CVŘ Research Centre Řež

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Press release

Centrum výzkumu Řež receives Fusion for Energy award for sustainable approach to testing components for fusion technologies

Research Centre Řež (CVŘ) has received the Sustainability Champion award in the inaugural F4E Supply Chain Excellence Awards 2026. The EU organisation Fusion for Energy (F4E) recognised CVŘ for decontaminating and repurposing HELCZA (High Energy Load Czech Assembly), a unique experimental facility designed to test materials and components under extreme thermal loads. Rather than building new infrastructure, the facility was adapted to test tungsten components as part of the transition from beryllium to tungsten. The award was announced on 29 October during the Big Science Business Forum 2026 in Maastricht.

The HELCZA facility, funded by F4E, had previously been used for High Heat Flux (HHF) testing of beryllium components for ITER, the world's largest fusion experiment. Its subsequent use for testing tungsten components therefore required the removal of residual beryllium contamination, followed by verification that the facility could be operated safely. The CVŘ team decontaminated the premises, vacuum vessel, test equipment and other accessories. Components that could be safely decontaminated were retained, while materials that could not were removed.

The scale and success of the project are demonstrated by tangible results. A total of 2,956 samples were collected and analysed during the decontamination campaign. Average beryllium contamination in the vacuum vessel fell from 131 μg/m² to 0.33 μg/m². The effectiveness of the decontamination was subsequently confirmed by a high-heat-flux test using a copper test piece, on which no measurable beryllium contamination was detected either before or after testing. These results were specifically highlighted by the F4E judging panel.

The project made it possible to preserve and continue using the existing research infrastructure rather than replacing it. Alongside the decontamination itself, protecting workers and managing work involving beryllium in accordance with the ALARA principle were essential parts of the project. This means keeping exposure as low as reasonably achievable. The measures adopted included controlled work zones, HEPA filtration, air and contamination monitoring, and the use of appropriate personal protective equipment.

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Adapting HELCZA also helped preserve European high-heat-flux testing capacity and the specialist expertise required for future test programmes. The facility can be used to test and qualify tungsten components exposed to high heat fluxes, including fusion reactor components intended for use in environments close to the plasma.

To deliver the European contribution to ITER and other fusion projects, F4E has worked with over 3,000 companies and laboratories across Europe. The F4E Supply Chain Excellence Award is an initiative recognising excellence across its supply chain. Its inaugural edition comprised five categories: Excellence in Delivery, Innovation Pioneer, Sustainability Champion, SME Rising Star and Collaborative Partnership. In the Sustainability Champion category, won by CVŘ, the judging panel assessed environmental performance, measurable impact, social responsibility, capacity building and the replicability of the solution.

The award was announced during the Big Science Business Forum 2026, held in Maastricht from 27 to 30 October. The forum brings together European companies, research organisations and other stakeholders involved in developing technologies and supplying Europe's research infrastructures. The organisers expect this year's event to welcome more than 1,200 participants from over 500 organisations and 30 countries.





About Centrum výzkumu Řež

Centrum výzkumu Řež s.r.o. is a leading Czech research organisation specialising in applied nuclear and materials research and a wholly owned subsidiary of the ÚJV Group, a Czech technology group. It operates key research infrastructures and participates in national and international projects in nuclear safety, energy, medicine and education.

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