

Fine Tubes Limited	Document No.	Revision	ECF No.
Plymbridge Road, Estover, Plymouth PL6 7LG U.K.	QSP 14	B0	004087



Supplier Requirements Manual

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2 AMENDMENTS

Revision	Date	ECF Reference	Compiled	Approved	Changes / Remarks
A0	June 2012	ECF 0879	C. Cahoon	R. Fletcher / B. Mercer	Initial Document Release
A1	July 2014	ECF 2512	C. Cahoon	P. Adderley / B. Mercer	Document Review & Update
A2	September 2015	ECF 2886	C. Cahoon	P. Adderley / B. Mercer	Document Review & Update
A3	November 2016	ECF 3424	P. Adderley	P. Adderley / P Gimingham	Document Review & Update
A4	June 2017	ECF 3604	R Eatwell	P. Adderley / P Gimingham	Addition of Counterfeit Materiel Policy
B0	April 2019	ECF 4087	P Adderley	P. Adderley / P Gimingham	Document Review & Update Document number changed to QSP14, previously it was QAP68

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3 FOREWORD

In order for Fine Tubes Limited to be successful and meet the needs of our customers, we must have a process in place that encourages, supports and ensures our suppliers meet quality performance expectations.

To ensure this, the role played by our suppliers is crucial to our future success and it is our intention to involve suppliers as partners in our plans.

The objective of this manual is to define the basic system requirements that we will use and expect our suppliers to use to ensure that our mutual responsibilities for product and service quality are understood and implemented.

4 INTRODUCTION

In order for Fine Tubes Limited to succeed in a competitive global market it is imperative that we develop close and open relationships with our suppliers, where mutual efforts support a continual improvement environment. Increasingly stringent, demanding economic and quality requirements from the market place compel us to understand and continually improve our supplier base.

Fine Tube`s goal is to progress and expand our existing global base to become the world leader in our chosen market fields. To ensure we achieve this target Fine Tubes Limited has developed specific strategies that include:

- Long term relationships with fewer suppliers.
- Close interaction among manufacturing, engineering, purchasing and quality personnel of Fine Tubes and our suppliers.
- Assure compliance of market specific requirements such as BS EN ISO 9001 and AS9100 and other customer and regulatory standards.

To assist in the implementation of our objectives Fine Tubes will utilise a Supplier Quality Assurance (SQA) Programme, which embodies all the measures specified and mutually applied, between Fine Tubes and the supplier to obtain and maintain the high quality standard required. The development of Supplier Quality Assurance requires a close collaboration between Fine Tubes and the supplier and this necessarily involves an in depth knowledge of the organisation and methods employed by the supplier. It equally involves the supplier being familiar with the requirements when doing business with Fine Tubes Ltd.

This manual details the facilities and features of the supplier`s quality system that will be assessed by Fine Tubes Supplier Quality Assurance and Technical representatives prior to the placing of new orders and the procedures to be followed by the supplier after orders have been placed.

It will also be used as a standard for the development of existing relationships between Fine Tubes Limited and its current approved supplier base. It is applicable to all suppliers of manufacturing materials (e.g. Raw Materials, Contact Materials, Tooling, etc.) or processing services (e.g. Sub-Contractors, Heat Treatment, Service Providers, NDT etc.) to all Fine Tubes Limited`s manufacturing facilities at:

Fine Tubes Limited
Plymbridge Road,
Estover,
Plymouth
PL6 7LG

Tel: +44 (0)1752 876406

Web: www.finetubes.co.uk

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Fine Tubes Limited is a world class engineering company providing products and services primarily to meet the needs of its customers for tubing solutions to high specification requirements.

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5 FINE TUBES PURCHASING, QA AND TECHNICAL CONTACTS

Name	Job Title	E-mail	Telephone
Philip Gimingham	Procurement Manager	Philip.gimingham@ametek.com	+44(0) 1752 876 430
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6 SUPPLIER QUALITY SYSTEM REQUIREMENTS

Fine Tubes Limited requires all suppliers to acknowledge and retain total ownership for the quality of their products and to develop Quality Assurance Systems which ensure that the requirements of the purchase order are fully met. The development of these systems should provide for continuing improvement in product quality, leading to the attainment of zero defects, whilst also providing prompt and effective corrective action in the event of defective products being delivered to Fine Tubes.

