QUALITY REQUIREMENTS FOR THE SUPPLIER BASE

1.0 PURPOSE

The purpose of this procedure is to define Quality Assurance requirements for suppliers of Eaton - Euclid Facility.

2.0 SCOPE

The procedure applies to suppliers of raw materials, parts and services, whether foreign or domestic. The procedure also applies to second-tier or sub-suppliers that produce materials or provide processes critical to end item life and reliability.

In case of conflict between the Purchase Order, Drawings and Specifications and this document, the supplier must contact the purchasing agent for clarification.

3.0 APPLICABLE DOCUMENTS

QCP 2.4	Visual Acuity Requirements for Visual Inspection
QCP 5.1	Selection of Qualified Suppliers
QCP 5.4	Source Inspection
QCP 5.5	Certified Supplier Program
QCP 5.7	Vendor Survey and Audit Procedure
QCP 5.8.2	Supplier Packaging Specification
Ø QCP 5.8.3	Counterfeit Electronic Parts Protection Plan
QCP 15.1	Acceptance Sampling Inspection
QCP 15.1.1	Sampling Inspection (Pratt & Whitney)
QCP 21.0	Software Quality Assurance Program
SOP 13-10-010.0-00-022	Eaton Supplier Gage Policy
SOP 52-10-005.0-00-001	Sample Casting Approval
SOP 52-10-005.1-00-001	Supplier Rating System
SOP 52-10-007.0-00-004	First Article Inspection Requirements (Eaton Purchased Parts)
SOP 52-10-005.8-00-001	Requirements for Suppliers for Prevention of F,O,D to Flight Hardware
SOP 52-10-011.1-00-001	Nonconforming Material – At Suppliers
	Supplier Request for Material Review Board Action
ENG 01-1024	Supplier Request for Design Change Procedure
ANSI/NCSL-Z540	Calibration Laboratories & Measuring and Test Equipment
PDL	Parts Data List (PDL)
ARG-3322	Supplier Corrective Action Request
TAP-LI-66	Requirements for Suppliers for Parts and Assemblies
TAP-LI-67	Requirements for Suppliers for Parts and Assemblies - Specific Production Shipments
TAP-LI-71	Requirements for Sellers of Raw Materials
VQR	Vendor Quality Requirement (VQR)
FC 9274	Supplier Request for Design Change Form
FC 9332	Quality Escapes Personnel List
AS 9103	Variation Management of Key Characteristics
AS 9120	Quality Management Systems – Aerospace Requirements for Distributors
	Eaton Global Supplier Excellence Manual

4.0 QUALITY ELEMENTS

4.1 Quality Systems

Requirements shall be in effect for those suppliers who directly supply material, service, and special processes - regardless of tier (e.g., first / second tier, etc,)

- Distributors – Distributors shall have a quality system that conforms to **AS 9120.**
- Special Process Suppliers – Special Process suppliers shall have a quality system that conforms to **AS/EN9100** or accredited to AC7004 (by PRI-Nadcap).
- Calibration Suppliers – Calibration suppliers shall have a quality system that conforms to **A2LA, ISO 17025 (Guide 25)** or other national certifying body.
- Raw Materials Suppliers – Raw material suppliers shall have a quality system that conforms to relevant industry quality standards, and airworthiness regulatory requirements, as required.
- All other suppliers – All other suppliers shall have a quality system that conforms to **AS/EN9100.**

Conformity to the above quality standards must have evidenced by either: third party certification or a Euclid-approved audit to assess any gaps to the AS/EN9100 requirements.

A supplier may be audited at any time for reasons not limited to performance and may be liable for the actual costs of such audits at Eaton's option.

4.2 Supplier Qualification and Approval

4.2.1 Suppliers are evaluated and approved in accordance with QCP 5.7 - Vendor Survey and Audit Procedure.

4.2.2 Suppliers must maintain an approved Quality Management System and maintain acceptable levels of performance, such as Quality (DPPM) and Delivery (On Time Delivery) in order to remain on the Euclid Approved Vendors List (AVL) - Reference QCP 5.7.

4.2.3 At Eaton's option, calibration sources may submit A2LA, ISO 17025, or equivalent accreditation in place of a requested survey.

