SMSR

Supplier Management System Requirements

IAMPL

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0.1 APPLICATION

Rolls-Royce approved suppliers (Refer SABRe 3 Appendix A, Supplier types) - The supplier shall meet SABRe requirements. SMSR requirements of IAMPL in addition to SABRe if any shall be formally communicated to the supplier.

For suppliers who are or only performing rough machining '& or' conventional machining operations (Refer SABRe 3 Appendix A, Supplier types) - The supplier shall meet the below sections of SMSR requirements. Additional requirements arising from updated IAMPL supplier management requirements, SABRe, AS9100 if any shall be formally communicated to the supplier.

NTS: Notice to Suppliers (NTS) will be issued by IAMPL to communicate additional information & updates to the external supply chain.

All NTS' documents should be viewed immediately a record of review and action (if required) shall be maintained.

FORMS & TEMPLATES: Applicable forms and templates are available to view and download from the Rolls-Royce Global Supplier Portal (GSP) at https://suppliers.rolls-royce.com.

0.2 RATIONALE

SMSR incorporates the new clause structure and requirements of the following standards & customer requirements mentioned below:

- SABRe (Rolls-Royce Plc)
- BS/EN/ISO 9001:2015 (Quality Management Systems Requirements)
- AS/EN/JISQ 9100:2016 (Quality Management Systems – Requirements for Aviation, Space and Defense Organizations)

It also directs the application of the following Standards:

- AS13000 (Problem Solving Requirements for Suppliers)
- AS13002 (Requirements for Developing and Qualifying Alternate Inspection Frequency Plans)
- AS13003 (Measurement Systems Analysis Requirements for the Aero Engine Supply Chain)
- AS13004 (Process Failure Mode and Effects Analysis (PFMEA) and Control Plans)
- AS/EN/SJAC 9145:2016 (Requirements for Advanced Product Quality Planning and Production Part Approval Process)
- AS/EN/SJAC 9146:2017 (Foreign Object Damage (FOD) Prevention Programme)
- AS/EN/SJAC 9102 (Aerospace First Article Inspection Requirements)

0.3 FOREWORD

SMSR (Supplier Management System Requirements) is the external-facing element of the IAMPL Management System, the purpose of which is to formally communicate specific IAMPL requirements and expectations to the external supply chain. SMSR is also a set of requirements that promotes continuous improvement, defect prevention and the reduction of variation and waste in the supply chain.

The requirements shall support compliance with IAMPL obligations under Aerospace customer contracts and / or aviation authority approvals for, production on aircraft and / or engine components.

The external provider, hereafter referred to as Supplier, shall demonstrate compliance with the minimum standard of Business behaviors, Health, Safety and Environmental practices, applicable laws and regulations and act in a way that is ethical and corporately responsible as specified in the IAMPL Supplier code of conduct.

0.4 INTRODUCTION, General Requirements:

SMSR General Requirements are based on the structure of and presupposes adherence to BS/EN/ISO 9001:2015, AS/EN/JISQ 9100:2016, AS/EN/SJAC 9110:2016 and is applicable at all times when operating under IAMPL approval unless otherwise defined in Appendix A.

0.4.1 General

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

0.4.2 Quality Management Principles

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

0.4.3 Process Approach

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

0.4.3.1 General

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

0.4.3.2 Plan-Do-Check-Act Cycle

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

0.4.3.3 Risk Based Thinking

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

0.4.4 Relationship with Other Management System Standards

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

SECTION 1 –QUALITY MANAGEMENT SYSTEMS REQUIREMENTS

1 SCOPE

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

SMSR is applicable to all Suppliers who supply products and/ or services related to IAMPL Aerospace purchase orders / contracts.

SMSR details specific requirements and expectations of IAMPL in addition to those that are already contained in the stated international standards.

General requirements are applicable at all times when operating under IAMPL approval.

Suppliers shall ensure that the requirements set out within this document are cascaded to all levels of the supply chain, and validate that the contractual requirements have been met in all tiers.

2 NORMATIVE REFERENCES

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

3 TERMS AND DEFINITIONS

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

Refer to SABRe definitions for additional information. This document is available to view and download from the Rolls-Royce Global Supplier Portal (GSP).

4 CONTEXT OF THE ORGANISATION

4.1 Understanding the Organisation and its Context

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

4.2 Understanding the Needs and Expectations of Interested Parties

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

4.3 Determining the Scope of the Quality Management System

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

Supplemental Requirements

Suppliers shall:

a) At all times comply with the requirements of the IAMPL Supplier Code of Conduct including its standard security and Health and Safety requirements.

b) Hold a Rolls-Royce /IAMPL and / or Third Party approval appropriate to their type and level of supply as stipulated in Appendix A. The Supplier shall notify IAMPL, should the approval be suspended or revoked or when major Non Conformities (NCRs) are raised by the Certifying Body.

c) Establish a documented Quality Management System (QMS) that is independently assessed and certified by a Certification Body. The Certification Body must be accredited by a recognized national Accreditation Body to provide audit and certification of Quality Management Systems.

d) Conduct an annual SMSR self-assessment and ensure full compliance to all requirements. The results shall be made available to IAMPL on request.

