Manitowoc Tool & Machining, LLC

Supplier Quality Assurance Manual

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Revision History and Approval

Rev.	Nature of changes	Approval	Date
A	Original Release	Rick Swoboda	5/8/18
B	Added additional Supplier expectations in alignment with AS-9100 requirements	Rick Swoboda	10/01/18
C	Change the Quality Policy to Rev. B (last page)	Rick Swoboda	9/4/20
D	Remove signature requirements	Rick Swoboda	12/8/20

1.0 Purpose and function of this manual

Vision

It is MTM's goal to develop a working relationship with our Suppliers that mirrors the Vision and Guiding Principles on which MTM's business philosophy is founded. The cornerstone to this relationship is the alignment of our expectation in a manner that ensures that our Suppliers understand that they are in partnership with MTM, thereby an extension of our company sharing the commitment to exceed our customer's expectations.

Purpose

The purpose of this Supplier Quality Manual is to specify MTM's quality management system requirements and to outline the minimum acceptance conditions for the areas addressed within the manual. This manual is to be considered the basic requirements for doing business with MTM; any additional requirements will be communicated as needed or will be addressed in other business related documents.

Scope

This manual only applies to product that is being supplied to MTM, either via direct shipment or through distribution. Any Supplier process that does not relate to material or services being provided to MTM is outside of the scope of this manual.

2.0 Foundation of Core Requirements

2.1 General

This manual was developed using the fundamental guidelines of ISO 9001:2015/ AS9100D

2.2 Basic Supplier Expectations

MTM expects members of its supply chain and their employees and representatives to act ethically at all times, and to be aware that they contribute to the safety and conformity of our products.

MTM, its customers and the governing regulatory authorities reserve the right of access to the applicable areas of your facilities and to applicable documented information, at any level of the MTM supply chain.

Design and development control rests with MTM customers and is not granted to Suppliers, except where customers note in writing.

No deviations or change from approved specifications, process or manufacturing location is permitted, unless prior written authorization is received from MTM or its customers.

In cases where approved sub-suppliers are designated on product drawings, specification or purchase orders, these sources must be used, counterfeit or potentially counterfeit items are not to be delivered to MTM nor are they allowed to be used in the Supplier's processes.

Requirements for Quality Management System and product specifications are to be flowed down to sub-suppliers.

Products produced or services rendered for MTM may have key characteristics or critical features denoted, these items are typically noted on customer product drawings, specifications, or on the PO.

When required by the purchase order the storage and shipment and shelf life shall be handled in accordance with appropriate requirements such as:

- *Cure of manufacture date*
- *Expiration date or shelf life*
- *Lot or batch number*
- *Any special handling or storage requirements*

There must be a minimum of 75% total shelf life remaining on all product delivered to MTM unless otherwise specified by contract.

MTM's basic Quality and Delivery targets for Suppliers are:

- **Maintain a level of PPM < 10,000**
- **100% On-Time Delivery**

It is MTM's expectation that their Supplier's develop processes and procedures to prevent the occurrence and/or re-occurrence of defects and strive to continually improve upon their processes.

PPAP development and the use of statistical tools are also recommended for all commodity types throughout the development of the production processes.

MTM also recommends the use of continuous improvement tools such as the use of

6 Sigma tool set, Lean practices, 8D Principles and 5S housekeeping activities.

2.3 Document Hierarchy

This manual defines the minimum requirements in conjunction with purchase orders, drawings and specifications. In the event of conflicting interpretations, the following order of precedence applies:

1. Purchase Order
2. Supplied Specification or Drawing
3. PPAP Requirements
3. Reference Documents/Signed Agreements/Data Sheets/Customer Certifications
4. MTM Supplier Quality Assurance Manual

2.4 Supplier Approval of Manual

All Suppliers shall review this entire manual, if the Supplier contests any section or element of this manual the Supplier must submit a "redline" copy of the manual to the MTM Purchasing Manager. It is MTM's intent to limit the amount of exceptions; thus all exceptions will be reviewed and negotiated by the appropriate MTM personnel.

Note: No verbal or unsigned agreements supersede the requirements documented in this manual.

