



Receiver / reactor operation demonstration campaigns

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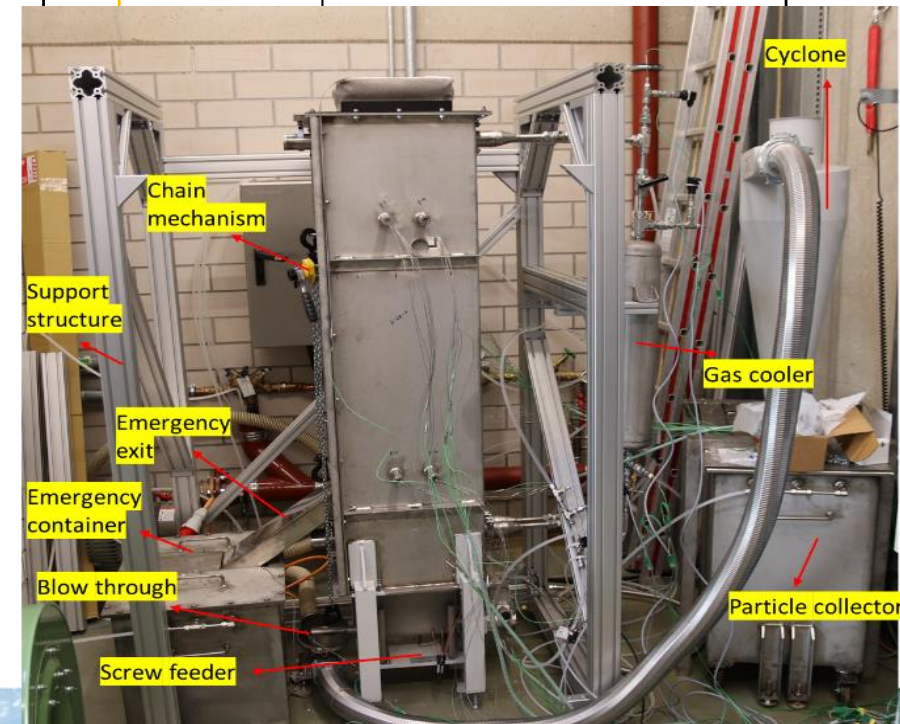
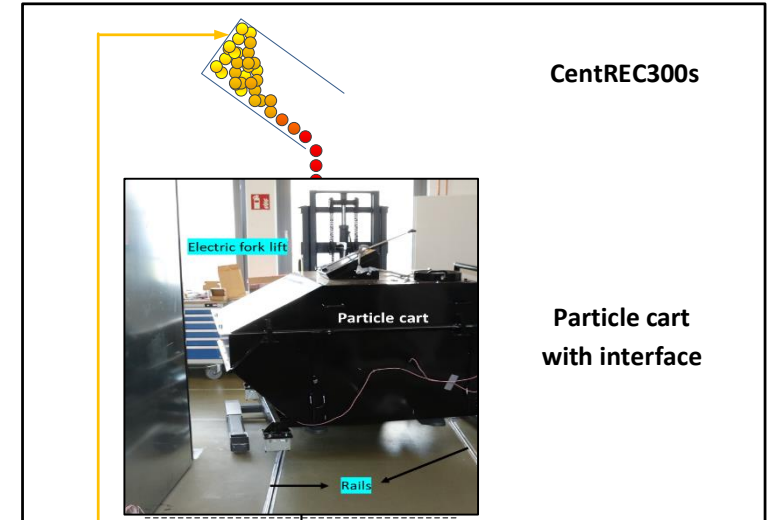
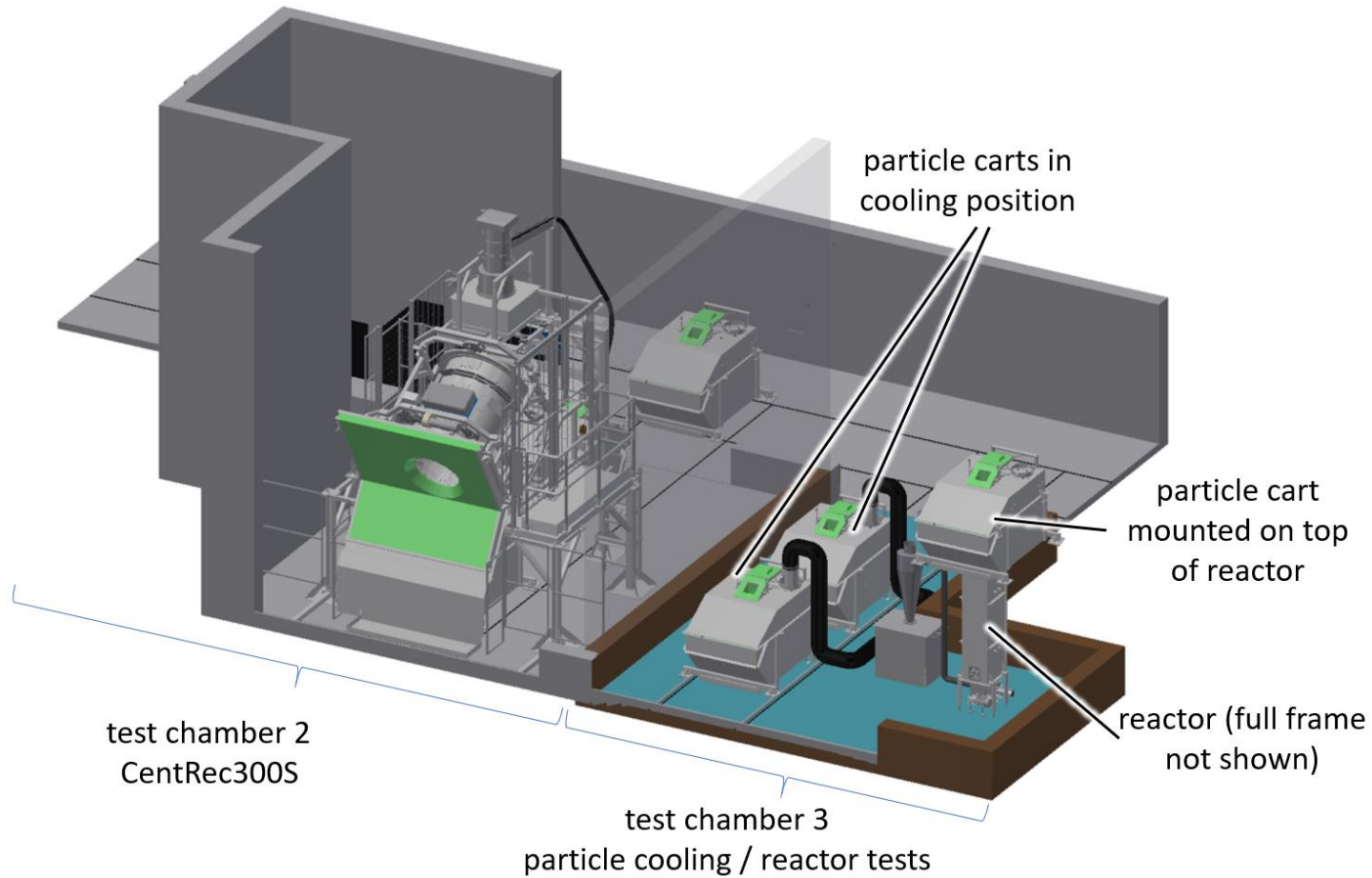


