



AMZ News

ASSEMBLY & TESTING



First rolling shakedown of *alvier*

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Aero elements of **alvier**

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Assembly Phase

The past few months have been heavily impacted by the consequences of the Covid-19 outbreak. We had to limit our work to help contain the spread of the virus. Luckily, work could be resumed starting early June. While respecting the measures recommended by the BAG and ETH, alvier is being assembled piece by piece. Thanks to the support of many sponsors despite these difficult times, we were able to work towards seeing alvier driving on the track as soon as possible.

In particular, after receiving access to the ETH facilities, carbon manufacturing could be restarted. The new complete aerodynamics kit is hence taking shape a little more every day. The excitement to validate the new developments and their influence on the downforce and performance on track and in a wind tunnel, is growing with every newly manufactured wing.

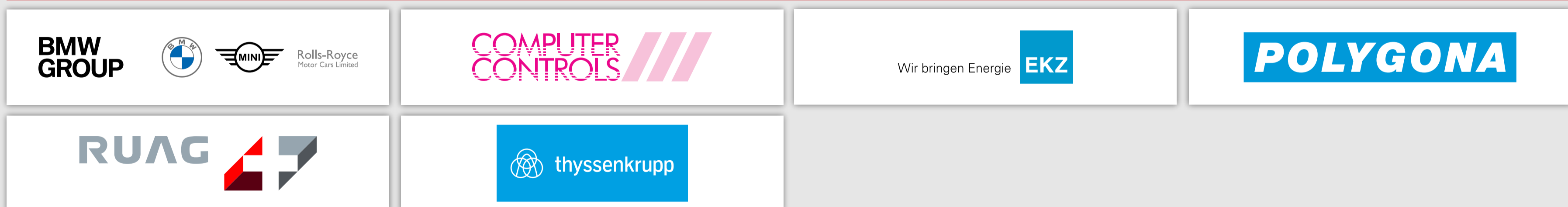
Rolling Shakedown

Recently, alvier stood on its own tires for the first time. In this test we were able

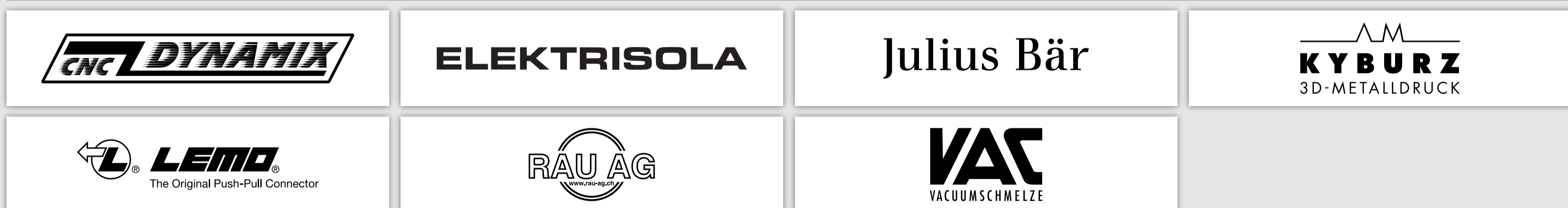
to see the car rolling - even if it was only pushed by human force - which was a huge milestone for the entire team.

This first test also marks the start of the testing phase until alvier will be able to drive under its own power. Preparing for testing includes planning of persons, drivers and tracks, as well as optimizing testing procedures to push the car to perform as efficiently and quickly as possible to profit from the long upcoming testing phase.

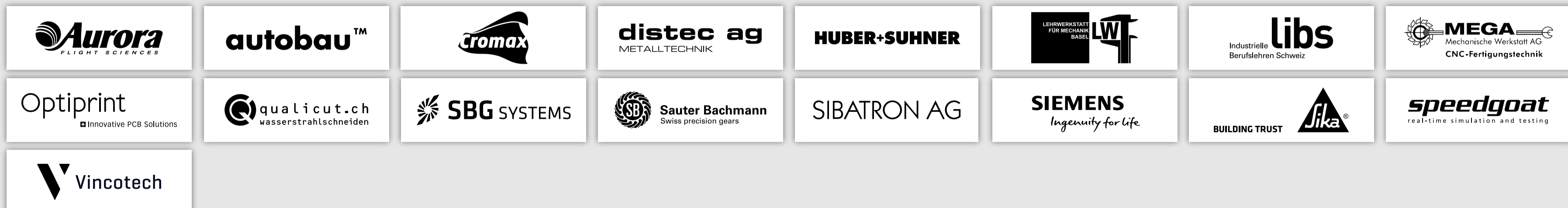
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pilatus driverless 2020 in the workshop

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Working with restrictions

Since our previous newsletter, our driverless team has become used to working from home and has managed to finish off their first iteration of the software pipeline for the new year. We remain keen to return to more normal workspaces and routines, given the recent lifting of restrictions, however we also want to keep our team members working in a safe environment. To this end, we are consistently monitoring the situation and adapting our workspaces and practices to allow for sufficient distancing of team members.

AMZ values the safety both of our team members and of society, and is continually striving to implement new, flexible policies for teamwork and collaboration in this time. In this way, we can be an innovator both in driverless technology, and in team structures for remote, effective collaboration.

Design Mock

The team recently engaged in their first design mock event, where alumni pass on their experience with the design events to the current team. Everyone was pleased that, even in the current circumstances, several alumni participated in this evening. These design mocks are a vital part of preparing the current team for..... well, not actual competitions this time, but instead for future involvement with the upcoming seasons.

For these design events, real or mock, it is crucial that team members have an overall understanding of their own work, as well as everyone else's and the base car design. Through this process, then, the team members deepen their knowledge of the car, the overall software pipeline, and the interactions between hardware and software.

Even without competitions, this

understanding is vital for the knowledge transfer that occurs season to season, from alumni to new team members.

Testing

In order to achieve our set goal of beating the laptime of a human driver, our team has now begun testing how our new implementation performs on tarmac. We aim to test our car as often as we would in a normal season. This fast-paced testing helps the team learn and adapt to new problems that the car encounters when placed in a real world scenario, and gives them more hands-on experience with the car than ever before.

Our current focus is on the Autocross event, where the car must be able to complete one lap of an unknown track as quickly as possible. For improvements this year, the focus has been on a smoother racing line and



Testing at Alpach

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throttle input, to ultimately result in a faster and more efficient performance, as well as a smoother ride for the sensitive hardware components.

Our next focus will be the Trackdrive event, where our latest MPC algorithm will be tested, which can predict the best

trajectory of the car faster than ever before. Together with this, as a new addition, online grip estimation will be performed that allows the car to better understand and utilize the upper limits of its performance.

As our season continues on, we

would like to thank our sponsors, favourers and patrons for their continued support. Their help is an important contribution to keep up the motivation and to not lose sight of our common goal.

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