Supplier Quality Manual (SQM)

Contents

Purpose

To define the quality requirements and expectations for all external providers that supply products, materials, and services to Mettle Ops in accordance with the AS9100 Rev D standard. Suppliers must demonstrate compliance with the AS9100 Rev D standard, regardless of their certification status.

Scope

This manual applies to all suppliers providing products or services that affect the quality of deliverables to Mettle Ops and its aerospace/defense customers. **Compliance with this manual is a condition of doing business.**

References

AS9100 Rev D Standard

Terms & Conditions

Purchase Order / Purchase Order Appendices

Quality Assurance and Control Plan

Quality Management System

- Suppliers shall establish, document, and maintain a Quality Management System (QMS) that meets or exceeds AS9100 requirements.
- AS9100 certification is preferred and strongly recommended to assure compliance and quality consistency, though lack of certification does not exempt a supplier from meeting quality requirements.
- Upon request, suppliers must provide evidence of QMS implementation such as quality manuals, documented procedures, internal audit reports, and corrective action records to demonstrate continual compliance and process control.

Leadership

Suppliers shall:

- Ensure top management is actively engaged in aligning quality objectives with customer needs.
- Promote a culture that fosters customer satisfaction and compliance.

- Communicate and ensure understanding of the quality policy throughout their organization.

Planning

Suppliers must:

- Identify and address risks and opportunities related to products and services.
- Establish quality objectives that are measurable and consistent with customer and business needs.
- Demonstrate control over planning changes and the planning of quality activities.

Risk Management (AS9100 §6.1, §8.1.1)

- Suppliers must proactively identify, assess, and mitigate risks that could impact product quality, delivery schedules, or compliance.
- This includes risks related to materials, processes, equipment, personnel, and external factors.
- Risk mitigation actions should be documented and regularly reviewed.

Support

Suppliers shall provide and manage the following effectively (AS9100 §7.1 – §7.5):

- Resources (people, infrastructure, and environment).
- Competency requirements for personnel performing work affecting product quality.
- Awareness of quality objectives and implications of nonconformance.
- Communication channels to ensure effective information flow.
- Control of documented information, ensuring it is accurate, available, and protected.

Competence and Awareness (AS9100 §7.2)

- Suppliers shall ensure all personnel performing activities affecting product quality are competent based on education, training, skills, and experience.
- Training records must be maintained and available for review upon request.
- Suppliers are responsible for fostering awareness of the importance of their roles, emphasizing product/service conformity, safety impacts, regulatory compliance, and adherence to ethical standards to ensure overall quality and integrity.

Documentation and Record Retention (AS9100 §7.5)

- Suppliers shall maintain all quality records related to supplied products and services for a minimum of ten (10) years or as otherwise specified by contract or regulatory requirements.
- Records must be accurate, legible, readily retrievable, and stored securely to prevent damage or loss.
- Suppliers must make these records available for review by Mettle Ops or its customers upon request within a reasonable timeframe or those explicitly cited in the contract.

Operations

Operational Planning and Control (AS9100 §8.1)

- Suppliers must establish controls for planning, implementing, and managing operational processes.

Product Safety (AS9100 §8.1.3)

- Suppliers shall establish and maintain processes that ensure product safety throughout the entire product lifecycle, including design, manufacturing, handling, delivery, and end-use.
- Suppliers must implement controls to ensure the safe handling, storage, and transportation of product to prevent damage, deterioration, or unsafe conditions.
- Any potential safety concerns discovered during production or inspection must be immediately communicated to Mettle Ops.

Counterfeit Parts Prevention (AS9100 §8.1.4)

- Suppliers are required to establish and maintain processes to prevent the introduction of counterfeit or suspect counterfeit parts into delivered products.
- This includes sourcing exclusively from authorized manufacturers or distributors, maintaining full traceability, and requiring certification or documentation verifying authenticity.

Requirements for Products and Services (AS9100 §8.2)

- Suppliers must ensure that product and service requirements are understood, reviewed, and confirmed before acceptance.
- Suppliers must receive approval from Mettle Ops before outsourcing any work to sub-tier suppliers.
- If Suppliers have approval to outsource any work, suppliers are to ensure their sub-tier suppliers also understand all product and service requirements.

Design and Development (AS9100 §8.3)

- Suppliers performing design must follow a structured process including planning, inputs, outputs, reviews, verification, validation, and change control.

Control of External Providers (AS9100 §8.4)

- Suppliers must establish a process for evaluating and monitoring their sub-tier suppliers' performance and compliance to ensure the quality of outsourced processes or materials.
- Significant changes such as manufacturing location, key materials, processing methods, or quality management status must be communicated promptly to Mettle Ops before implementation.
- Failure to provide prior notification of such changes may result in suspension or termination of current and/or future business engagements.

