



**RAVENS COURT ENGINEERING LIMITED**

# **RCF 03-2 - Supplier Quality Requirements**

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<b>Issue</b>	<b>4</b>	<b>Created</b> R. Markell	<b>Amended</b> B. Baines	<b>Approved</b> R. Markell
	<b>Date:</b>	August 2009	15/01/2018	12/01/2015
<b>Origin:</b>	Ravenscourt Engineering Limited, Millbrook Road, Yate, Bristol, BS37 5PB			
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## 1.0 Scope

- 1.1 This document details the requirements to be satisfied by suppliers to Ravenscourt Engineering Limited (REL). REL requires each supplier to comply with the quality requirements set forth in this document and to maintain a quality system that ensures supplies and services comply with all requirements.
- 1.2 These requirements are additional to the Purchase Order and do not replace or alter any of the terms and conditions covered by the order, or other contractual requirements. If there is conflict between this standard and the purchase order or contract, then the purchase order / contract shall take precedence.

## 2.0 Purpose

To establish the Supplier Quality Assurance requirements of REL on external organisations used for supplying materials, goods and services for use in a REL product or part thereof.

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**4.0 Related Documents**

The following documents are mandatory to the supplier:

<b>Document Number</b>	<b>Subject</b>
RCF03-1	Purchase Order
RCF02-2	Supplier Quality Requirements
RCF03-01-1	Supplier Assessment
RCF 16	Code of Conduct and Ethics
RCF FOD	Foreign Object Debris
AS 6174	Counterfeit Material; Assuring Acquisition of Authentic and Conforming Material.

The following documents are internal to Ravenscourt and are available upon request:

<b>Document Number</b>	<b>Subject</b>
RCF02-01-1	Engineering Change Request
RCF05-01-1	FAIR Form
RCF03-01-2	Approved Supplier List
RCF08-2	Concession / Production Permit Form

**5.0 Approval Requirements**

- 5.1 Suppliers shall "as the terms so require" design, manufacture, service, release and deliver all products in accordance with the purchase order and all requirements identified on it.

REL requires its suppliers to be certified to ISO 9001:2008 as an minimum.

If the supplied resource or service is to be used in aviation, space and defence sector then AS 9100 accreditations is required.

Suppliers that do not comply with the above can still be used by REL, provided the supplier's QMS meets the following requirements (ref RCF03-01-1) and has been audited and approved by a Ravenscourt approved auditor:

-Objective evidence must be available to demonstrate compliance with the requirements of this document and the REL Purchase Order.

-The Supplier shall ensure that quality system procedures are available to all personnel, customers and relevant authorities.

-The supplier must be able to demonstrate regular and planned internal audits and corrective action management.

-The supplier's senior management shall review the Quality Management System at planned intervals. This review shall include the results of audits, customer feedback, product conformity, customer rejections, preventive and corrective actions, changes in the Quality Management System, and recommendations for improvements.

An exception is permitted for Suppliers designated by an REL Customer.

If Supplier is already approved by a Customer, REL is not obligated to conduct an audit in order to approve the Supplier.

- 5.2 All products shall be manufactured strictly in accordance with the purchase order. The delivery of incomplete product is not permissible unless specified on the purchase order.
- 5.3 When the supplier is manufacturing a product on behalf of REL, he may only use Special Process Suppliers who are REL approved. A complete list of REL approved Special Process Suppliers can be found in RCF03-01-2 (Approved Supplier List)
- 5.4 Material Stockists/Distributors/Franchised Distributor shall hold as a minimum AS9120 Certification. The item shall only be procured directly from the manufacturer or approved Distributor/franchised distributor. Data furnished with the purchased items shall ensure that full traceability of the purchased item is maintained.  
The purchased item must conform to the specification and be produced by the designated manufacturer.
- 5.5 In the event that a supplier loses his approval to AS9100 and/or ISO 9001 the supplier must immediately inform the REL Quality Engineer in writing.