2.5 Quality System/Certification Requirements

It is MTM's expectation that our Suppliers will strive to be compliant with the industry perceived development goals for the commodity type of the components being supplied. MTM's desire is to work with Suppliers that provide proof of certification to **either ISO 9001:2015/AS9100D** by an accredited registrar or a quality system certification appropriate for their commodity type.

If not certified, the Supplier must complete an MTM Supplier Evaluation Survey, and provide their quality manual or subsequent quality documents. An onsite assessment audit may also be required.

Additional certifications may be required based upon customer requirements, application of the product, legal or regulatory requirements, and/or national requirements.

2.6 Changes in Supplier Quality System Certification Status

In the event the Supplier's Quality System certification status changes, the Supplier shall notify MTM within ten business days of the change in status.

2.7 Documentation Language Requirements

In order to maintain documentation that is readily transferable and understood, all documentation relating to Quality and Business activities shall be provided to the MTM site in English. This requirement can only be waived by MTM with a signed agreement before PO acceptance.

2.8 Conditions of Purchase

Acceptance of the purchasing documentation constitutes acceptance of all requirement therein which may include the need for t*est specimens, if required by contract or specification*. Suppliers shall meet all Conditions of Purchase including the Terms and Conditions. If the Supplier is unable to meet these conditions, the MTM Purchasing Department must be notified in writing, prior to acceptance of the order.

The Conditions of Purchase will apply to each Purchase Order released by MTM. Failure to comply with the purchase requirements can result in the rejection of the received material, and the subsequent activities according to Section 5.0 Handling of Non-Conforming Material.

2.9 Record Retention Requirements

Quality records shall be maintained in a manner so they remain legible and retrievable upon request.

MTM specific record retention requirements are based on industry standards and specific customer requirements.

1. Automotive/Military/Aerospace programs shall be maintained for program life plus 10 years (special requirement may call for 40 years under Aerospace).

2. Medical programs shall be maintained for a period of the program life plus 7 year.

3. Industrial and other non-specified industries shall be maintained for a period of 5 years or industry standards retention timeframes, whichever is longer.

If the Supplier is uncertain of the industry in which their material will be used, they should contact their MTM purchasing contact for clarification/confirmation.

As a default, without specific knowledge of the industry that their parts will be used in, the Supplier shall comply with the number 1 for components provided to multiple industries, the longer of the retention requirements apply.

MTM requests the Supplier to keep records for defective components and assembly processes to highlight problem areas and trends.

2.10 Sub-Supplier Management

It is MTM's expectation that our supply base maintains responsibility for their Suppliers and provides direction and leadership to their supply base consistent with MTM's requirements.

The Supplier shall have a process in place to ensure their Suppliers' ability to provide defect free material per their delivery requirements. The Supplier shall ensure the timely response to quality concerns from their Suppliers.

If a situation arises where MTM must take an active role with our Supplier's sub- supplier, to address a specific concern, MTM will do so and will expect participation from our Supplier in said activities.

3.0 Supplier Deviation Request

3.1 General Supplier Deviation Request Process Requirements.

All products arriving at MTM is expected to meet all documented dimensional, physical, and visual requirements. No changes should be made in the product or process without signed approval from MTM.

Deviations must be formally approved in writing prior to the implementation and shipment of said change/deviation. The failure to obtain written approval prior to making any changes could result in immediate stoppage of product shipments and be subject to provide replacement product at the Supplier's expense.

If product does not meet the dimensional requirements or any change(s) that either alters/changes the process flow or has any impact on either the design condition or form, fit and function supplied component must be properly documented on the Supplier's Deviation Request form and be submitted for review/approval prior to implementation of the change.

The negotiation of expenses will be conducted by representatives of the MTM Purchasing, or Management groups for the facility(s) affected prior to changes.

Submission of a Supplier Deviation Request does not constitute authorization for a Supplier to ship the "changed" material. No shipments should be made until a signed Supplier Deviation Request is returned to the Supplier. All changes are subject to potential PPAP requirements.

3.2 Submission Expectations

The Supplier is expected to provide MTM with a detailed proposal of change(s) and include with the Supplier Deviation Request all appropriate testing and/or dimensional data associated with the change being submitted.

