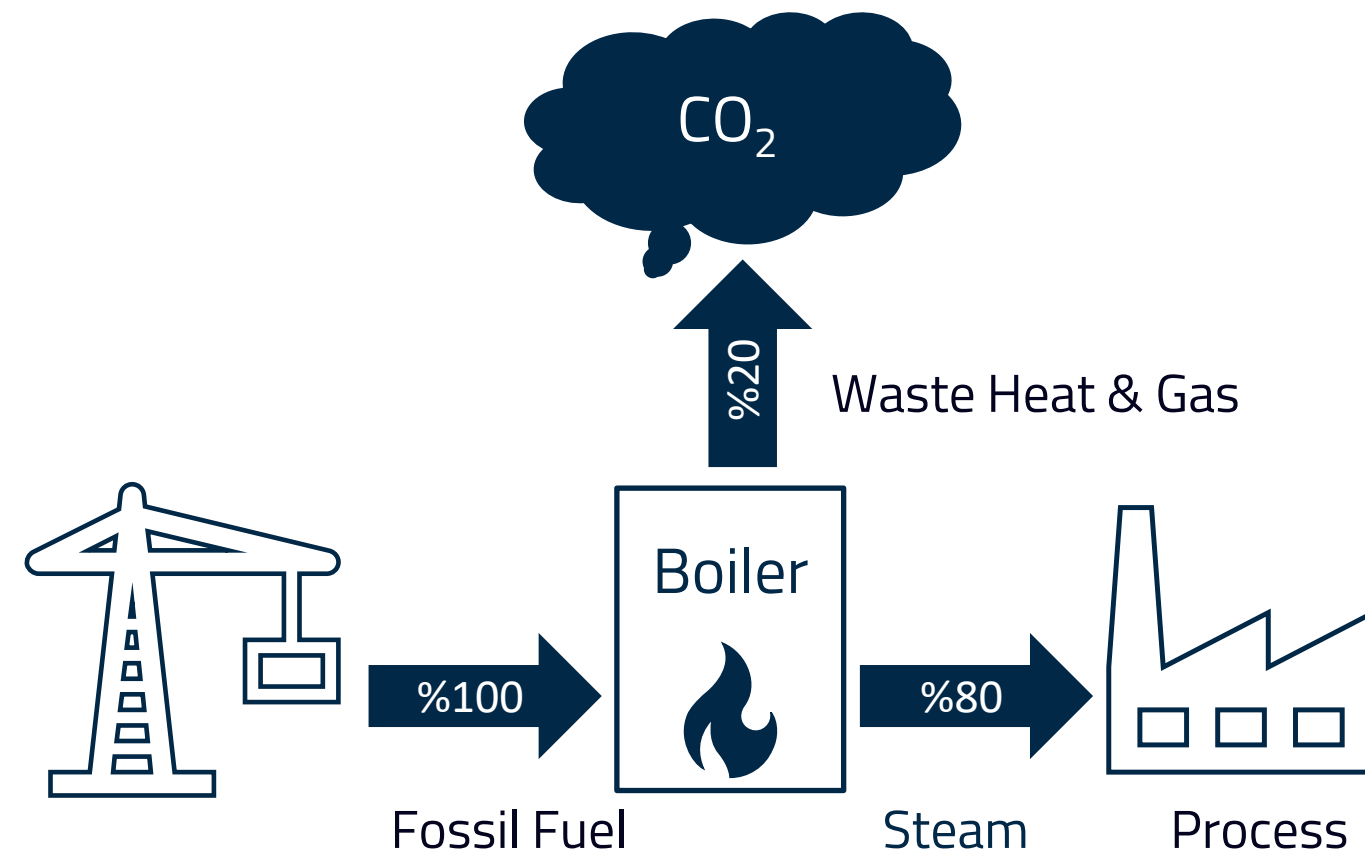


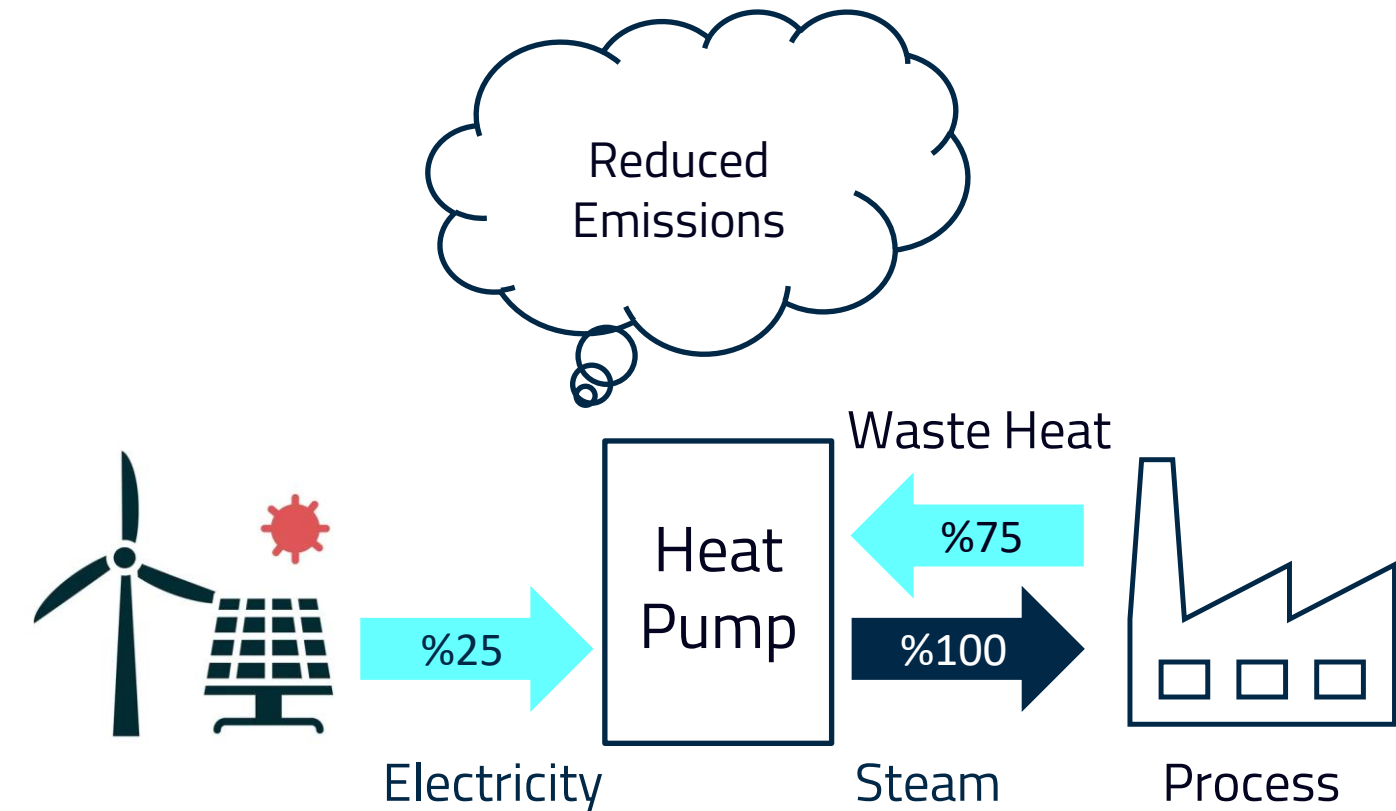