## **6.0 General**

- 6.1 Enquiries concerning the content of this standard and other referenced documents, or requests for additional copies should be referred to the purchasing representative responsible for the Purchase Order.
- 6.2 The requirements of this standard and of RCP03-01 Selection of Suppliers will be used in conjunction with each other to provide both existing and potential suppliers with visibility of the current quality requirements and expectations of REL.
- 6.3 It is the policy of REL to manufacture and supply products and services, which result in, or contribute to, safe conditions for its customers and the users of such products and services. In furtherance of this policy, Suppliers shall establish controls and procedures that ensure that the attention necessary for the achievement of this objective is given throughout the design, development, production and support of their products as appropriate.
- 6.4 Suppliers are required to comply in full with the contents of this procedure. If a supplier cannot comply with any portion of this procedure then the supplier must advise the REL Quality Engineer in writing. The REL Quality Engineer will review/disposition the request and advises the supplier of the results in writing. The supplier is responsible for keeping all related documentation on file at his facility. No deviation from this procedure is acceptable in advance of formal agreement to do so. Such formal agreement will be in writing, copies of which are to be retained by the supplier. The deviation shall be bounded by the degree of deviation as detailed in both form and time and no other deviation is accepted or implied.
- 6.5 Verbal agreements are **un-acceptable** unless they are confirmed in writing and acknowledged by both REL, and the supplier.
- 6.6 Suppliers shall ensure that all documentation required by REL PO , e.g. drawings, specifications, are at current issue.

**7 Business Quality Improvement Objectives**

- 7.1 All suppliers are expected to have plans to achieve quality improvements as part of their continuous improvement programmes.
- 7.2 REL is dedicated to continuous improvement in the quality and integrity of its products and services and to the satisfaction of its customer requirements and expectations. Suppliers' contribution to this approach through the quality and reliability of their products and services is a prerequisite.
- 7.3 Each supplier shall demonstrate continuous improvement based on defect prevention, root cause analysis and effective, timely corrective action.

**8.0 Organisation**

Any change to the management representative responsible for Quality in the supplier's organisation or ownership shall be communicated to the REL Quality Engineer. Changes in premises shall be notified sufficiently in advance to the REL Operations Director.

**9.0 Purchase Order Control**

- 9.1 All purchase orders and purchase order amendments shall be subject to Contract Review prior to acceptance. This review shall ensure that copies of all processes and specifications quoted either on the drawing or purchase order is available, and that, where a supplier is unable to carry out any operations, approved subcontractors are identified.
- 9.2 Where a supplier has more than one site, every site used to produce product for shipment direct to REL must have REL approval.
- 9.3 REL shall be afforded the right to verify at source or upon receipt that purchased product conforms to specified requirements. This shall not absolve the supplier of responsibility for the quality of the delivered product nor preclude its subsequent rejection should other quality issues arise.
- 9.4 Where the use of a subcontractor is permitted, its identification and selection shall form a part of the initial contract review. Suppliers may consider a subcontractor suitable given the following circumstances:

The subcontractor is currently approved by REL as a supplier, and the work is within his scope of approval or the supplier has approved the subcontractor to REL requirements and is delegated with the authority from REL to do this.

The supplier shall have documented evidence of the review of any subcontractor and his suitability for use. The supplier shall ensure the flow down of all contract / design & test requirements to his subcontractor and shall ensure control & verification of all characteristics of product / processes supplied.

- 9.5 Suppliers are responsible for ensuring the flow down of applicable sections of RCF03-2 and related specifications to second tier suppliers.
- 9.6 Suppliers shall reference RCF03-2 on all purchase orders issued in support of activity for Ravenscourt Engineering Limited.

**10.0 Procurement of Items on Source Control Drawings.**

- 10.1 Failure of certain components can have major effects on airworthiness, reliability and cost of operation. These parts are termed 'controlled', and their status as such is identified on the drawing or engineering specification.
- 10.2 Any drawing, which is 'source controlled', and has the manufacturer identified on the drawing, may only be purchased from that supplier or his approved agent. Suppliers must not manufacture source-controlled parts if they are not the approved manufacturer.

- 10.3 Where a Supplier wishes to change the source of a second tier operation, the Supplier shall request permission to make the change from the Quality Engineer REL.

**NOTE: Identification of a supplier on a source controlled drawing does not automatically approve them for use. It is the supplier's responsibility to check that any subcontractor is correctly approved prior to use.**

### **11.0 Control of Non-Conforming Material**

- 11.1 The supplier shall have no discretionary power to deviate from the specification requirements. Concessions will only be accepted when supported by full root cause analysis and evidence of preventative action. Parts subject to concession may not be delivered to REL until the REL Quality Engineer approves a concession.
- 11.2 No rework shall be permitted on metallurgically or chemically treated parts without written approval by the REL Quality Engineer. Re-tempering of hardened and tempered parts in order to adjust material properties shall be permitted without approval but manufacturing records shall clearly record the operation, its parameters and the resulting properties achieved.
- 11.3 Where the supplier has any reason to suspect non-conformance of any delivered product, then the supplier must immediately notify the REL Quality Engineer.
- 11.4 Scrap components shall be physically damaged beyond repair prior to disposal, in accordance with paragraph 17.0.
- 11.5 To prevent the delivery of counterfeit parts, the supplier shall undertake counterfeit parts prevention and control using Industrial Standard AS 6174 as a guideline.