When data/testing cannot be accomplished without the implementation of the change, a detailed plan explaining the data that will be provided post change shall accompany the Supplier Deviation Request.

During the initial review, a determination will be made to approve, reject, or require additional actions or data, and the results of the review will be reported back to the Supplier via the Supplier Deviation Request.

If additional actions or data is required, a detailed list of the requirements will be communicated back via the Supplier Deviation Request. After the additional requirements have been met, the Supplier Deviation Request will be reviewed again to determine if it should be approved, rejected, or if further additional action is required.

The Supplier Deviation Request must include additional information covering the transition plan with timing, buffer stock planning/quantity (to ensure continuity of supply), and contingency plans are expected to be submitted with the Supplier Deviation Request..

3.3 Shipping Material requiring Supplier Deviation Request Sign off

No material subject to a Supplier Deviation Request can be shipped until the Supplier has been notified in writing of MTM approval.

The initial shipment under an approved Supplier Deviation Request must consist of 100% post-change material and must be identified in such a manner that it clearly identifies the Supplier Deviation Request number.

A note must also be added to the packing documents identifying the Supplier Deviation Request number. Also labeling on the outside of the packaging must identify the approved Supplier Deviation Request number and be as large as practical**.** MTM prefers 8-1/2” x 11” sheets placed on all 4 sides of a skid.

Once the initial shipment of product under an approved Supplier Deviation Request has been made, no material made prior to the change can be shipped to MTM without written approval from the MTM site(s) that has approved the Supplier Deviation Request.

If pre-change material is received after the initial shipment of the changed material without the approval of the MTM facility, the material can be considered to be non- conforming material and be handled according to section 5.0 Handling of Non- Conforming Material.

The Supplier shall be liable for costs associated with unapproved changes and shipments. It is the responsibility of the MTM Purchasing/QA Coordinator and the Supplier to review, negotiate, and agree to such costs on a case-by-case basis.

These costs can consist of, but are not limited to, any combination of the following conditions:

- Rework,
- replacement,
- line down time,
- personnel support/labor costs,
- scrap induced by the unapproved material.

4.0 Supplier Corrective Action Report (SCAR)

4.1 Overview of the 8-D method

When a Corrective Action is requested, the method of documenting this process needs to follow the standard 8-Steps discipline (8D).

The 8D method consists of:

- identification of team members
- detailed description of the problem
- containment action
- interim corrective action(s) failure analysis,
- detailed root cause analysis
- reason the defect was not contained
- permanent corrective action(s) with steps taken to prevent reoccurrence
- verification that changes are implemented and permanent
- congratulating the team

All steps are expected to be provided as the Corrective Action is processed and regular updates are expected to be forwarded to MTM.

4.2 Containment Requirements

Containment must be established, documented, and reported to MTM within 24 hours of receipt of the initial notification of a Supplier Corrective Action Request (SCAR).

This containment must include and identify all suspect material, i.e. at any MTM manufacturing site, in transit to any MTM manufacturing site, and at the Supplier location.

The Supplier must notify MTM of when the containment actions have been implemented and when certified material will be available.

4.3 Interim Corrective Action

The Supplier shall identify what process and procedures that will be temporarily put into place to ensure immediate product is conforming to all documented requirements.

In situations where the proposed corrective action will require a change to the manufacturing process or component design, a Supplier Deviation Request will be required.

The Supplier Deviation Request must reference the SCAR number when describing the reason for change.

4.4 Failure Analysis Requirements

The Supplier shall perform Failure Analysis on units returned by any MTM facility. The failure analysis timeframe has an initial response due within 48 hours of receipt of the suspect component.

The timeframe begins upon the supplier's receipt of either the defective/suspect material, or upon receipt of photographic evidence or a written definition sufficient to allow for the Supplier to effectively review, investigate, and determine the root cause of the occurrence.

The Supplier's results during the analysis should be available to MTM upon request for review.

4.5 Defining the Root Cause

Root Cause analysis should utilize tools such as PFEMA's, Fishbones, 5Y's, IS/IS NOT, flow charting, process charting, brain storming, etc.

The Supplier should include the results of the tools used in the submission of the SCAR. Not all tools are expected for every SCAR but when used it is expected to be sent with the SCAR.

