



ZIM-Projekt-Meeting: Alexander Duerkopp, Head of R&D Hebmüller aerospace and Emre Kuecuk, Dev. Eng. Kunststoffverarbeitung Hoffmann

is largely defined by the diameter of the solenoids and electric motors. The goal of the ZIM research project is to reduce this overall depth by at least 50% compared to the current designs, and by up to 80% in the actuator area of the valve.

Ensuring the fail-safe closing function in the event of a power failure without the use of additional solenoid valves is an important criterion. The omission of a magnetic field despite an electric valve also has a positive effect.

Optimizations can be achieved by building a lightweight electronic valve through the use of innovative actuators and high-performance plastics.

Thanks to their positive properties, plastics are increasingly displacing existing materials such as aluminium and other metals in aerospace engineering. Compared to metals, they enable weight savings of up to 70%. Cheaper materials and optimized and automated manufacturing processes also reduce costs.

In addition, polymers are corrosion resistant, which leads to improved component life.

Finally, the ecological aspect should not be ignored. For example, compared to aluminium, the use of plastics can prevent up to 80% of CO<sub>2</sub> equivalent emissions.

A start has been made on the sustainable conservation of environmental resources when two committed AeroSpace, NRW members make their contribution to safeguarding the future of aviation by saving space and weight behind the cabin cowling.

#### Advantages of polymers versus metals in the aircraft industry

- Weight advantages of up to 70%
- Corrosion resistance
- Cost efficiency
- Reduction of up to 80% CO<sub>2</sub> equivalents

#### About project partner and AIX Exhibitor Hebmüller Aerospace

The Kaarst/Germany-based family business has been developing, producing and distributing fresh and grey water valves for the aviation industry for 25+ years. The team around founder and managing director Axel Hebmüller, together with Head of R&D Alexander Dürkopp, is breaking new ground in the research of innovative valve generations. Hebmüller Aerospace also gains relevant experience thanks to its listing with leading manufacturers and equipment suppliers in the after-market of aircraft maintenance. The quality Made in Germany justifies the company claim: TRUST IN MORE

#### About the project partner Kunststoffverarbeitung Hoffmann GmbH

The company Kunststoffverarbeitung Hoffmann GmbH is structured in two working areas. In the area of plastics technology, polymer components, increasingly made of high-performance plastics such as PEEK or PPS, are produced in injection moulding processes. In the mechatronics area, unlocking actuators for the furniture technology and maker scene markets have been manufactured since 2019. Today, these actuators only have to fulfil simple technical tasks (binary switching), apply comparatively low forces and guarantee moderate service lives. The Hoffmann company from Heiligenhaus / Germany is distinguished by its expertise in FG actuators, in product design suitable for plastics, and in mechatronic system design.

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