Review Paper on APQP & PPAP Tools for Development of Machining Process in Machine Shop

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Abstract— Today every organization and Industry has been trying to maintain a quality of his or her company and try to get customer's satisfaction. To achieve this, company always arranges various programs. The most important tool to achieve such program is Advance Product Quality Planning (APQP) & "Production Part Approval Process" commonly known as 'PPAP'.APQP &PPAP is an important part of the Process of product development allowing producers to evaluate the components and sub system which they from suppliers and establishing confidence in the suppliers' management systems.

Keywords: APQP, PPAP

I. LITERATURE REVIEW

CIOBANU DoinaValentine [1] he states that "The consequence of the three core aspects of quality management: planning, monitoring and development of output. In Juran's view, the primary aim of the planning processes is to establish goods and procedures that meet with the requirements of the client. APQP is addressed to internal and external suppliers of the company and acts on systems, subsystems and manufacturing components. The key goals of the APQP are: efficient cooperation of the partners, achievement of the targets; minimal or non-existence of quality issues; lack of risks identified in quality during product launch."

Kapil Mittal [2] he analyses that "APQP is a flexible technique to increase profitability and has a lot of promise as a quality management tool along with its application in product development. In the industrial field, the successful introduction of the APQP was largely limited in the NPD. Furthermore, the review of previous work found that there was no emphasis on the application of APQP in the enhancement of efficiency in any kind of industry. In the present report, an effort was made to incorporate APQP for quality enhancement in the small manufacturing industry Engine mounting brackets for the automobile sector."

A.R.Dandekar [3] he Conclude that "The consistency of the product and the expense of the product are essential considerations in the production of the new product. To order to achieve a balance between these variables, various new product creation strategies such as Lean product growth, Six sigma, Value Feature Deployment are developed. Organizations are seeking to incorporate these approaches on the basis of their criteria, usefulness and economic circumstances. Advanced Product Quality Management is one of the best strategies for innovative product creation in recent days. This combines all the benefits of six sigma, QFD as well as Lean Product Growth."

M. Bobrek[4] he concludes, "There is an appropriate philosophy, principles and functional approaches and techniques for the creation of operational and management systems. There are also several related computer-aided methods that can greatly increase the quality and efficacy of the design process. On the basis of the evidence described above, it can be argued that the APQP model should be used as the basis for standardization of the management system implementation process."

Praveen raj S [5] He state that" APQP affects PLM, which aims to provide a strong forum for plant life-cycle management where issues and weaknesses in supply chain management can also be quickly tackled and rectified, not only can APQP mean for quality control but also for the PPAP method."

Thomas A. Carbone [6] He state that "APQP is not only a quality delivery tool, but more importantly, it is a framework that needs to be applied through the enterprise. The APQP is not the sole responsibility of the planning department. Manufacturing companies need to capitalize on the development of new products through simultaneous engineering. The integrated deliverables model developed in this work is consistent with APQP and provides engineers and management with a common view of the deliverables required to achieve the goals of the project. Manufacturing must require the input required to take care of the development of emerging technology during the preparation of the project, which will contribute to lower manufacturing costs."

Mr. Jigar A. Doshi [7] he said, "Production Component Approval Process (PPAP) specifies the general criteria for the clearance of manufacturing products, including manufacturing and bulk materials. The goal of PPAP is to consider all consumer requirements and to show that the manufacturing process has the ability to deliver a product that reliably satisfies all criteria during the actual production cycle. This increases customer confidence in the organization and enhances customer satisfaction, but PPAP is so much more than."

Mr. A.P. Shrotri [8] he said that "In today's dynamic setting, various quality standards are used by companies such as ISO, TS, APQP, etc. There are also protocols for implementing these criteria in every organization. Extensive technical information is a crucial component in each of the above listed requirements. The Production Part Approval Process is one of the quality assurance procedures that is needed in the present day, especially in the industrial industry. "

Miss Catalina Gabriela Lixandru[9] he conclude that " One of the key priorities for Product Quality Control is the growth of the Manufacturer. In order to ensure a successful component implementation, each engineer must ensure so each manufacturer complies with the PPAP (Production Element Approval Process) specifications and requirements. There is a near connection between the APQP approach and the PPAP specifications, which describes the 18 elements of the PPAP definition criteria and the prescribed period for the compilation and acceptance of proofs and/or documents."