4.6 Permanent Corrective Action

Changes made to product for permanent corrective action must be shared and accepted by MTM. All formal documentation must be made to the processes and submitted with the SCAR. (PFMEA's, flowcharts, work instructions, control charts, Quality Alerts etc.…).

Proof of verification may also be requested such as inspection results, audit reports, pictures, before the SCAR is closed. Periodic and timely progress updates shall be provided to MTM while the SCAR is being worked on through the different stages.

Notification of approval from MTM shall be given upon satisfactory completion of the corrective action and review of product at MTM.

Note: "Non-Conforming Reports" may not require a full or formal 8D, but do require the Supplier review the issue/defect and determine if a CA is necessary, and provide the MTM facility with the results of the analysis and a description of CA if one is implemented.

5.0 Handling of Non-Conforming Material

5.1 General Requirements

Nonconforming products or services are not to be delivered to MTM without prior documented approval.

Once approved, the Supplier Quality Engineer/Project Engineer will work with the Supplier to determine the appropriate actions.

These negotiations may include, but are not limited to any of the following actions:

- Provide Priority Material to replace the non-conforming material
- Authorize return of the suspect material to the Supplier for sorting
- Choosing the resources to sort the suspect material
- Cost of the non-conforming material at the MTM facility/Customer facility

6.0 Notification of possible quality spills

6.1 General Requirements

In the event the Supplier discovers or suspects a shipment of non-conforming material, the Supplier shall notify MTM Supplier Quality Engineer/Project Engineer of the potentially suspect material delivery.

The notification must include a detailed definition of the suspect/non-conforming condition as well as information concerning the number of suspect parts, date codes, lot numbers and any unique identifiers of the suspected material.

The Supplier shall provide a plan for handling of non-conforming material and initiate a corrective action to address the non-conforming issue. Reference Section 5.0 Handling of Non-Conforming Material

7.0 Certificate Requirements

7.1 General Requirements

When a Certificate of Analysis **(C of A)** or Certificate of Compliance **(C of C)** is specified either in the purchase order or the applicable specifications/drawings, the Supplier shall provide a valid certificate with each shipment certifying that the material meets all contract requirements.

The C of A's or C of C's must be sent to suppliercerts@mantool.com prior to the shipment of product. Failure to do so could result in potential grounds for rejection of the shipment.

Acceptance of material based on a Supplier certificate, does not exclude MTM from subsequent rejection due to any nonconforming attribute or characteristic. Failure to supply the certificate when required is potential grounds for rejection of the shipment.

Results of tests must be actual data that represents the lot of material shipped. The specific test data required shall be noted in either the MTM Purchase Order or on the product print/specification sheet.

To be considered valid, a (**C of C)** shall include:

- Lot Number and/or Date Code
- Date of shipment
- MTM PO number
- Quantity shipped
- MTM part number specified
- Statement certifying compliance to contract requirements
- Supplier's authorized signature, certifying compliance to requirements
- Indication of material UL compliance, when applicable

8.0 Management of MTM Tooling

8.1 General Requirements

Tooling items, both MTM owned and MTM's customer tooling under the supervision of

MTM, will be permanently identified for ownership visibility.

The Supplier is responsible and liable for the tooling item, immediately upon receipt. This includes cleanliness, preventive maintenance, storage and handling of the too and FOD control. If there is an item of concern upon receipt of tool identify this concern immediately with MTM.

8.2 Tracking of Tools at the Supplier's Site

The Supplier shall maintain the following information for MTM / MTM customer owned tools:

- Tool or tool order number
- Description of the tool
- Receiver or owner of the tool
- List of MTM customer owned tools
- List of MTM owned tools
- Location of tool in house
- PM/Audit for cleanliness, FOD and repair

In the case that MTM sends tools to a Supplier with the tool number already engraved on the tool the Supplier shall record data based on the pre-identified number or provide correlation thereof.

8.3 Changing of a MTM Tool Status

The MTM Purchasing Contact shall be immediately notified of any change to the functionality of the tool or any issue that might affect quality or delivery of product produced. Modifications and change of location shall require the submission and subsequent approval of a Supplier Deviation Request prior to the initiation of the change.

The Supplier shall obtain written approval prior to scrapping any MTM or MTM supervised tool.

