

Nidec  **Merkle-Korff Industries**



Global Supplier Quality Process Manual

Quality Processes for Suppliers to Merkle-Korff Industries

Abstract

This document contains quality requirements for suppliers to Merkle-Korff Industries and provides an explanation to the Merkle-Korff Industries quality assurance process and part approval procedure.

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Our Suppliers

At Merkle-Korff Industries, we recognize the important role our suppliers have on our ability to exceed our customers' expectations. We rely on our suppliers' commitment to quality, culture of continuous improvement, and industry expertise to meet our growing market demand, and therefore our suppliers' quality processes must be an extension of our own operations. It is together that we achieve our success.

1 Introduction

1.1 Purpose

The purpose of this manual is to specify Merkle-Korff Industries requirements for suppliers of direct material and/or services.

1.2 Scope

This Manual applies to all suppliers of direct materials/components/services to Merkle-Korff Industries.

1.3 Suppliers

Merkle-Korff Industries suppliers are defined as providers of production materials, or production parts, or production components directly to Merkle-Korff Industries organization.

Also included are organizations who are providers of heat-treating, plating, coating, welding, soldering or other finishing services.

The term "sub-supplier(s)" refers to suppliers who provide Merkle-Korff Industries direct suppliers.

1.4 Responsibility

Suppliers shall understand and commit to meeting all requirements of this manual.

Failure to meet the requirements set forth in this manual may result in the loss of existing and/or future business with Merkle-Korff Industries.

Suppliers shall demonstrate a strong quality philosophy as follows:

- ISO quality system management
- 100% on time deliveries
- No more than 3 failures per one million opportunities
- Quick responsiveness per quality procedures outlined here within.
- An effective Continuous Improvement program.
- Comply with Merkle-Korff Industries Packaging/ Labeling Requirements.
- Comply with Safety, Government and Regulatory Requirements.
 - Conflict Minerals Reporting
 - IMDS Requirements
 - RoHS
 - REACH
 - Trade Compliance Requirements

2 New Supplier Pre-requisites, Selection Rules, and Status

2.1 Quality System

- In order to manufacture and deliver high quality products and services, an efficient quality system is crucial to:
 - Guarantee the reliability of the tasks performed as well as the information communicated (especially at customer/supplier interfaces)
 - Drive continuous improvement
 - Ensure the continuity of the organization know-how
 - Ensure process stability and materials/components quality
- This quality system shall be based on:
 - ISO Requirements
 - A development in line with Merkle-Korff Industries Supplier Manual Requirements,
 - A clearly defined and expressed quality policy and objectives.

2.2 New Supplier Requirements

- Before any business can be awarded from Merkle-Korff Industries, a new supplier shall successfully pass the supplier qualification process.
- Throughout the supplier qualification process, new suppliers will verify one or more of the following, as instructed by Merkle-Korff Industries:
 - Demonstrate compliance to ISO 9001 standard
 - Complete an on-site supplier audit
 - Meet all commercial and financial requirements
 - Meet all legal requirements
 - Demonstrate capability and capacity to conform to Merkle-Korff Industries customer requirements
- Regarding today's environmental context, Merkle-Korff Industries strongly recommends new suppliers to be ISO 14001 registered.

2.3 New Supplier Integration Process

2.3.1 The Quality System: ISO 9001 Registration

- Unless otherwise specified, all suppliers shall be third party registered to ISO 9001. This registration shall be done by an accredited third-party certification body.
 - Any exception to this registration must be formally approved by Merkle-Korff Industries Purchasing Director and Merkle-Korff Industries Director of Quality.
- Suppliers shall inform Merkle-Korff Industries of the suspension or the expiration of its certificate(s) of registration within 10 days after the event.
- Suppliers shall systematically issue a copy of the new certificate(s) of registration when received or requested.

2.3.2 E-Business Capabilities

- E-business requires e-mail, internet access and internet browser technology.
 - For additional business within the Nidec Group, Suppliers are required to set up an online account with the Nidec Supplier Portal. Here Suppliers will be able to access several additional e-business tools.

- Information pertaining to the Nidec Supplier Portal is available upon request.