4.4 Quality Management System and its Processes

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

5 LEADERSHIP

5.1 Leadership and Commitment

5.1.1 General

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

5.1.2 Customer Focus

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

5.2 Policy

5.2.1 Establishing the Quality Policy

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

5.2.2 Communicating the Quality Policy

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

5.2.3 Establishing and Communicating the Safety Policy

Comply with AS/EN/SJAC 9110:2016

5.3 Organisational Roles, Responsibilities and Authorities

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

Supplemental Requirements

Suppliers shall:

a) Resource the organization sufficiently to fully comply with these requirements and confirm and maintain compliance throughout the sub-tiers.

b) Define the personnel accountable for design tasks (Engineering), sub-tier Suppliers control and product quality (across all production shifts) and ensure that they have the authority to stop production and design related deliverables to correct quality problems as they arise.

c) Establish a procedure for task and shift handovers that ensures that all necessary information is communicated (verbally and in written form) between the out-going and in-coming personnel.

d) Establish a procedure to escalate issues and associated risks, including a reporting mechanism for product or design escapes if product or design has been released to IAMPL or any customer.

5.3.1 Accountable Manager

Comply with AS/EN/SJAC 9110:2016

5.3.2 Quality Manager

Comply with AS/EN/SJAC 9110:2016

5.3.3 Other Appointed Manager(s)

Comply with AS/EN/SJAC 9110:2016

6 PLANNING

6.1 Actions to Address Risks and Opportunities

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

Supplemental Requirements

Suppliers shall:

Implement a risk management process, such as ISO 31000, across their organization and put in place appropriate governance such that they:

- Carry out a robust assessment of the risks, in particular those that could threaten their future performance or solvency, and detail these in a risk register
- At least annually, carry out a review of the effectiveness of their risk management system (including internal controls)
- Ensure appropriate assurance is in place to ensure that risk treatments (including internal controls) are proportionate and effective

b) Ensure appropriate treatment activities are in place to mitigate key risks to an acceptable level, including but not limited to:

- Product safety
- Shortages of key skills and people
- Product quality issues (including counterfeit parts)
- Financial risks
- Compliance risks (including Health, Safety & Environment, Legal, Export Control and Anti-Bribery and Corruption)
- Protection of Intellectual Property

c) Identify, assess, mitigate and prevent risk in manufacturing process through the application of Process Flow Diagrams (PFDs), Process Failure Mode and Effects Analysis (PFMEA) and Control Plans in accordance with AS13004.

d) Plan, implement and control a process for managing operational risks including the following as a minimum:

- Risk identification – identify sources of risk, their cause and effects and their potential business impact
- Risk analysis – consider the likelihood and level of impact of the identified risks
- Risk evaluation – compare the level of risk found during the analysis process and prioritize risks treatment
- Risk treatment – prepare contingency and / or mitigation plans to reduce risk levels
- Monitoring and review of the risk management activities to ensure controls are effective

e) Establish robust crisis management and business continuity plans that ensure the organization can continue to operate in the event of a serious incident and is able to recover to an operational state within a reasonably short period. It is recommended these plans include:

 The identification, analysis, evaluation and / or mitigation of risks related to business continuity that includes (but is not limited to) the following:

- Product/service, facility or individual skill uniqueness
- Single points of failure (including sub-tier Suppliers) or key processes
- The loss of key data or Information Technology (IT) systems
- Disruption due to fire, explosion or natural disaster
- Disruption to the supply chain
- Access to alternative development tools and facilities
- Remote backup and archive of data
- Access to alternative IT systems
- Action plans and timescales for business recovery
- Contacts, process owners and procedures to follow in the event of an emergency.
- A strategy to control, review periodically and communicate plans to all relevant personnel
- Disaster recovery and contingency planning for storage of data related to the product/service.

f) Immediately inform their IAMPL Purchasing contact regarding the following:

- Major incidents affecting the Supplier
- Risks that could impact the continuity of the Supplier's business / operations, particularly single points of failure
- Changes to third party or other party certification including, lapse / withdrawal / major audit findings
- Change of the nominated Quality Representative & or Management Representative
- Significant change to the Quality Management System
- Change in ownership or discontinuation of business activities
- Breaches of IT Security systems (Cyber Security)
- Risks with the supply of substances used in the production or physical make-up of products, due to laws and regulations concerning the control or use of such substances that may be published from time-to-time

g) Ensure that chemical substances constituting or contained in products supplied to IAMPL are not restricted under any applicable Chemical Legislation.

h) Provide sufficient information / data as to enable IAMPL to comply with its own obligations under applicable Legislation related to the use of chemicals, including that associated with hazardous materials in products.

i) The Supplier shall consider the elimination of materials and chemical substances from products and processes as applicable according to the requirements of the Rolls-Royce Global Substance Elimination Policy, MLC132.

j) Comply with the requirements so as to ensure continuity of supply when the Supplier has an obligation under any applicable Chemical Legislation.

k) Ensure that data related to the use of substances and mixtures that has been provided to the Supplier by IAMPL/Rolls-Royce is passed onto sub-tier / subcontract suppliers (when applicable).

l) Maintain records of risk management in accordance with Appendix B and submit risk register and business continuity plans to Rolls-Royce on request.

6.2 Quality Objectives and Planning to Achieve Them

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

6.3 Planning of Changes

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

7 SUPPORT

7.1 Resources

7.1.1 General

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

7.1.2 People

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

7.1.3 Infrastructure

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

Supplemental Requirements

Suppliers shall:

a) Identify key process equipment and provide resources and capacity for machine / equipment and tooling maintenance. Develop and execute an effective maintenance system [1].

b) Use a multi-disciplined team to develop robust project plans when implementing new plant, facilities or equipment.

c) Assess production feasibility to ensure that product can be produced in accordance with the standards, specifications and tolerances specified by IAMPL/Rolls-Royce or relevant industry standards.

d) Refer to sections 6 and 8, when planning, developing and implementing new technology with respect to opportunities for new manufacturing technologies and the design and development of products and services.

