Advancing UK manufacturing

Helping UK manufacturers win work in civil nuclear and other innovative energy sectors.

namrc.co.uk
The Nuclear Advanced Manufacturing Research Centre (Nuclear AMRC) helps UK companies win work in the civil nuclear sector – in new build, operations and decommissioning.
The Nuclear AMRC team includes world-leading engineers, experienced technicians and industry experts. We are also helping train a new generation at the cutting edge of advanced manufacturing.

We work with UK manufacturers to improve capabilities and performance along the supply chain:

- **Manufacturing innovation** – improving cycle time and quality, reducing lead time and cost.
- **Supplier development** – raising quality, capability and cost competitiveness.

Our capabilities and services are open to all UK manufacturers of any size. Our engineers can work with your company to resolve your manufacturing problems and help you develop new capabilities.

Our focus is on nuclear manufacturing, but we have the capabilities to address large-scale high-precision manufacturing challenges across the energy sector, including offshore wind and oil & gas, and in other high value industries.

The Nuclear AMRC is backed by industry leaders and government, and managed by the University of Sheffield. We are based on the AMRC campus at the Advanced Manufacturing Park in South Yorkshire.

We are part of the High Value Manufacturing Catapult, an alliance of seven leading manufacturing research centres backed by Innovate UK.

The Nuclear AMRC combines industry expertise and university innovation, at the heart of the UK nuclear manufacturing industry.
Manufacturing innovation

The Nuclear AMRC offers world-leading research and development to help companies identify and overcome their manufacturing problems. We can work with you to reduce cost, improve quality, reduce lead time and cycle time, and reduce risk in manufacturing.

Our engineers and researchers work with companies to develop optimised processes for large-scale high-precision manufacturing, and take innovative techniques from proof of concept through to production readiness. You can use our state-of-the-art research factory to develop and test new processes on production-scale machines without losing capacity in your own facilities.

All of our equipment has been selected to meet the machining, fabrication and assembly requirements of the civil nuclear sector. We can also address problems in large-scale manufacturing across the energy sector, including oil & gas and renewables, and in other high-value industries.

The Nuclear AMRC’s core R&D capabilities cover:

• **Machining** – innovative and optimised processes for the production of large and complex components.

• **Welding & cladding** – advanced joining and cladding techniques for the most demanding applications.

• **Metrology & inspection** – dimensional metrology technologies and services, and research in large-volume metrology.

• **Visualisation** – virtual environments to support work in product design, planning, assembly and training.

Our engineers can collaborate on specific R&D projects, using the Nuclear AMRC’s facilities and knowhow to help resolve manufacturing problems and provide real competitive advantage. Your company invests directly in the research and has exclusive access to any resulting intellectual property.

See our website for detailed information about our research and development, including a downloadable directory of current equipment and capabilities.

[namrc.co.uk/capabilities/innovation](http://namrc.co.uk/capabilities/innovation)

The Nuclear AMRC offers some of the largest and most advanced machining centres available for research anywhere in the world – including this Dörries Contumat vertical turning/milling lathe, capable of working on parts of 5 metre diameter.
The 15kW diode laser cell is just one of the advanced welding and cladding facilities at the Nuclear AMRC. We are developing techniques to clad pressure vessels in hours rather than weeks, and exploring new applications in high-integrity additive manufacturing.
The Nuclear AMRC works with companies along the UK’s civil nuclear supply chain to help them compete by raising quality, reducing costs, and developing their capabilities.

We offer a wealth of targeted support services to manufacturers, from free advice and expertise on manufacturing, procurement, quality and industry issues through the online Ask Nuclear service; to industry-led skills and training through our hosting of the National Skills Academy for Nuclear Manufacturing.

Our core services include the enhanced and expanded Fit For Nuclear programme to help companies take a first step into the nuclear supply chain; Nuclear Connections to link manufacturers to specific supply opportunities from the industry’s top tiers; and the civil nuclear Sharing in Growth programme to provide intensive support to the most promising suppliers to help them compete globally.
We can provide the tailored support your business needs to meet customer demands and win work in the civil nuclear industry.

The Nuclear AMRC worked with Rolls-Royce to significantly reduce the time needed to produce a complex heat exchanger sub-assembly featuring thousands of tubes inserted through a series of plates.

