Marking Systems, Inc.
MS Die Cut, LLC
T-Shirt Tycoon Solutions, Inc.

Quality Manual

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Revision history

Date	Edited by	Description of change
5/19/2016	Joe Sofinowski	Original Document Release
1/5/2017	Julia Rusmanica	Added B3 Log link to section 10.3 per the Internal Audit Dated 12/2/16
11/3/17	Julia Rusmanica	Added reference to section 8.1 to T Tycoon Art Creation and Planning Process Flow Chart
12/22/17	Joe Sofinowski	Adding language to Support AS9100D Certification
3/15/18	Joe Sofinowski	Modified QMS Scope, Organizational Chart, & Process Map
3/28/18	Julia Rusmanica	Added language to address OFI found in Internal Audit – Big Picture
5/7/18	Joe Sofinowski	Updated QMS Scope per 4/24/18 MRM Notes
5/10/18	Julia Rusmanica	Updated scope after Stage I audit and also the QMS core processes flow chart and activities flow chart
5/21/18	Julia Rusmanica	Moved Image from section 5 to section 4 to resolve OFI from internal audit performed during Internal Audit Training
8/31/18	Joe Sofinowski	Removed references that Design and Development only apply to TTY
10/31/18	Joe Sofinowski	Updates for scope refinement along with changes to incorporate MSI/MSD Design and Development
11/14/18	Joe Sofinowski	Update for AS9100D Certification and fix broken links

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1. About the Organization

1.1. Organizational Structure

Top management is defined in the QMS Cross Reference.

MSI established the QMS core processes below:

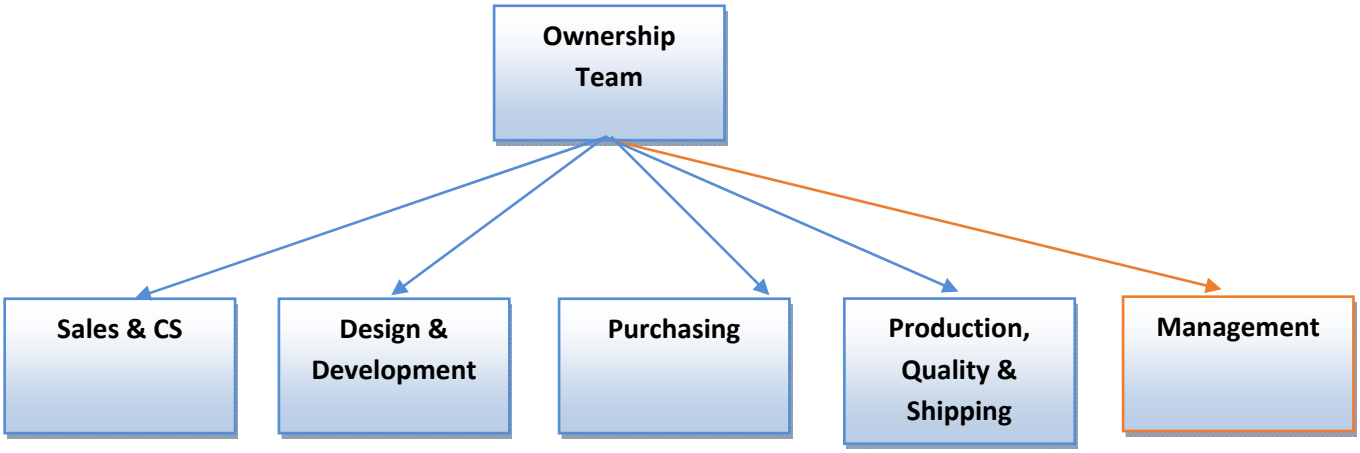

Figure 1: MSI QMS Core Processes

2. Purpose

The Quality Manual describes the Quality Management System (QMS) of Marking Systems, Inc., T-Tycoon Solutions, Inc., and MS Die Cut, LLC (collectively referred herein and in other QMS documents as "MSI") and demonstrates the capability of the companies to continuously provide products and services that address customer requirements.

3. Terms & Definitions

For the purpose of this Quality Manual, MSI may reference terms and definitions listed in the ISO 9000:2015 ***QMS Fundamentals and Vocabulary*** document and ***AS9100D standard***.