NOTE 1: A maintenance system can include: planned maintenance activities; identification and provision of critical spare parts; identification and control of all safety-critical plant and equipment; the use of equipment performance metrics and objectives; the use of predictive maintenance or other relevant techniques to improve equipment performance to meet objectives.

7.1.4 Environment for the Operation of Processes

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

7.1.5 Monitoring and Measuring Resources

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

Supplemental Requirements

Suppliers shall:

a) Ensure that monitoring and measurement resources are acceptable by performing Measurement Systems Analysis (MSA) in accordance with AS13003.

b) Ensure all ballooned dimensional characteristics/features have MSA studies performed on them in accordance with AS13003. These dimensional characteristics/features can also be in form of text communication/notes in the definition.

c) Ensure that monitoring / measuring equipment used for the final verification / inspection of product is independent to those used for product measurement during production activities or will be re-calibrated / verified prior to use where independence cannot be achieved.

d) Ensure that the personnel nominated to perform product verification activities are trained and competent in the use of the monitoring / measuring equipment.

e) Ensure instructions given to operators and inspectors use the same units of measurement as used on the process and inspection equipment. If conversion of measurement units is required, it shall be done by the Suppliers Technical Authority and formally issued.

f) Check monitoring / measuring equipment against a calibrated reference of known size and form at planned intervals between calibration events.

g) Perform a review of measurement capability when tolerances, personnel or environmental conditions have changed.

7.1.6 Organizational Knowledge

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

7.2 Competence

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

Supplemental Requirements

Suppliers shall:

a) Establish a business skills matrix & identify key areas for succession planning.

7.3 Awareness

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

7.4 Communication

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

7.5 Documented information

7.5.1 General

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

7.5.2 Creating and Updating

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

7.5.3 Control of Documented Information

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

Documents are available to view and download from the Rolls-Royce *Global Supplier Portal (GSP)*.

Supplemental Requirements

Suppliers shall:

a) Comply with the current revision of documents / specifications at the date of product launch and any further revisions thereafter.

b) Comply with the export control policy as published on the Rolls-Royce *Global Supplier Portal (GSP)*.

c) Flow down documents / specifications to sub-tier Suppliers (when applicable).

d) Ensure that the translation of documents into a Suppliers' national language is performed by a competent translator prior to use[1].

e) Ensure that all technology is managed in accordance with applicable export control legislation including the flow down of such requirements to subcontractors and sub-tier suppliers.

f) Control records related to IAMPL/Rolls-Royce product and / or services in a manner that will allow the timely recovery of a readable version of any records (including electronic records) by ensuring that:

- Records are retrievable on request within 24 hours
- Documents / records requiring authorization by IAMPL are written in English or dual language (i.e. the Suppliers national language plus an accurate English translation made from the original document / record)

g) Ensure that hand-written amendments to records are dated and signed in ink, with the original information being legible after the change.

h) Ensure that characteristic and acceptance test data values are recorded in an electronic format that allows ease of data analysis (e.g. in the form of a spreadsheet).

i) Retain documents and records in accordance with the specified periods in Appendix B.

j) Ensure on-site data access to those Aviation Authorities having jurisdiction over IAMPL/Rolls-Royce sites.

k) Ensure all documents and Records are transferred to IAMPL when business or contract is seized

8 OPERATION

8.1 Operational Planning and Control

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

Supplemental Requirements

Suppliers shall:

a) Plan and schedule product and / or services in order to meet IAMPL requirements.

b) Ensure that production planning / scheduling includes (but is not limited to) the following:

- Sales and operation planning
- Master production schedule
- Material requirements planning
- Control of purchasing activities

- Control of production activities

c) Establish a process to plan[1] and manage production capacity that includes (but is not limited to) the following:
- Availability of resources for labour and equipment
- The impact of new product introduction / product introduction on available capacity

d) Resolve discrepancies between the available capacity and the demands of IAMPL.
e) Monitor the effectiveness of labour, equipment and processes to ensure planning assumptions are accurate.
f) Communicate (flow down) production schedule information to subcontractors / sub-tier Suppliers.
g) Review and respond to IAMPL supply chain future schedules.

8.1.1 Operational Risk Management

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

8.1.2 Configuration Management

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

8.1.3 Product Safety

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

Supplemental Requirements

Suppliers shall:

a) Plan, implement, and control the processes needed to assure product safety, as appropriate to the organization.

b) These processes include:
- Hazard identification, including reactive and proactive methods
- Analysis, assessment, and control of safety risks associated with identified hazards
- Identification and management of changes that may impact product safety
- Assessment of the effectiveness of safety management processes
- Provision of training on product safety responsibilities to relevant personnel
- Communication of product safety information, including safety-critical information, safety events, and changes to safety procedures, as applicable
- Reporting of safety events to the customer, authorities, and Type Certificate holder in accordance with Customer and Regulatory requirements

c) Notify the IAMPL Purchasing contact within 24 hours of any potential unsafe condition.

d) Retain documented information determined as being necessary for the effectiveness of product safety management.

8.1.4 Prevention of Counterfeit Parts

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

Supplemental Requirements

Suppliers shall:

a) Document a counterfeit parts prevention process and ensure it includes a mechanism for reporting counterfeit and/or suspected counterfeit parts to the IAMPL Purchasing contact as soon as possible but not later than within 24 hours of discovery.