4.2.4 Any third party providing services to audit to the above mentioned standards must be accredited from a country-authorized entity such as ANSI-ASQ National Accreditation Board (ANAB).

4.3 Right of Access

4.3.1 The supplier shall provide Eaton, Eaton Customers, and/or a specified third party (customer/ government or regulatory agency), right of access to the facility and all records related to product ordered by Eaton or Eaton suppliers and right to perform an audit or inspection at the supplier's facility.

4.3.2 Such audits or inspections shall not be used as evidence of effective control of quality. The results of such audits or inspections, does not absolve the supplier of the responsibility to provide acceptable product and does not preclude any subsequent rejection by Eaton or its customer.

4.4 Sub-Tier Selection/Control Requirement Flow-down to Sub-Tiers Suppliers

4.4.1 Eaton reserves the right to specify or approve sub-suppliers contracted by its suppliers for work performed on Eaton material. This includes but is not limited to special process, materials testing services, distributors, and other subcontractors.

4.4.2 Suppliers shall flow down all relevant quality requirements imposed by this manual and other contractual documents to sub-tier suppliers, including government-regulatory and/or industry requirements.

4.5 Special Process Suppliers

4.5.1 A special process is one that is specialized and/or complex in nature and must be performed by qualified personnel and/or on qualified equipment. It usually applies where uniform conformance to the requirements cannot be assured by inspection of the articles alone or requires destructive testing. "Qualified" personnel or equipment are personnel or equipment that have been certified to meet specific qualification requirements or tests stipulated in applicable control documents.

A special process may include inspection, test or fabrication processes such as:

- Magnetic Particle Inspection (MPI)
- Fluorescent Penetrant Inspection (FPI)
- Ultrasonic Inspection
- Radiographic Inspection
- Leak Testing
- Welding/Brazing
- Soldering
- Heat Treating
- Plating
- Electric Discharge Machining (EDM)

4.5.2 All suppliers (regardless of tier) shall use only the Euclid Facility's Approved Special Process suppliers, when required by Purchase Order and/or VQR.

4.5.3 Any Supplier may request that a sub-tier supplier be added to the Euclid Eaton facility's Special Process List (SPL) through the appropriate Euclid Supply Chain contact, however, such sources may not be used prior to receipt of documented Eaton Quality approval per QCP 5.7. Actual costs associated with the approval process for a new sub-supplier, such as an on-site audit, may be assessed to the requestor.

4.5.4 Eaton Aerospace acknowledges NADCAP (National Aerospace and Defense Contractors Accreditation Program) special process accreditation program administered by the Performance Review Institute (PRI). For the processes listed below, all special process suppliers must be

Nadcap accredited and approved by Eaton Euclid, unless specifically exempted by contract terms exhibiting an Eaton Supplier Quality approval.

4.5.5 Result and scope of special process approvals are listed in the Eaton Euclid's SPL. The SPL is maintained and available on the Euclid Facility's website.

4.5.6 Detailed requirements pertaining to controls for special processes may appear in government or industry specifications that are called out in the contract or on product definition documents.

4.6 Source Inspection

4.6.1 Source Inspection shall be in accordance with QCP 5.4. Eaton shall have the right to visit a supplier's facility to inspect products, witness inspections or tests and evaluate the Supplier's Quality Management system. Visits may also extend to supplier sub-tier suppliers.

4.6.2 The supplier's gages and measuring and testing devices shall be made available to Eaton Source Inspectors for use at the supplier's facility for determining product conformance to contract requirements.

4.6.3 The supplier shall keep records of inspection data. The data shall include (at a minimum) the following information: part number, name, purchase order, lot number (if applicable), drawing revision, AQL, lot size, sample size, characteristics inspected, inspector's acceptance stamp, serial numbers, and number of pieces accepted and rejected. The characteristics to be inspected shall either be listed individually or in distinct groupings.

The supplier must complete required inspection and document the results prior to the arrival of the source inspector.

4.6.4 The supplier shall include with the parts shipment and certification package the Source Inspection Tag and Source Inspection Plan provided by the Eaton Source Inspector.

4.6.5 Final acceptance of the supplier's product shall be made at Eaton and acceptance by Eaton Source Inspectors does not relieve the supplier of the responsibility for the acceptability of contracted items.

