

HIPROX *a facility for the development of novel pressurized combustion concepts*

Combustor

- 10 bar and 120 kW power input
- Convection cooled double wall in pressure vessel
- Optical and metal with TBC flame tubes available
- Multiple burners available

2 independent oxidizer heated feed lines:

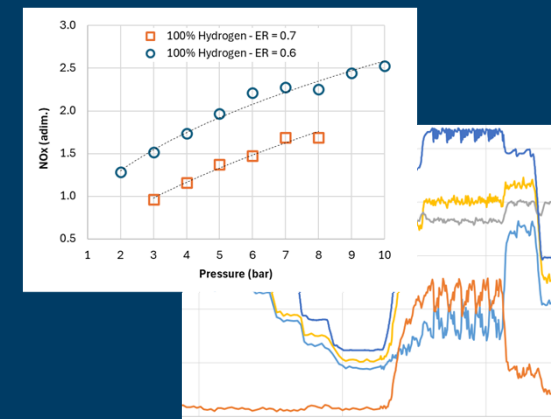
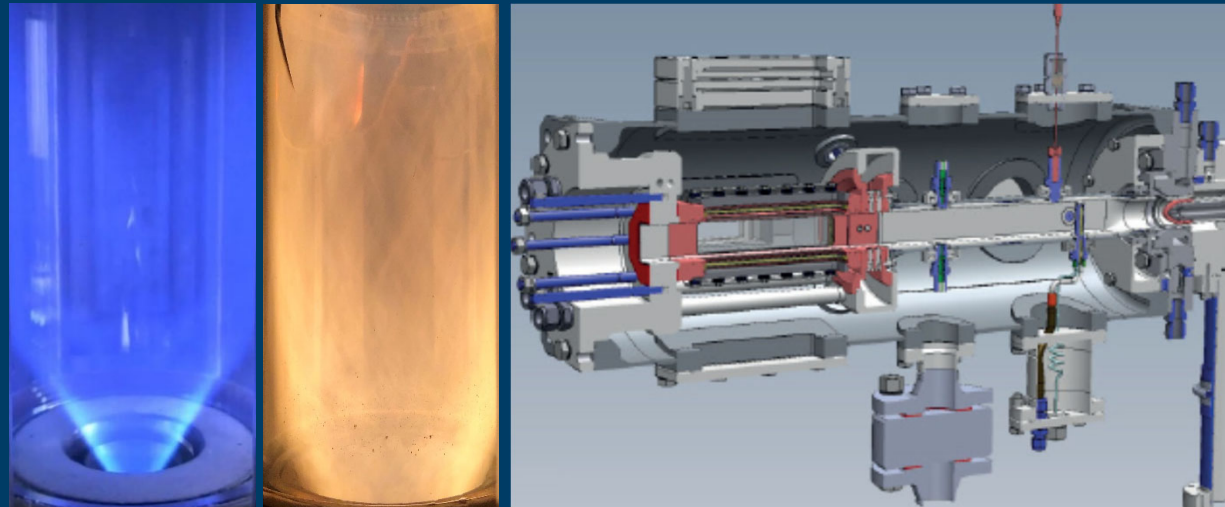
- Air 400°C preheat
- CO₂ 300°C preheat (liquid + evaporator)
- O₂ 300°C preheat

3 independent fuel lines with blends of:

- CH₄
- H₂
- NH₃ (liquid + evaporator)

Measurement capabilities

- Flame visualization (chemiluminescence, high speed)
- Multi-species gas emission (FTIR, GC)
- Wall / gas temperature
- Pressure (static and dynamic)



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Chemical Looping Combustion 150 kW pilot unit

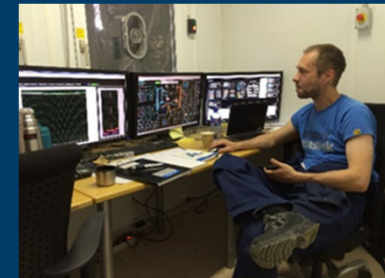
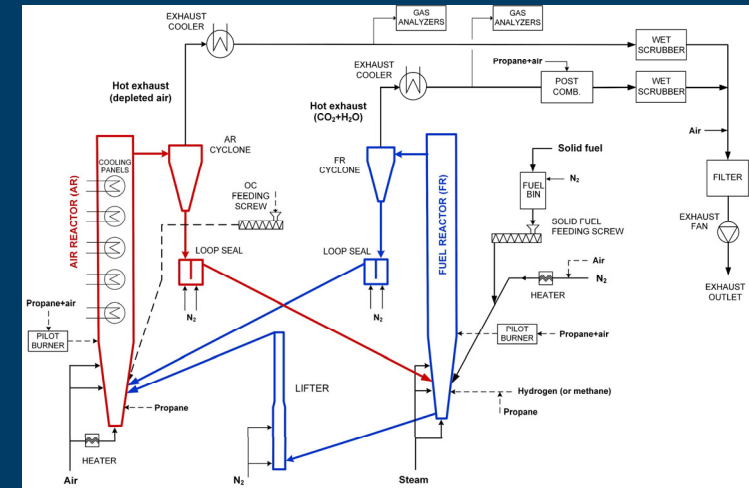
a facility for the development of novel CLC technology for fuel conversion with CO₂ capture

Chemical Looping Reactor system for solid and gaseous fuels

- Two interconnected Circulating Fluidized Bed reactors
- Designed for 150 kW fuel power input
- Reactor heights: 6 m (total height: 8 m)
- Design temperature: 1000 °C (max. 1050 °C)
- Solid fuels: Wood (pellets, chips, milled), coal, waste-derived (RDF/SRF)
- Gaseous fuels: methane, propane, hydrogen
- Oxygen carrier materials: Ilmenite, Mn-based, and Cu-based tested
- Mass flow controllers for all gas feeds
- On-site steam boiler

Measurement capabilities

- IR, GC, and FTIR gas analyzers on fuel reactor
- IR and GC gas analyzers on air reactor
- Pressure profiles up along the reactors
- Temperature profiles of reactors



[ECCSEL facility \(link NO2.1\)](#)



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DEMOXYT *EGR and oxy-fuel gas turbine demo*

Gas turbine modified for oxy-fuel and air combustion with EGR

- Based on Turbec T100 CHP unit
- Design power: 100 kW_{el}
- Exhaust Gas Recycle loop with condenser, demister and reheater
- Optical combustor option
- For demonstration of semi-closed oxyfuel gas turbine cycles and post-combustion CO₂ capture with EGR

