- Equipment Functionality

OQ Operational Qualification- Establishing by objective evidence process control limits and action levels which result in product that meets all predetermined requirements. *Items listed below are required for minimal compliancy.*

- Equipment/System Description
- Training Records

- Equipment Calibration
- Test Materials
- Critical Process Parameters
- Challenge Limits (upper and lower)
- Acceptance Criteria
- Sampling Plan
- Calibrated Test Instruments

PQ Performance Qualification- Establishing by objective evidence that the process, under anticipated conditions, consistently produces a product which meets all the predetermined requirements. *Items listed below are required for minimal compliancy.*

- Equipment/System Description
- Training Records
- Equipment Calibration
- Test Materials
- Nominal Process Parameters
- Acceptance Criteria
- Sampling Plan
- Calibrated Test Instruments

1.9. Record retention

1.9.1. Suppliers are required to have a documented record retention procedure. Retention requirements must meet the minimum requirements outlined in the table below unless otherwise specified in part specific work instructions per end customer requirements.

1.9.2. Records must be maintained in either a hard copy or electronic copy and must be protected or electronically backed up to ensure they remain legible, identifiable and retrievable.

Supplier Record Retention Matrix	
Document	Retention Time
Control Charts (as applicable)	Indefinite
Process Plan/ Item Master	Life of part + 1 year or 7 Years minimum
Tooling Records	Life of part + 1 year

Work Instructions not supplied by the company	Life of part + 1 year
Certificate of Conformance	Indefinite
Evidence of Processing History (i.e. Job Routers)	Indefinite
Lab Test Reports	7 Years
Raw Material Certs	7 years
Gage Records	7 years
Inspection reports	Indefinite
Medical records	50 years

1.10 Right of Access

1.10.1 ARC Colorado, its customers, and regulatory authorities have the right of access to the supplier's facility/facilities and supply chain and in order to witness process, product, and records activities.

1.11 Related Documents

- Deviation request
- First Article/PPAP

Supplier Performance

2.1 Procedure

2.1.1 Purchasing completes an on-site survey or requests that the supplier complete the survey. The form can be completed by either the supplier or an approved company auditor. The complete list of documents that will be requested prior to addition to the approved supplier list is as follows. Items required in order to be added to the list are noted:

- Non-disclosure Agreement (Required, for OSP. Tooling and Raw Material)

- Insurance Certification
- Supplier Survey (Required, for OSP & Tooling)
- W-9 (Required)
- Quality Manual, or other process validation evidence
- Certifications

2.2 Process Capability

2.2.1 When requested, the supplier will provide evidence of capability.

2.2.2 Process capability calculations are to use Cp and Cpk Process Capability Metrics

Cp, Cpk Formula (For Reference Only)

$$Cp = \frac{(USL - LSL)}{6\hat{\sigma}}$$

$$CpU = \frac{(USL - \bar{X})}{3\hat{\sigma}}$$

$$CpL = \frac{(\bar{X} - LSL)}{3\hat{\sigma}}$$

$$Cpk = Min(CpU, CpL)$$

Note: ARC will often refer to capability requirements in terms of Cpk values. If minitab is used to calculate process capability on a lot by lot basis the Ppk value should be used. This is a calculation of the capability of the overall data set. The Cpk value is a view of what the process ***may*** be capable of based on the best case subset of the data population and is therefore inappropriate to use for calculating the true process capability of a data set.

2.3 Supplier Expectations

2.3.1. Process parts to comply with part specific work instructions, Supplier Quality Manual and any requirements as listed on the purchase order.

2.3.2. The company requires all suppliers to strictly adhere to the inventory practice of, FIFO (First In - First Out).

2.3.3. The supplier is expected to inform the company within 48 hours of any changes to the approved process.

- Any changes to the supplier's certification status must be forwarded to the company within 24 hours and formal notification within 48 hours. Supplier must stop all processes until further notice from the company Quality Manager.