4.6.6 The supplier shall notify Eaton Purchasing at least four working days prior to the need for source inspection. Source inspection will be performed in accordance with QCP 5.4.

4.7 Vendor Quality Requirements - (VQR)

4.7.1 When quality requirements are extensive, Vendor Quality Requirements (VQR) document will be called out as part of the Purchase Order.

4.7.2 The Engineering documents (drawing part number, specification number) called out on the VQR are part of the contract as stated therein. Other documents referenced in the VQR (e.g. Laboratory Instructions, Government Specifications, Eaton Quality Control Procedures (QCP's), etc.) which require supplier certification will be listed with appropriate revision and/or amendment number on the Parts Data List (PDL), or will be listed on the purchase order itself. Any document revision

levels listed on the purchase order will supersede the PDL levels.

4.7.3 All specifications listed on the VQR requiring supplier certification become part of the contract and must be certified to by the supplier upon submittal of parts or special processes to Eaton for acceptance. Approved radiographic technique and layout reports are also part of the contract requirements. If the supplier does not have access to the specified documents, the supplier must request a copy of the documents from Eaton Purchasing.

4.8 Notification of Changes at Suppliers

4.8.1 Eaton Euclid Purchasing shall be notified of changes in production location and/or change of address.

4.8.2 When a supplier is manufacturing to Eaton drawings and specifications, no changes that affect these drawings and specifications shall be made unless specifically requested and authorized in writing by Eaton Corporation per ENG 01-1024 -- Supplier Request for Design Change Procedure. Approval requests are submitted and dispositioned per SOP 52-10-011.1-00-001 Nonconforming Material – At Suppliers - Supplier Request for Material Review Board Action.

4.8.3 No changes are permitted to the material or material treatment such as: plating, heat treatment, NDT or inspection level nor to changing manufacturing processes from turning to grinding, forging to casting, machining to stamping, etc. unless specifically approved in writing by Eaton Purchasing and Supplier Quality Departments. Subcontracting operations and/or processes are not permitted without prior written approval from the above named Eaton Departments.

4.8.4 Production castings are to be produced to same process parameters as the approved samples. The Foundry Procedure in accordance with SOP 52-10-005.0-00-001-Sample Casting Approval shall not be altered after submitting acceptable samples without prior Eaton approval. Production castings made to a revised procedure shall not be shipped to Eaton without prior approval.

4.8.5 Suppliers of Source Controlled components may request design changes through Eaton Purchasing per Engineering Specification 01-1024 - Supplier Request for Design Change Procedure. All such changes must be specifically authorized by Eaton. Submit all requests to Eaton's Purchasing department. The change requests should include the suppliers change order (EO, ECN, ECO, etc.,) and drawing or specification mark-ups. Adequate substantiation must accompany the request.

4.8.6 Supplier's authorization to proceed with the revision is an approved release of the Supplier Request for Design Change Form (FC 9274). This approval copy will be forwarded to supplier from the Purchasing Agent.

4.8.7 Suppliers shall maintain history approval records of these change requests.

4.9 Certifications

4.9.1 Suppliers shall submit certifications with the shipment as indicated on the Purchase Order and VQR. Certifications are to include the Government or Military Specifications (MS) plus latest revision and/or amendments that the parts were processed to. Instructions for preparing the

certifications are contained in the following:

Document No.	Description
TAP-LI-66	Requirements for Suppliers for Parts and Assemblies
TAP-LI-67	Requirements for Suppliers for Parts and Assemblies, Specific Production Shipments.
TAP-LI-71	Requirements for Sellers of Raw Material

4.9.2 Suppliers shall require sub-tier suppliers of material, processes and/or operations to submit similar certifications as objective evidence of compliance to requirements. These records shall either accompany delivered items to Eaton or be kept on file in accordance with contract requirements.

4.10 Supplier Rating System

4.10.1 Each supplier supplying materials and products to Eaton is rated on Quality Performance (DPPM) and On Time Delivery (OTD) on a monthly basis. The numerical rating is calculated from a weighted composite of the supplier's delivery and quality performance.