4. Context of the Organization

4.1. Understanding the organization and its context

MSI considers the context of the organization according to ***Context of the Organization*** and ***Interested Parties***.

4.2. Understanding the needs and expectations of interested parties

MSI has determined the interested parties, their needs and expectations and listed them in ***Interested Parties***.

4.3. Determining the Scope of the Quality Management System

MSI has determined the boundaries and applicability of the Quality Management System as follows:

- For **Marking Systems, Inc.** and **MS Die Cut, LLC**:
  - the requirements of the QMS are based on the AS9100D "Quality Management Systems - Requirements for Aviation, Space, and Defense Organizations" standard.
    - All requirements of AS9100D are applicable.
  - The QMS scope for the AS9100 certification is:

    The Design & Development or customer specified manufacturing of Screen, Digital, Pad & Thermal Printing, Laser Marking, Photo-Anodizing, Finishing and Assembly of Durable Product Labels, Placards and Die Cut Components, along with Vendor Managed Inventory and Stocking of the produced parts.
      - *Production activities include: screen, digital, thermal transfer and pad printing, photo anodizing, laser etching, engraving, doming, embossing, finishing and assembly of membrane switches, kits and foam trays, die cut components, gaskets, insulators, bonding and RFI/EMI Shielding.*

- For **T-Tycoon Solutions, Inc.**:
  - the requirements of the QMS are based on ISO 9001:2015 "Quality Management Systems – Requirements" standard.

    All requirements of ISO 9001:2015 are applicable.
  - the scope of the ISO 9001:2015 certification is:

    The Design & Development and Manufacturing of Customer Specified Screen and Digital Printing of Apparel & Textiles.

4.4. Quality Management System and its processes

MSI has established and implemented the QMS, which is maintained and continually improved according to the requirements of the AS9100D and ISO 9001:2015 standards and customer statutory and regulatory requirements.

The processes needed for the QMS, along with their sequencing and interactions, have been established in the Process Map (Figure 2). MSI has determined required inputs and desired outputs of the processes, criteria and methods needed for effective operation and control of these processes, as well as resources needed and responsibilities and authorities for each process in the ***QMS Cross Reference***.

During management review, Top Management of MSI evaluates processes and makes changes needed to ensure that the processes achieve intended results and improve processes and the QMS.