### **12.0 Rejections after Delivery**

- 12.1 The Supplier shall be notified of non-conforming supplies found after delivery. REL will contact the supplier and issue an External NCR (RCF 08-3) against the parts.
- 12.2 Following receipt of a Rejection notification the Supplier shall take immediate containment action. The action shall include 100% inspection of all supplier stock or work in progress. This containment action shall be taken within 48 hours of notification from Ravenscourt. The supplier shall provide within 14 days an investigation into the root cause of the problem and provide corrective action to prevent recurrence. The findings, corrective action and effective date shall be reported to the REL Quality Engineer.

### **13.0 Supplier Monitoring**

All Suppliers shall monitor the quality and delivery performance of product delivered to REL. In addition each supplier's quality and delivery performance is continually monitored by REL. Suppliers whose performance does not achieve and maintain an acceptable level shall be formally notified of their rating and required to implement improvement actions accordingly. Failure to improve or respond positively to a REL Rejection Note will result in the withdrawal of supplier approval by REL.

### **14.0 Records**

- 14.1 All Quality records shall be legible and identifiable to the product involved. Quality records shall be stored and maintained in such a way that they are readily retrievable in facilities that provide a suitable environment to minimise deterioration or damage and to prevent loss. Quality records shall be available for evaluation by REL staff until such time as the REL Quality Engineer authorises disposal in writing.
- 14.2 Documentation and records applicable to REL shall not be amended with correction fluid. A single linked line shall delete any revisions and/or correction of errors and will be accompanied by an initial and date.

14.3 Should a supplier cease trading with REL, quality records shall still be maintained until disposal is authorised by the Quality Engineer. If the supplier ceases trading completely, or is unable to maintain the records, the Quality Engineer must be informed so that alternate arrangements can be made to store the records.

14.4 All Quality records shall be retained by the Supplier for a period of 25 years unless otherwise agreed with the Operations Director of REL.

### **15.0 Supplier Quality Requirements**

#### 15.1 Certificate of Conformance

A Certificate of Conformity, which shall include sufficient information to enable it to be correlated to the supplies must accompany goods submitted to REL.

Certificates and supporting documentation will be identified by Purchase Order/Contract number and shall include the following information.

The Supplier shall ensure completion of all requirements of the purchase order prior to delivery including all processes. Deliveries of goods that do not fulfil the purchase order requirements will not be accepted.

The Supplier is responsible for providing a CofC that confirms that the products, processes, and/or services furnished meet the requirements for lot, of each shipment, of the Ravenscourt Purchase Order. The CofC must have at a minimum the following:

- a) Consignee's name and address
- b) Consignor's name and address
- c) Reference number and date of the certificate
- d) Description and quantity of supplies
- e) REL drawing numbers and issue
- f) Related specification or drawing numbers and issue (as appropriate)
- g) Release standard e.g. ISO 9001:2008
- h) Identification marks and serial numbers (as appropriate)
- i) Manufacturing lot no. or traceability reference (works order)
- j) For all raw materials cast and/or batch numbers/ date code/lot No., test report reference and, if called for, copies of test results (as appropriate)
- k) Any limitations/Shelf Life Expiry dates (as appropriate)

When the purchase order and/or applicable documents does not specify a method of packaging, and preservation it is the supplier's responsibility to assure that product is preserved and packed using methods that will assure that it arrives damage free to Ravenscourt Engineering Limited.

#### 15.2 Preservation:

-All non treated Ferrous material must be preserved by the supplier using oils, oil paper, grease, or any wrapping material that will prevent corrosion. Newspaper acid or sulphur based wrapping paper **CAN NOT BE USED**.

-Electrical Laminations and pole pcs. **Can not** be oiled or greased. They shall be wrapped in corrosion resistant paper.

-Finished parts (Items that will not rec. additional plating, or painting), must be preserved in a manner that will prevent damage during shipment.

-Corrosion preventive compounds **shall not be used** on electrical or electronic parts or assemblies.

#### 15.3 Packaging:

The method of packaging must:

- Prevent damage or deterioration in transit
- Permit safe handling
- Assure that all necessary warnings are completely visible
- Assure the shipping address, supplier name, qty, and part number are visible.
- Assure that the packing list, quality documents, and other important information is enclosed, or securely fastened.

