

EPSiL

Steering System in the Loop

| Agenda



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Introducing EPSiL: Real-Time test bench for Steering Systems.

EPSiL enables real-time testing of complete steering systems in indoor settings.

Designed to analyze the interaction between wheel forces, steering functions, and human interaction, EPSiL ensures comprehensive evaluations.

EPSiL applies steering link forces respecting vehicle kinematics, while allowing drivers to handle the steering wheel and interact with virtual simulations and drive virtual cars with real steering system.



✓ Steering
Column

✓ Steering
Rack

✓ DUT's EPS
system

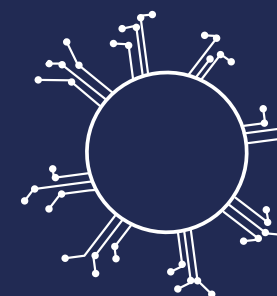


What can you do with EPSiL?

EPSiL Bench provides a suitable platform for the development, fine-tuning, and validation of steering functions within controlled environments.



FuSa
Fault injection



SOTIF
Management of predictable risks



Subjective Evaluations
Steering feel



Vehicle Dynamics
EPS, ADAS



Key performances of EPSiL

EPSiL is designed for easy integration and precise performance.

With real-time testing capabilities and accurate reproduction of steering system working conditions, EPSiL ensures reliable results.



Communication latency
< 3 ms



Communication protocol
with the real-time machine
EtherCAT



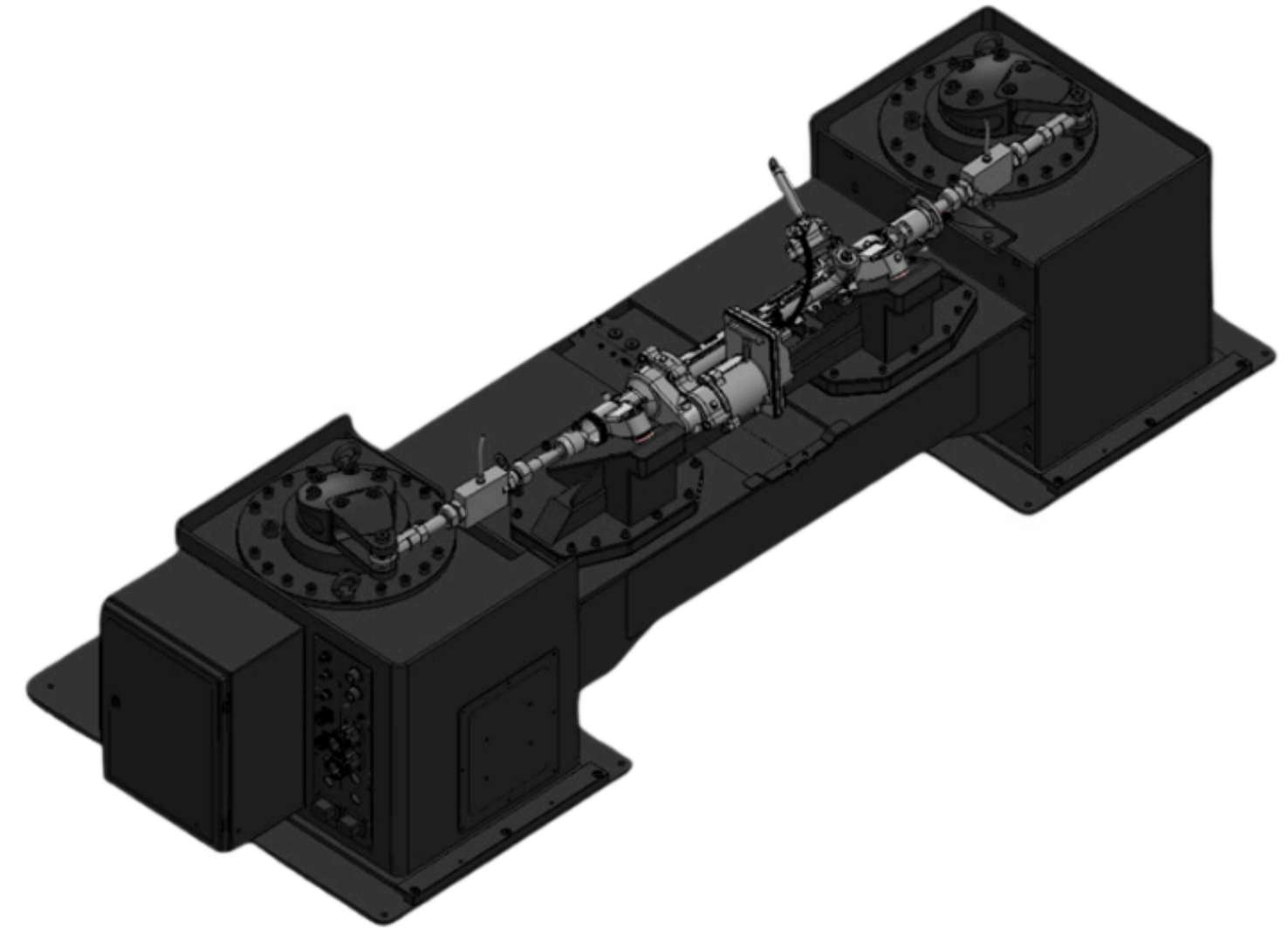
Max dynamic force on the steering
link
20 kN