8.1.5 Prevention of Suspected Unapproved Parts

Comply with AS/EN/SJAC 9110:2016

8.1.6 Installation of Approved Parts

Comply with AS/EN/SJAC 9110:2016

8.2 Requirements for Products and Services

8.2.1 Customer Communication

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

8.2.2 Determining the Requirements for Products and Services

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

8.2.3 Review of the Requirements for Products and Services

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

Supplemental Requirements

Suppliers shall:

Review the requirements related to the design of the product, the product itself and the purchase order / contract, prior to committing to supply the product / design or acceptance of orders/contracts.

8.2.4 Changes to Requirements for Products and Services

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

8.3 Design and Development of Products and Services

8.3.1 General

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

8.3.2 Design and Development Planning

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

8.3.3 Design and Development Inputs

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

8.3.4 Design and Development Controls

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

8.3.5 Design and Development Outputs

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

See 8.3.1 Supplemental Requirements

8.3.6 Design and Development Changes

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

Supplemental Requirements

Suppliers shall:

a) Complete and submit the form(s) for change request. (see forms section of the Global Supplier Portal (GSP) associated with this activity/contact IAMPL technical authority).

b) Ensure any Design Changes (includes Tool/Fixture) and Definition Alteration Requests (DAR) are authorized by IAMPL before implementation (including verification and validation as appropriate).

c) Ensure that configuration management related to Design Changes (includes Tool/Fixture) and Definition Alteration Requests are controlled.

d) Ensure that revised component definition (e.g. amended drawing) has been issued / released prior to the implementation of any agreed change and before the shipment of product to IAMPL.

8.4 Control of Externally Provided Processes, Products and Services

8.4.1 General

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

Supplemental Requirements

Suppliers shall:

a) Select, manage and monitor key subcontractor / sub-tier Suppliers through the following controls:

- Assess Suppliers capability prior to placing orders
- Undertake oversight prioritized based upon risk
- Evaluate root cause activities where non-conformances occur
- Measure performance:
- Delivered product quality
- Customer disruptions / customer returns
- Delivery schedule performance
- Conduct load and capacity reviews with key subcontractor / sub-tier Suppliers annually or following significant load increase
- Take appropriate containment and corrective action with poorly performing subcontractor / sub-tier Suppliers
- Enlist adequate and skilled resources to undertake the Suppliers management activities including the management of special processes

b) Only purchase products and services from sources holding appropriate approval as stipulated in Appendix A.

c) Ensure that purchasing information / documentation and requirements for subcontractors / sub-tier Suppliers is flowed down the supply chain (applicable SMSR requirements).

d) Specify the supporting documents with the purchased product or service confirming compliance to specifications.

e) Work within the scope of their QMS and the approvals from IAMPL.

f) Hold a IAMPL/Rolls-Royce and / or Third Party approval appropriate to their type and level of supply as stipulated in Appendix A.

g) Demonstrate through documented evidence that subcontractors / sub-tier Suppliers (including any Direct Buy Vendor) engaged in the manufacture of product are being managed to IAMPL requirements.

8.4.2 Type and Extent of Control

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

8.4.2.1 Work Transfers

Suppliers shall:

a) Complete and submit the form(s) associated with this activity to their IAMPL purchasing contact.

b) Ensure that no change takes place until the Supplier has submitted and received approval to proceed from IAMPL.

c) Ensure that work transfer (source change) documentation / information is communicated along the purchase order cascade.

d) Demonstrate that any export control risks associated with the work transfer have been properly assessed and any changes to, or requirements for new export authorizations have been planned.

8.4.2.2 Verification of Externally Provided Processes and Services

Suppliers shall ensure 100% inspection of products from subcontractors / sub-tier Suppliers

8.4.3 Information for Suppliers

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/ SJAC 9110:2016

8.5 Production and Service Provision

8.5.1 Control of Production and Service Provision

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/ SJAC 9110:2016 & RRP50000

Supplemental Requirements

Suppliers shall:

a) Create a test / inspection plan for all product characteristics and production operations including:

- Where in the sequence the testing / inspection operations are performed
- A reference to each product characteristic to be tested / inspected at each operation
- The type of equipment required and any specific instructions associated with their use
- Criteria for acceptance and / or rejection
- A reference to product test / inspection activities to be witnessed by the customer
- Control plans for characteristics that are not tested / inspected when the product is in the final condition (inaccessible characteristics, characteristics tested / inspected before the product is in its final condition, characteristics that cannot be measured directly, characteristics subject to sample or reduced inspection)

b) Ensure 100% verification of all product characteristics in their final condition. This is not required for purchased standard catalogue hardware. Sample inspection or reduced inspection shall be applied in accordance with AS13002.

c) Ensure product test / inspection activities are conducted in an acceptable environment. This shall include lighting conditions that provide at least 700 LUX, and where accurate visual inspections are required to be performed, white light intensity of at least 1000 LUX.

d) Record measurement results in accordance with rules defined in the SABRe Brief “Rules on significant figures and rounding”, Refer Global Supplier portal link in 0.1 of SMSR.

e) Produce records of test and inspection, these shall include as a minimum:

- Item inspected
- Activity performed
- Procedure / Instruction for the inspection activity
- Date of inspection or surveillance activity
- Personnel who performed the inspection or surveillance
- Results of the inspection / surveillance

f) Where actual measurement values are routinely recorded during inspection, these shall not be deliberately destroyed, deleted or exposed to hazards detrimental to record retention (e.g. fire or water hazard). This includes features inspected:

- Using equipment where a report containing actual measurement values is automatically created (e.g. Coordinate Measurement Machines, computer connected digital equipment etc.)
- Where measurement values are already routinely recorded for other reasons (e.g. Statistical Process Control (SPC), Key Characteristics, etc.)