9.0 Supplier Score Card

9.1 General Requirements

Score cards are issued to select Suppliers and Supplier's performance will be continually evaluated by any MTM facility receiving product from the Supplier, with emphasis on the following:

- Quality
- On-time delivery
- SCAR's
- Supplier Discrepancy reports (SDR's)

Any discrepancies seen in the review of the information should be resolved with MTM's Supplier Quality Engineering. MTM may reverse or change scoring with proper documentation provided.

9.2 Score Criteria

Each section of the score card is given a specific number of points available. The points from each section are then added and a percentage is calculated from the total available points.

An A, B, C, D or F is then assigned based on the following breakdown:

- 90 to 100 Excellent "A"
- 80 to ≤ 89 Good "B"
- 70 to ≤ 79 Fair "C"
- 60 to ≤ 69 Critical "D"
- < 59 Fail "F"

9.3 Supplier Performance Expectations

The Supplier shall define, document and implement systems that support a product nonconformance rating of 10,000 PPM maximum and on-time delivery performance rating of 100%. Zero past due SCAR's and not more than 4 SDR's issued in one quarter.

When any of these expectations are not met, the supplier may be requested to implement internal corrective actions to address the deficiencies.

10.0 Supplier Audit

10.1 General Requirements

A Supplier Quality Assessment and process audit may be conducted by MTM representatives, at the Supplier's manufacturing location, prior to the issuance of a purchase order or if quality and/or delivery issues arise.

The purpose of the audit is to verify that the Supplier has the manufacturing and supporting processes appropriate to produce a component that meet both the quality and delivery requirements requested.

Corrective Actions may be generated as a result of any audit activity. Proper closure of all corrective actions issued is mandatory. All deficiencies identified during an assessment audit that require corrective action shall have their corrective actions initiated before an acceptable rating can be given. The Supplier's commitment to correction of the deficiencies identified during the audit will be a factor in determining overall acceptability of the Supplier.

If corrections cannot be implemented immediately, the Supplier shall submit a plans for correction, including agreeable timing (detailed Gantt charts are preferred) to MTM for review and approval following the completion of the audit.

The optimum situation is to provide timing/target dates during the closing meeting. At a minimum, corrective action plans shall be submitted within 10 days from the receipt of the audit report.

Subsequent Quality System surveys may be required based on the results of the initial assessment. The frequency may be adjusted based on historical performance. Once corrections are made, a follow-up survey and detailed process audit may be scheduled to confirm the effectiveness of the corrective actions.

11.0 Workplace Cleanliness and Safety

11.1 General Requirements

Plant cleanliness and working conditions are to be conducive to manufacturing a quality product and providing for quality improvement. Housekeeping initiatives such as 5S or general cleanliness activities are highly recommended.

Preventive maintenance and cleaning schedules shall be established for the production, inspection, and testing areas producing material for an MTM facility. This will be reviewed to determine the "on time" commitment can be achieved. Such schedules are to be rigorously followed and objective evidence maintained.

The Supplier shall have a process to ensure compliance with all applicable government safety and environmental regulations, including those concerning handling, recycling, eliminating or disposing of hazardous materials and business abroad. Exposure to unauthorized materials may make the product produced un-usable for sale. MTM is abreast of FAA alerts, OASIS data base, IAQG and DFARS.

12.0 Packaging, Labeling & Handling

12.1 General Requirements

In-process and finished product shall be appropriately packaged to protect it from damage. Supplier provided packaging shall meet applicable shipping laws, codes and regulations, and must be qualified to International Safe Transit Association (ISTA) test standards as appropriate.

All shipments shall be packaged or placed in a new container unless otherwise specified.

The use of returnable containers will be reviewed on a case by case basis. When returnable packaging is to be utilized, the Supplier is to ensure that it is clean and free from dirt, debris, foreign materials and damage, prior to utilization. Returnable packaging that is not clean and free from dirt, debris, foreign materials or damaged, may be grounds for rejection of the material lot. Supplier employee training in relationship to Foreign Object Damage is recommended. Videos are found on line at no cost.