2.4 Supplier Evaluation Summary

2.4.1. Annually, active suppliers will be evaluated by the Vendor Review Board (VRB) consisting of representatives from Purchasing, Planning & Quality. The VRB will assess each supplier's rating based on items listed and may issue a Supplier Score Card to active vendors on the Approved Supplier List. If the vendor was not used in the recent quarter, they will not be scored. VRB meetings will address:

- Delivered product quality
- Process Control
- Customer disruptions (SCARs, RMAs and Quality Alerts)
- Schedule attainment
- Delivery schedule performance (including premium freight)
- Pricing
- Special status customer notifications related to quality or delivery issues.
- Suppliers certified to AS9100 are expected to utilize the OASIS database. The company shall be granted access to view the supplier's assessment details.

  Suppliers should communicate the requirements by ensuring that persons are aware of
  - Their contribution to product or service conformity
  - Their contribution to product safety
  - The importance of ethical behavior

Appendix

Reference Documents:

- P-FORM385, Deviation Report
- ANSI Z14 Sampling Plan (use most current revision)
- P-FORM079, Supplier Corrective Action
- ITAR Compliance

Revision History

Revision	Rev Date	Change Description
A	11/27/2017	Released as new
B	12/20/2018	Section 1.5.1 removed reference to process supplied and made it parts supplied, in appendix added to use most current rev of C=0 and ANSI sampling plans removed the copies of C=0 and ANSI sampling plans- vendor should use the most current revision
C	08/04/2019	Updated Quality Policy
D	1/14/2020	Updated formatting and made web released, updated references

ITAR Compliance

The International Traffic in Arms Regulations (ITAR) and the Export Administration Regulations (EAR) are two important United States export control laws that affect the manufacturing, sales and distribution of technology.

The legislation seeks to control access to specific types of technology and the associated data. Its goal is to prevent the disclosure or transfer of sensitive information to a foreign national. Export control laws provide for substantial penalties, both civil and criminal.

ITAR covers military items or defense articles. It regulates goods and technology designed to defend against death in a military setting. It includes space related technology because of applications to missile technology. It also includes technical data related to defense articles and services.

EAR regulates items designed for commercial purpose which could have military applications such as computers or software. It covers both the goods and the technology. Licensing addresses competing interests and foreign availability. Combines commercial and research objectives with national security.

Due to the nature of some of ARC Companies business, ARC operates under ITAR and EAR regulations. ARC is registered with the US Department of State, Directorate of Defense Trade Controls.

As such ARC requires the following:

All new vendors, customers, and visitors, both US citizens and Foreign Nationals to sign a bi-lateral Non-Disclosure agreement before any prints, drawings, or models can be shared between parties. A license may also be necessary upon further review. ARC will check all new vendors and customers against the Compliance and Enforcement lists on OCR Software to make sure that we will be conducting business in a legal manner as required by the US Government.

Any vendor that process parts, tools, or does any other outside work must employ US Citizens. They will be expected to read prints and models of parts that may be sensitive and under ITAR/EAR guidelines.

As for cell phones in the facility the following guidelines apply:

1. **Employees:** ARC is aware of the rules regarding the export of technical information and we relay that to our employees. Essentially we make them aware that they're not

allowed to take pictures for personal use or to share with anyone for any reason, without going through your facilities documented compliance procedure.

2 **Foreign National Visitors:** Foreign national visitors should not be allowed the use of cell phones or other photographic or recording equipment while touring a facility. More importantly, foreign national visitors shouldn't even be exposed to export restricted items, much less have the opportunity to photograph them. Certain areas of the facility are off limits to all foreign national visitors. Your ARC guide will be aware of these areas.

3 **Other Visitors:** ARC has sensitive goods that are subject to export controls, therefore all guests are expected to check-in at the front desk, this is part of our compliance program. ARC can either take this opportunity to confiscate cell phones, or simply make guests aware that photography is prohibited. All guests will need to be escorted by ARC employees; we make sure the employee is aware that the guests aren't allowed to take pictures. Remember that even though guests may be US citizens, it's best to err on the side of caution by not exposing them to export restricted material.