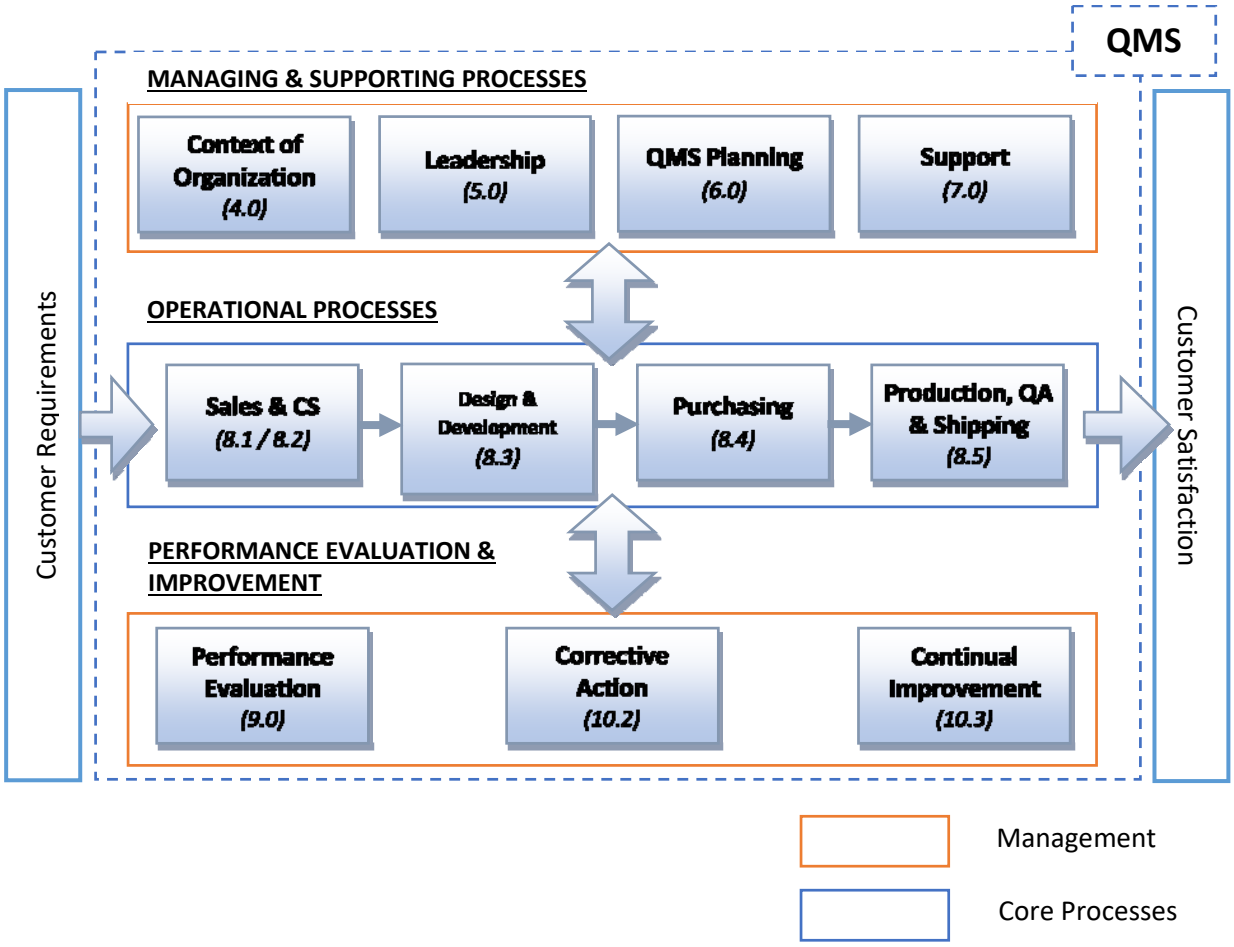

Figure 2:MSI QMS

5. Leadership

The flow chart below shows the MSI QMS processes, boundaries and interactions:

5.1. Leadership and commitment

5.1.1. General

Top Management (see 1.1) is responsible for the effectiveness of the QMS and ensuring the ***Quality Policy and Quality Objectives*** are established and compatible with the strategic direction and the context of the organization. MSI has defined the ***Quality Policy and Quality Objectives*** as a separate document and made it available to employees and the public. This document defines measurements for evaluating the Quality Objectives, along with other key performance indicators.

Top Management communicates the importance of an effective QMS, promotes continual improvement, a process approach, and risk-based thinking, and supports relevant management roles to demonstrate leadership to their areas of responsibility.

Top Management ensures the QMS requirements are integrated into MSI's business processes and achieve the intended results by providing the necessary resources.

5.1.2. Customer Focus

Top Management of MSI demonstrates leadership and commitment with respect to customer focus by ensuring:

- customer and statutory and regulatory requirements are defined, understood, and consistently met;
- risks and opportunities affecting conformity of products and services are determined, and the ability to enhance customer satisfaction are determined and addressed;
- the focus on enhancing customer satisfaction is maintained;
- product and service conformity and on-time delivery performance are measured; and appropriate action is taken if planned results are not, or will not be, achieved.

5.2. Quality Policy

MSI has defined the ***Quality Policy and Quality Objectives*** as a separate document and made it available to employees and the public. The Policy represents the framework for planning and improving the QMS and setting quality objectives.

5.3. Organizational Roles & Responsibilities

Top Management is responsible for ensuring the QMS conforms to AS9100D and ISO 9001:2015. Responsibilities and authorities for relevant roles, including the Management Representative, are assigned by Top Management and communicated within MSI ***QMS Cross Reference***. The assigned roles are responsible for reporting on the performance of the respective QMS processes to Top Management.

6. Planning

6.1. Actions to address Risks & Opportunities

When planning the QMS, MSI considers the context of the organization, needs and expectations of interested parties, and the scope of the QMS.

MSI determines risks and opportunities related to the ability to ensure the QMS can achieve intended results, enhance desirable results, prevent or reduce undesired effects, is compatible with the context of the organization, and can achieve continual improvement. Risks and opportunities related to the QMS are addressed according to the ***Procedure for Addressing Risks and Opportunities*** .