EPSiL

EPSiL fully integrates steering system components into simulation loop.

With a rocker-link mechanism, EPSiL applies forces in three spatial directions, not just in line with the rack, just like it happens in a real car.

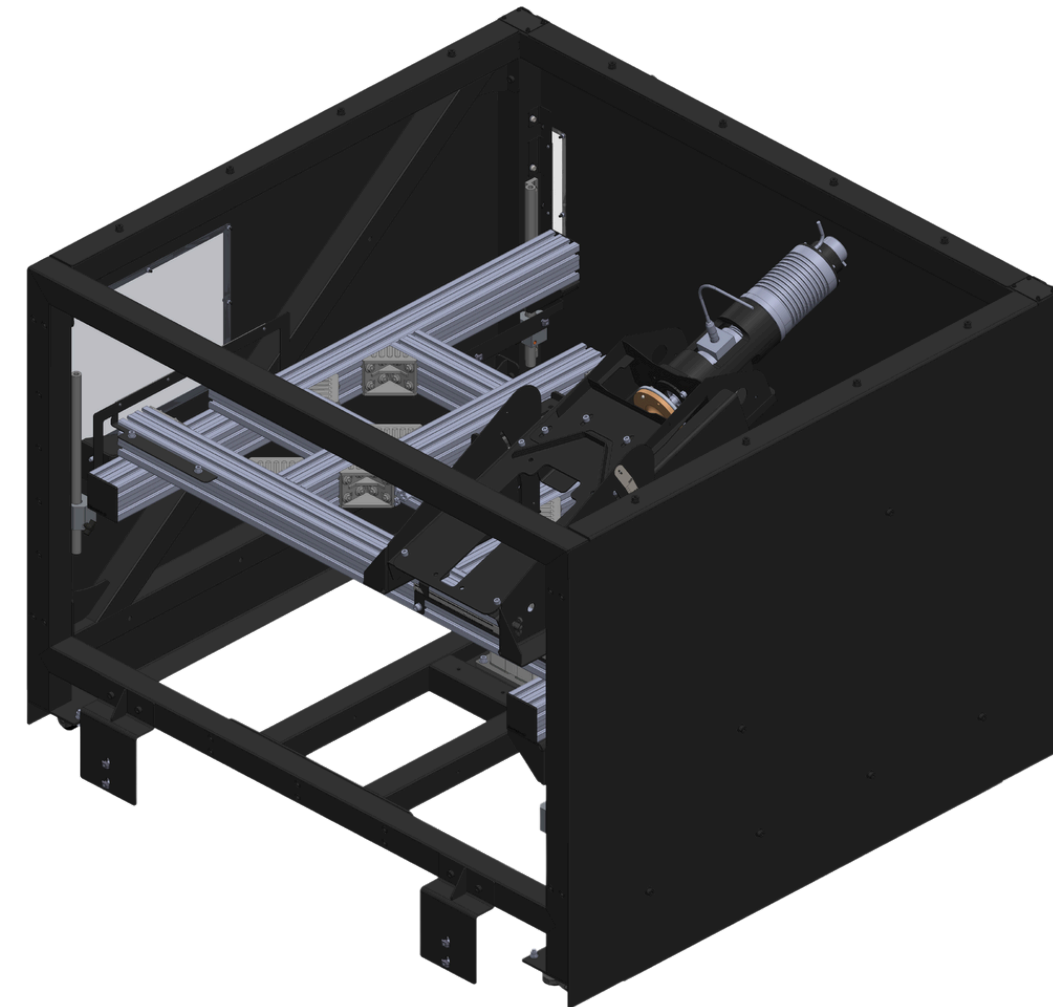
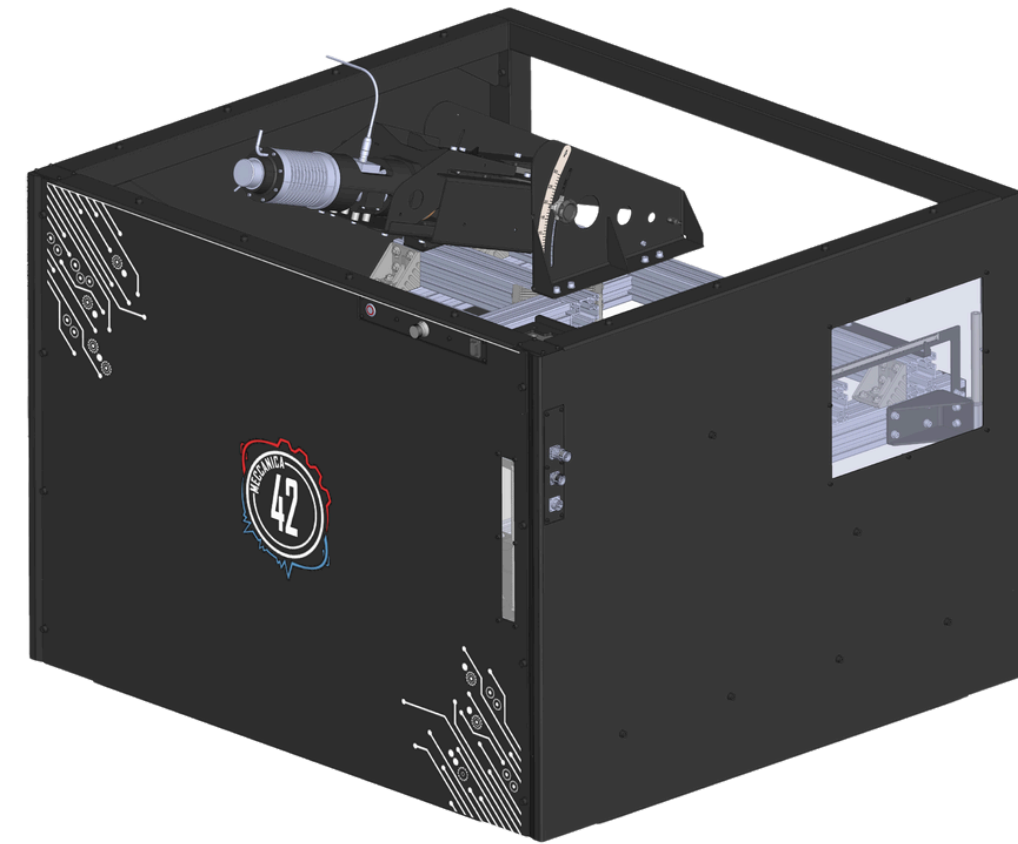


Steering Motor Cube - Not only a support for Steering Robot

Steering Motor Cube ensures precise positioning of the steering column in line with the real car, allowing the SR position to be adjusted in three directions and in pitch too.

With SMC, you can both control your EPSiL bench from a remotized cockpit and perform automated testing.

