

## Newsletter July 2019

### Exhibitions 2019

We had the great opportunity to present our project at the AERO in Friedrichshafen and the Paris Air Show in Le Bourget. Many friends and also new prospective customers took the chance and visited us at our booth. At the Aero we shared the Siemens booth together with other very interesting projects and were able to showcase a cross section of the electric aviation.

The feedback was consistently positive and highly interested. This strengthens our belief that we are on the right track and that *elfin 20.e* hits the right nerve.

### Horizontal stabilizer- first part that will actually fly!

At the AERO we showcased the elevator of the first *elfin 20.e* prototype. This Part is not made for testing or breaking, but for flying! Due to the fact, that it was shown prior painting and finish, it was highlighting the special feature of the new production method, the spread tow (spread fibres). Out-of-autoclave prepreg enables lower ondulation of the fibres contributing to the enormous weight saving potential. The production method used, enables building particularly light components. Additional weight is saved through secondary effects, e.g. smaller gap dimensions (less glue). All those advantages combined, allow us to exploit the material characteristics as best as possible. Every weight saving benefits the capacity of the batteries, i.e. the range in powered flight. Compared to conventional manufacturing processes, it has been proven that at least 25 % of the structural weight can be saved.



### Major step forward in manufacturing molds and jigs

The complex processes involved in manufacturing the molds have been established and are showing excellent results. The last major milestone was the successful production of the fuselage mold. Since the fuselage is the largest component in terms of surface, the corresponding mold is also the largest. This has put the previously processes, that have proven only in small-scale, to the test.



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## It will be a Rolls Royce!

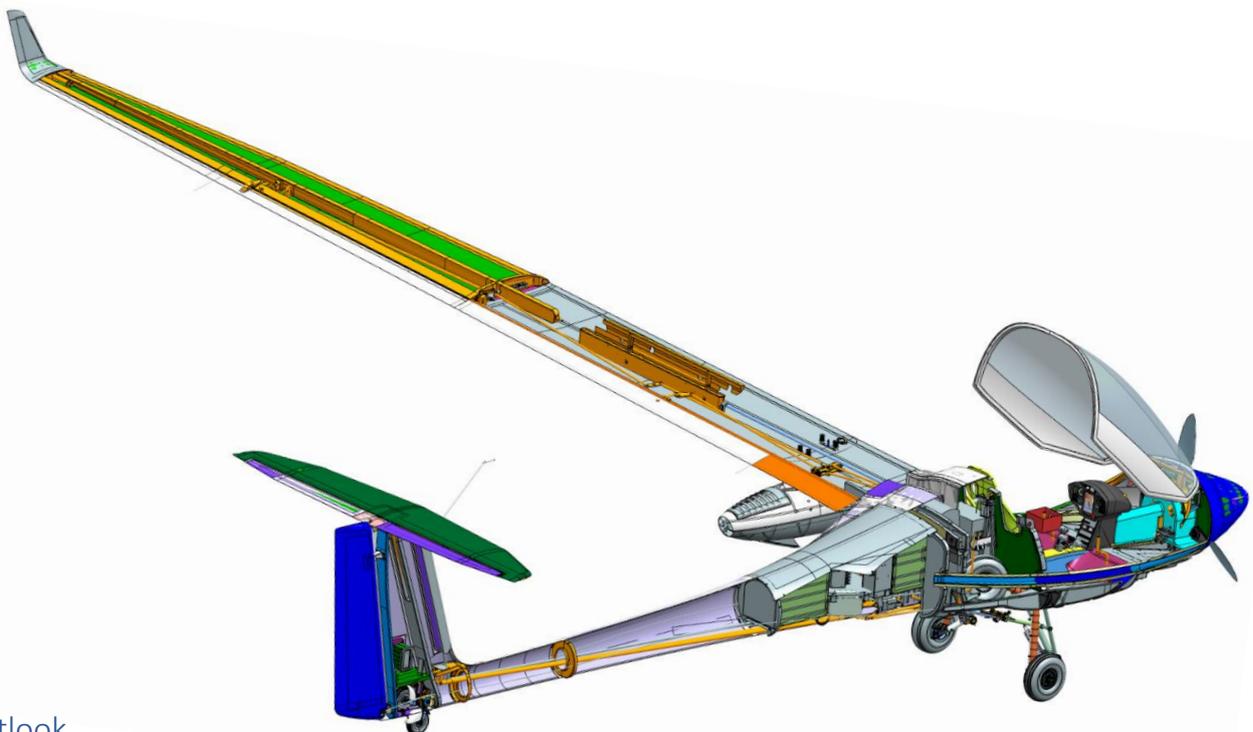
Siemens just recently sold its electrical aviation division to Rolls Royce. The good news: all projects will be continued, and all sites should be preserved. Rolls Royce is a big player in the aviation industry and will contribute to *elfin's* success.

Shortly before we got these news ourselves, we were able to determine which specific engine will provide *elfin* with decent thrust. The SP70D represents the pinnacle in the development of electric motors and combines the experience gained with various flying prototypes in recent years. The propulsion package consisting of SP70D electric motor and inverter/controller unit is capable of providing up to 70 kW continuous power and more than 80 kW for take-off. Despite the increased power, the weight could be further reduced. Special features of the motor are: cooling jacket and hollow shaft allowing the seamless integration into demanding aircraft configurations; liquid cooling for motor and inverter dissipating heat and thus providing uninterrupted power when needed. The high power density and the special features make the SP70D the perfect choice for the *elfin*.

## Three Blade Propeller

We are proud to announce, that we made a big step forward with our propeller design. After considering all different aspects we found the optimum in increasing the number of blades to three! This enables us to increase the handling qualities while obtaining the efficiency and the low noise and vibrations levels. The clearance is dramatically increased, resulting in highly reduced risk of propstrike or damaging the prop due to small debris. Nevertheless the leading edge has an additional metal protection.

The three blades ensure the potential of the electric propulsion system is exploited in the best possible way.



## Outlook

The construction and design of the *elfin* are also making great progress. This motivates us to constantly find new solutions and to push this project.