

QUALITY MANAGEMENT SYSTEMS

FINAL PRESENTATION

ADVANCED PAPERWORKS INC.

Kevin Jurado

Jacqueline Arreola

Luis Ruiz

Background

Advanced Paperworks Inc. is a minority-owned ISO 9001 Texas based converter of products using die cutting, laser cutting, routing, slitting, laminating, coating addition and more.

They work with a large variety of customers including:

- Cable assembly plants for the automotive and industrial sectors
- Metal Stampers
- Medical Product Producers
- Electronic Assemblies and many types of Mechanical Assembly

Main Technical Problem

During our time in the facility the team became aware of a repeated problem. This company manufactures thousands of different products and some of them are very similar.

- 1.-The wrong label is placed in the right product.
- 2.-The company produces the wrong product.

The second scenario represents the worst case scenario because the whole production would be useless or refurbished costing time, money and material.

Entering the incorrect part number into the system, will become a potential double cost if the employees must re-run the product due to labor and material costs. This will also mean a time set back for others orders needed to be produced in the same machine.

Project Objectives

- 1.-Find root causes and identify where the problem is coming
- 2.-The second objective is to give to the company a standardized solution in which the process of selecting the product to manufacture or selecting the correct label is efficient and reliable.
- 3.-The third objective is to give to the company a proposal for a visual aid with the purpose of using their existing resources
- 4.-The use of the 8D methodology in addition to the study of the ISO standards will give us the resources needed to find the proper corrective actions, develop a good root cause analysis
- 5.-And last but not least, we will seek for the introduction of an automated system which can help to achieve the objectives mentioned above

Project Constraints

- 1.-Layout facility cannot be modified
- 2.- The availability for the team members to attend to the company
- 3.-The COVID-19 pandemic
- 4.-The number of different products the company manufactures and the similarity between them

Project Methodology

8 Discipline Methodology

Activities undertaken to respond to a specific Customer complaint (e.g. – product return) where a corrective action response is requested

- 1.-Initiate project team (Problem Discovered)
- 2.-Define the Problem
- 3.-Implement containment actions
- 4.- Identify Root Causes
- 5.-Develop and Verify solution
- 6.-Implement corrective Actions
- 7.-Prevent problem Recurrence
- 8.-Recognize Project Team

On this methodology used we wanted to make emphasis on point number four and the application of the five whys because this can help us to find an optimal solution for the whole problem and even to prevent other potential mistakes that may occur in the future

Data Collected

- There were two customer complaints about the wrong labeling in the right product, and another complaint of giving the wrong part because the part requested was very similar to the one that was produced. With this information we came to two scenarios that can be fixed using a method that can help to avoid these two mistakes.
- Once we got the information from the customer, we could start analyzing the data wondering where the problem began and which methodology to use.

Difficulties in data collection

Due to the COVID-19 contingency the team's visits to the facility were unexpectedly stopped and we have to start working with the data that we could collect during the time that we were able to attend to the company.

Design Solution 1

A more organized workplace using the 5S methodology.

The ideal point of this part is to introduce or support the standardized work. Definition of standardized work: operations carried out with all tasks organized in the best known sequence, and using the most effective combination of resources:

1. Personal
2. Materials
3. Methods
4. Machinery

The objective of the 5S is to Create and maintain an orderly, clean, safe and pleasant work environment that facilitates daily work and helps us provide quality products and services. And they are Sort, Simplify, Shine, Standardize and Sustain.

Design Solution 2

Barcode scanner to identify products and labels.

With the introduction of a barcode it can be a very helpful tool in all the departments (production, logistics, quality, management, packaging, etc. It will help the workers to identify if they are working with the correct product, it will also help with a visual display of the product to verify if the worker is producing the right one. The barcode scanner will be used in all the departments before going to the next step to verify if it is the right one and helping the company to identify any potential error if something is wrong or the part is incorrect.

The barcode will help to verify and identify every single product that the company produces with the objective of minimizing errors, reducing waste and increasing customer satisfaction which is the main goal of every company.