It is expected that all suppliers to Fine Tubes Limited will meet the requirements of this section which is numbered and based on ISO 9001 Quality System standard. It is not a mandatory requirement of Fine Tubes that all suppliers must be ISO 9001 approved. Suppliers are evaluated and selected on an individual merit basis for the product/service they supply. Non ISO approved organisations will be expected to demonstrate adequate management and controls of their processes that satisfies Fine Tubes' minimum requirements.

6.1 Quality Management System

The supplier shall establish and maintain a clearly documented quality system that provides a means of ensuring that products conform to specified requirements. This system shall control the issue of drawings, specifications, procedures etc. Provision shall be made for the control of obsolete copies and their subsequent archiving and dispositioning.

All records pertaining to quality shall be stored and maintained in a legible form for a minimum of 10 years. Specific projects and/or regulatory bodies may require longer retention periods and this will be notified in advance to the supplier.

6.2 Management Responsibility

The supplier shall make known a person to Fine Tubes Limited, who will have the necessary authority to assume responsibility for product quality.

It is expected that the named person will provide evidence of the supplier's commitment to the development and implementation of the quality management system and continually improving its effectiveness.

6.3 Resource Management

The supplier shall determine and provide the resources needed to maintain the quality system and continually improve its effectiveness, and enhance customer satisfaction by meeting Fine Tubes requirements.

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Personnel performing work affecting product quality shall be competent on the basis of appropriate education, training, skills and experience. The supplier shall determine, provide and maintain the infrastructure needed to achieve conformity to product requirements

6.4 Product Realization

6.4.1 Customer Related Processes (Contract Review).

Orders or contracts shall be formally reviewed to ensure that the supplier has the technical and logistical capabilities to meet the requirements. Any discrepancies or queries shall be resolved before the order or contract is accepted. Amendments to orders or contracts shall be formally reviewed. Records of contract review shall be maintained.

6.4.2 Design and Development.

If Design activities are undertaken for Fine Tubes Limited by the supplier then design inputs and outputs shall be adequately specified (e.g. by relevant specifications). Formal documented reviews shall be held at appropriate stages of design. Designs shall be checked by verification (theoretical check) and validation (practical check). All design changes shall be documented and approved by Fine Tubes authorised personnel before implementation.

6.4.3 Purchasing

Suppliers shall not sub-contract any work awarded by Fine Tubes without the prior written approval from Fine Tubes Limited. When sub-contracting approval is granted the supplier shall ensure where applicable that in the first instance Fine Tubes customer approved suppliers are utilised, and secondly if a special process is required e.g. Welding, NDT, Chemical Processing, the sub-contractor shall be NADCAP approved in that relevant discipline.

Note: *NADCAP is for Aerospace programmes only.*

The supplier should ensure that subcontractors are evaluated and selected on their ability to meet specified requirements. A list of approved subcontractors shall be maintained. Purchasing documents shall clearly describe the relevant drawings and specifications including issue status and the quality requirements to be applied.

6.4.4 Production and Service Provision

Any product supplied by Fine Tubes Limited for incorporation into assemblies by the supplier, shall be suitably verified and controlled. If any customer (Fine Tubes) property is lost, damaged or otherwise found to be unsuitable for use, this shall be reported to Fine Tubes and records maintained.

The status of material and product shall be clearly identified by suitable means throughout product realisation. The supplier shall preserve the conformity of product during internal processing and delivery. This preservation shall include identification, handling, packaging, storage and protection.