6.2. Quality Objectives

Quality Objectives for the QMS are established by Top Management ***Quality Policy and Quality Objectives*** and are measurable and consistent with the Quality Policy. The Objectives take into account applicable requirements, relevance to conformity of products and services, and enhancement of customer satisfaction. They are communicated to all levels and functions in MSI.

Realization of the objective results is regularly reviewed by the Quality Manager to monitor performance. The objectives are monitored and reviewed during regular production manager and management review meetings.

6.3. Planning Changes

When MSI determines a need for changes to the Quality Management System, Top Management considers the purpose of the changes & potential consequences, the integrity of the QMS, the availability of resources, and the allocation or relocation of responsibilities & authorities. The Quality Manager is responsible for implementing the changes in a planned method.

7. Resources

7.1. Resources

MSI determines and provides the resources needed to establish, implement, maintain, and improve the QMS, and to enhance customer satisfaction by meeting product and service requirements. Resources include people, organizational knowledge, machines, materials, software, hardware, tools, proper environment, monitoring and measuring instruments, safety equipment.

In cases where it is deemed necessary and justified, MSI will hire competent external personnel and organizations from relevant fields to implement realization activities when MSI does not have adequate resources.

7.2. Competence

MSI provides staff (including external personnel) with the knowledge and skills, organizational infrastructure, and financial resources needed to establish, implement, maintain, and improve the QMS.

Managers are responsible for identifying the needs of employees who carry out activities that may have a significant impact on the quality of product and customer satisfaction.

Each department manager /process owner is responsible for the suitable competency of his\her workers, on the basis of education, training, and/or work experience, in accordance with the requirements of their work and providing professional training as needed.

The method of ensuring the necessary competencies for roles, responsibilities, and authorities for implementation and control activities within the QMS is established in accordance with the ***Competence, Training and Awareness*** procedure**.** Records of completed training and training effectiveness are kept by the office manager.

7.3. Awareness

See ***Competence, Training and Awareness*** **.** Top Management ensures employees are aware of the ***Quality Policy***, relevant ***Quality Objectives***, their contribution to the effectiveness of the QMS, implications of nonconformance with the QMS requirements, relevant QMS documented information; their contribution to product or service conformity; their contribution to product safety; and the importance of ethical behavior (***Corporate Social Responsibility Policy****)*.

7.4. Communication

Top Management is responsible for determining internal and external communications relevant to the QMS. Relevant communications include the subject, timing, method of communication, as well as who and with whom will communicate. External feedback may include customer supplied scorecards and audit results. See **Communication Plan.**

7.5. Documented Information

The document requirements of the Quality Management System are established in the ***Control of Documents*** procedure. The QMS documents include procedures, work instructions, forms, records, along with the following documents:

- ***Quality Policy and Quality Objectives***
- ***Quality Manual***

- Documents required by AS9100D and ISO 9001
- Documents necessary for the MSI Quality Management System (listed in the ***Controlled Documents - Quality Records Log***).

8. Operation

8.1. Organizational Planning & Control

The Operations Managers are responsible for planning and developing processes needed for product realization according to the ***MSI/MSD Customer Requirements and Production Planning Process Flowchart*** and **T Tycoon Customer Requirements Process Flow Chart** and **T Tycoon Production Art and Planning Process Flow Chart.**

The Operations Managers define measurable performance metrics for each operational process (see figure 2) consistent with the quality objectives and monitor their performance. Risks and opportunities related to the operations are addressed according to the ***Procedure for Addressing Risks and Opportunities***

The organization makes and effort to eliminate and address counterfeit parts. See **Procedure for Prevention of Counterfeit Parts.**

8.2. Requirements for Products & Services

Communication with customers, the process of determining and reviewing the requirements related to products and services and changes to requirements for products and services are defined in the ***MSI/MSD Customer Requirements and Production Planning Process Flowchart*** and **T Tycoon Customer Requirements Process Flow Chart**

8.3. Design & Development of Products

The TTY Creative Director and/or the MSI/MSD Director of R&D appoints persons responsible for planning, realization, and management of product design and development and project management according to the ***TTY Creative Art Work Instructions*** and for MSI and MSD, the ***Procedure for Design and Development***.