Horizon 2020
European Union funding
for Research & Innovation

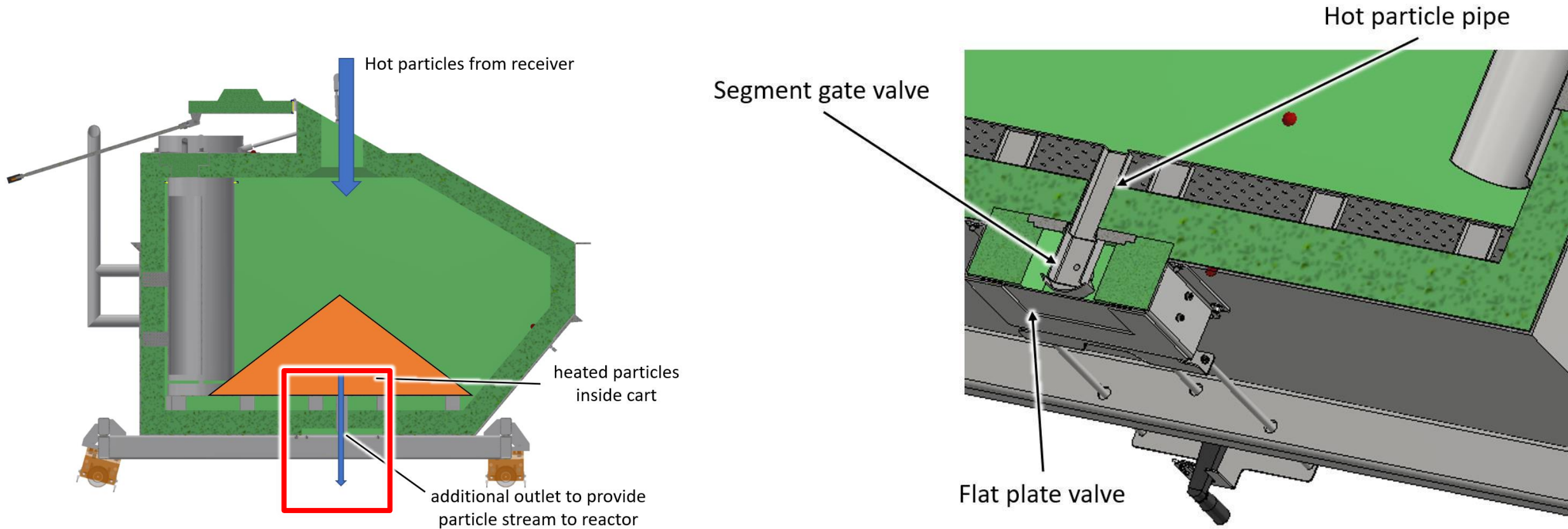


Knowledge for Tomorrow