Suppliers shall:

a) Unless otherwise agreed by IAMPL, perform SPC studies and ongoing monitoring on Key Characteristics (i.e. KCF / CCF) (see Appendix C). Results shall be formally recorded and provided to IAMPL. A Process Control Document (PCD) is provided in AS/EN/SJAC 9103 for this purpose.

b) If the process is not stable or capable, identify and implement improvement activities to address the shortfall and develop containment plan that assures conforming product.

c) Minimum Process Capability requirements are as follows:

- Cpk ≥ 2.0 for Civil Aerospace New Product Introduction (NPI)

- Cpk ≥ 1.33 for all other Aerospace products (Civil Aerospace legacy products, Defence, Maintenance Repair and Overhaul (MRO)

NOTE: Processes / characteristics should be 'on target' (i.e. centered on the Engineering specified nominal value).

NOTE: Rolls-Royce has a quality commitment to defect free manufacture. Capability of Cpk ≥ 2.0 is desirable for all features (not only Key Characteristics) in order to establish performance levels in line with this commitment.

8.5.1.1 Control of Equipment, Tools and Software Programs

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/ SJAC 9110:2016

Supplemental Requirements

Suppliers shall:

a) Establish a system for the management of pre-production and production tooling, jigs and fixtures that includes (but is not limited to) the following:

- Unique tool identification
- Validation of tool prior to release for production
- Protection from damage and deterioration during storage
- Maintained as fit for purpose
- Storage and recovery
- Tool set-up
- Tool life control / tool-change programme's.
- Tool design modification documentation, including engineering change level
- Tool modification and revision

8.5.1.2 Validation and Control of Special Processes

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/ SJAC 9110:2016

8.5.1.3 Production Process Verification

Comply with AS/EN/JISQ 9100:2016

Supplemental Requirements

Suppliers shall:

a) Implement the requirements of AS/EN/SJAC 9102.

- IAMPL requires First Article Inspection (FAIR) to be applied to unique single run production orders, not intended for ongoing production e.g. out-of-production spares

b) Perform FAIR on a single part, measuring all characteristics in the final product.

- When characteristics measured during the manufacturing process (not accessible in the final product) have potential to be affected by subsequent operations, the supplier must obtain agreement from the IAMPL Technical Authority on whether additional verification is required.

c) Use capable measurement equipment in accordance AS 13003.

- 'Designed Tooling' used to verify characteristics in the production process shall only be used for FAIR when there is no viable alternative and it is re-calibrated and certified prior to its use for FAIR.

f) Compile and submit a FAIR with reference to the purchase order from IAMPL.

g) Only release product into IAMPL against an approved FAIR.

Suppliers shall:

a) Complete and submit the form(s) associated with this activity to their IAMPL Technical Authority (see forms) along the purchase order cascade for initial approval and approval of any change to source and / or method of production in accordance with the requirements of RRES 90000.

Vision Standards

Suppliers shall:

a) Ensure personnel engaged in product verification and inspection activities are examined at three (3) yearly intervals. Eyesight acuity shall be a minimum of Curpax N5, Jaeger #2 or equivalent in at least one eye and when using both eyes together. Colour vision perception shall be examined at five (5) yearly intervals.

d) Ensure Vision tests are performed by suitably trained and qualified personnel.

e) Ensure Vision correcting eyewear, e.g. glasses, contact lenses, etc. used to pass the vision examination are worn when performing product verification/inspection activities. Any changes to vision correcting eyewear will require a re-examination before being used. The use of darkened lenses or those that darken on exposure to light are prohibited.

f) Ensure that where personnel fail, a colour perception examination, their capability to distinguish and differentiate colours used in performance of applicable product verification / inspection activities is determined and documented.

For the appointment of competent persons, including any required qualification

Suppliers shall:

a) Ensure employees directly inspecting product are formally authorized.

b) Ensure product is released by authorized personnel.

8.5.1.4 Evaluation of a New Capability

Comply with AS/EN/SJAC 9110:2016

8.5.2 Identification and Traceability

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

Supplemental Requirements

Suppliers shall:

a) Control the unique and serialized identification of the product when required to do so as specified in the IAMPL product definition (see forms).

b) Accept the release documentation where product is provided by IAMPL. This documentation is sufficient evidence of product traceability up to the point of the release documentation being created. In such cases, it is not necessary to verify test reports and original raw material manufacturer source certificates.

