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| ***Windsor Machine & Stamping (2009) Ltd.*** | | Document Type: **PROCEDURE**  Department: **QUALITY ASSURANCE** |
| Prepared By: John Little  Approved By: T. Vanhal | Release Date: Aug 11,1997 | Document No: **PR-QA-010** |
| Revision Date: May 23, 2012 | Revision No: 008 | Page 1 of 4 |
| Subject: PRODUCT QUALITY PLANNING | | |

PURPOSE

The purpose of this procedure is to provide for a system and instructions, and to assign responsibilities for management and coordination of product quality planning program.

This procedure applies to all Product Quality Planning (PQP) activities for new or significantly modified products and/or their processing. This procedure concerns all departments, and in particular executive management, Sales and Product Quality Planning.

This procedure covers the following phases of PQP:

1. Definition and Feasibility
2. Design and Prototype (if required by customer contract)
3. Process Design and Development
4. Pre-Launch Product and Process Validation
5. Production, Feedback and Improvement.

PROCEDURE

Cross Functional PQP Team

The PQP team is a cross-functional team that is responsible for the development, implementation and maintenance of all documentation and processing related to the product during all PQP phases *(when applicable).*

The PQP team leaders are the designated Program Manager, V.P operations and the Corporate Quality Manager. Other Team members are representatives from the Engineering, Production, Sales, Material, Quality, Purchasing, Accounting departments, or sub-contractors, as appropriate. When appropriate, PQP Team members may assign tasks to additional representatives from their departments.

PQP Records

Records of the PQP process are maintained by the program manager at Windsor Machine & Stamping corporate office and represent the development of the product and manufacturing process for each product or family of products. Documentation that reflects the activities in each plant location are kept on file at that plant location and describe those activities that are pertinent to that facility (e.g. FMEA’s, Control Plans, Flow Diagrams, etc.).

Records of the PQP process are created for each part number and/or family of parts. The records consist of all documentation necessary to define the product and its manufacturing process. The PQP records are updated for PPAP submissions when engineering changes are completed.

The PQP records contain documentation grouped in the following sections, (if applicable to the product or process):

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* Engineering Scope of Work from the customer
* Risk Assessment
* Team Feasibility Review
* Timeline
* APQP Checklist
* Tooling List
* Bill of Materials
* Supplier /Component Matrix
* Part Purchase Order
* Tool Purchase Order (When applicable)
* Design Failure Mode and Effects Analysis
* Design Validation Plan and Review
* Process Flow
* Process Failure Mode and Effects Analysis
* Control Plan: Prototype, Pre-Launch( when applicable) and Production
* Packaging Proposal
* Process/ Manufacturing Implementation Plan
* Process Validation/ Run @ Rate
* Production Part Approval Process documentation/ Completed Part Submission Warrant
* Lessons Learned Assessment

**Product** **Quality Planning**

The PQP Team will follow the AIAG Core tools reference manuals and any customer specific requirements during all stages of Product Quality Planning.

1. Definition, Plan and Feasibility phase

The PQP Team ensures that the customer requirements are well understood and are documented in the PQP records. The PQP team and cross functional team complete feasibility review and risk assessment when the customer requirements are understood and documented. Warranty, Reliability and Customer Inputs such as Engineering Standards and Material Specifications are also reviewed.

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2.Design and Prototype phase

When applicable, the PQP Team develops the product and process plan which considers special characteristics and customer specific requirements. The responsible designer develops the design plan for the Design team member(s) as per PR-ENG-001. Product realization is achieved by drawings, Bill of Materials, Timeline,Design Reviews, Design testing, prototype build, prototype process capability workbook, gauge designs, prototype Control Plan, DFMEA’s, process flow and PFMEA. Design changes, Reviews Verification and Validation and Protype programs are the resposnibility of the designresponsible PQP team member(s). developed by the cross-functional team. Design is responsible for the quality of prototype build parts.

**3.Process Design and Development Phase**

Process design is achieved by drawings, PFMEA*,* existing process capability data, prototype tooling build, and use of design data on existing processes. Tooling development is reviewed weekl*y*. Process Instructions, Packaging Standards, and Manufacturing Implementation Plan are also developed by the cross functional team.

**4.Pre-Launch Product and Process Validation Phase**

In the Pre-Launch phase, the PQP Team documents the product and process at the Pre-Launch level as well the intended production level. As the product and process is developed and finalized, changes to the product and/or process are documented in the PQP record. Plant Quality Managers are responsible for the quality of pre-launch parts.

The PQP Team ensures that manufacturing process flowchart, PFMEA, Pre-Launch Control Plan are planned and evaluated; that processes generating Special Product Characteristics are identified, and that adequate and capable processes are developed and maintained. After trial run/run@rate; measurement system analysis, process capability studies, layouts, Production Control Plan and any other customer requirements for PPAP submission are completed.

**5.Production, Feedback and Improvement Phase**

In the production phase, the PQP Team ensures that the intended production process level is reached and all documentation in the PQP record is complete and accurate. The PQP team “signs off” the PQP record, indicating the product and process are ready for production. PPAP documentation is sent from the plant to the customer for approval.

The PQP team is responsible for completing the information of lessons learned from the product quality planning process.

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The PQP record is a living document and is reviewed and updated as appropriate when any of the following occur:

1. The product is changed.
2. The process is changed.
3. The process becomes unstable.
4. The process becomes non-capable.
5. Inspection methods, frequency, etc. is revised

In the event that a current job is moved to another WMG location, a new PPAP / PSO will be initiated to the customer informing them of this decision. The normal re-submission requirements will be followed as well as any

customer specifics. See reference document FOQA81 – Production Supplier to Change/Move Production Location.

ASSOCIATED DOCUMENTS

Design Control PR-ENG-001

Risk Assessment

Team Feasibility Commitment

APQP Checklist FOQA070 Tooling List

Timing Chart(s)

Production Supplier to Change-Move Production Location FOQA81

Failure Mode and Effects Analysis FOQA037

Control Plan FOQA036

Process Flow Diagram FOQA049

Change Control Form FOQA082