Integrated tests in Synlight



Integrated tests in Synlight

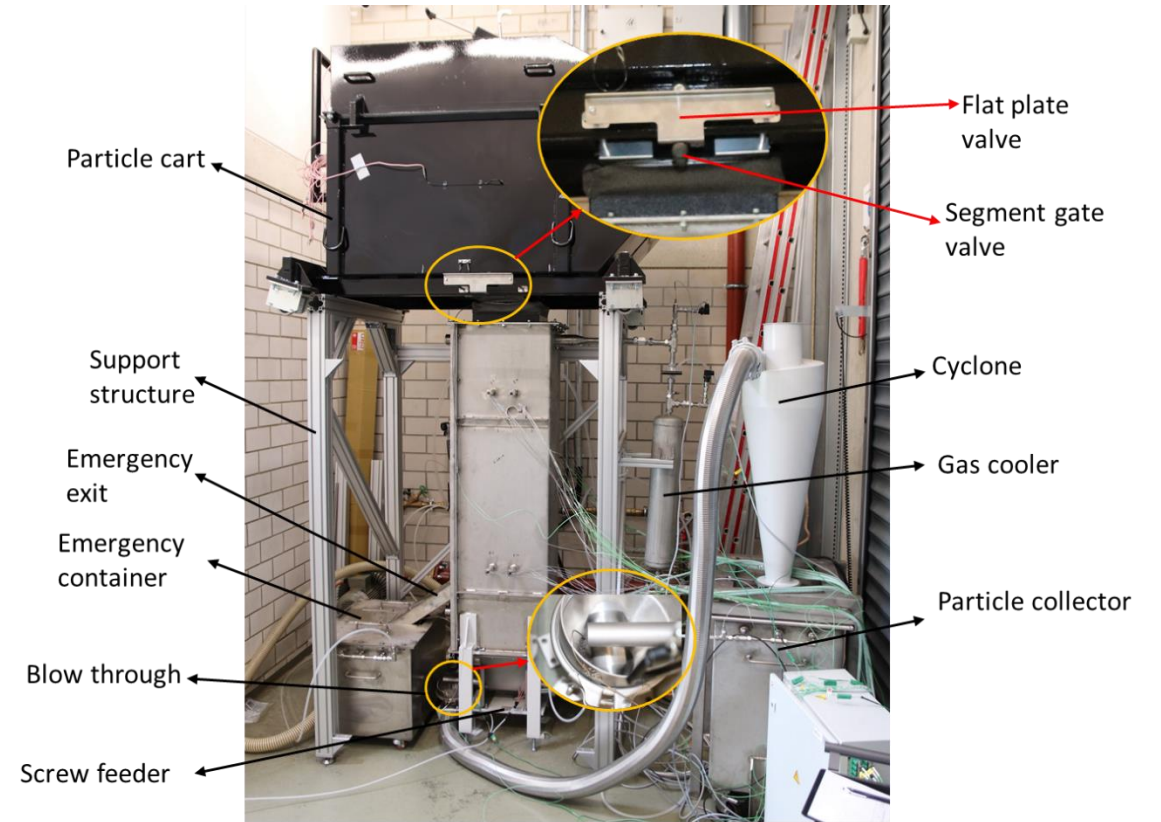
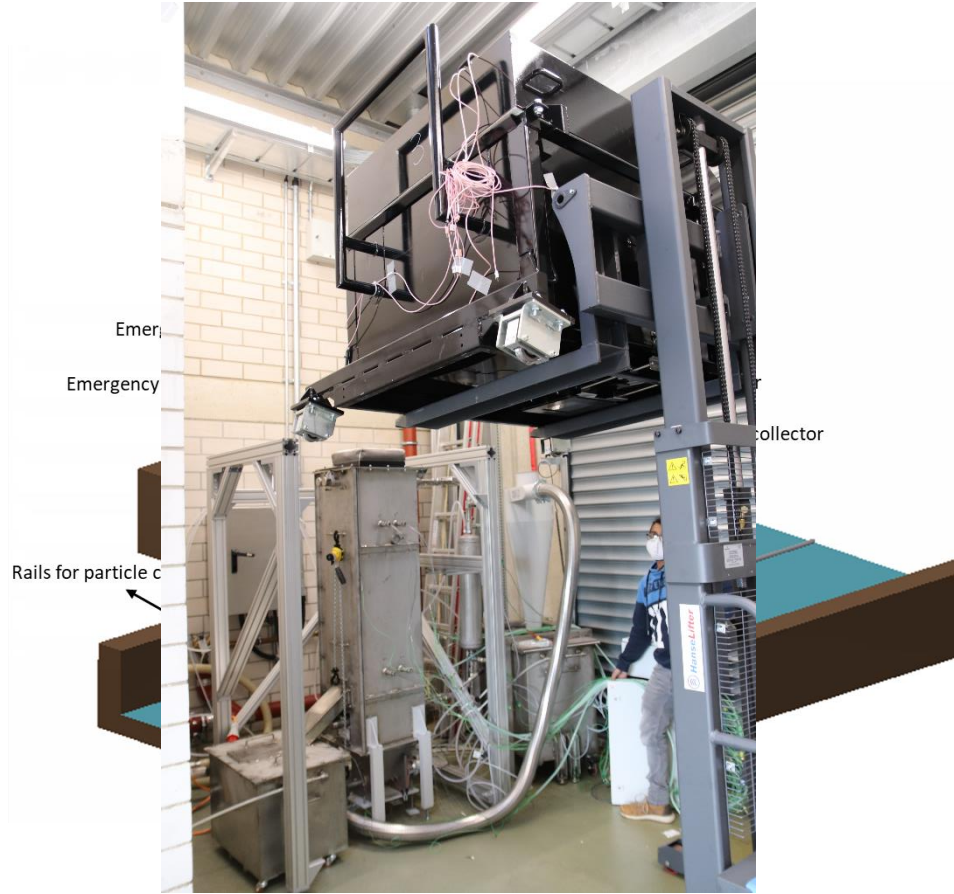