Purchase Order Compliance (AS9100 §8.4.3)

- Suppliers must strictly adhere to all purchase order requirements, including drawings, specifications, and special conditions.
- All applicable requirements from Mettle Ops and its customers must be flowed down to sub-tier suppliers without omission.
- Any deviations or requests for changes must be approved in writing prior to implementation.

Production and Service Provision (AS9100 §8.5)

- Suppliers are to complete all manufacturing processes in a controlled manner including the use of work instructions or procedures.
- Mettle Ops may complete site visits to review manufacturing process to ensure process is sufficient to produce product to specifications.

Key Characteristics and Critical Items (AS9100 §8.5.1)

- Suppliers are responsible for identifying, monitoring, and controlling all key characteristics, critical items, and special processes as specified on purchase orders, drawings, or specifications.
- Data related to these characteristics must be recorded accurately and made available for review upon request.

Traceability (AS9100 §8.5.2)

- Suppliers must maintain traceability of all products, materials, and processes from raw materials through finished product, linking to batch, lot, or serial numbers as applicable.
- Traceability records must be maintained and accessible to demonstrate conformity and support root cause investigations.

Customer Property (8.5.3)

- Suppliers must protect and manage customer-owned material, tools, and data.

Preservation (8.5.4)

- Products must be preserved during processing and delivery, including packaging and handling.

Post-Delivery Activities (8.5.5)

- Responsibilities for product support, warranty, and maintenance must be defined.

Control of Changes (8.5.6)

- All changes must be reviewed and approved prior to implementation.

Release of Products and Services (AS9100 §8.6)

- Verification steps must be in place to ensure products meet acceptance criteria.

Nonconforming Product (AS9100 §8.7)

- Suppliers shall not ship or deliver any product that does not conform to the agreed specifications without prior written authorization (e.g., a concession or deviation approval).
- Suppliers must have procedures to prevent the unintended use of nonconforming products.
- All nonconformances must be reported immediately **(within 24 hours)** upon discovery, including potential impacts on delivery or safety.
- Mettle Ops reserves the right to issue formal Supplier Corrective Action Requests (SCARs) which must be responded to promptly with evidence-based corrective actions.

- If Supplier identifies a nonconforming part, they must ensure the part is clearly identified (e.g. red tagged) and shipped directly to Mettle Ops

Performance Evaluations

Suppliers shall have a documented procedure for evaluating (AS9100 §9):

- QMS compliance
- Customer satisfaction
- Conformity of products and services
- Effectiveness of actions taken to address risks and opportunities
- Performance of external providers
- Improvements needed to the QMS

Improvement

Corrective Action (AS9100 §10.2)

- Suppliers must provide initial responses to corrective action requests within **24 hours** outlining immediate containment steps taken.
- Depending on the severity of the nonconformance, the supplier must implement a corrective action plan within the following time frame:
    - Minor Nonconformances: **60 days**
    - Major Nonconformances: **30 days**
    - Critical Nonconformances: **15 days**
- The corrective action plan must outline containment, root cause analysis, responsibilities, timelines, verification, production clean point, and effectiveness checks.
- Responses should be thorough and data-driven, typically following a 5Why Root Cause Analysis or equivalent problem-solving methodology.
- Documentation of all corrective actions must be maintained and made available for review upon request.

Continuous Improvement (AS9100 §10.3)

- Suppliers must continually improve the suitability, adequacy and effectiveness of the quality management system.

Quality Inspections

- Vendor to complete necessary quality inspections according to *Quality Assurance and Control Plan* (QACP-1) provided by Mettle Ops.

- Inspection forms shall be color-coded to clearly indicate inspection outcomes: red to denote non-conforming (out-of-specification) results, yellow to signify results approaching specification limits, and green to confirm results within specification.

FAI / PPAP (AS9102 / AS9145 when applicable)

- First Article Inspections (FAI) may be required to verify that products meet design requirements before full production runs.
- For certain critical components, suppliers may be required to submit Production Part Approval Process (PPAP) documentation demonstrating process capability and product conformity per automotive or aerospace standards.

Communication and Flow Down

- Suppliers must proactively communicate to Mettle Ops any changes affecting product quality, including process changes, nonconformances, corrective actions, delivery delays, or changes in management and quality certifications.
- All customer-specific and regulatory requirements must be flowed down to all sub-tier suppliers to ensure full compliance throughout the supply chain.

