GRE Ltd, a thermal engineering specialist based in Devon have won a contract to supply an ultra-pure water cooling system, including design, manufacture, testing, installation, commissioning, on-site training and handover for the European Spallation Source (ESS) in Lund, Sweden worth ~£250,000.

The GRE equipment will provide cooling to the linear accelerator that begins the flow of protons that is then accelerated to approximately 96% of the speed of light, before hitting a tungsten target, which then releases neutrons that are distributed to ESS’ experimental stations and used for studying samples. The ESS is set to be the most powerful pulsed neutron source in the world and will initiate the user programme for researchers in 2023.

Deionised water is typically used to cool equipment where high voltages are present as it eliminates the risk of electrical danger. The GRE system delivers deionised water to the linear accelerator within the specified parameters including temperature of the fluid, pressure, conductivity, oxygen content and flow rate. The user has the option to control the flow rate based on either constant outlet pressure or constant flow rate.

Delivering this contract has required a very high level of skill and also allowed GRE to develop new expertise as some of the required parameters are new for the company.

“It has been really interesting working with ESS on their specific requirements for their application and it is extremely rewarding having met their high standards, ultimately delivering a machine the customer is happy with. I look forward to working with them on the next part of the project,” said Natalie Martin, Design Engineer from GRE Ltd.

GRE have been working with the STFC national laboratories for a number of years and through contacts at the laboratories they were made aware of the opportunities for UK companies at the large international science facilities. They registered with the STFC Business Opportunities database to be alerted to tender opportunities from the international facilities that STFC fund. In late 2015, after receiving an alert from the STFC Business Opportunities...
team, GRE responded to a Request for Information (RFI) from the ESS for Deionized Water Cooling Skids. GRE worked with the ESS on the RFI and in 2017 they successfully bid for the contract.

Richard Booth, Managing Director, from GRE Ltd said: “Without the STFC team GRE would never have known about, let alone bid for a tender of such a scale and with the facility of this size. We made a cryogenic system for STFC in 2013 and through this we got to know John Vandore and the cryogenic cluster people, which really allowed GRE to get our foot in the door to open up opportunities to us the science sector. We then started to look for similar work, using the same contacts we had made and as a result we’re now regularly winning contracts for STFC’s national laboratories.”

The ESS contract has increased GRE’s awareness of the big science market sector and vast array of opportunities available. They are now engaging with other large science facilities and have attended a number of industry events, such as the 3rd CERN HiLumi Industry day, UK@CERN trade mission and the first Big Science Business Forum, to help build relationships with the facilities.

GRE estimate that one-third of their business is currently from the science sector and it’s an area of their business that is continually growing. The work in this sector is also of great interest to the employees of the company, which GRE value.

Further Information
STFC funds a number of large international science facilities besides the ESS. The STFC Business Opportunities team works to increase the return that the UK gets from tenders and contracts at these facilities by providing free assistance to UK companies and helping them to access tenders at these facilities.

The international laboratories include: CERN in Geneva, Switzerland; ESO in Garching, Germany; ESS in Lund, Sweden; SKA in the UK, South Africa and Australia; European X-FEL in Hamburg, Germany; the ESRF and the ILL in Grenoble, France; and FAIR in Darmstadt, Germany. We are not involved in contract opportunities for our national facilities.

If you would like to be alerted to upcoming tender opportunities or to hear about events to connect with the facilities please register with us.