Steam-Generating Industrial Heat Pump

Re-define Process Heating

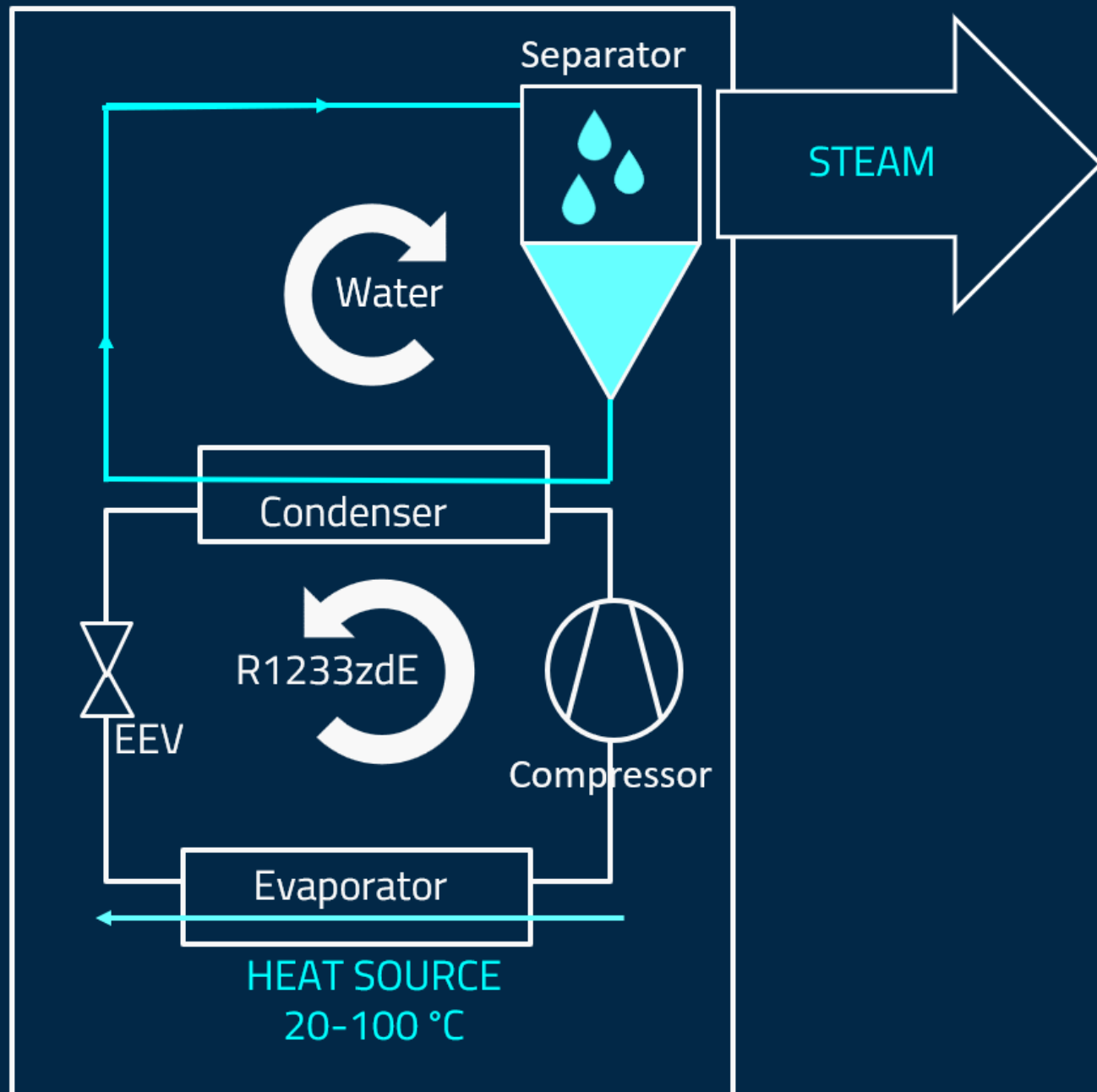


- Fossil Driven
- Waste Heat
- Increasing Operational Cost
- Complex steam lines & control

