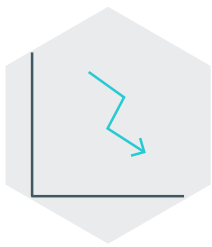


Product Quality Testing

You would use this approach as part of your manufacturing process.

Projected performance gain



Reduced

- Product costs
- Customer complaints.



Improved

- Delivered quality
- Production yields.

What investment is needed to understand the concept?

DIFFICULTY



Medium

Requires some reading around the subject and a structured approach.

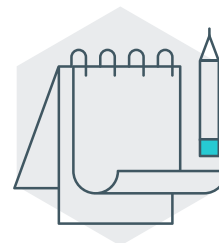
ACTIVITY



Team

Best results come from a team of Engineers and Assembly Operators.

EQUIPMENT



Some

This will be dependent on the product.

Explanation of the concept

Product Testing is a process of measuring the properties or performance of products. It is not to be confused with product inspection. Product testing, often known as lab testing, typically involves testing a product against a specific standard or regulation in a certified laboratory. Whereas product inspection often involves checking a random sample of an order for compliance with a buyer’s requirements and specifications.



Manually Testing a Circuit Board

Tests can take many forms including targeting:

- Physical product features – weights, dimensions, density, colour etc
- Product functionality – will it work in use as intended?
- Product safety – will it be safe to use?



Automated Optical Test Machine



Go / No go Gauge for Testing a Product Feature



Multiple Feature Gauge

In general, a test should be targeted at detecting something on the product that is most likely to fail or that is not to specification.

The test approach should be developed as early as possible; ideally at the same time as the product is going through its design and prototyping phase.

For an existing product, it is usually possible to work with a team of Engineers and Production Operators to identify the best approach to testing.

Where production volumes are high, it is often possible to automate testing by making use of new technologies such as Automated Optical Inspection and computerised functional test machines. The cost of these technologies has fallen rapidly and at the same time, their performance and flexibility has increased.

What action should I take?

1.



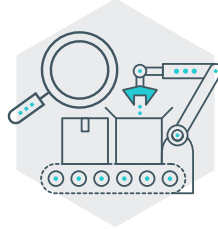
Gather together a group of Engineers and Production Operators.

2.



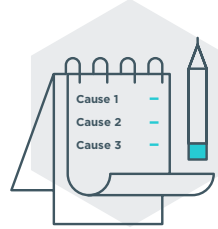
Explain the concepts behind Product Testing and Inspection.

3.



Identify a product or product family where Product Testing could deliver a significant improvement in process yield.

4.



Identify the top causes of product yield issues.

5.



Research and select an appropriate Product Testing approach.

To resolve yield issues aim to introduce a six sigma process to fix the problem and prevent recurrence. This is defined as

a process in which 99.99966% of all opportunities to produce some feature of a part are statistically expected to be free of defects.

Recommended resources



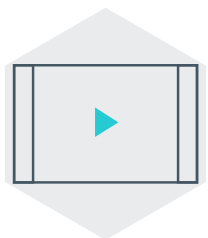
Black, R. (2012). Testing Metrics: Measuring Product, Process and Project Quality Kindle Edition. RBCS, Inc. ASIN: B008S2A25A

Morgan, J. & Brenig-Jones, M. (2015). Lean Six Sigma For Dummies, 3rd edition. John Wiley & Sons. ISBN-10: 1119067359; ISBN-13: 978-1119067351



Quality Control In Manufacturing – Graphic Products Staff:

<https://www.graphicproducts.com/articles/quality-control-in-manufacturing/>



Quality assurance tutorial: How to think about quality - lynda.com:

<https://www.youtube.com/watch?v=hMfPCdF07hA>

5 Ways Quality Control Inspectors Use QC Checklists:

<https://www.youtube.com/watch?v=ZdlHAHaeqXg>

Glossary

Go / No Go Gauge: An inspection tool used to check a workpiece against its allowed tolerances.

Yield: A calculation of non-defective products within production.

For more advice, case studies and additional factsheets visit: www.businessgrowthhub.com/manufacturing