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0 Introduction

0.1 Identification

This document is the property of Tabcrest Graphics Limited. It may not be copied or disclosed to any third party without prior written permission from The Managing Director, Tabcrest Graphics Ltd., Eastways, Witham, Essex CM8 3YQ, England.

0.2 Foreword

Tabcrest Graphics Limited was founded in Chelmsford in 1967. At first the company specialised in the manufacture of anodised aluminium nameplates for the defence and marine electronics industries. Since then, the product range has expanded to encompass membrane keypads, self-adhesive labels, under-surface printed graphic overlays, engraving and screen printing, much of the work still being undertaken for the defence and aerospace industries.

In 1979 we relocated to new premises in Witham and then into our present factory in 1981.

We believe that it is important to retain full control over the manufacturing process, and to this end we have a very full range of facilities. We operate a studio using modern computer systems to prepare artworks and film masters. Customer artworks can be accepted in most popular desktop publishing formats. Film masters are produced by means of a digital image setter directly from computer files, ensuring optimum image quality.

Our printing facilities include hot foil machinery, which can print variable information and bar codes on a variety of substrates including self-adhesive vinyl, polyester and paper. Anodised aluminium nameplates and under-surface printed labels and graphic overlays are produced by screen printing, normally using our semi-

automatic machines. In addition, screen-printing on to customers' products, such as components and front panels, is also undertaken.

Our finishing department has laminating equipment with which adhesives and protective films can be applied. Cutting, profiling and piercing are carried out using guillotines, presses and platens.

Computerised machinery enables us to offer an engraving service for products such as badges, signs and labels, as well as serial numbering of our aluminium nameplates.

The progress of all work is monitored by means of our computer network, using bar-code stations in the production areas. For maximum efficiency, this system is interfaced with our integrated accounts software.

A document image processing system archives all necessary documents on optical disks.

Throughout, our philosophy is to offer a flexible service covering a wide range of industrial graphics.

0.3 Amendment Record

- 17/01/2000 first formal issue
- 06/01/2003 revised to conform with ISO 9001:2000

1 Scope

1.1 General

The Quality Management System that has been implemented by Tabcrest Graphics Limited, applies to the manufacture of membrane keypads, aluminium nameplates, self-adhesive labels, under-surface printed graphic overlays, engraving and screen printing.

This Manual describes the system of control, which is being continuously implemented to ensure that the contracted services are delivered consistently and to the highest possible standard, and which aims for continuous improvement in quality.

1.2 Application

Tabcrest manufacture product in accordance with customers' drawings and specifications, but does not undertake engineering design.

2 Normative Reference

ISO 9000:2000 Quality Management Systems – Fundamentals and vocabulary

3 Terms and Definitions

QMS

Quality Management System

4 Quality Management System

4.1 General

The Quality Management System (QMS) of Tabcrest Graphics Limited has been designed and implemented to ensure that all activities are performed with demonstrable and efficient means of control.

4.2 Documentation

4.2.1 General

The documented QMS is arranged in four levels as follows:

- Quality Manual.
- Procedures, which define responsibilities. These provide a clear indication of, or guide to, the way in which a task or a series of activities is carried out.
- Quality Plans and Work Instructions, which describe clearly and logically, for the benefit of the person performing the task, the order in which individual activities and quality checks are to be performed and recorded.
- Forms, Specifications and Reference Materials, which consist of all the supporting documentation employed to enable each task to be performed, and which often constitute necessary documentary evidence.

4.2.2 Quality Manual

The Quality Manual defines management policy, describes the organisation and outlines the way in which each clause of ISO 9001:2000 is addressed.

4.2.3 Control of Documents

Procedures, which address the requirements of ISO 9001:2000 and those of customer contracts, have been established to control all documents and data, which constitute the Quality Management

System (QMS). Externally produced matter such as instruction manuals and customers' drawings may be controlled documents.

The Quality Manager prior to issue reviews all documents and data, which form part of the Quality Management System. The documented procedure OP-0401 Document Control ensures that they are available whenever required for the effective operation of the Quality Management System, and that obsolete issues are identified and withdrawn from circulation promptly.

The Quality Manager reviews all changes to documents and data, which form part of the Quality Management System.

References

- OP-0401 Document and Data Control

4.2.4 Control of Records

Quality records are produced and maintained to provide evidence of the effective operation of the quality management system.