4.10.2 The supplier ratings are published on a quarterly basis. The individual supplier's rating is considered when new orders for like products are placed by Eaton Purchasing. See QCP 5.1 - Selection of Qualified Suppliers.

4.10.3 When any component of a supplier's performance is determined to be unsatisfactory, Eaton shall communicate its concern to the supplier by telephone, letter, Corrective Action Request or a visit to that supplier for discussion or audit. If a supplier's performance thereafter continues to remain unsatisfactory, the supplier's status on the Approved Vendor List may be downgraded from an approved level to a conditionally approved or unapproved level.

4.11 Government Source Inspection

4.11.1 When government source inspection is indicated on the Purchase Order, the supplier shall, upon completion of the parts, notify the government representative who normally services that plant that Government Source Inspection is required. Confirmation of the requirements for Government Source Inspection will be forwarded in the form of a letter of delegation from the Government Quality Assurance Representative at Eaton to the Government Quality Assurance Representative at the supplier location. If there is no representative available, the supplier shall notify the nearest Army, Navy, Air Force or Defense Supply Agency Inspection Office. The supplier shall notify Eaton Purchasing, in the event none can be located.

4.12 Documentation

4.12.1 Quality procedures and work instructions that define requirements necessary for effective operation of the Quality Program is "Quality Documentation". The supplier is required to have detailed procedures describing the Inspection System for the control of receiving, in-process and final inspection as well as assembly and test if applicable. The supplier is also required to have detailed inspection instructions describing inspections and tests that are carried out in the above

areas to verify that supplier supplied Eaton parts and/or operations meet requirements.

4.12.2 Sampling Inspection

The supplier may perform 100% inspection of each characteristic or may use sampling inspection to an approved sampling plan. All sampling plans used shall have a protection level equal to or more stringent than the AQL values shown in QCP 15.1 or QCP 15.1.1. These plans are a modification of MIL-STD-105 and emphasize the fact that the plan will never accept a lot when a sample reveals a nonconformance. In all instances, the accept value shall be 0 and the reject value shall be 1. Eaton QCP 15.1 - Acceptance Sampling Inspection may be used for supplier inspection as an approved plan.

4.12.3 Inspection Data

When required by the Vendor Quality Requirement (VQR) the Supplier shall provide a copy of the final inspection/test report, signed by the Quality Control Manager or his designated representative providing actual data to comply with the purchase agreement.

4.12.4 Advanced Product Quality Planning (APQP)

Suppliers shall implement a process conforming to AS9103 (Variation Management of Key Characteristics). Suppliers shall use recommended risk management process tools (i.e., PFMEA, control plans, process flow diagrams, etc.)

Specific APQP requirements will be identified by the project team and will be determined by risk assessment. Consideration will be given to complexity and criticality of components and to customer mandated requirements.

4.13 Records

Records as used herein are defined as Quality data which are obtained and recorded as an essential element for the effective operation of the Quality program. Records are objective evidence that the product meets the conformance requirements.

The supplier shall maintain adequate records of inspection and tests performed under his responsibility. These records shall be kept readily accessible and shall include documents such as:

- Material Verification and Acceptance Records
- Receiving Records
- Personnel Eye Examination Records (per QCP 2.4 – Visual Acuity)
- Inspection Reports
- Laboratory Reports and Nondestructive Test Reports
- Raw Material Certifications
- Certifications of Special Process Equipment and Personnel
- Discrepancy Control and Disposition Records, Inspection Stamp Assignment Records
- Gaging Equipment Verification and Calibration Maintenance Records.
- Engineering Design Records for Supplier Designs (records to be kept for life of engine type certificate plus two years).

All records, unless otherwise specified, shall be retained for a period of ten years. All records shall be made available to Eaton on request.

4.14 Corrective Action

When unsatisfactory supplier quality is detected during Source Inspection or at Eaton and Supplier Quality concludes that formal corrective action is necessary, Eaton Supplier Quality will issue a Supplier Corrective Action Request (SCAR) Form ARG-3322. Corrective action tools, such as the submission of an 8-D (8 Disciplines) may be required as applicable.

In the event a supplier is assigned a corrective action with a required containment action, as a minimum, the supplier is to address:

- Product in transit from the supplier
- Product in queue for delivery to Eaton
- Suspect product delivered to Eaton

Containment response time is not to exceed 48 hours, two business days or as directed by Supplier Quality personnel.