- The particle cart is placed under the particle receiver
- The hot particles are collected inside the particle cart
- The valves avoids the leakage of hot particles



Integrated tests in Synlight

Final assembly of the setup



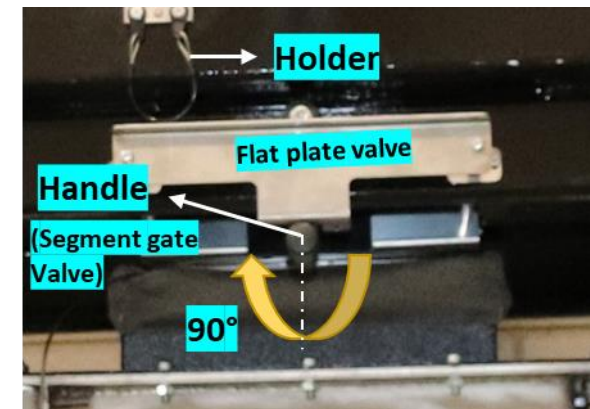
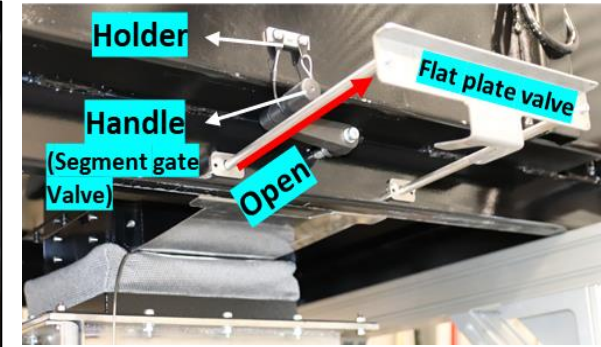
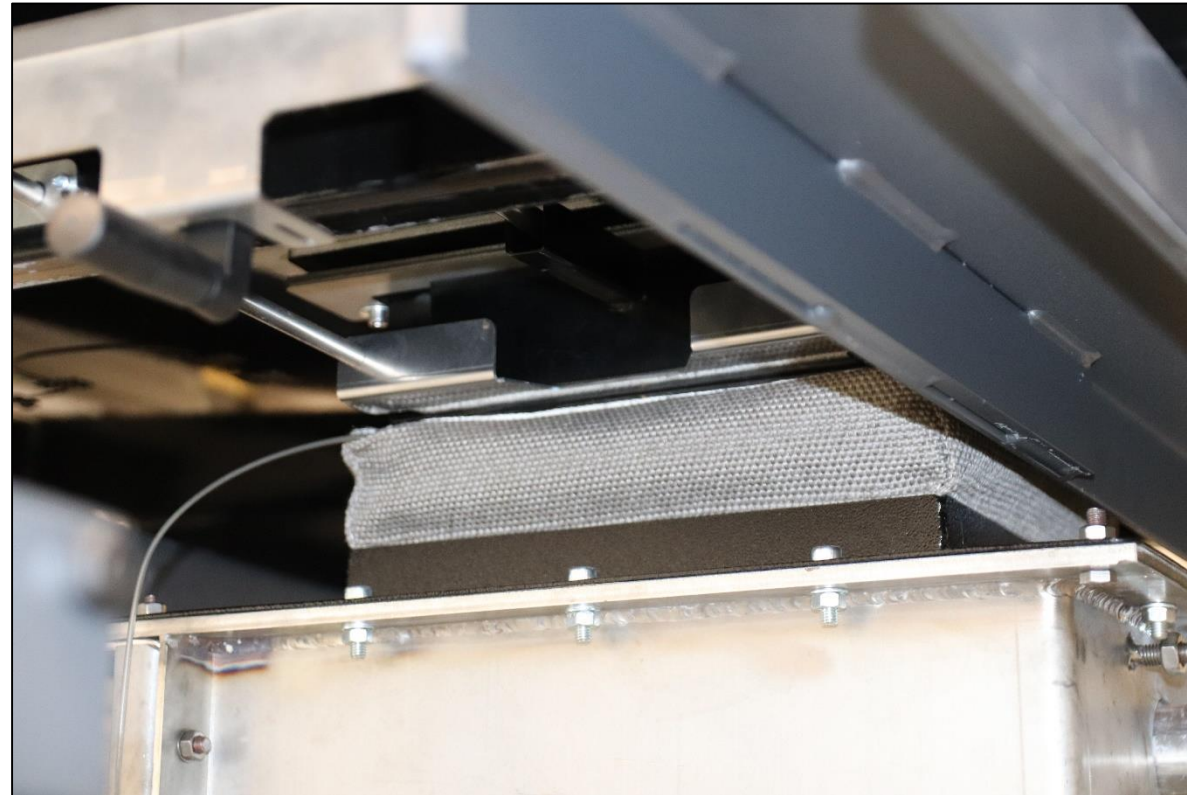
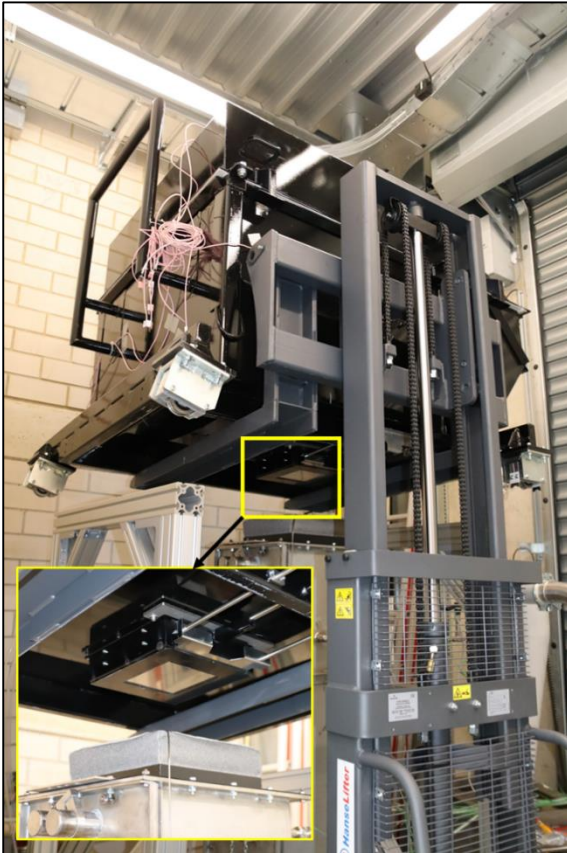
Particle heat exchanger is initially filled with cold particles