Manufacturing processes shall be defined by documented procedures. Criteria for quality shall be defined in a clear and practical manner. Where processes cannot be verified by subsequent inspection or testing, such processes shall be performed by qualified operators or have suitable process control parameters established. The supplier shall provide a Certificate of Conformity for all deliveries. This document indicates that the supplier has manufactured and delivered the product in accordance with Fine Tubes' requirements stated on the purchase order. The signatory on the Certificate is therefore stating on behalf of the supplier that the product meets our requirements. This responsibility shall therefore be delegated by the supplier to suitably qualified, experienced and competent personnel within the organisation. A list/matrix of approved signatories is to be forwarded to Fine Tubes Limited.

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6.4.5 Control of Monitoring and Measuring Devices

All measuring and test equipment used to demonstrate conformance of product shall be calibrated with reference to international or national standards. Such equipment shall be clearly marked with identification of its calibration status, including expiry date. Records of calibrated equipment shall be maintained. When equipment is found to be out of calibration, actions shall be taken to identify and rectify any affected product including product already dispatched.

6.5 Measurement, Analysis and Improvement

6.5.1 Monitoring and Measurement of Product

The supplier shall monitor and measure the characteristics of the product to verify that the product requirements have been met. This shall be carried out at appropriate stages of the product realisation process in accordance with the planned arrangements.

6.5.2 Ship to Stock

It is our policy to reduce the duplication of inspection by Fine Tubes and our suppliers wherever there is an established history of satisfactory quality. Fine Tubes will receive such goods direct to stock with zero incoming inspection. Suppliers shall record results of inspection as directed by Fine Tubes and send the results with the products. Ship to stock will only take place where contractually permissible by Fine Tubes and their customer. Unless otherwise notified, Fine Tubes will perform a designated Goods Inwards Inspection.

The designation of ship to stock will be issued and controlled by Fine Tubes Limited QA / Compliance Representatives.

6.5.3 Control of Non-Conforming Product

The supplier shall ensure that products, which do not conform to product requirement, are identified and controlled to prevent unintended use or delivery. The controls and related responsibilities and authorities for dealing with non-conforming product shall be defined in a documented procedure. Nonconforming products that are received by Fine Tubes will be processed by our rejection procedure and the supplier will be liable for non-conformance administration costs and in the case of Ship to Stock items any costs associated with downstream manufacturing or recall. The supplier accepts the principle of such reasonable administration costs and the processing of debit notes where Nonconforming goods are identified after invoices have been paid.

6.5.4 Concession/Production Permit Application

Suppliers may submit a concession/production permit request prior to shipping non-conforming material to Fine Tubes. The request shall be for non-conforming material deemed fit for use, however does not meet the drawing and/or stated Purchase Specification requirements. The supplier shall properly identify non-conforming material accepted by the concession on all accompanying documentation. Repeated applications for the same non-conformance will not be accepted. Concession Applications for deviations from Purchase Order requirements shall only be accepted on current issue Fine Tubes Concession Document QD07.

6.5.5 Corrective Action

In the event of a non-conformance, root cause analysis shall be conducted to determine the cause of the non-conformance. Action shall be taken to eliminate the non-conformance and corrective actions established in order to prevent recurrence. Results of any actions undertaken shall be submitted to Fine Tubes in a timely manner against an agreed format as indicated in the QMS Documentation section.

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6.5.6 Preventive Action

The Supplier shall determine action to eliminate the causes of potential nonconformities in order to prevent their occurrence.

7 GENERAL REQUIREMENTS

The following are mandatory General Requirements we expect our suppliers to fulfil.

7.1 The Dodd-Frank Wall Street Reform and Consumer Protection Act - Sect. 1502

In August 2012, the U.S. Securities and Exchange Commission (the "SEC") issued final rules implementing the provisions of Section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act (the "Dodd-Frank Act"). As a result of these SEC rules, Fine Tubes Ltd, and many other companies, including many of our customers, are required to make disclosures regarding whether "Conflict Minerals", used to manufacture their products, originated in the Democratic Republic of Congo ("DRC") or its adjoining countries (as defined in attached Exhibit A collectively, together with the DRC, the "Covered Countries").