The team used advanced metrology techniques to reduce assembly time by up to 80%.
Fit For Nuclear (F4N) is a unique diagnostic tool to help manufacturing companies test whether they are ready to enter the nuclear supply chain for new build, operations and decommissioning.

Developed with the support of the industry’s top tier, F4N lets companies measure their operations against the standards required to supply the nuclear industry, and take the necessary steps to close any gaps.

Delivered by the Nuclear AMRC and Manufacturing Advisory Service, the F4N programme is supported by top-tier partners including Areva and EDF Energy. These industry leaders are using F4N to identify potential companies for their own supply chains.

In a survey of companies which have completed F4N, three quarters said that they are experiencing meaningful business benefits as a result – and 100 per cent would recommend the programme to other manufacturers.

We have now expanded and enhanced F4N to help even more companies in more areas of manufacturing, and to provide additional support including grant funding.

namrc.co.uk/services/f4n

Ducting specialist Hargreaves is just one of the companies to drive business improvement through the Fit For Nuclear programme.

100% would recommend the programme to other manufacturers.
Nuclear Connections

Nuclear Connections links manufacturers to specific current supply and tender opportunities from the industry’s top tiers.

Nuclear Connections is based on our detailed understanding of the production capabilities of individual companies, including those advancing through their Fit For Nuclear journey.

Our procurement experts can help match your capabilities with current and upcoming tenders in civil nuclear decommissioning, operations and new build, making sure you’re in the best position to win work.

Civil nuclear Sharing in Growth

The civil nuclear Sharing in Growth programme (CNSIG) is an intensive business development programme which aims to accelerate the growth of key members of the UK manufacturing supply chain for civil nuclear.

Ten companies are now receiving a four-year programme of business development and training worth £1 million, tailored to the specific needs of their business.

This includes shopfloor manufacturing improvement, process improvement, leadership development and specific nuclear sector knowledge.

CNSIG is also supporting advanced R&D to help partners compete on cost and quality.

CNSIG is part-funded by government through the Regional Growth Fund, and supported by industry leaders including Rolls-Royce.
University of Sheffield AMRC

The Nuclear AMRC is just part of the University of Sheffield AMRC, a cluster of industry-focused manufacturing R&D centres and supporting facilities.

The AMRC cluster also includes the original AMRC with Boeing, a global centre of advanced machining and materials research for aerospace and other high-value manufacturing sectors, and a model for collaborative research centres worldwide; Castings Technology International, a world-leading provider of technology, expertise and services to the cast metals sector; and the AMRC Training Centre, which provides the practical and theoretical skills that manufacturing companies need to compete globally.

To complement our own nuclear-focused capabilities, we can offer immediate access to the wealth of experience and resource in the AMRC group, from design and prototyping through to production-scale casting and assembly facilities.

High Value Manufacturing Catapult

The Nuclear AMRC is part of the High Value Manufacturing Catapult, an alliance of seven leading manufacturing research centres backed by the UK’s innovation agency, Innovate UK.

Being part of the Catapult ensures that we play a core role in the revival of the national manufacturing sector. It also allows companies working with us to tap into a national network of manufacturing research excellence – if aspects of a particular challenge fall outside the Nuclear AMRC’s areas of expertise, we can call on the other Catapult centres for additional knowledge and resources.

The High Value Manufacturing Catapult is just one of a new generation of Catapults targeting the most vital technologies for the UK’s future.
The Nuclear AMRC is here to support manufacturing companies, from SMEs to global giants, which are seriously interested in winning business in the nuclear sector. If we can help your company, we want to hear from you.

We help manufacturers through supplier development and innovation.

We can work with you to raise your quality, capability and cost competitiveness to meet the needs of the global nuclear industry.

And we can develop world-leading manufacturing processes and technologies. We have the production-scale facilities and the manufacturing expertise to help you improve cycle time, reduce lead time, improve quality and reduce costs.

Our capabilities and services are open to all UK manufacturers. We provide a responsive service to help you solve your manufacturing challenges and win new work.

We also offer full membership, giving you access to our generic projects and the opportunity to determine our core research.

To find out more about how we can help your business, contact Stuart Harrison, Nuclear AMRC business development director:

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