Monitoring and Evaluation

- Mettle Ops will monitor supplier performance including:
    - On-time delivery rate
    - Quality performance, measured by number and severity of nonconformance reports (NCRs)
    - Responsiveness and effectiveness of corrective actions
    - Results of supplier audits or assessments
- Suppliers exhibiting poor performance may be placed on probation, required to submit improvement plans, or removed from Mettle Ops' Approved Supplier List (ASL).

Ethical Behavior

- Suppliers must conduct all business activities ethically, honestly, and in compliance with all applicable laws and regulations.
- Acts of bribery, fraud, falsification of records, or other unethical behaviors shall not be tolerated and may lead to immediate termination of the business relationship.

Training

Mettle Ops will provide necessary training to suppliers upon request. Available trainings include: 5Whys Root Cause Analysis, AS9100 Rev D requirements, completion of forms, etc.

Communication & Feedback

Suppliers shall maintain open and proactive communication. Timely responses to requests for information, corrective actions, and changes are expected.

Appendix A – Applicable Forms

The following forms are applicable to the requirements detailed throughout this document. These forms can be made available to Supplier upon request.

F-420-005 Potential Supplier Audit Form

F-840-003 Supplier Corrective Action Request

F-810-001 Design Failure Modes Effects Analysis (DFMEA)

F-810-002 Process Failure Modes Effects Analysis (PFMEA)

F-851-008 Part Number Accountability AS9102

F-851-009 Product Accountability AS9102

F-851-010 Characteristic Accountability AS9102

F-851-004 Inspection Report

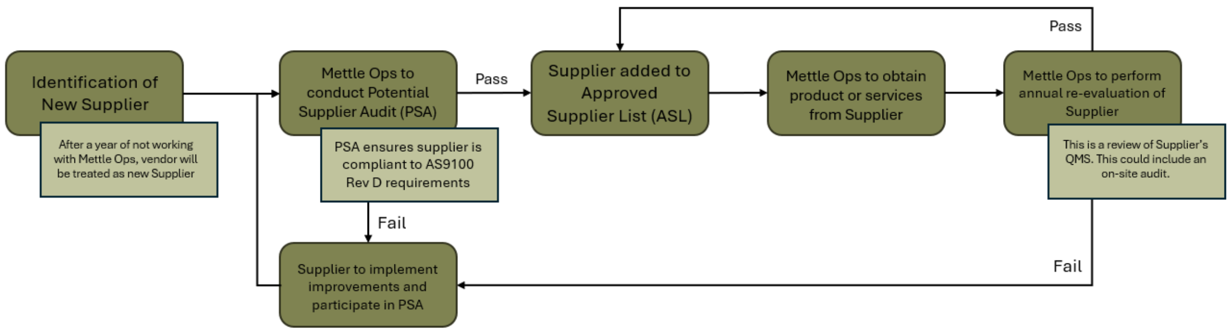
F-851-013 Control Plan

F-851-014 Process Flow Diagram

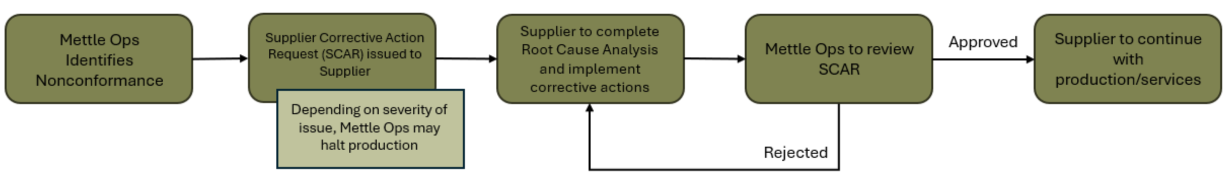
F-853-001 Customer Property Log

Appendix B – Flow Diagrams

Supplier Approval Process:



Supplier Corrective Action Process:



Appendix C – Supplier Corrective Action Form Instructions

1. Root Cause Analysis

   5Whys is a technique used to complete the Root Cause Analysis. The goal of this technique is to determine the root cause of the issue by repeating the question "Why" five times.

   For specific problems:
   Why did we have this problem?

   For problems that were not detected:
   Why did this problem reach the customer without being detected?

   For system failures:
   Why did our system allow this to occur?

2. Root Cause

   Detail Root Cause of nonconformance.

3. Corrective Action

   Record corrective action that will be taken to address/fix root cause of problem. Determine if training is needed and provide training to the necessary employees.

4. Evidence of Implementation

   Detail implementation results of Corrective Action. Attach any additional evidence of implementation (pictures, documentation, training records, etc.)

Revision History					
Rev	Date	Section	Paragraph	Summary of change	Authorized by
1.0	5/7/2025			Initial Release	Stephanie Close