8.5.3 Property Belonging to Customers or Suppliers

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

8.5.4 Preservation

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

Supplemental Requirements

Suppliers shall:

a) Provide secure storage facilities for product, equipment, tools and material.

b) Ensure the conditions of storage prevent deterioration and damage of stored items.

c) Assess the condition of product in stock at appropriate planned intervals in order to detect deterioration.

d) Establish an inventory management procedure that includes (but is not limited to) the following:

- Rule for determining safety stock levels
- Method to guarantee inventory accuracy
- Key performance indicators to monitor inventory
- Method to monitor, review and action slow-moving work in progress
- Control of shelf life product

e) Ensure that access to storage facilities is restricted to authorized personnel.

f) Deliver product using the IAMPL standard delivery transport network and collection service as / when specified by IAMPL (i.e. Manifest or equivalent).

g) Use appropriate transport to ensure that the product is delivered in a timely manner and ensures that the product will be received in a condition that is fit for purpose (i.e. when the IAMPL standard transport network and collection service is not specified or will not/ cannot be used).

h) Ensure that products are packaged to a standard that provides adequate protection against damage, deterioration and tampering during shipment, storage and distribution.

i) Compile a "Packaging and Labelling Data Sheet" (see forms section of the Global Supplier Portal (GSP)) to define the packaging and labelling applied to the product and submit to IAMPL (if requested by IAMPL).

j) Comply with the latest version of the Protection Packaging and Labelling document published on the Global Supplier Portal (GSP).

k) Develop and establish a Foreign Object Damage (FOD) prevention program in accordance with AS/EN/SJAC 9146:2017

8.5.5 Post-Delivery Activities

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

8.5.6 Control of Changes

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

8.6 Release of Products and Services

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

Supplemental Requirements

Suppliers shall:

a) Provide separate release documentation with each delivery to IAMPL.

b) Ensure that the release documentation:

- Is written in English or in a language specified by the customer
- Refers to a single purchase order / schedule
- Refers to a single part number
- Is legible and protected from damage/ deterioration
- Is attached to the outside of the secondary packaging
- A copy of the Certificate of Conformity (CoC) is placed on the outside of the secondary packaging and a copy inside the secondary packaging
- Contains the following information as a minimum:
- Unique traceable document reference number
- Suppliers' name, address and telephone number
- Delivery address
- IAMPL purchase order number (including purchase order item number)
- IAMPL plant and storage location (when specified)
- Description of the product (as referenced on the IAMPL purchase order or drawing)
- Part number (as referenced on the IAMPL purchase order)
- Kit number (when applicable) – plus a list of part numbers, quantities, serial numbers
- Traceable reference (serial, batch, lot, heat, cast numbers - as applicable)
- Quantity
- Date of dispatch
- Conformance / compliance statement [1]
- Export Classification of the product under the External providers' national jurisdiction
- Details of any export authorization applicable to the product including any conditions or restrictions relating to the use, re-export or re-transfer of the product and its associated technology
- The name and signature of person authorized to release the product to the customer [2]

c) Provide additional information (when applicable):

- FAIR
- Modification, repair scheme, or service bulletins
- Classification of product
- Approval plan number
- Quality plan number
- Concession / Deviation Permit number (referenced concession / Deviation Permit to be provided)
- Hazardous substances / safety data sheet (safety data sheet to be provided)
- Shelf life (cure date, batch, group) – no mixed cure dates / batches
- Virus-free declaration (for computer software)
- Cross reference to the original raw material manufacturer's name (stockists / distributors)
- Cross reference to customer name and purchase order (material processors)

d) Provide a certificate of analysis or raw material manufacturer's certificate with the shipment of raw material that contains the following:

- Traceable reference to batch, lot, heat, cast numbers
- Chemical analysis including constituent elements and percentages
- Physical analysis (i.e. stress strain data, and temper)

e) Provide an authorized release certificate if applicable and requested.

f) Only release product into IAMPL against an approved FAIR (when applicable).

g) Retain documented information[3] of release documentation in accordance with Appendix B.

NOTE 1: Typical compliance statement: "Certified that the whole of supplies hereon have been inspected / tested and unless otherwise stated, conform in all respects to specification, drawing and purchase order requirements".

NOTE 2: Electronically signed release documentation is acceptable, subject to prior approval from the IAMPL purchasing Authority.

NOTE 3: Retained documented information of release documentation held electronically shall contain all of the information shown on the original document and a traceable reference to the person authorized to release the product to customer.

8.7 Control of Nonconforming Outputs

Suppliers shall:

a) Establish a method of detection and feedback of product nonconformities or process noncompliance.

b) Take necessary actions to fully contain problems within 48 hours.

c) Immediately notify their IAMPL purchasing contact and their IAMPL Technical Authority (or other impacted customers) of any delivered nonconforming product and confirm that the notification has been received by IAMPL.

d) Segregate any undelivered nonconforming product and hold until a response related to the disposal of the product has been received from IAMPL.

e) Complete the containment action when non-conformance is notified by IAMPL and complete the 8D inline with AS13000.

NOTE: Where Product nonconformities are identified by IAMPL, an associated cost of non-quality charge may apply.

8.7.1 Nonconforming Outputs

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

8.7.2 Nonconforming Documented Information

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

8.7.3 Deviation Permits and Concessions

Requests for concession applications will only be accepted under exceptional circumstances and may be subject to cost of non-quality charges.

Suppliers shall:

a) Ensure that written authorization has been granted by their IAMPL purchasing contact prior to the shipment of a product which does not conform to specified requirements.

b) Complete and submit the form(s)[1] associated with this activity to their IAMPL purchasing contact. For forms see forms section of the Global Supplier Portal (GSP).

c) Take appropriate corrective action and document it within the concession form and/or deviation permit.

d) Flow the non-conformance documentation along the purchase order cascade.

e) Mark the product as indicated on the deviation permit / concession[2], including (but not limited to) the relevant concession category and concession number allocated by IAMPL in accordance with the applicable identification marking method (and location) specified in the product definition.

f) Attach an orange coloured concession label to the primary, secondary and tertiary packaging (as applicable) that states the concession number allocated by IAMPL.