2.3.3 On-Site Audit Checklist

- On-site supplier audits are conducted to assess suppliers' systems and processes, and to provide Merkle-Korff Industries with a clear understanding of the Supplier's ability to perform to customer requirements.
- The on-site audit will result in a trip report and a score in each of the following areas below. A copy of the report will be distributed to the supplier after the audit has been reviewed by Merkle-Korff Industries Supply Chain and Quality Management.
- On-site audits are broken down into the following elements:
 - 1.1 Manufacturing Process Flow
 - 1.2 Manufacturing Technology
 - 1.3 5S & General Housekeeping
 - 1.4 Handling, Storage, & Packaging
 - 1.5 Statistical Process Control
 - 1.6 Preventative Maintenance
 - 1.7 Measurement Equipment & Measurement System Analysis
 - 2.1 Identification of Key Processes
 - 2.2 Recording & Analysis of Key Performance Metrics
 - 2.3 Engineering, Design, Development, & Support
 - 2.4 Quality Planning & APQP Process
 - 3.1 Material Planning & Scheduling System
 - 3.2 Logistics
 - 3.3 8D Process
 - 3.4 Continuous Improvement
 - 3.4 Industry Involvement and Expertise
 - 3.5 Certifications & Awards
 - 3.6 Efficiency and Cost Reduction

This chart below summarizes general scoring criteria utilized during on-site visits.

Score	Panel validation	Explanations	Follow-up	Supplier Risk Assessment	Supplier action plan
5	YES	Benchmark, supplier meet or exceed Merkle-Korff Industries requirements	Continued according to audit plan	Minimum risk	Continuous improvement
4	YES	Satisfactory, supplier is able to meet Merkle-Korff Industries requirements	Continued according to audit plan	Low risk	Send action plan within 2 weeks after audit report date
3	YES with precaution/ NO	Supplier needs improvement to meet Merkle-Korff Industries requirements	Re-audit within 6 months is mandatory with results > 3	Intermediate risk	Send action plan within 1 week after audit report date
2	NO	Unsatisfactory Supplier is not able to meet Merkle-Korff Industries requirements	Re-audit within 12 months	High risk	Send action plan within 1 week after audit report date
1	NO	No reliability guaranteed Supplier is not able to meet Merkle-Korff Industries requirements	Disqualify	Very high risk	Start re-qualification / new supplier is not selected.

3 Commercial and financial requirements

3.1 Purchasing Terms

- Unless otherwise agreed in writing, the General Terms and Conditions of Purchase of the buying site shall apply to all purchases made by Merkle-Korff Industries whether they are for tools, machines, equipment, parts, raw materials, other materials, or services.
 - General Terms and Conditions will be provided with requests for quote.

4 Legal requirements

4.1 Government Regulatory Compliance

- Suppliers shall comply with all applicable governmental regulations. These regulations relate to workers health & safety, environment protection, toxic & hazardous materials, and free trade.
- Suppliers shall recognize applicable government regulations might include those of the country where the materials/components are manufactured as well as those of the country where the materials/components are sold.
- In particular suppliers shall fulfill requirements according to:
 - Registration, Evaluation, Authorization and Restriction of Chemical legislation (REACH),
 - Restriction of Hazardous Substances Directive (RoHS)
 - Conflict minerals registration
 - IMDS Requirements
 - Trade Compliance (NAFTA / Country of Origin Declarations)
- Suppliers shall provide Merkle-Korff Industries with copies of all data or information issued to a government entity which concerns materials/components supplied to Merkle-Korff Industries. This includes test, manufacturing, field performance or warranty data.

- Suppliers shall provide these copies within 10 working days after the date of submission to the government entity.

5 Merkle-Korff Industries Supplier Requirements

- The supplier, together with Merkle-Korff Industries, analyses materials/components design to ensure that functional APQP process is followed.
- After being awarded business, Merkle-Korff Industries Team will determine the level of the APQP process which is required to be completed.
- The APQP process describes a set of activities performed throughout a schedule to ensure that materials/components provided to Merkle-Korff Industries plants meet customers' specifications and achieve expected capacity level.
- For more information please consult the Advanced Product Quality Planning and Control Plan published by the AIAG.
- Any Merkle-Korff Industries supplier may be required to participate in the APQP process. Alternative process and forms must be validated by Merkle-Korff Industries.