8.4. Control of Externally Provided Processes, Products & Services

By documenting an adequate method for evaluation and selection of suppliers, MSI ensures that delivered product is compliant with specified purchasing requests according to the ***Procedure for evaluation and re-evaluation of suppliers*** and ***TTY Procedure for Purchasing and Evaluation of Suppliers***

8.5. Production & Service Provision

8.5.1. Control of Production & Service Provision

MSI has established in the ***MSI/MSD Customer Requirements and Production Planning Process Flowchart*** and **T Tycoon Customer Requirements Process Flow Chart** and **T Tycoon Production Art and Planning Process Flow Chart** the activities for planning and executing the production and service processes under controlled conditions to ensure the processes are fully capable and to prevent nonconformity. All necessary resources for the execution of these processes are provided according to the production department flowcharts and\or procedures and documented on the Job Ticket and CD PDF. The **Procedure for *Release of Products*** and defines the processes for monitoring and measuring product quality characteristics to ensure requirements are met.

MSI has established in the **Procedure for *VMI*** the activities for planning and executing the vendor managed inventory processes under controlled conditions to ensure the processes are fully capable and to prevent nonconformity. All necessary resources for the execution of these processes are provided.

Controlled conditions include, as applicable, the:

- availability of documented information;
- availability and use of suitable monitoring and measuring resources;
- implementation of monitoring and measurement activities;
- use of suitable infrastructure and environment for the operation of processes;
- appointment of competent persons, including any required qualification;
- validation, and periodic revalidation, of processes when output cannot be verified by subsequent monitoring or measurement;
- implementation of actions to prevent human error;
- implementation of release, delivery, and post-delivery activities;
- ***establishment of criteria for workmanship;***
- ***accountability for all products during production;***
- ***control and monitoring of identified critical items;***
- ***determination of methods to measure variable data;***
- ***identification of in-process inspection/verification points when adequate verification of conformity cannot be performed at later stages;***
- ***evidence that all production and inspection/verification operations have been completed as planned;***
- ***provision for the prevention, detection, and removal of foreign objects;***
- ***control and monitoring of utilities and supplies (i.e. water, compressed air, electricity, chemical products) impacting the conformity to product requirements;***
- ***the identification of products released prior to completion of all required measuring and monitoring activities - records are maintained for the recall and replacement if the product is found not to meet requirements.***

Control of Equipment, Tools, and Software Programs

Equipment, tools, and software programs used to automate, control, monitor, or measure production processes shall be validated prior to final release for production. The validation shall be maintained. See Inspection Procedure for Monitoring and Measurement Equipment.

Storage requirements shall be defined for production equipment or tooling in storage including any necessary periodic preservation or condition checks.

Validation and Control of Special Processes

When required, MSI shall establish arrangements for special processes including, as applicable, the:

- ***definition of criteria for the review and approval of the processes;***
- ***determination of conditions to maintain the approval;***
- ***approval of facilities and equipment;***
- ***qualification of persons;***
- ***use of specific methods and procedures for implementation and monitoring the processes;***
- ***requirements for documented information to be retained.***

8.5.2. Identification & Traceability

MSI uses Job Tickets to identify product and service outputs, as necessary, to ensure conformity and traceability to requirements.

Identification - live production is identified by Job Number and, when applicable, by Part Number. Job Tickets are placed on top of raw materials, printed sheets or printed rolls, during receiving, production, and packaging and shipping processes.

In addition, the identification of the configuration of the products is maintained to identify any differences between the actual configuration and the required configuration. Records are maintained to enable traceability.

Traceability – finished product is bagged and tagged with a "Part Number Bag Label". The label shall contain the Lot Number, Packaged Date, Customer Part Number, and Customer Purchase Order for traceability. Other information may be added to the label as required by the customer, and regulatory and statutory authorities (UL designation, expiration date, date code, etc.).

MSI relies on vendor Certificates of Conformance to identify the "lot number". Lot traceability allows tracking of the part to the Purchase Order of the material and subsequently to the vendor. This traceability applies to critical raw material/items required for the manufacturing of products.

MSI has established in the ***Procedure for Controlling the Quality Control Stamp***, the controls for acceptance authority media.

8.5.3. Property Belonging to Customers or External Providers

MSI has established in the ***Procedure for Storing Customer Property***, the process for identifying and preserving customer property while in our control.