8.7.4 Control of Re-worked (in Production) Product

Suppliers shall:

a) Rework product in accordance with controls specified within the process specifications on the product definition or to an agreed rework procedure authorized by IAMPL.

b) Ensure that instructions for rework, including re-verification / inspection requirements are accessible to and utilized by the appropriate personnel.

9 PERFORMANCE EVALUATION

9.1 Monitoring, Measurement, Analysis and Evaluation

9.1.1 General

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

Supplemental Requirements

Suppliers shall:

a) Establish a visual management process that will provide feedback to everyone involved in the process. This should include (but not be limited to) current status, flow of work, priority and the performance of the process so it can be assessed and understood.

9.1.2 Customer Satisfaction

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

Supplemental Requirements

Suppliers shall:

a) Create production process performance metrics that monitor (but are not limited to) the following (unless otherwise agreed):

- Statistical process control where indicated on Process Failure Mode Effect Analysis (PFMEA) or requested by IAMPL
- Cycle-time and lead-time adherence
- Process yield rates (% scrap, % rework)
- Product % Right First Time

b) Monitor performance metrics in accordance with customer expectations / targets (where specified).

c) Feedback performance metrics for process improvement.

d) Use performance metrics to maintain accurate planning parameters.

e) Monitor quality and delivery performance using key performance indicators [1].

f) Ensure 100% quality performance and 100% on-time and in-full delivery performance is achieved and maintained [2].

g) Immediately inform the IAMPL purchasing contact when it is identified that delivery schedules are not (or will not be) achieved. A recovery plan must then be submitted within 24 hours to the IAMPL purchasing contact.

h) Use a cross-functional team to develop and deploy a reactive and preventative continual improvement policy and plans to meet IAMPL performance expectations.

NOTE 1: Where IAMPL has provided the Supplier with a scorecard the Supplier will use the scorecard as a key performance indicator.

NOTE 2: Where performance consistently and / or significantly falls below agreements and / or expectations the Supplier shall be subject to the requirements of the "Red Flag" process, details of which will be communicated separately should these circumstances arise.

9.1.3 Analysis and Evaluation

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

9.2 Internal Audit

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

Supplemental Requirements

Suppliers shall:

a) Establish an annual audit programme (product and production / special process audits) that includes internal engineering, internal production and subcontract activities, to verify compliance to planned arrangements. The audit programme shall be created and prioritized based on product and process risk.

b) Conduct cross-functional (e.g. quality, design and manufacturing) product audits at appropriate stages of design and production using a product that has been selected at random from the current production process and covering all significant products to determine the following:

- Production method provides a record to demonstrate that all operations are complete
- Verification / inspection records demonstrate that all operations and all features are appropriately verified
- Dimensional acceptability to product definition
- Visual acceptability to product definition
- Functional performance test to product definition (where applicable)

c) Audit each and manufacturing process to determine if the resources and controls used to transform inputs into outputs are effective and comply with requirements.

d) Use internal auditors who are appropriately trained and competent to perform audits. Auditors used for surveillance of subcontracted activities shall be as minimum trained and competent in quality systems (e.g. AS/EN/JISQ 9100:2016), the relevant technical specifications, SMSR & SABRe.

e) Establish specific checklists to be used for each audit.

f) Increase audit frequencies when internal / external nonconformities or customer complaints occur.

g) Take immediate action when an audit identifies a product non-conformance.

h) Take appropriate corrective action and implement within 90 days or prior to shipment of product (whichever is sooner).

9.3 Management Review

9.3.1 General

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

9.3.2 Management Review Inputs

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

9.3.3 Management Review Outputs

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

10 Improvement

10.1 General

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

10.2 Nonconformity and Corrective Action

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

Supplemental Requirements

Suppliers shall:

a) Ensure the continuity of supply of conforming product to IAMPL, while all non-conformances are being investigated.

b) Take necessary actions to fully contain problems within 48 hours.

c) Conduct an 8D investigation, in accordance with AS13000 requirements for complex problems, where the root cause is not known or where specifically requested by IAMPL.

d) Align the type of methodology of problem solving, including 8D, to the complexity of the problem with an appropriate level of governance.

e) Analyse and collate non-conformance into themes. These shall then be prioritized using the Pareto principle for improvement through structured problem solving.

f) Upon request of IAMPL, submit the problem solving investigation for any non-conformity within 30 days (unless otherwise stated).

g) Ensure the product PFMEA and the Control Plan are reviewed and updated during and following the implementation and verification of corrective actions for all problem solving activities.

h) Drive improvement plans for prevention of repeat problems (using quality tools e.g. fishbone, 5Y, SPC, Minitab, poke-yoke).

i) Review the effectiveness of the problem solving process at periodic intervals and take appropriate actions to improve (e.g. at Management Review or similar).