Examples of these records include:

- Sales quotations, sales orders, concessions, sales invoices and delivery documentation
- Purchase orders, delivery notes, goods received notes and certificates of conformity
- Inspection and test results
- Defect reports
- Customer comments
- Customer rejects documentation
- Corrective action requests
- Calibration results and equipment maintenance records
- Supplier assessment and performance data

- Training records
- Management review reports
- QMS audit reports

Records are retained for at least seven years, though this may be extended in accordance with the specific requirements of customers

References

- OP-0402 Control of Quality Records

5 Management Responsibility

5.1 Management Commitment

The company is committed to the implementation of the quality management system (QMS) in accordance with ISO 9001:2000. In order to achieve this, the structure of the company is defined as shown in the Organisation Chart (appendix A).

The Quality Manager is independent of production and reports directly to the Board of Directors. Quality related decisions made by the Quality Manager cannot be over-ruled by other departments.

It is the responsibility of the Quality Manager to develop and maintain the quality management system in accordance with ISO 9001:2000. He ensures that all quality related documents and records are properly maintained and reviewed.

Each manager is responsible for the implementation of the quality management system within his department as defined in the organisation chart and for ensuring that all personnel within his department receive adequate training. In addition, he is responsible for ensuring that he has sufficient resources to meet the requirements of the QMS.

References

- OP-0501 Management Review

5.2 Customer Focus

The company is committed to enhancing customer satisfaction.

This is achieved by monitoring and evaluating customer feedback, typically in the form of:

- Communication with customers and prospects.
- Customer's vendor assessments.

- Feed back from the corporate internet site.
- FaxBack forms which are sent with quotations.

Management reviews this information and where appropriate, makes staff aware of customers' views.

References

- OP-0501 Management Review

5.3 Quality Policy

The Board of Directors has adopted ISO 9001:2000 as a means of understanding and meeting our customers' needs while identifying opportunities to improve our efficiency and hence profitability. The QMS provides a structure within which customer satisfaction and product quality are monitored. Review of the results enables assessment of our performance and resources, highlighting any requirements for investment and personnel training. In this way continuous improvement is achieved.

The Quality Manager has authority and responsibility to prepare, maintain and implement documented systems and procedures to ensure compliance with company policy, customers' requirements and ISO 9001:2000. He will also ensure that any amendments to these standards continue to be embodied in the QMS.

All Tabcrest employees are made aware of the requirements of this QMS and of their responsibilities for operating within its guidelines. Whenever changes are made to the QMS, appropriate training is given.

References

- OP-0601 Training

5.4 Planning

5.4.1 Quality Objectives

5.4.2 Quality Management System Planning

The quality system is internally audited on a regular basis and the results submitted for review by management. Such management reviews are conducted annually and recorded to ensure that the Quality Management System continues to perform effectively in meeting the requirements of ISO 9001:2000 and of the company as stated in this quality manual.

5.5 Responsibility, Authority and Communication

5.5.1 Responsibility and Authority

The Quality Manager is responsible for ensuring that corrective actions are effectively implemented. Corrective action meetings are held regularly, as defined in the QMS.

5.5.2 Management Representative

The Management Representative is appointed from the Board of Directors, to whom he reports.

5.5.3 Internal Communication

Tabcrest is a small firm in which most communication is through informal meetings. Internal e-mail, memos and notices may be used where appropriate, particularly when documentary records are needed.

Minuted meetings may be held to satisfy the requirements of the QMS and in exceptional circumstances.

5.6 Management Review

Management Review meetings attended by the Board of Directors and Quality Manager are held at regular intervals.

The objectives of the meetings are to ensure that the QMS

- remains relevant to the current and anticipated needs of the company and its customers, taking account of any changes to ISO 9001
- is achieving its objectives
- is correctly implemented.

6 Resource Management

6.1 Provision of Resources

Management reviews quality objectives, sales schedules and forecasts and any other available data to ensure that manpower and infrastructure resources are adequate.

References

- OP-0501 Management Review
- OP-0702 Sales Quotations
- OP-0703 Contract Review

6.2 Human Resources

6.2.1 General

Management reviews the competence of personnel to ensure that adequate human resources are available.

References

- OP-0501 Management Review

6.2.2 Competence, Awareness and Training

Adequate training is a vital element in the quality management system. Everyone who has specific responsibility for activities, which can affect quality, must be suitably qualified. To ensure that this requirement is met, a skills matrix record is maintained and the specific needs of each employee are assessed by the departmental manager within three months of joining the company and annually thereafter. Additional reasons for training include the desire to improve individual performance, to increase flexibility or in preparation for future developments.