These Conflict Minerals consist of Columbite-Tantalite (Coltan), Cassiterite, Gold, Wolframite, or their derivatives, which are initially limited to Tantalum, Tin, and Tungsten, unless other minerals are determined by the U.S. Secretary of State to be financing the conflict in the covered countries.

Fine Tubes Ltd supports the objectives of the conflict minerals section of the Dodd-Frank Act. Our goal is to work collaboratively with companies throughout our supply chain to encourage practices that support responsible sourcing of conflict free minerals.

We require that all material you supply to Fine Tubes Ltd be "DRC conflict free" and request your formal confirmation that all material supplied by your company to Fine Tube Ltd is and will be "DRC conflict free".

7.2 Right of Access

Suppliers shall provide access to their premises and facilities for Fine Tubes Limited, our customers and regulatory authorities for co-operation on product, process and business issues.

7.3 Notification of Organisation Changes

Changes to the supplier's organisation that may affect quality and/or finance, shall be notified in advance to Fine Tubes Limited. These changes may include; Company ownership, company name, manufacturing location, quality approvals, significant changes to process or inspection techniques.

7.4 Applicability

All suppliers are to fully comply with the stated requirements of this manual. Individual waivers on certain elements may be granted at the discretion of Fine Tubes Limited QA / Technical Department. Application for dispensation for any element of this manual is to be made in writing and presented to Fine Tubes QA / Technical Department who will action the request internally with the relevant function.

7.5 Purchase Order Requirements

The supplier shall adhere to all Purchase Order Terms & Conditions plus stated special instructions. The Purchase Order is the controlling document and will communicate any deviations to the requirements stated within this manual authorised to the supplier.

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7.6 Purchasing Terms and Conditions

Formal acceptance of the requirements of this manual is also considered as formal acceptance of Fine Tubes Conditions of Purchase. Full detail can be located and downloaded at <https://www.finetubes.co.uk/document-library/terms-and-conditions>

7.7 Protection of Fine Tubes & their Customer's Proprietary Information

Any information the supplier receives from Fine Tubes Engineering Limited must be kept confidential and never disclosed to any third party without the prior written agreement of Fine Tubes Limited. The proprietary information can include, but is not restricted to all versions of electronic data, drawings and documentation, Tooling and materials. Under no circumstance is the supplier to make a direct approach to Fine Tubes' customers in relation to agreed business dealings.

7.8 Code of Conduct

This code is applicable to all Fine Tubes' supplier base and outlines the essential need for suppliers, their employees and sub-contractors to operate to the highest standards of business integrity in their relationship with Fine Tubes Limited.

Fine Tubes Ltd. wishes to work collaboratively with all suppliers to ensure proper understanding and compliance with this code of conduct. It is recognized that there are different legal and cultural environments in the countries that Fine Tubes' supply base operate in, however this code of conduct sets forth the minimum requirements that all suppliers should meet in doing business with Fine Tubes Limited. Suppliers must comply with all national and other applicable laws and regulations relating to the respective country of operation. This includes ensuring that business transactions with Fine Tubes are fully reported / recorded, ensuring that their employees are aware and properly trained to meet the requirements.

Fine Tubes expects its suppliers to make proper provision for the health, safety and welfare of its people, visitors, contractors, customers and those in the community who may be affected by their activities.

Employees within the Fine Tubes supply base are expected to deal with Fine Tubes in a manner that avoids conflict between personal interests and those of the employer and Fine Tubes. This requirement applies equally to business relationships and personal activities.

7.9 Counterfeit Materiel:

Materiel whose origin, age, composition, configuration, certification status or other characteristic (including whether or not the materiel has been used previously) has been falsely represented by:

- (a) misleading marking of the materiel, labelling or packaging;
- (b) misleading documentation; or
- (c) any other means, including failing to disclose information;

except where it has been demonstrated that the misrepresentation was not the result of dishonesty by a supplier or sub-supplier within the supply chain.

No counterfeit material is to be delivered to Fine Tubes.