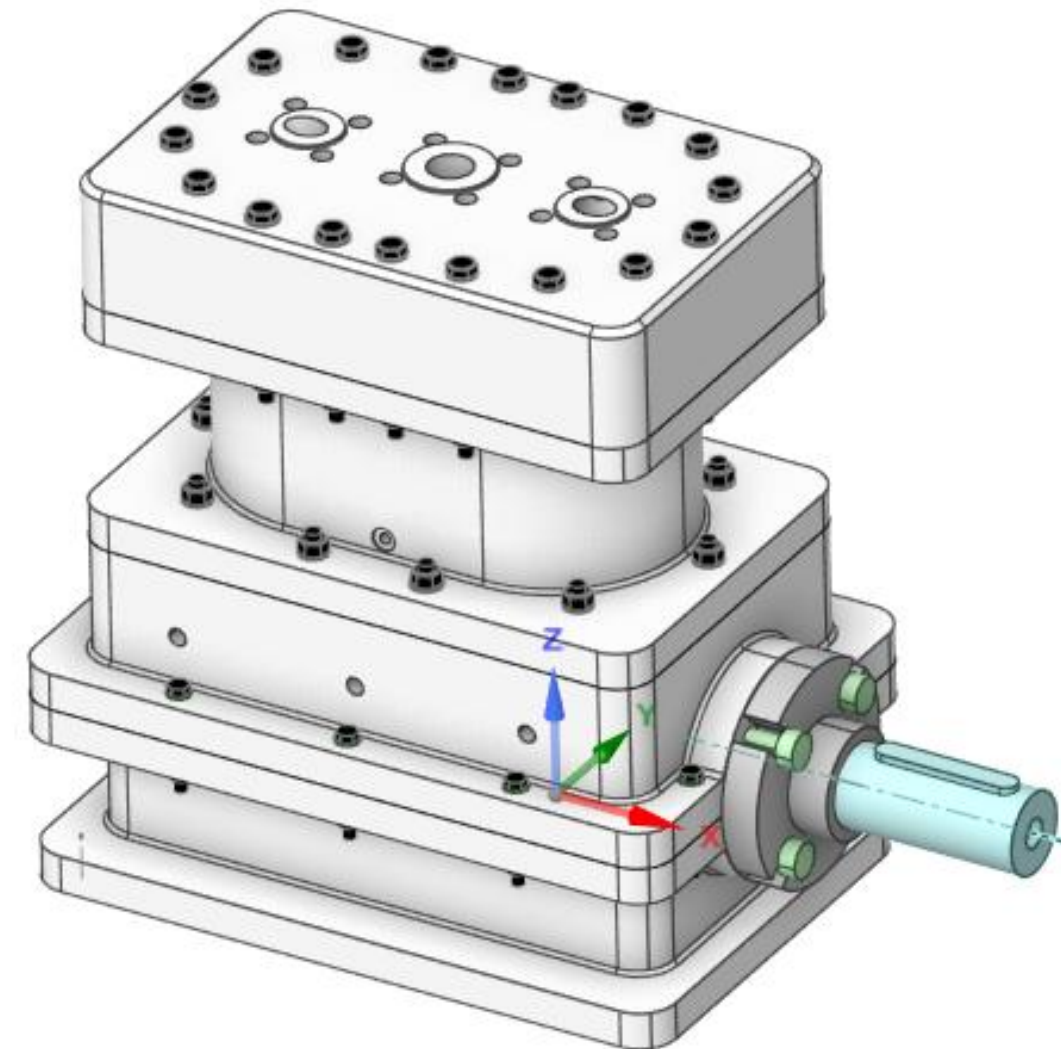


- Electricity Driven
- Waste Heat Recovery from 20 °C to 100 °C
- Up to %50 operational cost saving
- Process- Adaptive control

