

BHR OPEN DAY FOR MAA MEMBERS

The continuing challenge to design safer, lighter and more fuel efficient aircraft drives the aerospace industry to constantly push the boundaries of development. Digital engineering is increasingly being utilised to drive advancement and tackle such challenges.

Working with the Midlands Aerospace Alliance (MAA), the BHR team devised an event to help MAA members gain insights and share experiences of this exciting and disruptive technological advancement.



“Digital Engineering for Aerospace” took place on 10th May 2018 at the Fluid Engineering Centre in Cranfield.

Focusing on Integrated Simulation and Testing, the event aimed to show delegates how to approach this area with a view to shortening product development life cycles and improving through life performance. Technical presentations were given by BHR experts and guest speakers from Rolls Royce, Extrude Hone, ITC Aero and add2. Topics discussed ranged from “The predictive process for abrasive flow machining” to “Design and testing to avoid pressure cycle fatigue” and some interesting debate followed each presentation.

The event culminated in a tour of BHR’s laboratory, with live demonstrations of our Pressure Cycle Testing capabilities, illustrating how BHR Group can assist in design and testing to avoid pressure cycle fatigue in aircraft fluid power systems.

Pressure Cycle Testing

BHR’s pressure cycle testing capability extends to a wide range of aerospace components: Hoses, couplings, pumps, accumulators, filter bodies and valves. Its testing parameters include:

- Pressure range up to 1000 bar (14,500 psi)
- Pressure rate rise up to 140k Bar/second (2M psi/s)
- Cycle frequencies typically 1 – 3 Hz, but can do faster
- Trapezoidal, impulse pressure overshoot, sinusoidal and bespoke waveforms
- A wide range of test liquids and gases (although typically Shell Tellus S2 M Industrial Hydraulic Fluid 46 is used)
- Temperature ranges from ambient to + 200°C

Test Facility Tour and Demonstration

As specialists in understanding how fluids behave, how they interact with each other and how they react with their surroundings, BHR provides a range of services to clients across a broad spectrum of industries. Therefore the tour not only showcased its ability to test components at extremes of heat and flow, but also related capabilities such as hydraulic physical modelling and BHR’s proprietary abrasive water jet cutting systems.

Dr Pamela Farries, Supply Chain Technology Manager at MAA said:

“We learned a lot about applying very different digital engineering techniques to inject intelligence into design, manufacturing and engineering decisions and processes. Our presenters had clearly capitalised on techniques to both accelerate product development and enable them to gain more detailed objective insights into their applications than previously possible.”

About the MAA

The Midlands Aerospace Alliance supports and represents the aerospace industry in the region. It is one of the world’s biggest aerospace clusters and has 300 members, ranging from global players Meggitt, Moog Aircraft Group, Rolls-Royce and UTC Aerospace Systems to small supply chain companies and key regional partner bodies. Members design and make the aeroengines and sophisticated mechanical, electrical, hydraulic and electronic systems that make aircraft fly. The region is home to nearly ¼ of the UK aerospace industry, 7% per cent of Europe’s and 3% of the world’s, with more than 40,000 FTE jobs supplying global aerospace markets.