Supplier control processes will monitor for counterfeit parts being delivered to Fine Tubes. These include as applicable:

- (a) Onsite and desktop supplier reviews,

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- (b) Accreditation requirements,
- (c) Documentation checks,
- (d) Goods inwards inspection processes,
- (e) Sampling of deliveries to confirm integrity to supplied documentation,
- (f) In process and final mechanical and metallurgical tests.

Any risk of counterfeit materials reaching Fine Tubes must be identified to Fine Tubes Procurement contacts as soon as possible.

Any material suspected of being counterfeit will be quarantined and treated as non-conforming until proven otherwise.

Fine Tubes Limited Procurement manager is responsible for communication and implementation of this policy Fine Tubes staff are aware of the risks of counterfeit parts both in our processes and in end user products

8 SUPPLIER ASSESSMENT

8.1 Method of Assessment

It is a requirement of Fine Tubes Limited that suppliers must conform to one of the following controls. These controls will be applied before orders are placed, and documented using Fine Tubes Supplier Authorisation Request Process. This process documents the review and evaluation of the completed questionnaire and authorisation request document by both Quality and Technical Departments. All supplier assessment and audit activity shall be completed before potential suppliers are approved and accepted onto Fine Tubes Approved Suppliers Listing.

8.2 Controls

The supplier is to complete a Fine Tubes Supplier Generic Questionnaire (Fine Tubes Quality Document QD013), or an equivalent supplier generated document.

The suppliers Quality System will have been assessed and approved by Fine Tubes' QA / Technical Services Department.

The supplier may be registered as a BS EN ISO 9001 and/or AS EN 9100 approved organisation.

8.3 Supplier Generic Questionnaire

All potential new suppliers must complete this document or supplier an equivalent. This will be forwarded by Fine Tubes Purchasing Department, upon issue of a Supplier Authorisation Request Form, (QD75) This a Fine Tubes internal document only. The purpose of the questionnaire is to give an initial overview of the supplier's organisation. After the completed questionnaire has been evaluated by a Fine Tubes QA and Compliance representative, a decision will be made as to the level of approval to be granted. This is based on the requirement for any further action such as assessment of the supplier's quality system. The supplier will be expected as a minimum to submit a Supplier Self-Assessment Audit, (QD095), every 3 years from the initial date of approval.

8.4 Supplier Audits

On site audits may be conducted as part of the initial introduction as a new supplier. The decision to audit a newly identified supplier depends on many aspects such as criticality of supply, approvals held, location and

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financial implications. Notification of the audit will be given in advance. As part of Fine Tubes Supplier Development Programme and Supplier Control Process, all Approved Suppliers may be subject to an ongoing Supplier Verification audit. Selected suppliers will be audited as necessary to verify product conformance. These audits may be made up of a cross-functional team consisting of Quality, Procurement and Production personnel. The purpose of a Cross-functional team is to substantiate the effectiveness of the supplier's administration, manufacturing and quality system.

8.4.1 Supplier Audit Criteria

Supplier Audits and subsequent approvals will be based on Fine Tubes Limited criteria which will be commensurate with the requirements of the end users of Fine Tubes Limited customer for which products are purchased. International and regulatory supplementary conditions which may be added to the scope of assessment or approval audit can include compliance to BS EN AS9100, Nadcap – Special Process Specific, ASME III Div. 1 NCA 3800, AFCEN RCC-M, or customer specified, for example Rolls Royce SABRE, Airbus GRAMS AP 2190. This will be specified within the purchase order requirements, specifications or audit scope.

8.5 Approved Supplier List

Fine Tubes Limited operates a controlled Approved Supplier List, which consists of all suppliers approved to supply products/services to Fine Tubes. Approval is granted for a three-year period, thereafter, a review will be conducted either by audit or questionnaire and/or previous performance data analysed to assess the applicability for continued business.

8.6 Definitions of Supplier Types

- (g) Supplier Type 1: Approved Raw Materials or Material from a Customer Approved Supplier: A supplier of raw materials or contact materials typically used in the direct manufacture of finished goods
- (h) Supplier Type 2: Business Critical or Sub Contract Services: A supplier of Services, (Calibration/Test Houses), or Processes, (Sub-Contractor) which could directly impact the quality of Fine Tubes completed customer products
- (i) Supplier type 3: General Consumables or from a Service Provider:
- (j) A supplier of indirect services, consumables, maintenance and other items, which typically indirectly support the manufacture of finished goods.