Prioritization of design solutions

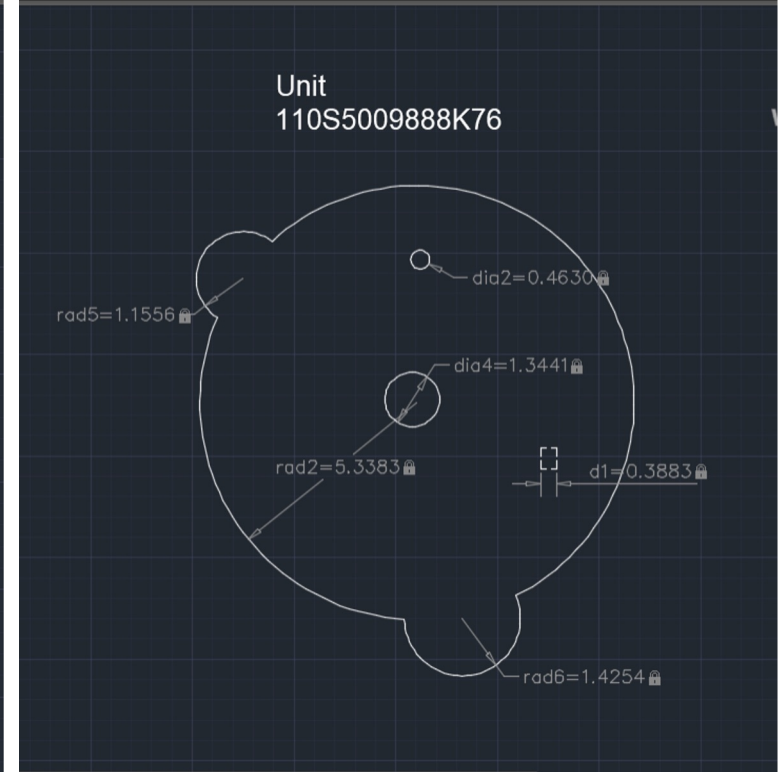
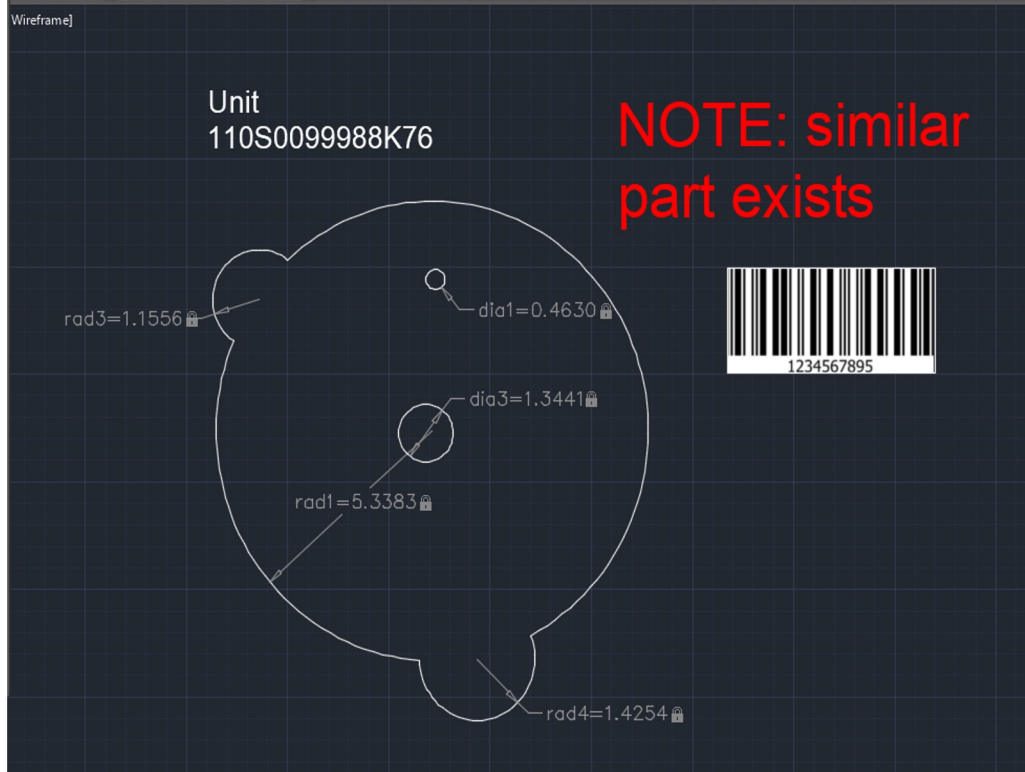
Trade-off Study

Criteria	Weight of Importance	Design 1 5S	Design 2 Barcode Scanner
Cost	.3	.9	.3
User-friendly	.2	.7	.8
Reliability	.3	.4	.8
Efficiency	.2	.3	.9
Sum of weighted scores	1	.59	.67

Implementation Plans

- Purchase of software and scanners
- Generating barcodes and labeling all dies, comparison pieces and material being used
- Daily production schedule shall include barcodes
- Operator shall scan barcode replacing the manual input of part number into system
- Operator shall compare barcodes
- Packaging shall have its own schedule with barcodes of pieces to be packaged each day
- Quality operator shall scan barcode on the order paperwork to pull up testing instructions for units
- Shipment barcode on labeled box will be scanned and compared to order paperwork

AutoCad



Cost Analysis

Proposed Action/ Purchase	Benefits	Benefit Impact	Cost	Cost Impact	Ratio Benefits/ Cost
ScanSKU™ Barcode Match App	Ensure part being produced, material, die being used is correct	2	\$9.00 x 10	1	2:1
Barcode Scanners	Eliminate wrongful identification of part and human error when manually inputting part number in system	3	\$25.00 x 8	2	3:2
Training (hr)	Ensure reliability and efficiency	2	\$20.00	1	2:1
Set Up (hr)	A properly working system	3	\$20.00 x 5	2	3:2
Barcode Studio	Create label for dies and comparison pieces	2	\$20.00 x 3	1	2:1

Risk Analysis

Failure Mode	Potential Effects	Probability of occurrence	Severity	Probability of non-detection	Risk
Mislabel of material during set up process	Time and material lost	.3	.3	.4	.036
Mislabel in customer order phase	Time and material lost, risk of parts reaching customer	.3	1	.8	.24
Barcode scanner not identifying barcode	Time lost	.1	.3	.1	.003

Results from implementation

- Due to the COVID-19 the end of visits did not allow for an implementation
- 5S implementation
 - Diagrams
 - Organized work stations

Conclusion

- Lessons learned from engineering design experiences
- Engineering standards used for the project
- Before and after Engineering standards used for the project

Questions?

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Matt DeVito (September 12,2017) 8D Training, ASQ Tucson Old Pueblo Section

Standards ISO 9001-2015

5's Basic Training by TMAC

Advanced paperworks Inc <https://api-ep.com/>

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