5.1 PPAP

- The supplier shall be responsible for the following:
 - Completion of the PPAP documentation contained in the Nidec-MK PPAP Template
 - Issuance of sample product to the Merkle-Korff Industries manufacturing facility for visual inspection and dimensional verification.
 - Completion of any corrective action activities outlined by the PPAP engineer as necessary to gain approval of the First Parts Approval submission.
 - Notification to the Merkle-Korff Industries commodity manager of any changes which may affect fit, form or function of the product it supplies to the Merkle-Korff Industries

5.1.1 Triggering Events – When may a PPAP be Required?

- Engineering creates a new part or modifies an existing part
- Supplier notifies Merkle-Korff Industries Procurement that a new die on an existing part is needed
- Supplier modifies, reworks or repairs an existing die – (excluding routine maintenance)
- A sourcing change by the Merkle-Korff Industries
- An engineering change to an existing part number
- Use of an alternative material for an existing part number
- Appearance complaint
- A significant change to the supplier's manufacturing process
- A change to the supplier's secondary suppliers for subcontracted manufacturing processes
- A change in manufacturing location – relocated tooling & equipment
- A significant gap in production – supplier has not produce the requested production parts in the last 12 month period
- Reactivation of tooling that has not produced the requested production parts in the last 12 month period.
- At the request of Merkle-Korff Industries

5.2 Process Flow Chart

- The supplier shall use a process flow diagram to describe and to map related to a process.
- The process flow chart shall:
 - Define the critical processes which dictate the level of quality of purchased products.
 - Reflect all operations which include special characteristics.

5.3 Control Plans

- Unless otherwise specified, the suppliers shall use the AIAG APQP as the basis to create its control plan.
- The supplier shall understand, apply and update process and product control plans which provide a documented description of the method used to minimize process and product variation respectively.
 - A product control plan ensures product conformity to Merkle-Korff Industries' specifications including its special characteristics, tolerances and other important characteristics for control,
- Process and product control plans shall:
 - Properly reflect steps and flows reflected in the Process Flow diagram and PFMEA,
 - List current process controls

5.4 Special Characteristics

- Special characteristics are all product characteristics or process parameters which affect safety or regulation, or whose variations impact the manufacturing process.
- According to the ISO requirements, all special characteristics shall be identified and specifically addressed in the, control plan, Process Flows, Work Instructions and other associated documents.
- Merkle-Korff Industries clearly identifies its special characteristics on drawings/specifications in Critical to Quality (CTQ) Features on Prints. (Engineering Standard 3.17.1)
- The supplier shall understand the usage of its materials/components and also identify special characteristics accordingly.
- The supplier is responsible to ensure that sub-suppliers explain, understand and control all relevant special characteristics.
- As identified in the below table, Merkle-Korff Industries defines several levels of special characteristics, including:
 - Safety / Regulation Characteristic,
 - Significant Characteristic,
 - Functional Characteristics,

5.5 Measurement System Analysis (MSA) requirements

- The supplier shall conduct R&R gauge studies on equipment used on critical characteristics.
- Attribute gauges R&R results are defined as follows:
 - Gauge R&R <10% is acceptable,
 - $10\% \leq \text{Gauge R\&R} \leq 20\%$ may be acceptable based on importance of the gauge,
 - R&R >20% is rejected unless otherwise agreed upon in writing
- The supplier shall implement corrective actions for all rejected items.

5.6 Special Characteristics Capabilities Requirements

- Merkle-Korff Industries requires from the supplier clear understanding and application of capabilities:
- CpK (process capability index) is used to determine long term process capability. Assuming a stable process, this capability measures how close the process is running to its specification limits.
- The characteristic must be stable and statistically in control as demonstrated using statistical process control charts before capability studies can be performed.
- Special characteristics require specific levels of special controls and process capability:
- The supplier shall implement controls for all special characteristics defined on Merkle-Korff Industries drawings.
- During the initial process study, the supplier shall provide Merkle-Korff Industries with a capability report for all special characteristics.
- Additional characteristics considered to be “predictors of process stability” should also be identified in the production control plan by the supplier.