Technology Overview



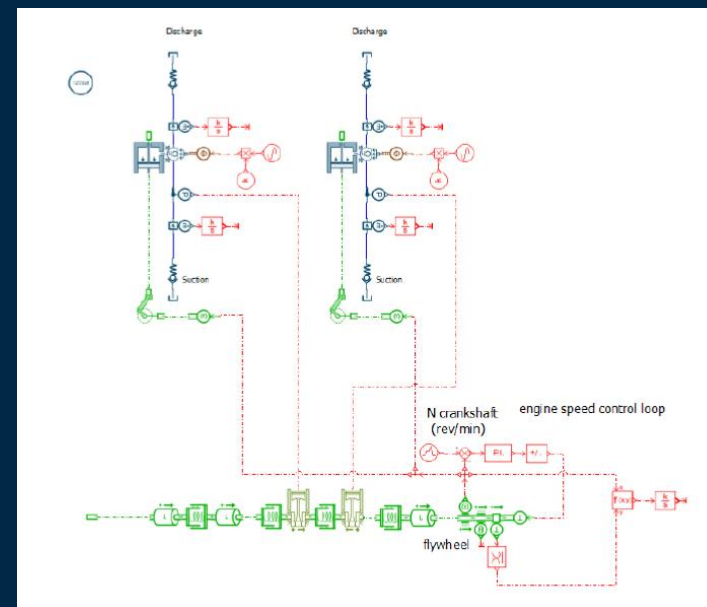
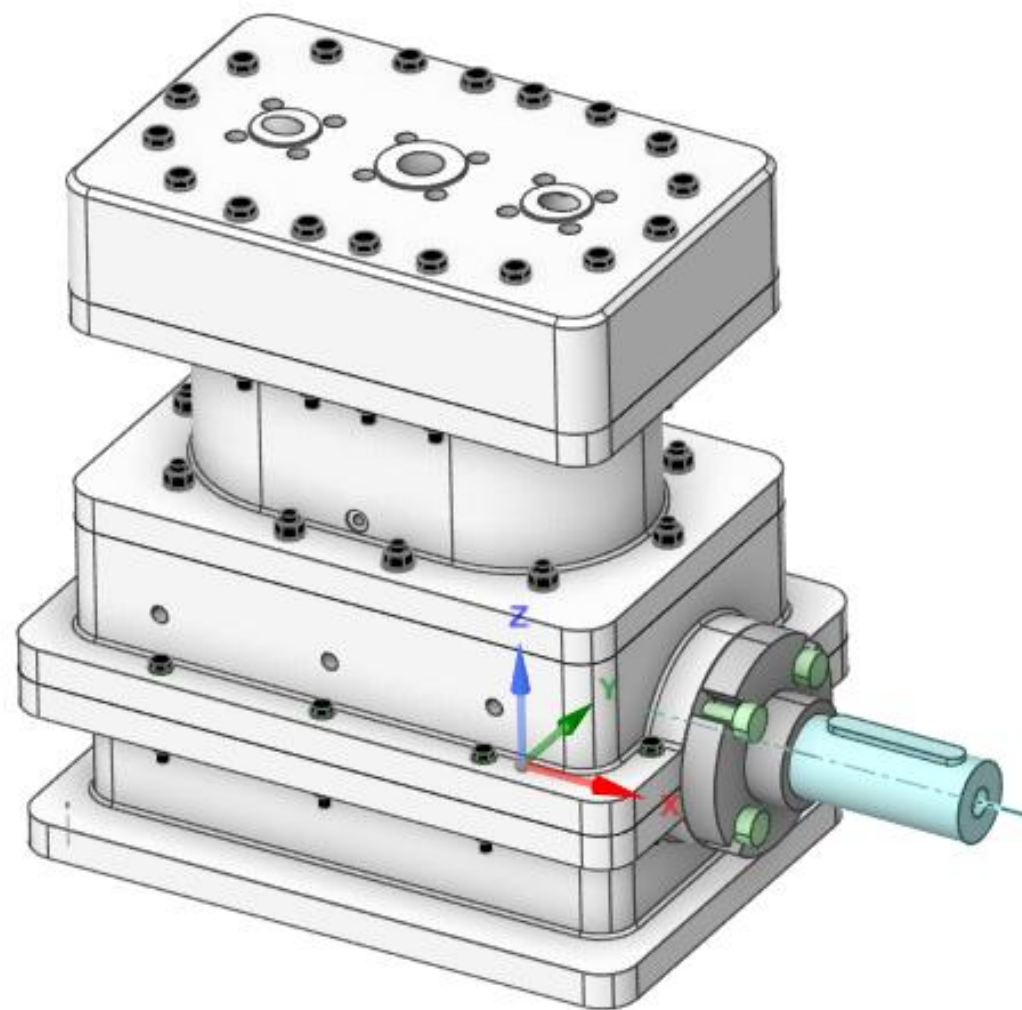
- Steam-generating high-temperature heat pump cycle
- Waste-heat recovery from 20–100 °C sources
- Modular and scalable product architecture
- Extendable temperature lift with steam booster capability
- In-house designed high-pressure compressor core



