

SAVING SPACE AND WEIGHT BEHIND THE CABIN COWLING

Hebmüller Aerospace on how novel electric mixed water valves optimize the consumption of kerosene and CO₂ in aviation



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Hebmüller Aerospace – global Industry division of Hebmüller GROUP, a Kaarst/Germany and Johnson City/USA-based manufacturer known worldwide for its special valves, is developing an ultra-flat electric proportional valve for sanitary applications in mobile aviation. In cooperation with Hoffmann, a plastics processing company based in Heiligenhaus/Germany.

Tribute must be paid to the increasing demand for ever more compact designs in the aviation industry. In the future, cabins will not only have to score points with an efficient seating arrangement, but the other usable spaces will also have to cope with reduced dimensions and weight. Every cubic centimetre, every gramme counts.

Challenges and goal

- Savings in kerosene and CO₂
- Long-haul aircraft route: 4,000,000 km/year
- Reduction of weight by 1kg = Reduction of 153.3 l/year kerosene. 1,25l kerosene generates 3,15 kg CO₂ = 386 kg CO₂ / year

Highly functional equipment for temperature-controlled mixed water – also in the “galleys” and “lavatories” – is in demand.

Enter two German family-owned companies from North Rhine-Westphalia, which are active worldwide and known for their innovative strength, and a cooperation project that promises transformative innovation.

What is currently done as a matter of course in water supply by several individual components is to be replaced by a single,

ultra-flat system. How can the narrow spaces behind the cabin wall be designed in such a way that, while maintaining full functionality, only one component supplies the water to the faucet at the correct temperature?

Thus was born the concept of the electric mixed water faucet. In the project, the development teams are working out ways to replace the often commercially available components with check valves and over-boiling protection. The path to the goal leads via new materials under smart design for maximum reduction of size and weight.

Due to the way they have been designed up to now, the installation depth of valves, which is usually around 60-90mm,