5.7 Traceability

- The supplier shall implement an identification system with lot traceability. It will provide Merkle-Korff Industries with a Traceability Plan to execute efficient lot control in the event a contaminated population has been identified.
- The supplier should be able to trace the status of products manufactured under similar conditions (same raw material lot, same manufacturing line/batch, etc.).

5.8 Production transfer

- The supplier shall submit a process change request to Merkle-Korff Industries.
- The supplier cannot initiate a production transfer without Merkle-Korff Industries change request approval before the transfer.
- The supplier shall follow the APQP process as described in this manual.
- The supplier shall formally agree with Merkle-Korff Industries SQE on the PPAP resubmission level and content requirements.

5.9 Packaging and Labelling








5.9.1 Packaging

- Failure to properly package or label material may result in damaged or misused product; therefore, suppliers are expected to treat packaging and labelling with the same care as any other quality characteristic.
- Boxes shall not weigh more than 35 lbs.
- Gaylords shall not weigh more than 2500 lbs.

5.9.2 Labelling/Bar-Code

- All suppliers are expected to follow the steps outlined in the Merkle-Korff Industries Label Standard to receive labelling approval:
 - Labels should be in compliance with AIAG B-3, which is common to most label printing software.

- Any questions or exceptions needed should be directed to your Supplier Quality and Procurement Representative
- Suppliers are expected to use approved labels on all shipments
- Labels should be placed at the top left-hand side of each individual box.
- When palletized, box labels should face the outside of the pallet for easy access.
- Labels should appear as the example below:

PART NO. (P) 2260150777 		D-ITEM	
QUANTITY (Q) 2240 		DESCRIPTION 9V DC MOTOR	
SUPPLIER (V) 910275 		MFG. DATE (M) 07-04-28 	EXP. DATE 07-05-28
SERIAL (S) 12345 		P. O. NO. (K) RB99997 	
		REVISION (ZP) 4 	

5.9.3 Wood Packaging Requirements ISPM-15

- All wood packaging must conform to ISPM standards found at this link:
<http://www.ispm15.com/ISPM15%202009%20updated%20v2013.pdf> <http://www.ispm15.com>

5.10 Full Production

- Once the PPAP (First part approval) is completed the supplier can proceed to general production in accordance with the Purchase orders they receive.

5.11 Changes on Manufacturing Process

- Merkle-Korff Industries reserves the right to revalidate production parts if one or more of the followings events occur. In all cases supplier will communicate to Merkle-Korff Industries prior to a process change.
- A process change includes, but is not limited to:
 - Change of manufacturing equipment,
 - Change of manufacturing process,
 - Change of material supplier or material trading companies,
 - Change of chemical or sub-material used in the manufacturing process,
 - Change of process / equipment / material at subcontractor,
 - Supplier's in house production is sub-contracted or vice versa,
 - Change of inspection method, or inspection frequency
 - Change of production location,
- The supplier could be requested to submit with the process change request all supporting PPAP documentation including but not limited to:

- Dimensional reports
 - Performance testing
 - Process parameters after and before modification
 - Updated Control Plan
- During this review, Merkle-Korff Industries may ask the supplier for additional documents such as implementation schedule, instructions revisions, capability studies from final tooling etc.

5.12 Receiving Products Verification

- Merkle-Korff Industries targets “zero defect” performance and strives for providing high Quality deliveries to its customers. Continuous Improvement is the path leading to this target. For verification of purchased products, each Merkle-Korff Industries user plant will determine the method of receiving inspection.
- If the supplier manufactures materials/components in multiple plants, each supplier plant will be submitted independently to the verification of purchased products.
- In case a quality issue is found, Merkle-Korff Industries initiates a Supplier Corrective Action Request, requiring 8D corrective action response. (See Section 7.2)

5.13 Supplier Audits

- Merkle-Korff Industries reserves the right of conduct an on-site supplier audit
- After notification of a future scheduled audit, supplier an audit agenda and send acknowledgement to the appropriate Commodity Manager or the Supplier Quality representative.
- At its discretion, Merkle-Korff Industries may use independent auditors. As Merkle-Korff Industries representative, they will assess the processes of the supplier.

