University of Sheffield

CATAPULT High Value Manufacturing

NUCLEAR AMRC
ADVANCED MANUFACTURING RESEARCH CENTRE

Dimensional inspection process development

We can help you improve the way you inspect your products, and de-risk your investment in new measurement equipment.

An inspection process development study helps your organisation understand the dimensional measurement of your products, and the current metrology equipment market. Our team will work with you to identify the most relevant measurement equipment for your business needs, in an open and independent manner.

Your challenge

Dimensional inspection process development can add value if:

- You are looking to invest in measurement equipment, and want to reduce the risk of your capital purchases.
- You want to understand the latest measurement technologies.
- You want an independent assessment of the best measurement technology for your needs.

Our service

- We work with you to understand your measurement needs and business drivers, by reviewing drawings, visiting your site, inspecting your current equipment, and talking to your manufacturing teams.
- We work with your team to understand the key criteria for our assessment, such as cost, accuracy or training needs.
- We review relevant emerging and off-the-shelf measurement technologies for your application. We analyse the costs, benefits, risks and disadvantages of the technologies against your needs, and recommend the most suitable approach.
- We can organise demonstrations of the recommended technologies.

Benefits

Inspection process studies can help you:

- Reduce your investment risk through independent assessment of technology.
- Better understand emerging and off-the-shelf measurement equipment.
- Introduce new measurement processes as part of your digital transformation.
- Ensure your business is meeting the needs of your client.

Our expertise & capabilities

The Nuclear AMRC simulation and verification group includes around 20 research engineers, post-doctoral research associates and project managers, delivering multi-disciplinary programmes for industry customers of all sizes. We offer access to a wide range of state-of-the-art equipment and software, and are constantly looking to push the boundaries of current technology to solve manufacturing challenges for our partners and customers.

We have a wide variety of advanced metrology resources including large-scale coordinate measurement machines (CMMs), optical measurement, laser measurement and photogrammetry equipment. In many cases, we can arrange on-site trials at your facility. We can also access a wider choice of the latest equipment through our network of Catapult centres and industrial partners.

We can integrate measurement hardware and inspection software, using digital approaches such as model-based definition.

We can also carry out measurement systems analysis, a statistical approach to analysing the performance of a measurement system. This is a best-practice tool for new product introduction and production part approval processes.

For more information, contact

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NUCLEAR AMRC

The Nuclear Advanced Manufacturing Research Centre, part of the High Value Manufacturing Catapult, helps UK companies improve their capabilities and performance for nuclear and other high-value industries.
We focus on large-scale high-precision manufacturing processes for quality-critical applications.

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Process

A typical inspection process development project includes the following steps:

1 Scoping and planning

We work with you to scope the project and develop a delivery plan. We will provide a statement of work detailing our scope, costs and timescales. Inspection process studies typically take eight to ten weeks.

2 Understanding your needs and drivers

We review your product drawings, relevant codes and standards, and your current measurement process to understand your challenges, drivers and operational constraints, and agree the criteria for analysis.

3 Information gathering

We gather the relevant equipment information, and review current and emerging measurement and inspection technologies against your needs and drivers.

4 Down selection & assessment

We independently select the most appropriate measurement systems to meet your business needs, and assess their capabilities against the agreed criteria.

5 Present findings

We present our findings with underpinning evidence and recommendations.