AIAG [10] explained "PPAP Products Continue to provide evidence that all documents of consumer technical design and specification specifications are fully recognized by the company and that the manufacturing cycle has the

ability to reliably satisfy these criteria during the real production run at the output pace."

Brakes India Limited [11] in Suppliers Quality Assurance Manual. "The most interesting detail of this manual is the pre-PPAP audit knowledge. A total of seven items is considered for review. The components are classified on results (scored from 1 to 5). In this study, the weak factor can be easily defined. Before that, the APQP requirements were given. The aim, nature and responsibility of the supplier is clearly identified. Instructions for PPAP, specification study, process flow diagram, PFMEA analysis, management plan, measuring device analysis, etc. are also given. Various specification formats for standard auditing are also included in this document. There are a total of 18 formats available in this manual. We also received a secure start-up type, i.e. a special job instruction.

Cooper Industries (Houston) [12] in the published a manual implementation of Production Part Approval Process (PPAP) state that. "PPAP is an essential APQP function. The value of PPAP is clearly illustrated in this textbook. There are three parts of this textbook and three appendices in it. The first segment entitled "Foreword" contains all information on the submission of PPAPs, such as date of submission of PPAPs, amount of submission of PPAPs, status of submission of PPAPs. In fact, there is also some detail on PPAP preparation. The second section contains guidance on the application of PPAPs. In brief, a thorough summary of the different elements of the PPAP is given in this section. This specific section contains the documents needed for the submission of the PPAP."

Junichi Tomita [13] has studied about the customer-oriented system in new product development process. "Consumer expectations are increasingly unique and complex in today's demanding climate. The supplier will also rely strongly on the needs of the consumer. In order to consider its needs , it is important to maintain a relationship with the customer. This paper talks about the relationship between supplier and consumer. And provides ideas for the Consumer Process. The case study shows that the end customer or Consumer Customer is an significant element in the process of new product creation He also speaks about diversified customers' needs."

Eshan Jaiswal[14] discussed various corners of Quality Function Deployment."Quality Function Deployment is a process in which customer's needs are transformed to design with the approach of quality. QFD is very complex and critical process for implementation. The main advantages of QFD are reduction in development time of product, reduction in cycle time and cost. Always it has been a process to satisfy the Customer. Also encourages the Teamwork within the organization."

Mr. A.P. Shrotri[15] in the "This is stated by PPAP and the Powerful Tool for Vendor Quality Control. "Almost 90% of the production issues are related to the price of the goods bought. This dilemma is getting more and more serious as the commodity includes no more parts such as M / c equipment or vehicles, etc. To deal with this, businesses are seeking to improve the efficiency of their manufacturers. PPAP continues to be an important method in this way. In particular, trust in the system manufacturer and the manufacturing cycle is included in the automotive supply chain. This paper gives insight into this very powerful and tested quality control method for suppliers."

Mr.Yulia ŠURINOVÁ[16] he conclude that "Globalization Impacts on Different Conditions of Automobile Production "notes that. "As the automobile industry grows, it is also getting more competitive. Competitive factors have driven several businesses to increase their emphasis on using the latest development methods in the world. Exposure to innovation strategies that are emerging around the globe is a big advantage of globalization. Automotive businesses find that globalization offers both challenges and opportunities. Through developing an operational management structure, businesses can handle the scope of a multinational project so that they can take advantage of these opportunities where they make sense of business."

II. FINDING FROM LITERATURE REVIEW

APQP & PPAP is an essential aspect of the product production cycle, allowing suppliers to assess the products and system they obtain from the manufacturer and to build trust throughout the vendor's management structure. APQP & PPAP is a "Wise, Tangible, Achievable, Practical, Time-bound" analysis.

III. CONCLUSION

PPAP & APQP is a approach that decreases the risk of lacunas at all levels from specification to product dispatched. It effectively decreases or minimizes the probability of rejection. This is when both the manufacturer and the consumer are the winners. Because ultimately, it ensures the consistency because price of the goods on the market. Because any aspect is recorded in the test, there is no room for any incorrect action. Or it can also be very easy to identify what's going wrong. But sometimes it's very time-consuming to implement due to extensive documentation; ultimately, it's successful for quality enhancement as well as consumer service.

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