All personnel are given specific training in the requirements of the quality management system in relation to their own roles.

The results of assessments and details of any training given, including on-the-job training, are recorded on an Employee Training Log.

Training records are maintained by the Quality Manager and submitted for management review.

References

- OP-0601 Training

6.3 Infrastructure

Suitable equipment and working conditions are provided. Maintenance of equipment is planned to give continuity of production.

When necessary, personnel are given training for specific operations.

References

- OP-0402 Control of Quality Records
- OP-0601 Training
- OP-0602 Maintenance of Production Equipment

6.4 Work Environment

There are no requirements of the work environment, other than those addressed by occupational health and safety management and environmental considerations.

This is regularly reviewed and appropriate procedures will be established if needed.

7 Product Realization

7.1 Planning of Product Realization

Production processes are controlled by means of documented procedures, work instructions and quality plans.

The quality plans enable monitoring of materials, processes and workmanship by calling for specific quality checks to be carried out throughout the manufacturing cycle. For each job, the results of these checks are recorded on an Inspection Report, which is retained for seven years or as required by contract.

References

- OP-0701 Process Control

7.2 Customer-related Processes

Documented procedures have been established for sales quotations and contract review.

As most sales orders result from quotations, it is at this stage that sales personnel ensure that all necessary information is available and that requirements are fully understood. If for any reason they cannot be fulfilled, the customer is advised and where possible an alternative offered. Quotations are normally produced by the computerised sales order processing system and each has a unique serial number.

Upon receipt of a sales order, it is compared with the associated quotation, where applicable, and any differences are noted. The customer is advised of any changes in our ability to fulfil his requirements and action agreed. When any differences have been resolved, the order is entered on the computerised sales order processing system and a written acknowledgement sent to the customer. The internal works order number is written on the sales order to confirm that contract review has been successfully completed.

Sales orders, together with quotations and any other supporting documentation, are then filed.

Amendments to contract are recorded on the sales order processing system and acknowledged in writing, then filed with the original sales order. Job instructions and other documents and records are amended as necessary.

Upon completion of each order, a sales invoice and delivery documentation are produced which replicate the order acknowledgement, as far as may be appropriate.

References

- OP-0702 Sales Quotations
- OP-0703 Contract Review

7.3 Design and Development

The company does not undertake design. Therefore design control is not within the scope of this Quality Manual.

7.4 Purchasing

Documented procedures have been established to ensure that all purchased goods and services are fit for their intended purpose.

Goods and services which are incorporated in, or which can affect the quality of Tabcrest product are procured only from approved suppliers and sub-contractors. Initial approval is based on knowledge derived from sources such as questionnaires and visits. The vendor is given a rating, added to the list of approved suppliers and his performance monitored to ensure continued suitability.

All purchase orders for goods and services which are incorporated in, or which can affect the quality of Tabcrest product are placed in writing. Purchase order documents are produced by the computerised purchase order processing system. Each purchase order has a unique serial number and includes a clear description of

the product ordered, as set out in the documented procedure. Purchase orders are reviewed and signed by the Purchasing Manager.

Documented procedures govern the receipt of incoming purchased product.

References

- OP-0704 Purchasing
- OP-0705 Control of Suppliers
- OP-0706 Goods Inwards Inspection

7.5 Product and Service Provision**7.5.1 Control of Product and Service Provision**

Production processes are controlled by means of documented procedures, work instructions and quality plans.

The quality plans enable monitoring of materials, processes and workmanship by calling for specific quality checks to be carried out throughout the manufacturing cycle. For each job, the results of these checks are recorded on an Inspection Report, which is retained for seven years or as required by contract.

Suitable equipment and working conditions are provided. Maintenance of equipment is planned to give continuity of production.

When necessary, personnel are given training for specific operations.

References

- OP-0402 Control of Quality Records
- OP-0601 Training

- OP-0602 Maintenance of Production Equipment
- OP-0701 Process Control

7.5.2 Validation of Processes for Production and Service Provision

In order to ensure that nonconforming materials are not inadvertently issued for production, incoming material is subject to checking and, depending on the rating of the vendor, inspection. Following these checks, internal goods received notes are completed and labels applied to the packaging to indicate whether the goods have been passed, or if nonconforming, rejected or held pending further action.