Damaged/dirty returnable packaging shall be repaired, cleaned, or replaced as appropriate.
Each shipment shall be marked with the following information, or have the information encoded into a barcode method/dot peens stamping approved by MTM:

- MTM P.O. number
- MTM part number
- Manufacturer part number
- Manufacturer name
- Date Code
- Engineering change/revision level
- Quantity
- Lot Code
- Number of boxes (in the shipment)
- MTM site name, and address

Packing slips shall be attached to the carton exterior in shipping envelopes.

12.2 Special Labeling of Shipments

The initial shipment of product shipped under an approved Supplier Deviation Request, PPAP, EC, or control ship, must be labeled as such.

Any unique tracking number supplied by the MTM site to the Supplier shall be placed on the material label, or attached to the material, in such manner that makes it clearly visible.

A note shall also be added to the packing slip identifying the Supplier Deviation Request number, EC, PPAP, control ship, or MTM tracking number, as well as the MTM contact name.

Product shipped after sorting or rework by the Supplier shall be labeled as such. The label shall state sorting or rework preformed and date preformed.

13.0 Production Part Approval Process (PPAP)

13.1 General Requirements

Suppliers of material requiring a Production Part Approval Process **(PPAP)** shall comply with all MTM specific requirements.

When a PPAP is required, the supplier shall not ship production intent material prior to PPAP approval, unless MTM has given written authorization.

The guidelines for PPAP submittals are based on the manuals published by the AIAG. It is recommended that the Supplier use the AIAG formats for their PPAP documents or final customer specific forms when required.

MTM requires a Level 3, unless otherwise agreed in writing, submission for all initial submittals, unless otherwise specified.
MTM can request PPAP submittals for any component, independent of commodity, application requirements, or standard practices based on either MTM or MTM's customer requirements.

PPAP requirements will generally apply for custom components for use in medical, aerospace, industrial, or automotive applications.

Parts from each unique production process, duplicate assembly line and/or work cell, each position of a multiple cavity die, mold, tool or pattern, shall be measured/analyzed and results provided with the submission.

If a Supplier has been issued a Purchase Order that requires a PPAP for a submission level other than Level 3, or for any activity other than an annual revalidation PPAP, information will be provided to identify the specific elements being requested. If one is not provided, the Supplier is to contact their MTM Purchasing Contact and/or the Supplier Quality Engineer for the MTM facility requesting the PPAP.

The Supplier shall maintain all applicable PPAP elements/records for each part, or family of parts, regardless of the part submission level, and they shall be readily available, when requested.

13.2 PPAP Documentation Requirements

MTM'S specific document requirements and retention/submission requirements will follow the guidelines established in the AIAG Production Parts Approval Process (PPAP) Manual.

All documents shall clearly identify the part number and revision level. If the submittal represents specific cavities or tooling, the documentation shall reflect the cavity or tooling numbers used.

13.3 MTM Specific/Additional PPAP Requirements

The marked/ballooned print shall include all dimensions, notes and other requirements identified with sequential numbers. The purpose of this print is to have a unique identifier for each element on the print that can be compared to other required documentation such as the dimensional layout report. The Ballooned Print must be of the most recent revision officially released by the MTM Purchasing Department from the facility requesting the PPAP.

Where engineering specifications require product validation testing the Supplier will be required to include a documented test plan. This validation plan shall include details for each characteristic being evaluated, test facility, start date(s) and target completion dates. Refer to AIAG/APQP manual section on DVP&R (Design Verification Plan and Report).

All processes must be supported by documented procedures that insure compliance to all related specifications, and will need to be uniquely identified within the process flow diagram, process FMEA, control plans, and any appropriate supporting documentation.

Once the initial PPAP has been approved, the addition of any rework, salvage or reclaim operations can only be done via the Supplier Deviation Request process.

13.4 Annual Recertification Requirements

When notified by MTM, the Supplier shall submit a Level 3 revalidation PPAP consisting of, at the minimum, a PSW, and capability studies for all features defined as critical on the print. Additional requirements such as Complete Dimensional and/or Function/Electrical analysis of the component may be requested on an as needed basis.

13.5 Submission due to Approved Supplier Deviation Request

Once the initial PPAP has been approved, the addition of any rework, salvage or reclaim operations can only be done via the Supplier Deviation Request process

A submission may be required for any changes to a production process, design record, specification, or material. See section 3.0 Supplier Deviation Request and the AIAG/PPAP manual for clarification of general requirements.

