

Newsletter - High-Voltage Motorsports e.V.



Dear sponsors, dear friends of the association,

As an eventful year draws to a close, we would like to take this opportunity to look back with you and look ahead to the coming year. Christmas is just around the corner, and while we enjoy the quiet days, we would like to give you a little present with this newsletter: Insights into the work and successes of our sub-teams! Each of our sub-teams has made great progress this year, overcoming challenges and setting ambitious goals for the coming season.

We would like to thank you for your support, which always motivates us to give our best. We wish you a Merry Christmas, relaxing holidays and a good start to the New Year!

Happy reading!



Aerodynamik

The existing aerodynamics package is being further developed and adapted based on the knowledge gained from the Rho season. The focus is currently on the front wing and underbody assemblies. Both are to be further developed and will change at critical points compared to the predecessor. In addition, parts of the cooling system are to be placed on the side of our underbody in order to improve the cooling performance of our system. Furthermore, the aerodynamics of our car have been examined with the help of an aero rake since October in order to find out how close our simulations are to reality.

Management

An absolute highlight was our participation in Consumenta 2024, one of the biggest and most spectacular public events in the region! Together with FAU, we had the fantastic opportunity to present our team, our work and the groundbreaking innovations behind our project to a wide audience, but that's not all: we are also incredibly proud to have been awarded FAUInnovator 2024! This award is a wonderful recognition of our team's commitment and proof that our work offers real, great added value, both technically and socially!

From November 22 to 24, we spent a fantastic team-building weekend in Münchsteinach to further strengthen our team cohesion! For three days, we threw ourselves into exciting workshops, activities and personal exchanges! Moments like these are not only important for us to grow together as a team, but also to recharge our batteries for the coming months!



Fahrwerk

The first orders are placed and the final week of the design phase has begun. Now the final touches are being put to the concepts we have worked out, such as our first specially developed brake callipers and the associated wheel carriers. In the chassis, we have revised and improved our entire pedals. This will allow us to become even lighter and more reliable. With the experience we gained last year, we were able to change our steering and kinematics so that our riders can steer with more safety, less force and less compliance. In addition, our long testing period last season enabled us to identify and rectify other minor shortcomings. We have also started the development of a wheel hub concept, which will be further improved in the following months to enable a smooth transition.

The end of the design phase marks the start of production.



Chassis

In order to complete the production of our car even earlier than last year, we have decided to start manufacturing our monocoque in January. Preparations are currently in full swing.

The layer structure of the monocoque has been further improved to increase rigidity and strength.

Driverless

Last year, we reached an important milestone: For the first time, we succeeded in active driving with our driverless system. This success was an important step for the team and provided us with valuable insights for the further development of our system.

We have set ourselves clear goals for this year. The focus is on participating in all Driverless events of the year with a fully functional system and continuously optimizing our performance. In addition, we want to establish new partnerships with other cooperation partners. These collaborations should not only contribute to the technical development of our projects, but also offer team members the opportunity to gain valuable knowledge.

Electronics

Like every season, the season began with an intensive concept phase. Our electronics, apart from the inverter, are developed entirely in-house, which gives us a high degree of design freedom. However, this freedom also requires a high degree of responsibility and care. For our fourth season with the electric car, the focus is on even greater reliability. To this end, the existing electronics have been specifically revised based on the findings and developments of previous seasons.

One significant upgrade is our new Can2Power module. This integrates five channels in one compact housing, whereas previously four separate units were used. The focus here is less on saving weight, but the new solution does offer practical advantages: A single box is easier to handle and program.

Also new is our AD2CAN. Although the concept and channels remain the same, it has been developed from scratch. In addition, the circuit board for the EBS (DV braking system) has been revised and minor adjustments have been made to other circuit boards. The circuit diagrams (schematics) and the layouts of the printed circuit boards (PCBs) have been completed and reviewed by alumni. The required components have already been ordered and the PCBs will also be ordered soon.

Then it's time to assemble and commission them.

ZWISCHEN
**PLATINEN
UND
SOFTWARE**

Powertrain

Our gearbox housing has been re-simulated and geometrically adapted to ensure the same rigidity despite the change from titanium to aluminum. This optimization saves weight and makes production much easier.

After extensive testing of various coolers, which required practical evaluation due to a lack of CAD data, we decided on one model. This season, we are using two radiators for the first time, which are integrated into the underbody of the aerodynamics. We are also improving the efficiency of the cooling circuit by reducing the flow speed, using a smaller hose diameter and a smaller pump, which saves energy and optimizes heat dissipation.

This year, we are only adapting the maintenance plugs in order to be compliant again. In cooperation with the Chair of Production Automation (FAPS), we have already received support for a wide range of welding processes. There is the possibility of tendering the welding process as a final thesis, which could provide us with valuable insights and a high gain in knowledge in the field of this manufacturing technology.

The inverter is currently being assembled and remains unchanged from the previous year. Our aim is to have it ready for testing as early as possible in order to quickly identify and rectify any faults that occur.

Schlusswort

Christmas is just around the corner and we look back with gratitude on an eventful year. We look back with joy on the successes, challenges and valuable experiences that have made us stronger as a team and a community.

Our thanks go to you, our sponsors, supporters and friends of the association. Your tireless support and trust make it possible for us to pursue our goals and achieve new milestones year after year.

During the festive season, we would like to take the opportunity to pause, reflect on the past year and recharge our batteries for the challenges ahead. We look forward to starting the next season with fresh energy and innovative ideas and continuing to celebrate successes together with you.



HAPPY
holidays