The supplier shall communicate corrective actions and containment activity with the applicable Eaton purchasing agent and with the Supplier Quality Representative that issued the SCAR.

4.15 Measuring and Test Equipment

The supplier shall have a system for the control of Measurement and Test Equipment that complies with the requirements of ANSI/NCSL-Z540, Calibration Laboratories & Measuring and Test Equipment.

Control of measurement and test equipment applies to any equipment used to verify a quality requirement of the product. Calibrating service may be internal to the supplier's facility or purchased by the supplier from an approved external source.

The supplier shall notify Eaton purchasing in the event that measuring & test equipment is found significantly out-of-tolerance. The supplier must provide traceability to product in the event that measuring & test equipment is found to be out of calibration between periodic calibrations.

The Eaton Supplier Quality Engineer shall evaluate any impact to product quality. Traceability to the product must be controlled by the supplier.

Equipment that must be controlled includes:

- Linear Measurement Equipment
- Test Equipment (Electrical/Functional)
- Process Control Instrumentation
- Personally owned gages
- Tooling used as a media of Inspection

Eaton consigned measuring & test equipment shall be calibrated in accordance with Eaton Supplier Gage Policy - SOP 13-10-010.0-00-022.

4.16 Indication of Inspection Status

The supplier shall be able to identify the inspection status of materials and parts. Identification may be accomplished by use of tags, routing sheets, stamps or other control devices. If stamps are used, they shall be distinctly different from the government inspectors' stamps. Stamps shall be controlled so that they are traceable to the person performing the inspection and not available for use by unauthorized personnel.

4.17 Nonconforming Material

The supplier shall establish a system for identifying all material that does not meet contractual requirements. The system shall include methods for segregating or controlling this material to prevent inadvertent use or shipment, identifying and correcting conditions which caused the non conforming material.

The supplier shall not ship any nonconforming product to Eaton without written authorization from Eaton Purchasing.

Eaton realizes that some nonconforming material may be salvageable and for that reason has established a system (reference SOP 52-10-11.1-00-001 - Supplier Request for Material Review Board Action (MRBA). The supplier may request the forms and procedure used to initiate this action from Eaton Purchasing.

A supplier may rework nonconforming product using a planned manufacturing process that completely restores all nonconforming characteristics to the requirements of the contract, specifications, drawing or other approved product description. Notification to Eaton regarding rework is not required.

All rework shall be documented and all affected characteristic(s) must be re-inspected to the contracted requirement.

4.18 Quality Escapes

A Quality Escape is any product known to be defective that has been shipped to Eaton. The supplier shall contact the Quality Representative listed on form FC 9332 – Quality Escapes Personnel Contact List immediately when a Quality Escape is discovered. Details of the nonconformance and shipping information must be provided.

Contact will be in the form of a telephone call to personally speak to one of the listed persons in the order shown. If for some reason that person cannot be contacted by telephone, the next person on the list shall be contacted. Leaving only an e-mail or voice-mail message is not permitted. Form FC 9332 is available on Eaton's web site – http://www.eaton.com/Eaton/ProductsServices/ProductsbyName/Argo-Tech/Argo-TechEngineSupplierQualityDocuments/index.htm

4.19 Receiving Inspection

Materials shipped to Euclid may be subject to Receiving Inspection. The supplier will provide inspection data, certifications. etc. as required by the Purchase Order and/or VQR. Inspection at Euclid is intended to supplement the supplier quality control. Rejected product at Eaton may be returned to the supplier for screening, replacement, credit or rework.

A copy of the Eaton rejection paperwork must be returned to Eaton with reworked material. Non-conforming product detected at Receiving Inspection will be reflected in the supplier quality rating.

4.20 Packaging and Shipping

The supplier shall maintain proper control of packaging and shipping operations to assure that items are:

Shipped in correct quantities and accompanied by the proper paperwork.

Properly preserved and packaged to protect items from corrosion, contamination and damage in transit.

Minimum packaging requirements are defined in QCP 5.8.2 - Supplier Packaging Specification.