10.3 Continual Improvement

Comply with AS/EN/JISQ 9100:2016 and/or AS/EN/SJAC 9110:2016

Appendix A – Quality Management System Certification Requirements

Supplier Type Production	Minimum Third Party Approval Requirements (Suppliers can define higher requirements based upon risk)
Roughing Machining[1]	ISO 9001
Conventional Machining[2] for Non- RRES9000	AS/EN/JISQ9100
Production parts to RR definition	Un-classified Parts: AS/EN/JISQ9100 RR SABRe approval. Classified Parts: (RRES90000 controlled) AS/EN/JISQ9100 RR SABRe approval with RRES90000.
Parts(All classifications) with special Processes	RR SABRe approval along with RR Special process approval. Additionally require AC7004 & Nadcap or AS/EN/JISQ9100 & Nadcap for MLC127 listed Special Process.
Standard Catalogue items[3]	ISO90013
Non-metallic material, Metallic materials in non-conventional form, and consumables material manufacturer	as per RRMS30031 requirements
Casting & Forging manufacturers[4]	AS/EN/JISQ 9100 and RR SABRe approved
Raw Material Stockist/Distributors[5]	AS/EN/JISQ 9120
Materials Testing Laboratory [acceptance and release of production material (Chemical, Metallographic, Mechanical testing Uniaxial and constant load testing)]	Nadcap or ISO/IEC 17025 or Equivalent National Accreditation [6,7]
Inspection and measurement services	ISO/IEC 17025 or AS/EN/JISQ 9100 or AC 7004
Calibration laboratories	ISO/IEC 17025 or calibration traceable to a laboratory holding ISO/IEC 1702

NOTE 1: Sub-tier conventional rough machining (including test material removal, Band sawing bar stock, removal of casting risers etc.) using material issued by the supplier (purchaser) and where the product verification and release is performed by the supplier (purchaser).

NOTE 2: Sub tier conventional machining and cold forming operations of non-RRES90000 controlled parts using material issued by the supplier (purchaser) and where the product verification and release is performed by the supplier (purchaser)

NOTE 3: Only qualified manufacturers (i.e., they appear on the qualified products list) shall be used when specified in a related technical specification

NOTE 4: Approval required only when a Rolls-Royce casting or forging control specification is invoked by the Rolls-Royce product definition.

NOTE 5: Stockist / distributor must provide traceability to an approved raw material manufacturer

NOTE 6: Captive laboratories may utilize AS/EN/JISQ 9100 provided that the scope incorporates Manufacture and Testing of Material, and the supplier participates in the Rolls-Royce Approved Proficiency Testing Programme (https://ptpscheme.com)

NOTE 7: All Rolls-Royce specifications and requirements for the testing must be flowed down to the facility completing the testing by their direct customer. Additionally, for materials controlled by RRMS30031, exceptions to approval requirements may be noted in MLC104.

Appendix B – Minimum Document Retention Periods

Category “A” Indicates the record will be retained for statutory or regulatory requirements. The minimum time period for a Category A record relating to products will be ten years after the product type is withdrawn from use (i.e. withdrawal of type certificate or notification of the withdrawal for support in the case of military aerospace products).

Category B Indicates the record will be retained for business requirements. The retention period for Category B records will be six years however this may be adjusted based on the business requirement.

SMSR Clause	Document / Record	SMSR Edition1 Archiving Category
6.1	Records of risk management	B
7.1.5	Records of MSA	A
7.2	Records of training and competence	Period of employment +3 Years
8.2.3	Review of requirements related to the product	B
8.3.1	Design Technical Data Package	A
8.3.6	Records of definition alteration	A
8.4.1	Records of purchasing / subcontracting	B
8.4.1	Records of receipt inspection and supporting documentation	A
8.4.1	Maintain records of subcontractor / sub-tier supplier monitoring	B
8.4.2.1	Records of work transfers (source change)	B
8.5.1	Records of reduced sample inspection	A
8.5.1	Records of variation management for products specified as "Fixed Process Control"	A
8.5.1	Records of variation management for product not specified as "Fixed Process Control"	B
8.5.1.1	Tooling control records	B
8.5.1.3	Records of vision standards	Period of employment +3 Years
8.5.1.3	Records of product verification for product specified as "Fixed Process Control"	A
8.5.1.3	Records of product verification for product not specified as "Fixed Process Control"	B
8.5.1.3	FAIR / LAIR	A
8.5.1.3	Fixed process control	A
8.5.2	Records of product identification, traceability and serialisation	A
8.6	Records of release documentation	A
8.7	Records related to the control of nonconforming product	A
8.7.3	Records of deviation permits / concessions	A
8.7.4	Records of reworked product	A
9.1.1	Records of process performance metrics	B
9.2	Records of internal audits	B
10.2	Records of corrective action	B
10.2	Records of PFMEA	B
10.2	Records of control plans	B

Appendix C – Key Product Characteristic Classifications

Classification	Drawing Symbol	What It Means
Critical		Critical characteristics are the most important on the component and failure could directly lead to a hazardous failure.
Significant		Significant characteristics are important characteristics which through a chain of events could lead to a hazardous failure but the product is designed to prevent this occurring. Failure however could be very disruptive to our customers.
KCF	KCF or Flag Note	Significant characteristics are important characteristics which through a chain of events could lead to a hazardous failure but the product is designed to prevent this occurring. Failure however could be very disruptive to our customers.
Unclassified	Not Applicable	Unclassified characteristics are those that do not meet the criteria for Critical, Significant, KCF or CCF

Appendix D – Supplier performance monitoring

Supplier performance is evaluated periodically to monitor the performance and rating is shared to suppliers.

Following metrics are monitored:

Category	Performance metric	Rating Weightage	Periodicity
Quality	Right First Time (RFT)	40%	Monthly
	Customer Complaints (QN's)	30%	Monthly
	Concessions	10%	Monthly
	Audit Non-Conformances	10%	Quarterly
	Supplier Maturity Assessment (SMA)	10%	Yearly
Delivery	On-time delivery	100%	Monthly
Supplier Rating = (Quality + Delivery) / 2			