- Particle cart is mounted using an electric fork lift



Integrated tests in Synlight

Final assembly – Particle cart interface



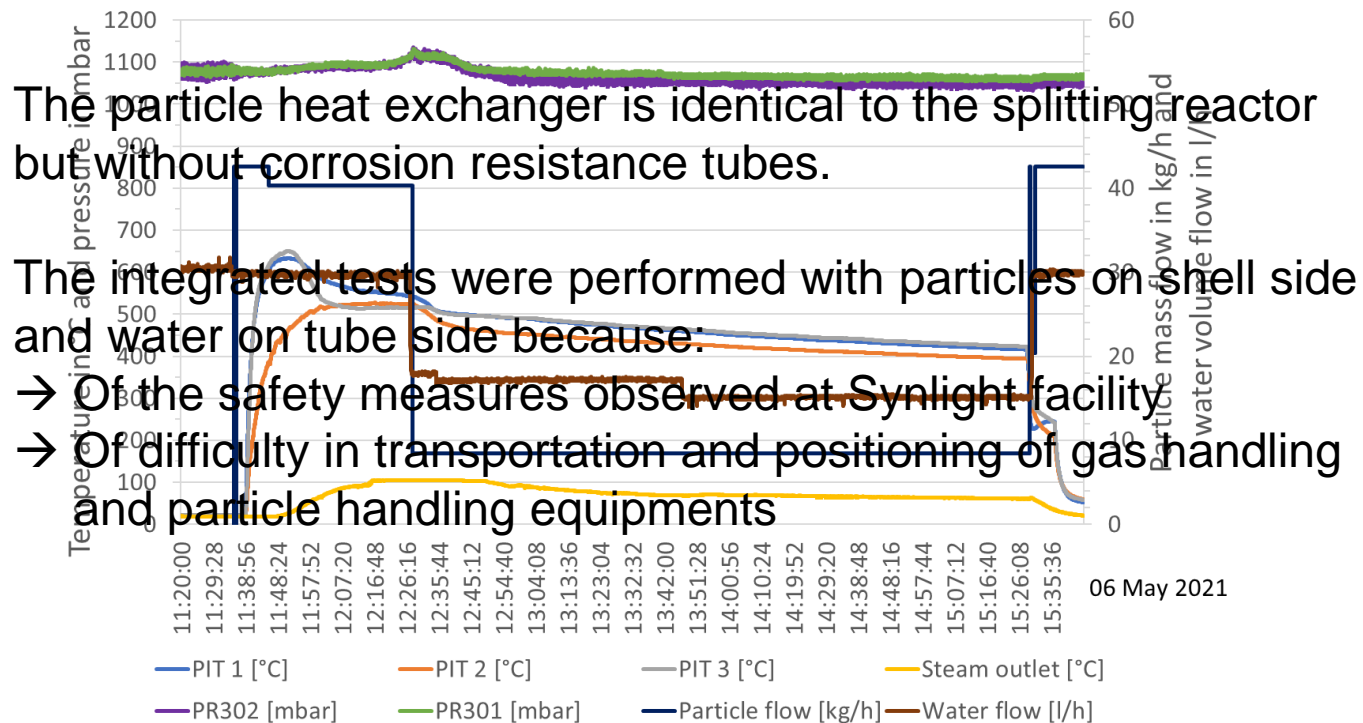
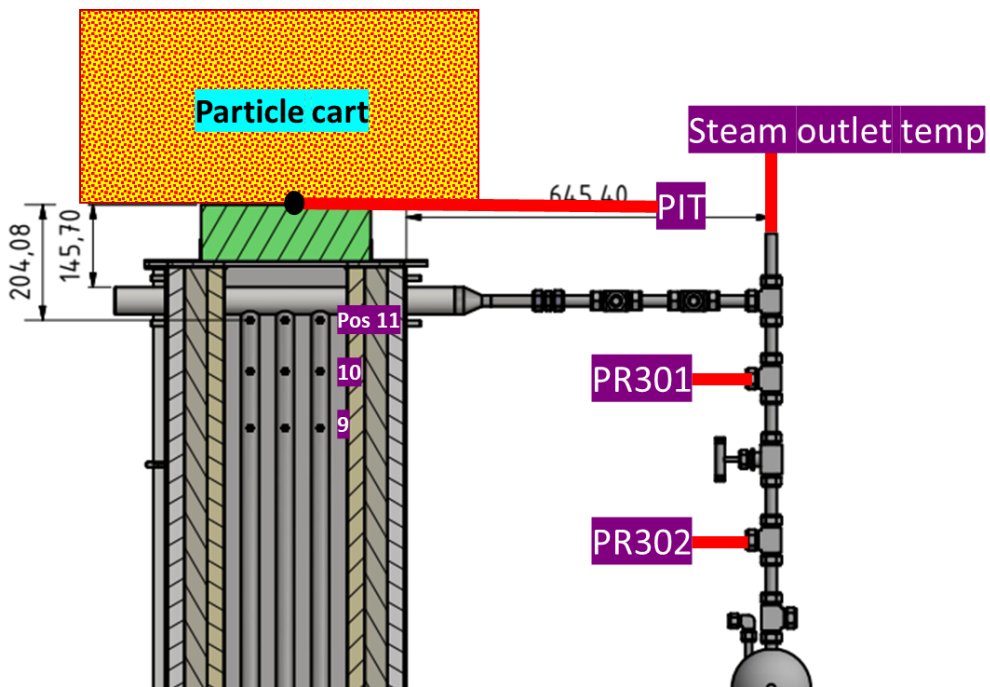
- The flat plate valve and segment gate valve are functioning as planned