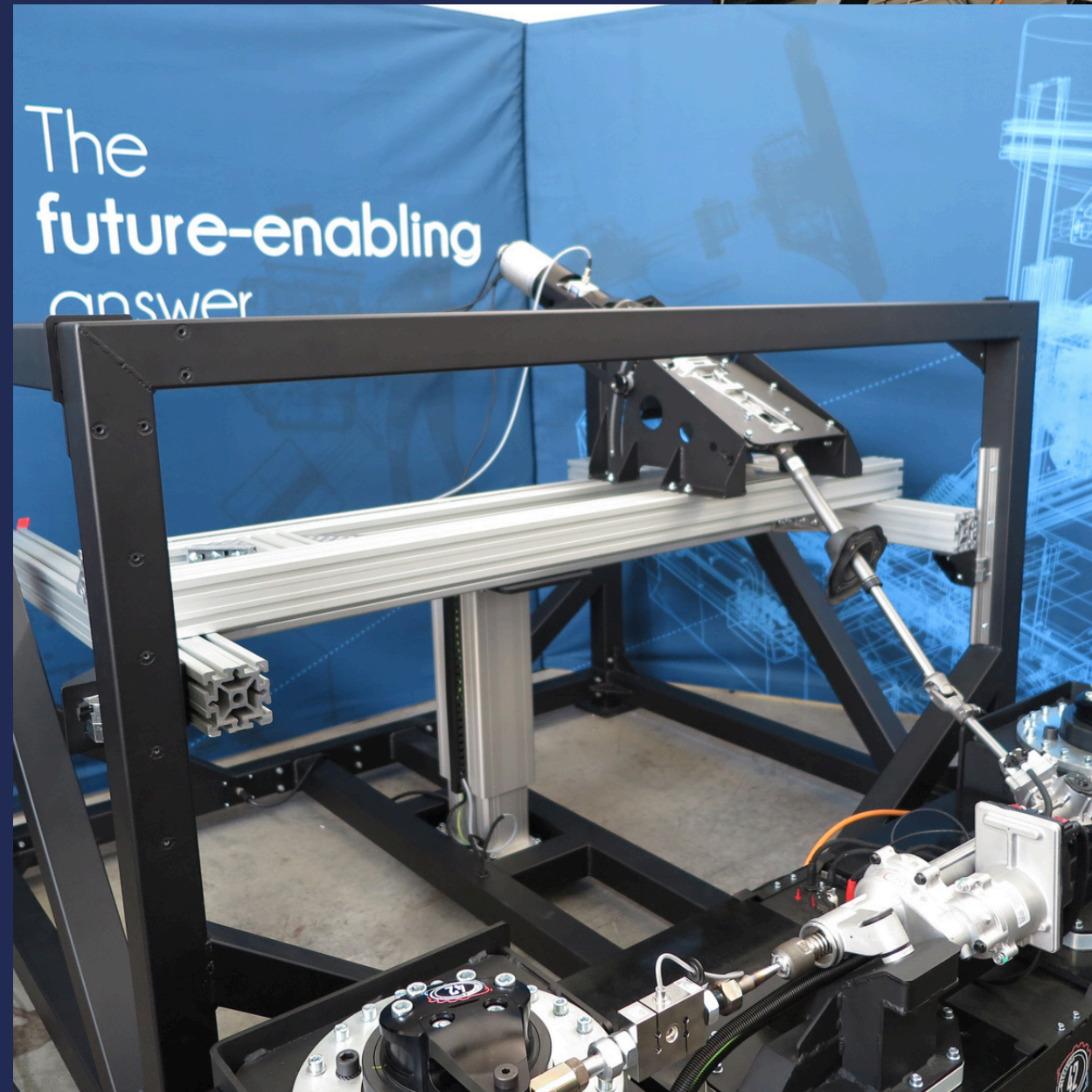
Furthermore, you can use SMC with SR driving the steering wheel actuator in a Steer-by-Wire system test bench, decoupling its application from the only use on EPSiL bench.



Virtual Column - Steering wheel and steering column united, even remotely

Virtual Column provide the possibility to drive your EPSiL bench also from a remoted cockpit with the use of the ASF (Active Steering Feedback) and SR (Steering Robot) actuators.

The ASF provides an incredibly realistic steering feedback based on the actual dynamics of the DuT in EPSiL, that is controlled by SR.



EPSiL can be a built-on-you product

Imagine a product that feels like it was made just for you - because it was.



What can you custom on your EPSiL?

- ✓ Rocker links geometry and dimensions
- ✓ DUT central frame and motor island links
- ✓ Connectors/wiring
- ✓ Tuning controls and interfaces



The future- enabling answer



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