8.5.4. Preservation

MSI has established in the ***Finished Goods Order Process Flow Chart***, ***T Tycoon Shipping Process Flow Chart*** and ***Shipping & Final Inspection Process Flow Chart***, the process for preserving and maintaining finished goods and service requirements. Preservation includes identification, handling, contamination control, packaging, storage, transmission or transportation, protection and***, when applicable in specifications, and statutory and regulatory requirements, provisions for:***

- ***cleaning;***
- ***prevention, detection, and removal of foreign objects;***
- ***special handling and storage for sensitive products;***
- ***marking and labeling, including safety warnings and cautions;***
- ***shelf life control and stock rotation;***
- ***special handling and storage for hazardous materials.***

8.5.5. Post-Delivery Activities

MSI has established in the **Procedure for *VMI*** the processes for vendor managed inventory***.***

8.5.6. Control of Changes

MSI has established in the ***Revision Change Alert Flowchart*** the requirements for reviewing and controlling changes related to processing finished goods to ensure continuing conformity with requirements. ***Changes can include the changes affecting processes, production equipment, tools, or software programs.***

MSI has identified the process owners authorized to approve production or service changes in the QMS Cross Reference.

MSI retains records of the results of the review of changes, the person(s) authorizing the change, and any necessary actions arising from the review.

8.6. Release of Products & Services

MSI has established in the **Procedure for *Release of Products*** and **Procedure for *VMI*** the processes for verifying that the product and service requirements are met***.***

8.7. Control of Nonconforming Outputs

MSI ensures outputs that do not conform to their requirements are identified and controlled to prevent their unintended use or delivery, in accordance with the ***Procedure for evaluating non-conforming product - material and documenting CARs***.

9. Performance evaluation

9.1. Monitoring, Measurement, Analysis & Evaluation

9.1.1. General

The ownership teams, Operations Managers and process owners in MSI define what will be monitored and measured, as well as the methods and timing for monitoring and measuring. Results of the monitoring and measuring will be evaluated at appropriate levels and functions in MSI and the Top Management will evaluate the performance of the QMS during the management review.

9.1.2. Customer Satisfaction

MSI monitors customers' perceptions of the degree to which their needs and expectations have been fulfilled according to the ***Procedure for Measuring Customer Satisfaction***.

9.1.3. Analysis & Evaluation

MSI analyzes and evaluates appropriate data and information arising from monitoring and measurement. The results of the analysis are used to evaluate:

- conformity of products and services;
- the degree of customer satisfaction;
- the performance and effectiveness of the Quality Management System;
- if planning has been implemented effectively;
- the effectiveness of actions taken to address risks and opportunities;
- the performance of external providers;
- product or service problems reported by governmental or industry alerts or advisories;
- the need for improvements to the Quality Management System.

9.2. Internal Audit

MSI conducts internal audits at planned intervals to demonstrate conformance and effectiveness of the Quality Management System according to the ***Internal Audit Procedure***.

9.3. Management Review

Top Management of MSI conducts regular reviews of the QMS according to the ***Procedure for Management Review***.

10. Improvement

10.1. General

MSI determines and selects opportunities for improvement and implements any necessary actions to meet customer requirements and enhance customer satisfaction.

These include:

- improving products and services to meet requirements, as well as to address future needs and expectations;
- correcting, preventing, or reducing undesired effects;
- improving the performance and effectiveness of the Quality Management System.

10.2. Nonconformity & Corrective Action

MSI handles nonconformities in order to control and correct them and deal with the consequences, in accordance with the ***Procedure for evaluating non-conforming product - material and documenting CARs***.

MSI has established a corrective action system to investigate, determine and document the root cause and actions necessary to correct supplier, internal, and customer-reported nonconformities. Corrective actions are assigned to a responsible individual and tracked by number and completion date according to the ***Procedure for evaluating non-conforming product - material and documenting CARs***.

10.3. Continual Improvement

MSI continually improves the suitability, adequacy, and effectiveness of the Quality Management System.

MSI considers the results of analysis and evaluation, and the outputs from management review, to determine if there are needs or opportunities to be addressed as part of continual improvement. Projects, project status, and responsibilities are recorded in the ***Continual Improvement Project Log*** for entries before 6/1/2016 and the ***B3 Log*** for entries after 6/1/2016.