**15.4 First Article Inspection Report (FAIR)**

When a FAIR is required with the goods to demonstrate compliance with all the procurement specifications detailed in the design package the following must apply:

First Article Inspection Reports shall be in accordance with AS9102.

A copy of the FAIR shall be supplied with the product unless otherwise stated. The supplier shall retain the FAIR as a quality record. This shall not absolve the supplier of the responsibility for the quality of the delivered product nor preclude its subsequent rejection should other quality issues arise.

**15.5 Ravenscourt right of access**

Any person authorised by REL, including the Customer or Regulatory Authority, shall not be unreasonably refused permission by the supplier, or their suppliers, to enter any works, warehouse or other premises under the supplier's control for the purpose of surveillance or inspection of any tools or materials procured or used for the manufacture of the goods or process of manufacture on the completed goods themselves before despatch.

**15.6 Business continuity planning**

REL advises each supplier to have a written business continuity plan to cover disaster recovery and the responsibilities and actions to be taken in the event of an emergency that may affect deliveries to Ravenscourt that will bring the supplier on line in the shortest possible time.

**15.7 Change Control**

Uncontrolled change within the supply chain is the major cause of deficiency escapes. It is crucial therefore that all change, no matter how trivial it may appear, is assessed for potential risk and then subject to mitigating actions and control.

Changes can occur in three ways:

- 1) Change to the manufacturing location, either within a supplier or between suppliers.
- 2) Changes to design on proprietary equipment.
- 3) Changes to method of manufacture, including machines, people, tools, gauges etc.

The control mechanism for these is as follows.

- 1) Changes to the manufacturing location shall be notified to REL Quality Engineer. The change of location shall only be carried out once the following has been checked and confirmed:
  - Is the company on Ravenscourt's Approved Suppliers List?
  - Do Ravenscourt need the customer's authorization to use the Sub-Contractor?
  - Will the customer delivery requirement be met?

If all conditions for change are met the appropriate route card will be amended to reflect the process alteration.

- 2) Changes in design shall be raised with the buyer responsible for the purchase order. The buyer shall take the appropriate action within Ravenscourt and inform the Supplier. The supplier must not progress with any change to the design without written agreement from the REL Quality Engineer.

- 3) Changes in method of manufacture shall be controlled as follows

-All changes in manufacturing method shall be subject to a documented risk review prior to being carried out. This includes any change in machine, manufacturing route, programme, trained personnel or sequence of machining irrespective of whether these changes are permanent or temporary.

-Changes to the method of manufacture are not permitted unless there is a demonstrable benefit in quality, cost or delivery, with no adverse risk to the others. (see also clause 6.2).



-Changes to the design of a product where the manufacturer is not the designer, i.e. 'make to print', is not permitted without either a formal drawing amendment or a production permit, approved in advance of the change being made.

-Application for such drawing changes shall be submitted to the REL on the appropriate Engineering Change Request form RCF02-01-1, obtainable from the buyer responsible for the purchase order.  
-Suppliers must not incorporate any proposed drawing change until either they have been issued with the amended drawing or a production permit by REL.

-Suppliers must not allow uncontrolled change to occur on any product manufactured on behalf of REL.

#### 15.8 Traceability

All parts shall be clearly traceable back to the original manufacturer of the parts. Where the supplier has purchased a component or assembly, they shall have a copy of the original manufacturer's certificate of conformance.

All components and assemblies shall be traceable to the original material identification. This requirement shall not apply to industry standard components purchased 'off the shelf'.

The traceability system must facilitate the rapid identification of any part delivered and suspected of being defective. Containment action must be implemented immediately to protect the customer on any defects found that affect quality of the product.

Components shall be legibly marked in the specified location in accordance with the method defined on the appropriate drawing or specification.

When product is certified by means of test coupons it will be the responsibility of the supplier that sent/prepared the coupon to maintain records of the test results, including certification where testing is undertaken by an approved testing authority, at his facility.

#### 15.9 Chemical test reports.

The supplier is responsible for obtaining and maintaining material chemical test records, and results. The test record shall include at a minimum the lot traceability number, and the actual testing values. These records shall be available to Ravenscourt upon request.

#### 15.10 Physical/mechanical test reports.

The supplier is responsible for obtaining and maintaining material physical/mechanical test records and results appropriate to the purchase order. The test record shall include at a minimum the lot traceability number, and the actual testing values. These records shall be available to Ravenscourt upon request.