In-process inspection is carried out in accordance with the Inspection Report issued with each job. This requires inspection at certain defined stages of production, with the result being entered on the Inspection Report, together with the operative's signature. Nonconforming product found during these checks or at any other time during production, are clearly labelled to prevent further processing. Depending on the nature and severity of the defect, a Defect Report may be completed.

Final inspection is carried out. For conforming product, the Inspection Report and packaging label are stamped with the inspector's stamp. Nonconforming product is either placed immediately in a waste receptacle or marked as rejected. Details of the nonconformance are entered on the Inspection Report.

The Inspector is responsible for ensuring that only product which has passed all required stages of inspection, as indicated on the Inspection Report, is allowed to be despatched to the customer.

The administration department is responsible for archiving the inspection reports.

References

- OP-0402 Control of Quality Records

- OP-0706 Goods Inwards Inspection
- OP-0707 In-process Inspection
- OP-0708 Final Inspection
- OP-0709 Inspection and Test Status
- OP-0710 Control of Nonconforming Product

7.5.3 Identification and Traceability

Throughout manufacture, suitable marking identifies product with its works order number and product identity as set out in documented procedures.

Since many Tabcrest customers operate in the defence and aerospace industries, material traceability of is great importance. For this reason materials incorporated in the company's products are batch numbered on receipt, by labels or other suitable markings, so that at all stages of processing, their batch and source of supply can be traced. The appropriate batch numbers are recorded for each job on an Inspection Report, which is retained for a period of seven years or as required by contract.

References

- OP-0402 Control of Quality Records
- OP-0711 Product Identification and Traceability

7.5.4 Customer Property

Documented procedures have been established for the control of customer-supplied product. These ensure that it is clearly identified and safely stored, and that it is fit for its intended purpose.

Customer supplied product normally comprises parts to be screen-printed. Since these parts are supplied for use with specific sales orders, the procedure for handling them entails marking with the appropriate customer's order number or works order number, segregation and safe storage until required for processing.

Wherever possible, as part of the sales order processing procedure, or prior to processing, they are checked for suitability for purpose. In the event that a problem is found, the customer is notified and action to resolve the difficulty is agreed in writing.

Verification by Tabcrest Graphics Limited does not absolve the customer of the responsibility to provide acceptable product.

References

- OP-0712 Control of Customer-supplied Product

7.5.5 Preservation of Product

Documented procedures exist to ensure that materials and products are protected and handled in such a way as to prevent damage or deterioration.

Purchased goods are labelled with batch numbers and proper storage conditions provided. Attention is paid to shelf life and steps are taken to ensure that outdated materials are not used.

Care is exercised in the handling of work in progress, which is provided with suitable storage. Printed matter is protected wherever possible by laminating protective film on to the front face before undergoing finishing processes.

Appropriate means are used to ensure timely and safe delivery. Suitable packaging is provided, appropriate to the product and the means of delivery.

References

- OP-0706 Goods Inwards Inspection
- OP-0707 In-process Inspection
- OP-0708 Final Inspection
- OP-0711 Product Identification and Traceability

- OP-0712 Control of Customer Supplied Product
- OP-0713 Handling, Storage, Packaging, Preservation and Delivery

7.6 Control of Monitoring and Measuring Devices

As set out in documented procedures, only calibrated inspection, measuring and test equipment is used in production. A register of equipment requiring calibration is maintained giving serial numbers and details of calibration schedules. All such equipment is clearly marked with its calibration status and next calibration date. When required, calibration is carried out by an external accredited calibration house and is traceable to appropriate national standards. It is the responsibility of the Production Manager to ensure that the calibration schedule is maintained.

All calibration certificates are reviewed on receipt and are retained on file.

All operators using inspection and test equipment are responsible for ensuring that the equipment is within calibration by checking calibration labels. When equipment is found to be outside calibration, it is immediately withdrawn for recalibration. An assessment is made of the probable impact on previous product, and if necessary, appropriate action taken.

References

- OP-0402 Control of Quality Records
- OP-0714 Control of Inspection, Measuring and Test Equipment

8 Measurement, Analysis and Improvement

8.1 General

Documented procedures govern monitoring and measurement to demonstrate the conformity of product and of the QMS, and to enable the continual improvement of the effectiveness of the QMS.