13.6 Requirements for PPAP Approval

Items indicated on the PPAP Checklist must be provided to achieve PPAP approval. Details on AIAG requirements are outlined in the AIAG/PPAP manual.

Any result(s) or finding(s) outside the specification limits is potential cause for rejection. Every possible action needed to correct the conditions is to be taken to ensure the part meets all design requirements prior to the initial PPAP submission.

If the Supplier is unable to meet any of these requirements, they must contact the Supplier Quality Engineer to determine the appropriate action(s) to be taken prior to submission.

Inspection and testing shall be performed by a qualified laboratory. If a commercial or independent test lab is utilized it must be an accredited facility.

The Supplier shall submit both the test results from the laboratory and the standards used to

determine the validity of the testing activity. A copy of the laboratory's certification must be included in the submission.

Blanket statements of conformances are unacceptable as test results.

Once the submittal is approved, a MTM representative will return the signed copy of the warrant to the Supplier for historical documentation.

13.7 Rejected PPAP Submittals

The Supplier will be notified by a MTM representative of all discrepancies or deficiencies noted within the PPAP documentation. Formal Corrective Action(s) may be required for rejection due to incomplete or inaccurate documentation, and/or out of specification conditions or non-capable conditions.

14.0 Designation and Control of Special Characteristics

14.1 General Requirements

The purpose of this section is to establish the requirements for the control of both MTM and MTM Customer designated Special Characteristics (SC, CC, DC).

In the event that Special Characteristics are determined to be necessary, MTM will assign its own designators to those features per the matrices or use existing end customer markings on the print. This will be accomplished via either a MTM print or Engineering Change (EC).

All statistical data must be representative of the entire production population and reflect how the parts will be received at the MTM facilities. Where multiple product streams and/or cavities exist, the statistics used to describe the population must include all possible sources of product variability. The Supplier may submit separate capability studies for each cavity to identify the capability of the individual cavities

SC features that identify multiple features such as hole patterns, mounting bosses, and pin locations require a separate capability study for each unique condition. This can be negotiated based on the number of studies required, and the Supplier may request the number of required samples taken be reduced. Statistical data and reports shall be transmitted at the frequency specified in the matrices.

It is the expectation of MTM that the AIAG guidelines be utilized in the development of the product Quality Plan, which includes the methods and controls for addressing Special Characteristics.

15.0 Capacity Verification

15.1 General Requirements

The primary purpose of capacity verification is to determine/identify bottlenecks within the manufacturing process that could impact the Supplier's ability meet MTM's on time delivery requirements.

MTM may request/require capacity studies be performed, at any time during the program, for many possible reasons, not limited to those listed below.

- Capacity verification for new or current programs (required for custom parts).
- Capacity verification related to potential program increase and delivery concerns.
- Evaluation of new equipment.
- Verification following equipment moves or manufactures line re-arrangements.

15.2 Capacity Verification Production Run Requirements (Run at Rate)

Capacity Verification (Run@Rate) shall be performed during a significant production run at the actual manufacturing site and will be conducted using the tooling, gauging, processes, materials, and operators that will be utilized during normal production.

All production processes, duplicate assembly lines or work cells, and each location of a multiple cavity die, mold, tool or pattern must be utilized, if possible, during the review.

The production run quantity requirements shall be at the discretion of MTM, based on the Suppliers

input; but at a minimum, will consist of one hour.

The run verification will be conducted by the Supplier and all documentation supporting the run will be provided to MTM at the completion of the review.

The Supplier is expected to address any limiting factors, or processing constraints, identified during the review and to take appropriate corrective actions to address productivity and efficiency.

16.0 Manufacturing Feasibility Statement

16.1 General Requirements

The Manufacturing Feasibility Statement is a commitment by a Supplier that the component's proposed design can be manufactured at a **quality level of zero defects**, while meeting all capability requirements, and shipped at a rate consistent with the production requirements.

The feasibility analysis shall be based on a specific engineering change/revision level for the applicable drawings and/or specifications associated with the product. Design changes/revisions will need to be review independently.