Integrated tests in Synlight

Test runs (06.05.2021)

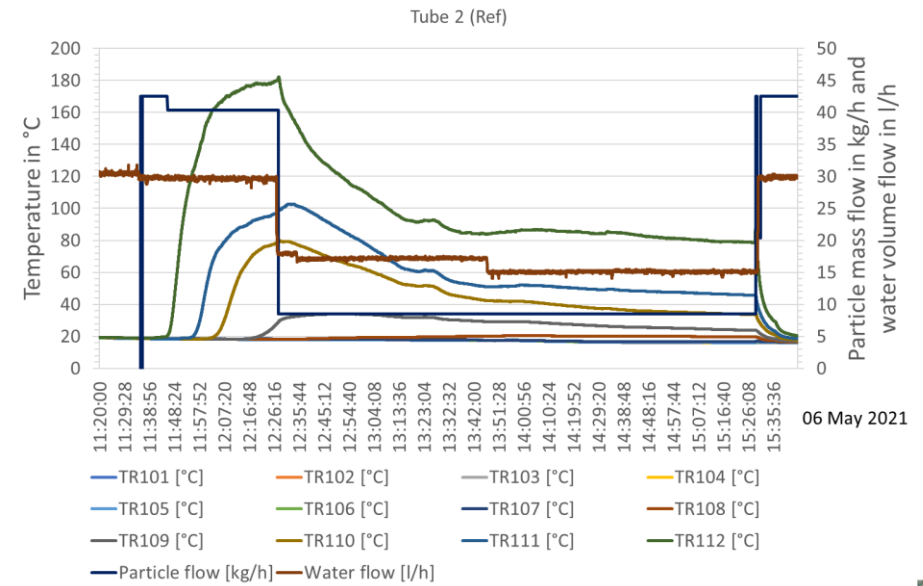
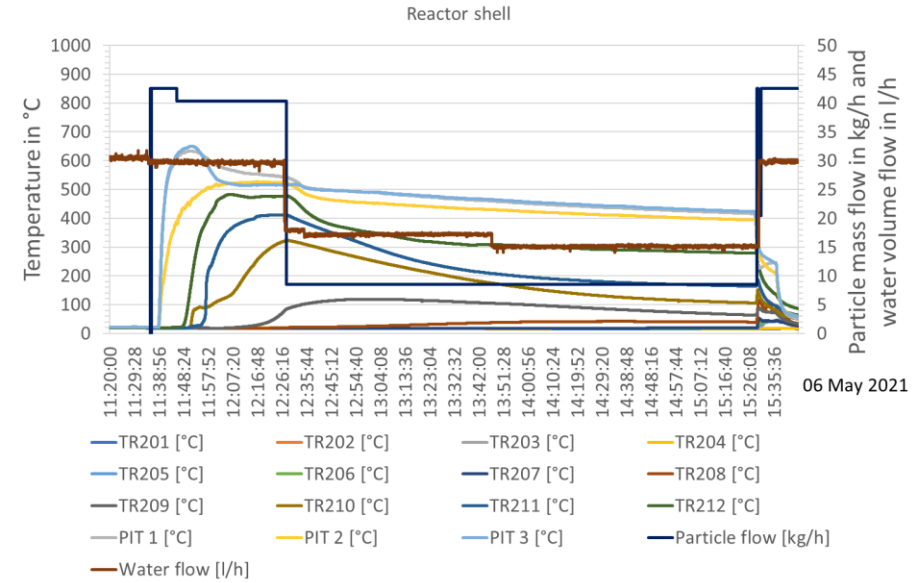
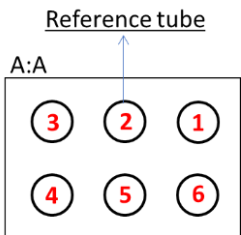
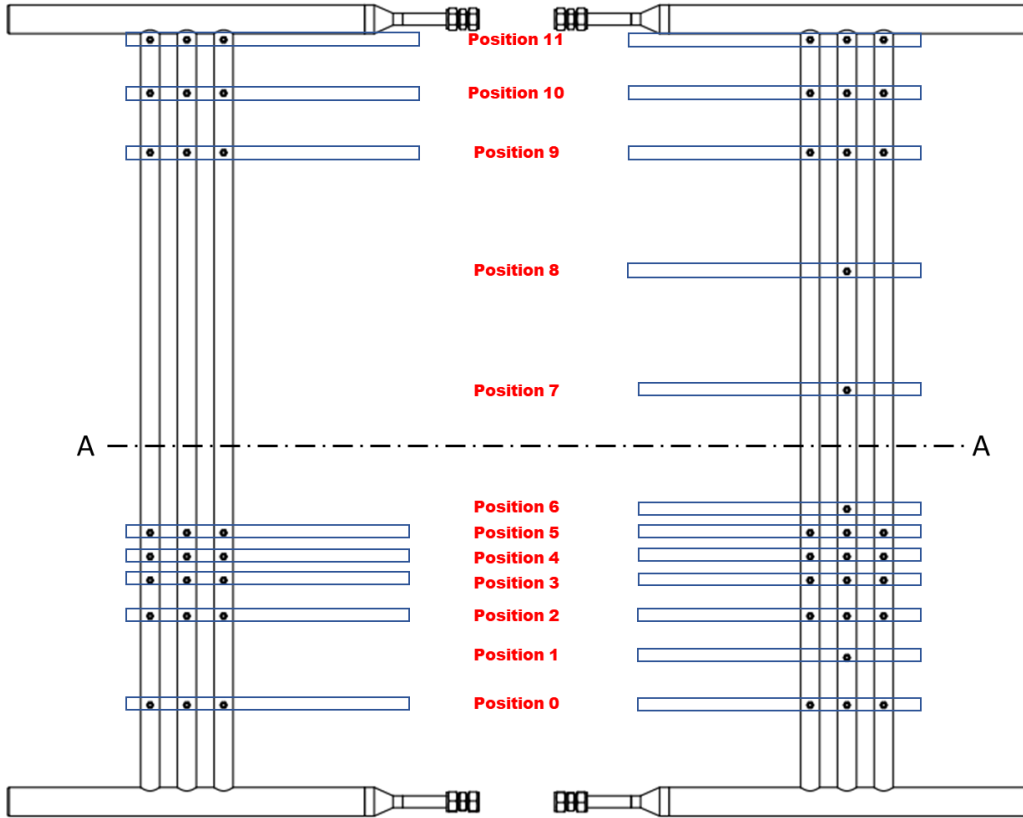
Demonstration of integrated test



PIT – Particle Inlet Temperature [°C]



Integrated tests in Synlight Test runs (06.05.2021)



Conclusion

- The first of its kind integration test with particles was demonstrated
- CentRec300s provides hot particles in a very short heating time for integrated testing
- The heat can be transferred from particle receiver to the particle heat exchanger
- Operating conditions could not be optimised due to lack of testing time
- The tests were demonstrated with water as process fluid but not with acid due to lack of time, safety measures observed at DLR, components transfer etc.
- In parallel sulphuric acid splitting was demonstrated in the particle reactor



Thank you fo your attention

