



Large-scale prototyping

We can produce large-scale prototypes to help you reduce the challenges of manufacturing a new product.

Prototyping is a key stage in product development, providing invaluable insight into manufacturability and design maturity. Our unique manufacturing facilities allow you to produce large-scale prototype components or fabrications in a representative manufacturing environment, without losing any capacity in your own factory.

Your challenge

Prototyping can add value if:


- You want to understand the manufacturing challenges and risks associated with a new product or component.
- You need to ensure that your design can be manufactured.
- You want to understand fixturing, transport, handling and part manipulation requirements for a new large-scale product.

Our service

- We review your manufacturing needs, business drivers and requirements.
- We work with your team to understand the acceptance criteria for the prototype, including inspection and testing requirements.
- We develop a method of manufacture, risk assessment, quality plan and route card for the prototype. We identify tooling, fixturing and other enabling equipment, and can procure materials.
- We manufacture the prototype to the agreed specification.
- We report our full findings, including route cards, method of manufacture, testing reports and lessons learned.

Benefits

Large-scale prototyping can help you:

- Understand and reduce the manufacturing risks of a new product.
 - Reduce lead times for ramping up production.
 - Reduce manufacturing costs by identifying problems early.
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Our expertise & capabilities

The Nuclear AMRC is home to a wide range of state-of-the-art machining and fabrication equipment for working on production-scale technology demonstrators. We focus on innovative and optimised processes for large high-value engineered components for quality-critical applications.

Many of our machining centres and welding cells feature unique capabilities, or are the largest or most powerful of their kind available for independent industrial research anywhere in the world. We can machine parts of up to five metres diameter.

Our team includes technology specialists, manufacturing engineers, research engineers, shopfloor operators and project managers, delivering multi-disciplinary programmes for industry customers of all sizes.

**For more information, contact
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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 prototyping 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. A large-scale prototyping project typically takes 12 to 24 weeks.



2 Understanding your needs and drivers

We review your drawings, current process, and relevant codes and standards, to understand your challenges, drivers and operational constraints.



3 Preparation

We work with your team to define the method of manufacture and risk assessment, and procure material for the prototype.



4 Prototype manufacture

We manufacture the prototype to the agreed specification and quality, using our equipment or drawing on partner capabilities where needed.



5 Testing

We ensure the prototype meets all requirements in terms of dimensional and material conformity, and any other quality standards.



6 Present findings

We present our findings with manufacturing data, underpinning evidence and recommendations.