8.2 Monitoring and Measurement

8.2.1 Customer Satisfaction

Customer satisfaction is monitored by review of inputs including Defect Reports, web site feedback e-mails, FaxBack forms sent with quotations, customers' vendor assessment reports and personal contact.

References

- OP-0501 Management Review
- QF-0701 Defect/Comment Report

8.2.2 Internal Audit

In order to ensure the continuing effectiveness of the quality management system, internal quality audits are conducted on a regular basis as defined in the operating procedure.

It is the responsibility of the Quality Manager to establish and maintain a system, which ensures that suitably trained personnel, independent of the function being audited, carry them out in the prescribed manner.

The Quality Manager records and reviews the results of the audits from which it may be decided to amend the QMS in order to maintain or improve its effectiveness.

The audit results and any actions arising from them are reported for periodic management review.

References

- OP-0501 Management Review
- OP-0801 Internal Quality Audits

8.2.3 Monitoring and Measurement of Processes

The processes of the QMS are monitored, with qualitative data being collected from feedback as in 8.2.1. Analysis of QF-0701 Defect/Comment Reports enables quantitative evaluation of the effectiveness of the QMS in reducing the number of defects attributable to defined sectors of the QMS.

This information is submitted for management review.

References

- OP-0501 Management Review
- QF-0701 Defect/Comment Report

8.2.4 Monitoring and Measurement of Product

In order to ensure that nonconforming materials are not inadvertently issued for production, incoming material is subject to checking and, depending on the rating of the vendor, inspection. Following these checks, internal goods received notes are completed and labels applied to the packaging to indicate whether the goods have been passed, or if nonconforming, rejected or held pending further action.

In-process inspection is carried out in accordance with the Inspection Report issued with each job. This requires inspection at certain defined stages of production, with the result being entered on the Inspection Report, together with the operative's signature. Nonconforming product found during these checks or at any other time during production is clearly labelled to prevent further processing. Depending on the nature and severity of the defect, a Defect Report may be completed.

Final inspection is carried out. For conforming product, the Inspection Report and packaging label are stamped with the inspector's stamp. Nonconforming product is either placed immediately in a waste receptacle or marked as rejected. Details of the non-conformance are entered on the Inspection Report.

The Inspector is responsible for ensuring that product is only allowed to be despatched to the customer after it has passed all required stages of inspection, as indicated on the Inspection Report.

The administration department is responsible for archiving the inspection reports.

References

- OP-0402 Control of Quality Records
- OP-0706 Goods Inwards Inspection
- OP-0707 In-process Inspection
- OP-0708 Final Inspection
- OP-0709 Inspection and Test Status
- OP-0710 Control of Nonconforming Product

8.3 Control of Nonconforming Product

Documented procedures define the treatment of nonconforming product in such a manner as to prevent its unauthorised use.

Nonconforming product is either scrapped or conspicuously labelled. Wherever possible it is then placed in a quarantine store to await further action. In certain cases, it may be that product, though nonconforming, is thought to be fit for purpose. The customer is then given details of the problem and asked for a written concession. Only after receipt of this concession, which is recorded with the sales order, may the product be further processed.

Due to the nature of Tabcrest product, non-conformances will often be in the form of one or more imperfect label images on a printed sheet of many labels. In this case segregation is not possible until a later stage so the rejects are clearly labelled.

Non-conformances, together with any corrective or preventive action, are recorded in Defect Reports. In order to achieve continuous improvement, these reports and the results of any actions taken, are submitted for review at regular management meetings.

References

- OP-0402 Control of Quality Records
- OP-0709 Inspection and Test Status
- OP-0710 Control of Nonconforming Product

8.4 Analysis of Data

The company carries out no statistical process control at present. This is regularly reviewed and, should the need arise, appropriate procedures will be established.

8.5 Improvement

The purpose of the quality management system is to ensure firstly that all requirements of sales orders are fulfilled and secondly that quality is continuously improved.

In order to achieve this, the Quality Manager is responsible for collecting data from records of non-conformances, customer comments and other appropriate sources. This information is analysed and action taken to rectify non-conformances and prevent their recurrence.

Such actions are taken only after due consultation and their effects are monitored and submitted to management for review.

Any resulting changes to documented procedures, quality plans or work instructions are recorded in accordance with the established procedure.

References

- OP-0401 Document and Data Control
- OP-0802 Corrective Action
- OP-0803 Preventive Action
- OP-0804 Customer Comments
- OP-0805 Customer Returns

9 Appendix A – Organisation Chart

