H2GEAR AND HYDROGEN IN AVIATION

AN EXCLUSIVE INTERVIEW WITH GKN AEROSPACE

INTERVIEWED BY KARUN HARRAR

Working for our members
INTRODUCTION

In response to the announcement on Thursday 28 January 2021 that GKN Aerospace will lead the development of a ground-breaking liquid hydrogen propulsion system for sub-regional aircraft, ADS Innovation Executive Karun Harrar had an exclusive interview with Max Brown, Vice President of Technology at GKN Aerospace.

In this article he explores the technologies involved and gains insight into the strategic background behind the project, as well as shedding light on GKN Aerospace’s plans for the future.
The distribution and storage of hydrogen is a significant challenge that needs to be addressed and this is being explored in parallel with the development of the aircraft propulsion technology itself. This work is well underway. GKN Aerospace is today collaborating with many partners in UK government-funded programmes to ensure that the technical and social challenges associated with hydrogen propulsion, and the necessary infrastructure, are fully understood.

We have a desire and a responsibility to ensure we are part of the wider solution that makes hydrogen aviation a reality and ultimately leads to cleaner skies.

The Hydrogen landscape is developing rapidly in the UK, with government, industry, academia and the High Value Manufacturing Catapult (HVMC) network all actively developing hydrogen strategies across multiple sectors. At the heart of this is UK Government backing for projects including our H2GEAR programme.

The UK has been at the forefront of aerospace for many years, and Government investment is essential to keep us there and drive future innovation at the pace needed to bring sustainable technology into reality.

WHAT ARE THE TECHNICAL REQUIREMENTS FOR A HYDROGEN-CENTRIC SYSTEM IN SITU/IN AN AIRFIELD?

OTHER COUNTRIES ARE INVESTING INTO HYDROGEN TECHNOLOGY...WHAT MAKES THE UK AN ATTRACTIVE PLACE TO INVEST?
WHAT ARE THE UK’S STRENGTHS WHEN DELIVERING A ZERO-EMISSION PROPULSION SYSTEM?

The UK’s aerospace sector already has world-leading expertise in both sustainability and propulsion technologies. We have industrial strength and an academic depth in propulsion systems throughout the development lifecycle. That collaborative ecosystem is underpinned by strong investment strategies, which continue to deliver a rich vein of innovation and industrialised technologies.

With initiatives such as Jet Zero, ZeroAvia and Fly Zero, the UK government continues to show the high-level leadership required to help define and deliver the zero-emissions agenda.

WHO DO COMPANIES NEED TO PARTNER WITH AND WHAT COLLABORATION OPPORTUNITIES ARE THERE?

Collaboration is critical for aerospace to achieve its sustainability agenda, and the more companies that focus on breakthrough sustainability technologies the better. I would encourage companies to look to the HVMC network as an initial point of contact to best understand the developing hydrogen landscape in the UK. This can help drive the right partnerships and quicker, more sustainable solutions.
WHAT IS GKN AEROSPACE’S ROLE IN THE FUTURE OF THIS TECHNOLOGY AND WHAT DOES THE NEXT 5 YEARS LOOK LIKE?

Through our well-established Engines business, GKN Aerospace has significant capability and expertise in propulsion technology, as well as experience in cryogenics, as related to its work on rocket nozzles.

Over the next 5 years we will also develop a breadth of hydrogen-based technologies. These will focus both on specific technology areas, as well as the wider system integration piece. At the forefront of this is the H2GEAR programme, which GKN Aerospace has recently launched in partnership with the UK government and several other industrial and academic partners including Intelligent Energy, Aeristech, Newcastle University, The University of Manchester and The University of Birmingham. H2GEAR will be based in our Global Technology Centre in Bristol and will look to demonstrate those core technology capabilities leading up to 2026.

HOW IS GKN AEROSPACE MAKING USE OF IT’S ANGLO-SWEDISH RELATIONSHIPS?

The Engines element of the GKN Aerospace business, based primarily out of Sweden, provides decades of propulsion experience from component level manufacture right the way through to complete engine design and certification capability.

We understand engine propulsion technologies and most importantly where our customers are looking for our strategic support and investment. In the UK, our strength is primarily in our airframe capability.

Combining our UK ecosystem and Engines business knowledge is a great example of GKN Aerospace acting as a truly global business. It allows us to bring real depth of understanding to future propulsion programmes such as H2GEAR, which are essential in creating a more sustainable future for aerospace.
ADS is the UK trade association advancing the UK’s aerospace, defence, security and space industries. ADS has over 1,100 member companies across all four sectors, with over 1,000 of these companies identified as Small and Medium Sized Enterprises (SMEs).

The UK is a world leader in the supply of aerospace, defence, security and space products and services. From technology and exports, to apprenticeships and investment, our sectors are vital to the UK’s growth - generating £74bn a year for the UK economy, including £41bn in exports and supporting around 1,000,000 jobs.

adsgroup.org.uk

Sustainable Aerospace Hub
Find out how the aerospace sector is responding to the climate change challenge.
#sustainableaero