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NEWS RELEASE

Innomech to develop automated fuel cell manufacturing for AFC Energy

GB Innomech (Innomech) has been appointed by AFC Energy – the fuel cell energy developer for industry – to develop automated manufacturing equipment to assemble fuel cell stacks for the company's EU-backed Power Up programme. The work includes the development of automated equipment to dismantle stacks at the end of their working life, allowing key components and materials to be recycled and reused.

The appointment is being made with the support of a four year €6.1 million (£4.9 m) EU development grant that will enable AFC Energy and the Power Up consortium to develop and install commercial-scale energy generation plants using hydrogen as a fuel source. One of the first clean energy plants will be located at Air Products' industrial gas processing facility at Stade, northern Germany. The first of two KORE systems is due to be installed in 2014 and the plant will generate a total of 500 kW electrical output when fully operational.

The first phase of Innomech's work is to help scale up the fuel cell manufacturing process and to supply a suite of assembly equipment, including a robotic workcell for automated stack assembly utilising the flexible automation provided by an ABB IRB 2600 industrial robot. The scale up will also incorporate laser marking equipment into existing production lines for electrode plates so that each part will be uniquely identified with human and machine-readable codes. This approach ensures full traceability throughout subsequent manufacturing, enabling the robotic assembly cell to verify that the correct part has been loaded into the multilayer fuel cell stack, and also records its details with the potential to capture data on the performance of each electrode throughout its lifetime.

Each fuel cell stack comprises layers of electrode plates and interleaving spacers that need to be precisely orientated and aligned during assembly. Robots help deliver the production rate required because of the many layers and multiple checking routines involved: the final stack is then compressed and bolted before having electrical contact clips attached.

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“Innomech has always been committed to minimising the environmental impact of its own business so we are delighted to be involved in such a high profile, clean energy project. The Power Up project will draw on our skills in robotic handling, machine vision and manufacturing traceability, as well as our experience in helping industrial clients to bring exciting new technologies to market,” said Tim Mead, commercial director at Innomech.

“We at AFC Energy are delighted to be working with Innomech who are regarded as one of the leaders in their field – we look forward to this being the first step of a long successful partnership,” said Ian Williamson, chief executive of AFC Energy.

The second phase of work, which is due to start in 2014, will be to develop and produce automated disassembly equipment that allows the fuel cells stacks to be taken apart layer by layer at the end of their working life. The electrode materials and plates can then be separated for recovery and re-use, with the catalysts and other materials regenerated and recycled.

Notes to editors:

About GB Innomech

GB Innomech (Innomech) specialises in automating highly complex and labour-intensive manufacturing processes to maximise outputs, improve product quality and boost business performance. The company works with major international manufacturers in sectors such as pharmaceuticals, medical devices and environmental, as well as earlier-stage businesses looking to bring breakthrough technologies or products to market.

Innomech has a growing market reputation for solving the toughest of manufacturing problems by the early identification and management of risk, often cross-fertilising technologies and techniques from a range of industry sectors. All projects from initial feasibility studies through to building production-scale machines are conducted to high specification pharmaceutical industry standards and are designed to comply with GAMP5, FDA and other international standards.

The company was founded in 1990, is based at The Innovation Centre in Witchford, north of Cambridge and was awarded The Queen’s Award for Enterprise 2009 to recognise its sustained growth in international markets.

For additional information about GB Innomech please visit or contact:

- www.innomech.co.uk
- Press enquiries to Simon McKay on +44 (0)1353 741075 or email to simonmckay@innomech.co.uk
- All other enquiries to Tim Mead at Innomech on +44 (0)1353 667394

About AFC Energy and KORE

Founded in 2006, AFC Energy plc is re-engineering proven alkaline fuel cell technology to reduce the cost of electricity. Alkaline fuel cells have been used on US and Russian manned space missions for decades to provide electrical power and drinking water. By using platinum free, advanced materials, design tools and manufacturing processes at scale, AFC Energy is developing fuel cells that will compete with conventional technologies such as turbines for electrical power generation.

Today, AFC Energy is pursuing opportunities in several sectors where hydrogen is readily available including the chlorine, clean coal and waste-to-energy industries as well as applications for distributed/back-up power.

KORE is a 24 cartridge, commercial-grade alkaline fuel cell system, developed by AFC Energy and capable of supplying 250 kW.

For further information, please visit our website: www.afcenergy.com

About Air Products

Air Products (NYSE:APD) provides atmospheric, process and specialty gases; performance materials; equipment; and technology. For over 70 years, the company has enabled customers to become more productive, energy efficient and sustainable. Recognized as one of the world's most innovative companies by both Thomson Reuters and Forbes magazine, more than 20,000 employees in over 50 countries supply effective solutions to the energy, environment and emerging markets. These include semiconductor materials, refinery hydrogen, coal gasification, natural gas liquefaction, and advanced coatings and adhesives. In fiscal 2013, Air Products had sales of \$10.2 billion.

For more information, visit www.airproducts.com.

Photographs

Print quality JPEGs of the images below have been sent attached to the original email or are also available on request from Simon McKay (details above). Additional images are also available:



- 1 Innomech has been appointed to build automated manufacturing equipment to assemble fuel cell stacks for a new clean energy plant that is being installed at Air Products industrial gas processing facilities in Stade, Germany. This image shows Air Products industrial gas facility at Baytown, Texas.
Credit: Air Products



- 2 Innomech's automation equipment will be used to assemble fuel cell stacks for one of the world's largest alkaline fuel cell power systems that is being installed at Air Products industrial gas processing plant in Stade, Germany. This image shows the company's world-scale hydrogen production plant in Rotterdam, The Netherlands which opened February 2012.
Credit: Air Products

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