5.14 Sub – Supplier Management

- The supplier shall be capable to manage all its sub-suppliers including imposed sub-suppliers
- Merkle-Korff Industries can audit the critical processes of the sub-suppliers to assure that controls are properly implemented throughout the supply chain.
- The supplier shall understand that sub-suppliers have a significant impact on the quality of their component. Whether sub-suppliers provide raw materials, services or sub-components their influence is so critical that it is necessary for all suppliers to implement a sub-supplier management system.
- Sub-supplier management system shall include a function that tracks and reports quality and delivery performance on a supply base.
- Suppliers shall be able to demonstrate sub-suppliers issues management. In order to do so, supplier shall document and implement corrective actions as well as monitor sub-suppliers activities.

5.15 Supplier Facility Access

- Suppliers are strongly encouraged to ensure authorization of Merkle-Korff Industries and its customers to access theirs and sub-suppliers' plant floors.
- The purpose is to evaluate processes, documents (such as CP, instructions or records), methodologies, systems etc. used during their materials/components manufacturing.
- At its discretion, Merkle-Korff Industries may use independent auditors. As Merkle-Korff Industries representative, they will assess the processes of the supplier.

5.16 Contingency Plan

- The suppliers shall develop a contingency plan for potential catastrophes disrupting the supply flow
- In the event of a disaster, the suppliers shall warn Merkle-Korff Industries as soon as possible and provide Merkle-Korff Industries with an access to its tools and/or their replacements.
Contingency plan shall consider and account for the following:

Information technology

Partial or total destruction, natural damage, central data system, production system, etc.

Supplying system

Supplier delivery orders management, raw material stock management, transport failure, strike, and bad weather.

Production system

Equipment breakdown, energy, fluid, electricity, air, water, gas, fire, flooding, failure

Distribution system

Provider strike or disaster (transport, platform), transport incident, packaging deterioration (after a handling incident, a loading incident, a transport incident, etc.), destination error, etc.

5.17 Inspection Record Retention

- The suppliers shall retain inspection records during the time the material/component is active, plus one year minimum.
- The Supplier shall retain a master sample of each cavity, die, and pattern during the time the material/component is active plus 1 year minimum.
- A material/component is active as long as the product is supplied to the customer for original or service applications.

5.18 Merkle-Korff Industries Property – Tooling

- All tools as well as manufacturing, test or inspection equipment which belongs to Merkle-Korff Industries or their customers shall be permanently marked to clearly show they are the property of Merkle-Korff Industries or their customers. These tools shall be used exclusively for Merkle-Korff Industries.
- Suppliers shall provide tooling condition updates to Merkle-Korff Industries on a bi-annual basis or upon request.
- Suppliers must also provide a complete inventory of tooling and any other Merkle-Korff Industries property annually.

5.19 Continuous Improvement

- Merkle-Korff Industries defines continuous improvement as a global approach which covers the overall function of the supplier.

- The supplier shall continually focus on improvement regarding Quality and Delivery metrics, internal and external.
- Merkle-Korff Industries Scorecard is the method used to communicate supplier performance and shall be monitored in conjunction with their distribution cycle.
- In order to do so, the supplier shall establish, prioritize, monitor and act upon key performance objectives and targets.
- Merkle-Korff Industries can make recommendations for improvement and may deploy personnel to focus on specific improvement areas.
- Suppliers shall develop strategies for controlling and reducing costs to Merkle-Korff Industries.