8.7 Supplier Evaluation

Fine Tubes reviews the delivery performance of the Type 1 suppliers during the Quality Management Review. Analysis of supplier quality non-conformance is also included and any necessary actions are taken following the review.

During general supplier reviews (Supplier types 1, 2 and 3), all suppliers are ranked based on annual spend. If required we will review general feedback from the department which primarily uses the service from within Fine Tubes.

Using information based on the future requirements of the business, audit activity and supplier visits/reviews are planned accordingly.

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9 QUALITY CONTROL PLAN

Applies to all Type 1 suppliers

The supplier shall produce a Quality Control Plan for all products to be supplied to Fine Tubes Limited when requested during tender, quote or approval stage. The plan will be used to obtain agreement on quality planning between Fine Tubes Limited and the supplier prior to the commencement of production.

Characteristics to be included in the Quality Control Plan are:

- Characteristics identified as significant by Fine Tubes Limited.
- Characteristics identified by the supplier as significant based on the knowledge of the process.
- All Characteristics to which SPC may be applied.

The Quality Control Plan should be submitted to Fine Tubes Limited sufficiently in advance of the initial samples to permit review and approval. Assessment of the plan may involve the requirement of an audit conducted on the site of the supplier as a means of verification.

10 PROCESS FLOW CHART

Applies to all Type 1 suppliers

The Process Flow Chart is a schematic representation of the process flow. It can be used to analyse sources of variations of machines, materials, methods, and manpower from the beginning to end of a manufacturing or assembly process. It is used to emphasise the impact of sources of variation on the process. The flow chart helps analyse the total process rather than individual steps in the process.

The Process Flow Chart should be devised to be read in conjunction with the Quality Control Plan.

11 PROCESS FAILURE MODE AND EFFECTS ANALYSIS (P.F.M.E.A)

Applies to all Type 1 suppliers

A PFMEA should be conducted during product quality planning and before beginning production. It is a disciplined review and analysis of a new/revised process and is conducted to anticipate, resolve or monitor potential process problems for a new/revised product program. A PFMEA is a living document and needs to be reviewed and updated as new failure modes are discovered.

12 FIRST ARTICLE INSPECTION REPORT (F.A.I.R)

Applies to all Type 1 suppliers

The supplier when requested shall provide a First Article Inspection Report (FAIR), this is required for the first batch produced from a new or modified drawing, or after a change of the manufacturing process or as directed by Fine Tubes purchases order. A First Article Inspection is a representative sample from the batch, which shall be 100%, inspected for conformance to mechanical and/or performance requirements.

13 CORRECTIVE ACTION PREVENTIVE ACTION (CAPA)

Fine Tubes Limited maintains a documented system for the recording, monitoring and measurement of corrective actions. This system applies to both internal and externally generated concerns. The supplier is therefore required to complete when requested, an 8D investigation. Fine Tubes will either send the supplier the required format to be followed, but will accept the suppliers alternative format.

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The supplier shall complete the 8D and communicate containment actions within 48 hours of notification. Completion of the 8D will be within an agreed time frame with Fine Tubes.

14 ENVIRONMENTAL MANAGEMENT SYSTEMS

Fine Tubes Limited holds certification to BS EN ISO 14001 Suppliers are encouraged to obtain third party certification to a recognised Environmental Management System standard e.g. BS EN ISO 14001. If the supplier does not intend to obtain certification it is expected that an Environmental Management System will be operated which demonstrates at least the following:

- Compliance with relevant national regulations.
- Minimises pollution of the environment.
- Minimises consumption and depletion of non-renewable resources.
- Facilitates continual environmental improvement.

Compliance with the above requirements will be checked by completion of a Fine Tubes Supplier Environmental questionnaire and if necessary an audit may be conducted in conjunction with a quality audit.