One copy of the following data shall be included with each shipment of the product when specified in the Vendor Quality Requirement (VQR)

Inspection Data	X-Ray Films	Casting Tensile Specimens
Test Data	Certifications	

NOTE: Casting Tensile Specimens shall be contained in an envelope and shall accompany the paperwork and/or radiographic film.

4.21 Supplier Visual Acuity Requirements for Visual Inspection

Suppliers are required to establish and maintain a visual acuity program in accordance with QCP 2.4 - Visual Acuity Requirements for Visual Inspection.

4.22 First Article Inspection Requirements for Eaton Purchased Parts

Suppliers of Eaton purchased parts are required to perform First Article Inspection per SOP 52-10-007.0-00-004 (except for casting suppliers). Casting suppliers shall perform First Article Inspection per SOP 52-10-005.0-00-001.

First Article Inspection requirements are flowed down to suppliers via the purchase order.

4.23 Software Quality Assurance Requirements

Suppliers are required to establish and implement a Software Quality Assurance Plan in accordance with QCP 21.0.

4.24 Supplier FOD Prevention Program

Suppliers are required to maintain a system for prevention of Foreign Object Damage (FOD) to flight hardware meeting the requirements of SOP 52-10-005.8-00-001.

Ø 4.25 Counterfeit Electronic Parts Protection Plan

Suppliers shall maintain a counterfeit electronic parts protection plan meeting the requirements of QCP 5.8.3.

5.0 PARTS DATA LIST (PDL)

The Parts Data List (PDL) referenced on product purchase orders lists Eaton specifications, standards, procedures and corresponding revision status as of the date of issue. Changes to Quality documents will be reviewed for content change to determine if a revision to current purchase order PDL's are warranted. The review activity will occur during the quality document change and approval process.

It is the responsibility of the supplier to determine and use the current revision of any applicable industrial and/or government specifications (e.g., ASTM, AMS, MIL, etc).

Copies of current revisions of Eaton specifications (Quality Control Procedures, Engineering, Material and Process Specifications) are obtained directly from the Eaton website or through your purchasing agent.

Eaton supplier documents are available at:

http://www.eaton.com/Eaton/ProductsServices/ProductsbyName/Argo-Tech/Argo-TechEngineSupplierQualityDocuments/index.htm.

6.0 DEMAGNETIZATION OF FERRO MAGNETIC PARTS AND COMPONENTS

All parts and components of assemblies that are manufactured from ferro-magnetic materials and supplied to Eaton shall be tested for residual magnetism using a magnetic field probe or strength meter. Unless magnetism requirements are defined on the blueprint or engineering specification, there shall be no residual magnetism with an absolute value greater than 3 gauss (240 Am^{-1}) anywhere on the part. Inspection data sheets shall show evidence of this inspection.

7.0 RISK MANAGEMENT AND BUSINESS CONTINUITY GUIDELINES

Eaton expects suppliers to have a comprehensive crisis management approach to deal with potential disruptions. The approach needs to include plan of action, checklist of activities, communication plans, escalation procedures, and organization with teams, roles, and responsibilities.

The supplier must provide risk management and business continuity plans, and conform to the risk management and business continuity requirements in the Global Supplier Excellence Manual. Eaton will notify suppliers in writing when identified as part of a risk situation.

Eaton expects suppliers to plan for the following disruptions:

- Business continuity to deal with event-based risks such as fires, chemical spills, natural disasters, terrorist threats, medical emergencies, and HR (Example: Strikes)
- Supply Chain continuity to check and prepare the sub tier suppliers to deal with potential disruptions
- Pandemics Preparedness Plan (Example: Avian Flu Pandemic)
- IT Disaster Recovery and IT Security for "Supplier" telecommunications, data, systems and infrastructure
- Eliminate potential disruptions due to Financial and Regulatory Non-Compliance (Example: For US publicly traded companies – SOX404 or International Financial Reporting Standards (IFRS) in Europe)
- Human Resources guidelines to conducting drug and background checks
- Confidentiality Policy (including protection of Eaton Intellectual Property)

Eaton is asking each supplier to develop, deploy and maintain these business continuity planning requirements. The “Risk Management and Business Continuity – Self Assessment” further explains the criteria for each of the above continuity requirements.