#### 15.11 Manufacturing & Process Control

Adequate, clean well-maintained facilities shall be provided to enable products to be consistently produced in accordance with the requirements of the REL order.

Suppliers shall establish a procedure detailing the general workmanship practices for the prevention of Foreign Object Damage.

Suppliers must not omit any part of any specification except when defined on the purchase order or covered by a non conforming report authorised by REL Quality Engineer.

Suppliers providing a service for chemical and metallurgical processes must only carry out those processes for which they have specific approval from REL.

Suppliers providing Shelf life items shall ensure they are correctly labelled with shelf life expiry and suitably packaged. No shelf life items within 6 months of expiry shall be accepted by Ravenscourt.

Suppliers are expected to establish procedures for identifying adequate statistical techniques for determining process capability of key characteristics, especially when these are identified on the drawing. Such techniques shall demonstrate management ownership and responsibility and be based on recognised industry models.

Where the supplier uses a sample inspection plan as a means of product acceptance, the plan shall be predicated on industry recognised models, statistically valid and shall preclude the acceptance of known non-conforming product. Documented procedures and records to demonstrate this shall be available.

All parts supplied to REL shall be identified in accordance with the requirements of REL supplied drawings. Suppliers shall maintain records to identify the drawings and materials used and the manufacturing and processing history of each batch of parts supplied to REL. A lot number that enables all associated records to be retrieved shall identify each batch.

**16.0 Source Inspection**

Source Inspection will be used by REL to help develop a new supplier, or a supplier that is having quality issues. Source inspection at a supplier’s site will be imposed by a letter issued from REL Quality Engineer to the supplier. In the event REL Quality imposes source inspection only the REL quality department can remove or waive source inspection.

-REL can also use source inspectors to perform in process checks at a supplier, process audits at a supplier, or corrective action development, or follow up.

**17.0 Concessions / Permits**

If a supplier’s quality system discovers a non-conformance to the REL Purchase Order, and/or drawing requirements **the supplier can submit a request for a concession to the REL BUYER**. The supplier can use the table below to determine when a concession is needed.

Option	Ravenscourt Approval/Concession Required
*Rework the non-conformance prior to shipment	No
Scrap and re-place	
REL possession	No
REL’s Customer’s possession (FI goods)	Yes
Request to use the product as is	Yes
Request to repair the non-conformance	Yes

Requests to use as is, or repair a non-conformance, must be processed using the concession request form and signed by the REL Quality Engineer.

\*Rework must return the part to full compliance to the drawings and specifications.

**Note: The supplier is not authorised to despatch items requiring concession until he has been informed of the applicable Concession Number and the supplier has a copy of the approved concession. This Concession Number must appear on his Certificate of Conformity, each time a delivery is made from the batch that has been conceded.**

**Definitions:**

A rework means the part meets all drawing requirements. For example: If an OD is oversize it may be reworked by machining it to size. This is a rework and does not require REL approval.

A repair means the part meets the intent of the drawing but not all drawing criteria. For example: if an OD is undersize it may be acceptable to repair by building the surface with plating and then machining to size. That is a repair and **MUST** have REL approval.

**18.0 Corrective Actions**

When REL performs a supplier audit and finds a non-conformance a request for corrective action will be issued to the supplier. Corrective actions for issues found during an audit will be documented on form RCF08-01-1. Before an audit will be closed out all open audit CARs must be answered by the supplier and accepted by REL.

**19.0 Special Process Suppliers**

19.1 REL uses AS9100 or ISO 9001 approved special process suppliers. REL in addition to AS9100 & ISO 9001 approval the special process supplier must demonstrate the ability to satisfy all applicable drawing requirements. Failure to satisfy any drawing requirement will prevent REL from using that supplier. A new Special Process Supplier must successfully complete qualification testing. The qualification testing will be defined by Ravenscourt Engineering, and will be specific to the process called out on the drawing.

If required by REL's Customer Nadcap accredited supplier will be used for special process required. List of Nadcap accredited suppliers is available on <https://www.eauditnet.com>.

19.2 REL considers the following to be special processes:

- Heat Treating (all forms)
- Welding
- Brazing
- Soldering
- Impregnation
- All electroplating/chemical including: Ion Vapour Deposit (IVD), Chem. Film, Cadmium, Anodizing, Passivation, Phosphate, Zinc, Conformal Coating.
- Painting.
- Non-destructive testing

**20. Distribution**

Business Systems Manual – hard copy

AS9100 Index – electronic copy

External – REL website: [www.ravenscourtheengineering.co.uk](http://www.ravenscourtheengineering.co.uk)