6 Supplier Quality Performance

6.1 The suppliers quality improvement process focuses on 3 fundamental points:

- **Quality**
- **Delivery**
- **Response**

6.2 Supplier Performance Scorecard

Category	Description	Formula	Score
Quality	PPM (Defects per one million opportunities)	= (The quantity of rejected product / the total quantity received) * 1,000,000	Total 40 Points
Delivery Performance	On-time and in full – % of purchase order receipt transactions that are on time and complete	= number of on time transactions / total # of transactions *Receipts must be in full	Total 40 points
Supplier Response	An evaluation of 8D submissions, ECO and order acknowledgements, and technical assistance.	A subjective rating determined by the Supplier Quality and Procurement Team based on supplier response	Total 20 points

Accordingly, Suppliers are scored using the same scale used in on-site audits:

Score	Panel validation	Explanations	Follow-up	Supplier Risk Assessment	Supplier action plan
5	YES	Benchmark, supplier meet or exceed Merkle-Korff Industries requirements	Continued according to audit plan	Minimum risk	Continuous improvement
4	YES	Satisfactory, supplier is able to meet Merkle-Korff Industries requirements	Continued according to audit plan	Low risk	Send action plan within 2 weeks after audit report date
3	YES with precaution/ NO	Supplier needs improvement to meet Merkle-Korff Industries requirements	Re-audit within 6 months is mandatory with results > 3	Intermediate risk	Send action plan within 1 week after audit report date
2	NO	Unsatisfactory Supplier is not able to meet Merkle-Korff Industries requirements	Re-audit within 12 months	High risk	Send action plan within 1 week after audit report date
1	NO	No reliability guaranteed Supplier is not able to meet Merkle-Korff Industries requirements	Disqualify	Very high risk	Start re-qualification / new supplier is not selected.

6.3 Supplier Response

- The supplier is awarded points for providing meaningful 8D responses, timely ECO and order acknowledgements, and technical assistance relative to their expertise.

6.4 PPM Rules

- PPM includes the quantity of verified non-conforming production parts found in the production line, incoming inspection, and sorting by Merkle-Korff Industries. It can also include any non-conforming parts found at a Merkle-Korff Industries Customer.
- PPM includes total quantity of suspect parts returned to supplier.
- PPM will not include the following:
 - Parts which have not been PPAP approved and prototypes,
 - Parts sorted upon supplier’s request and expense.

7 Non-Conforming Material

7.1 Supplier Corrective Action Reporting Expectations

- A Vendor Non-Conformance Report is generated from a non-conformance of supplied product found at the Merkle-Korff Industries plant or Merkle-Korff Industries Customer facility.
 - The 8D methodology requires immediate response to these requests.
 - Initial response must follow the 8D format. Suppliers may request an 8D form if they do not have one of their own.

7.2 Problem Resolution Methodology: 8D Tool

- When a defective product is identified, Merkle-Korff Industries a Vendor Non-Conformance Report is originated, verified as accurate with supporting evidence and forwarded to the supplier. The Vendor Non-Conformance Report shall initiate the Supplier's 8D response.
- 8D problem solving tool is a highly effective approach to find root causes, develop the proper actions to eliminate them, and implement permanent corrective actions.
- Timing for 8D is a standard of Merkle-Korff Industries (1, 5 , and 10 business days). Any other timing shall be approved by SQE leader or Plant Quality personnel.

D1 – D2	Incident notification – Team identified
Merkle-Korff Industries informs supplier of the incident(s) – via a Vendor Non-Conformance Report, which shall initiate the Supplier's 8D response.	
D3	Within one business day of the notification date
<p>The supplier undertakes to:</p> <ul style="list-style-type: none"> • Contain all defective materials/components which have the same defect from all stocks (finished products and semi-finished products) and in transportation, • If requested, send a team of competent people to carry out sorting & inspection operations in order to recover products from Merkle-Korff Industries and its customers, • If requested, come to Merkle-Korff Industries plant in order to analyze the problem, even if the responsibility of the supplier on the product defect has not been proven at this stage of the analysis, • Replace defective product within 24 hours since the notification with 100% inspected product. • Label certified non-defective materials/components accordingly, 	
D4 – D6	Within five business days (or any other date agreed with Merkle-Korff Industries) of the notification date,
<p>The supplier undertakes to:</p> <ul style="list-style-type: none"> • Perform an exhaustive analysis to identify the root cause of the non-conformity with the defined methods, • Submit a corrective and preventive action plan which will be validated by the SQE Leader before any implementation at supplier plant. • Update (process + product) CP and send them to the SQE in charge. 	
D7 – D8	Within ten business days (or any other date agreed with Merkle-Korff Industries) of the notification date,
<p>The supplier undertakes to:</p> <ul style="list-style-type: none"> • Update all required documents • Implement the actions to all similar materials/components and processes. • Report any corresponding lessons learned. 	
Incidents Closure	
<ul style="list-style-type: none"> • Merkle-Korff Industries may perform an 8D audit prior to closure. 	

