

COMMERCIALISING HIGH-VALUE GREEN TECHNOLOGIES

John Crane provides an extensive portfolio of proven, API (American Petroleum Institute) compliant technology solutions that can be applied to reduce leaks across much of the oil and gas value stream, from upstream boosting to midstream processing, LNG, and downstream refineries and petrochemical facilities.

John Crane is currently engaged in over 20 CCUS projects worldwide, and is developing new solutions toward improving the reliability, cost and efficiency of transporting carbon dioxide. At the present time, nearly 80% of all carbon dioxide injected underground uses John Crane sealing technologies.

In traditionally water-intensive industries such as pulp and paper and mining, John Crane dynamic lift seals save an average of one million gallons of water per seal per year. Additionally, diamond face seals are designed to reduce friction, lowering energy use, yielding similar water savings and extending life.

In March 2022, John Crane announced a partnership with NatureWorks – one of the largest global producers of biopolymers – to support development of a new polymer manufacturing facility in Thailand. John Crane will provide a polymer melt filtration system to remove contaminants from the production process for biopolymers which produce less greenhouse gas and are more energy-efficient to manufacture than traditional petroleum-based plastics.

Alternative fuels and renewables

Today, low-carbon hydrogen – hydrogen produced through electrolysis powered by renewable or nuclear energy; and hydrogen produced through natural gas reforming technologies retrofitted with carbon capture solutions – is one lead example of alternative fuels that are emerging to lower carbon emissions across many hard-to-abate sectors.

John Crane is a market leader in hydrogen compression sealing with over 40 years' experience and a portfolio of hydrogen-ready products that can be applied to solve the challenges associated with compressing, transporting, and storing hydrogen and its derivatives. Methane abatement and CCUS are fundamental to the success of hydrogen produced through natural gas reforming. John Crane is working with existing hydrogen and CCUS facilities.

Looking further ahead, accelerated deployment of all available clean energy technologies – hydrogen, nuclear, solar, wind, hydroelectric, geothermal and carbon capture – will be required to hit global GHG goals. John Crane's expertise will support this rapid scaling with existing and new technology for compression and conveyance in challenging operating environments. And development and expansion of existing energy hubs means that John Crane is already on the ground close to operating partners and stakeholders.

SMITHS DETECTION

Smiths Detection is a global leader in the detection and identification of threats and contraband, supporting safety, security and freedom of movement across a range of markets including aviation, ports and borders and urban security. Customers operating in these sectors share our objectives to reduce energy use and emissions while maintaining the integrity and effectiveness of the infrastructure and systems that keep us safe.



Energy efficiency and extending equipment lifespans

Smiths Detection is focused on supporting customers to extend the lifespans of their installed base through repairs, refurbishment and mid-life upgrades; and improving design, modes of operation and implementing digital solutions to drive step changes in energy efficiency in the current and next generation of equipment.

Looking further ahead, the application and integration of new technologies will enhance threat detection ability, making security processes faster and more effective, thus saving resources of all kinds, while enabling operators to respond to the evolving threat environment and continue to keep us safe.

With global reach and installations in countries across the world, Smiths Detection is positioned to play an important role in helping customers meet their environmental commitments and reduce cost of ownership of these vital systems.

Smiths Detection's HI-SCAN 6040 CTiX cabin baggage scanner has the lowest energy use compared to similar products on the market. It also meets the ECAC EDS CB C3 checkpoint security standard which enables passengers, when jurisdictions permit, to leave liquids in their bags, helping reduce the need for single use plastic bags and other small plastic containers.

Smiths Detection collaborated with Microsoft and London Heathrow Airport on the development of a first-of-its-kind multispecies AI model designed to uncover illegally trafficked wildlife concealed in baggage and air cargo. An extensive library of X-ray images taken from Smiths Detection baggage scanners at Heathrow was used to train the Microsoft AI for Good model. Initial testing of the model had a success rate of over 70% in identifying trafficked animals and ivory.