Manufacturing Feasibility Statements are not currently required by MTM

17.0 ROHS Compliance and End of Life Vehicle (ELV) Reporting (where applicable)

17.1 General

MTM is committed to doing business with environmentally responsible Suppliers and requires its Suppliers to comply with all applicable laws, regulations, orders, and policies in providing materials and services to MTM.

17.2 ROHS Compliance

The Restriction of the Use of Certain Hazardous Substances (RoHS) Directive,

2002/95/EC of February 13, 2003, was enacted by the European Community to minimize the impact of End of- Life equipment on the environment. The Directive bans the use of lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE) in equipment sold in the European Union beginning July 1, 2006.

17.3 The End-of-Life Vehicle (ELV) Directive

The 2000/53/EC of September 18, 2000, was enacted by the European Community to minimize the impact of End-of-Life vehicles on the environment. The Directive prohibits the use of lead, mercury, cadmium, and hexavalent chromium effective July 1, 2003, subject to only certain exemptions listed in Annex II (2002/525/EC-27 June 2002).The ELV Directive also seeks to prevent waste from vehicles by ensuring reuse, recycling, and other appropriate recovery means. In response to this directive the automotive OEM must confirm the substance ban is being observed and must also know the composition of all parts and materials in the vehicle as well as the location in the vehicle of any parts and materials containing certain hazardous substances.

17.4 Reporting Requirements

In response to the requirements of the ELV and other potentially forthcoming directives, automotive OEMs are mandating that Suppliers report 100% of the material composition as well as recycled content for all parts and materials shipped to them and going into vehicles marketed globally. The International Material Data System (IMDS) was adopted by the automotive OEMs to house the required data. To support the data collection process, the Automotive Industry Action Group (AIAG) developed a common set of rules and formats and implemented them with the Compliance Connect ™ Excel workbook.

18.0 Material Age

18.1 General Requirements

It is MTM's expectation that all material be compliant with the purchase order, revision levels, and has a manufacturing date code as recent as FIFO. It is MTM's intent to limit the age of material received at any MTM facility to be within 2 years of the manufacturing date. MTM facilities will not accept receipt of material that has a date codes older than 2 years of the date of purchase, without a MTM approved. An approved copy of the Supplier Deviation Request must be included with the shipment.

Specific requirements beyond the 2 year limitation will be based on the individual parts and/or programs, and will be reviewed/established as early in the program development as possible. When specific age

limitations are required, the Suppliers should be actively pursuing opportunities to improve/extend the usable life of the parts.

19.0 Safe Launch

19.1 General Requirements

The purpose of the Safe Launch activity is to ensure the success of the product launch, for custom material. By increasing the inspection frequency on key processes and/or adding additional inspection actions for elements that have been identified as a potential risk, the objective is to identify issues prior to creating non-conforming material. The heightened manufacturing conditions remain in place until the program has been proven to be capable and the parts being created meet the needs and expectations of the customer.

SPC with trend analysis for the SC/CC features shall be provided on a per run basis. Failure Analysis for all defective components found at MTM and at MTM's customer will be required, and may need corrective actions implemented for issues determined to be Supplier related.

20.0 Controlled Shipment

20.1 General Requirements

Should a situation arise where MTM must take an active participative role in ensuring that the material being supplied to any MTM facility meets the required quality level, that Supplier shall be placed on a Controlled Ship status. The issue or issues that are creating the need for the Controlled Ship status will be clearly communicated to the Supplier and an agreement detailing the specific actions required by the Supplier will be negotiated and agreed to by all parties involved.

Control level is based on the severity of the issue and determines who will provide the resources to accomplish the inspection activities.

Under Control Ship status, material must be 100% inspected against the components standard requirements or a specific agreed to inspection plan.

Material must be properly labeled with all appropriate identifications.

Control Ship conditions will remain in place until the corrective action for the issue has been implemented and verified effective by MTM.

Manitowoc Tool & Machine (MTM) Quality Policy

M – Maintain and Improve a Quality Management System based on the ISO 9001/AS9100D Standard

T – To Meet or Exceed our Customer's Expectations regarding Quality and Delivery

M – Monitor our Customer Satisfaction and Continually Improve Through Employee Involvement

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