7.3 Cost Recovery

- Suppliers may be charged with corresponding amounts due to failed audits, PPAP, complementary validations, generated incidents and perturbations:
 - Quality claims
 - Nonconforming Product Deviation Request
 - 8D audits closure
 - Sorting and rework operations
 - PPAP submission rejections,
 - Supplier audit failure
 - Production perturbation
 - Delivery performance failures
 - Shipments of unapproved products
 - Additional freight costs to Merkle-Korff Industries or its customers
 - Line stoppages

7.4 Quality target: zero defect

- The supplier shall commit itself to:
 - PPM baseline and improvement to 3 defects per one million opportunities.
 - Obtaining zero recurrent incident,
 - Being responsive i.e. 100% 24 hours (D2-D3), 100% 5 days (D4-D5-D6), 100% 10 days (D7-D8),
 - Capitalizing knowledge – use of Lessons Learned for specified incidents
 - Strictly using the 8D, 5 whys methodology,
 - Implementing formal program for continuous improvement,

GLOSSARY

Terms & Acronyms	Definitions
8D	Eight Disciplines: Merkle-Korff Industries official problem solving process tool to identify, correct and eliminate recurring problems. It establishes a permanent corrective action based on statistical analysis of the problem (when appropriate) and focuses on the origin of the problem by determining its root causes.
APQP	Advance Product Quality Planning: A structured and detailed planning process developed by the AIAG automotive organization to communicate common product quality planning and control guidelines for the automotive industry Suppliers.
AIAG	Automotive Industry Action Group: North American automotive organization, editing and publishing standards.
Cmk	Capability machine index: Measurable characteristic of a machine a under short term influences.
CP	CP Control plan: A tool which lists of all product and process inspection points required to deliver a defect-free product. There are 2 types of Control Plan: <ul style="list-style-type: none"> • Process Control Plans are essential for maintaining a process stable over the long run. • Product Control Plans checks products conformity to customer specification including product related special characteristics, tolerances and other characteristics for control.
Cpk	Capability process index: Measurable characteristic of a process a under long term influences
PPAP	Production Part Approval Process: A process defined for the validation of new materials and subsequent processes. It outlines the methods used for approval of production and service commodities up to part submission warrant in the APQP
FMEA	Failure Mode and Effects Analysis: A tool which aims to identify every possible failure mode of the required function of process / product and respective effects. The FMEA is also used to rank and prioritize the possible causes of failures as well as develop and implement preventative actions, with responsible persons assigned to carry out these actions.
ISO 14001	International Standard Organization 14001: Environmental management systems - Requirements with guidance for use
ISO/TS 1949	International Standard Organization Technical Specificatio16949: Quality management system, with particular requirements for automotive production and relevant service part organization.
ISO 9001	International Standard Organization 9001: Quality management systems–Requirements
MSA	Measurement System Analysis: is a method to identify the components of variation in the measurement.
PFMEA	Process Failure Modes Effects Analysis: The application of the Failure Mode and Effects Analysis (FMEA) method specifically to processes.
PPM	Parts per Million: A dimensionless value which represents the part of a whole number in units of 1/1000000.
Ppk	Process Performance Index: Measurable process characteristic used in short term process capability. Process Performance only applies to a specific batch of material.
RFQ	Request for Quotation: A standard business process.
R&R	Repeatability and Reproducibility studies
SPC	Statistical Process Control: Use of Control Charts to monitor process performance and define priorities on how and when to adjust the process.

SQE

Supplier Quality Engineer

Referenced Documents

- **8D**
- **Nidec-MK PPAP Template**
- **Non-Disclosure Agreement**
- **Merkle-Korff Industries Supplier Audit Checklist**
- **Supplier Deviation Request Form**
- **Nidec-MK Supplier Scorecard**
- **General Terms and Conditions of Purchase**