Mechanical Core

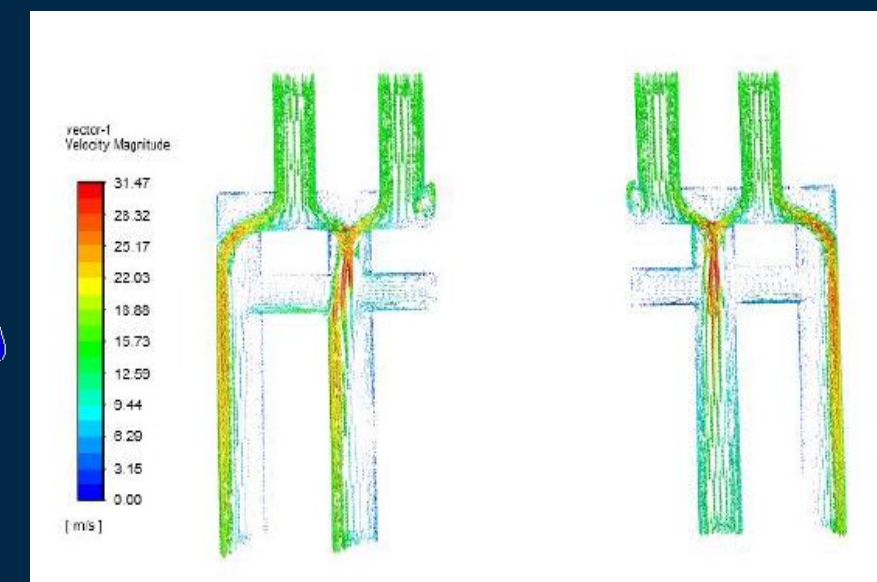
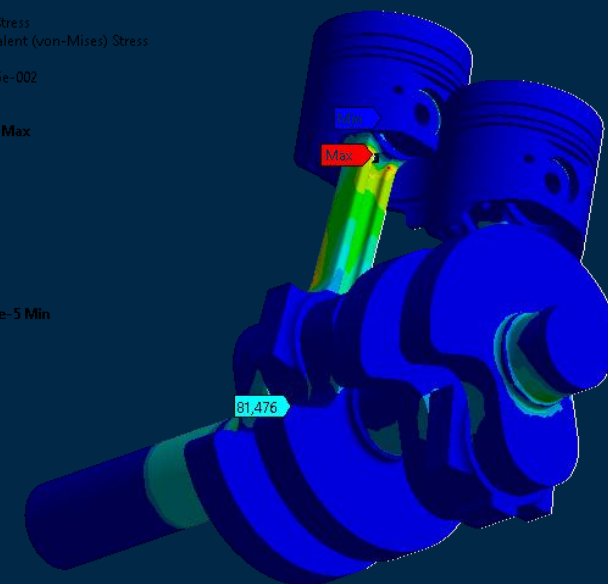
High-Pressure Compressor Architecture

- Custom-designed high-pressure reciprocating compressor
- Optimized valve geometry for steam-compatible refrigerant flow
- High mechanical efficiency under continuous industrial duty
- Designed to deliver required pressure lift for steam generation
- Stable lubrication & crankcase oil management



Equivalent Stress
Type: Equivalent (von-Mises) Stress
Unit: MPa
Time: 8.2815e-002

100.91 Max
89.701
78.489
67.276
56.063
44.851
33.638
22.425
11.213
2.6258e-5 Min



TRL Roadmap

Development status & planned maturity for pilot integration

TRL 4 - Current Status

- Core compressor design fully engineered (CFD, FEA, cycle simulation validated)
- Prototype manufacturing launched
- Steam-generating heat pump architecture completed
- Ready for laboratory validation phase (planned Q1 2026)

TRL 5-2026 Q1 - Q2

- Full prototype assembly
- Lab performance mapping & reliability testing

TRL 6- 2026- 2027: Pilot Phase

- Pilot integration in brewing or paper/pulp facility
- Field validation under real industrial load





Our Role in Consortium

High Temperature Heat Pump
Technology Supplier

- Steam-generating high-temperature heat pump module
- In-house developed high-pressure compressor core
- Ready for integration with brewing and paper & pulp processes
- Modular system for pilot-scale demonstration
- Support during installation & performance validation

Related Calls :

- HORIZON-CL5-2026-02-D4-06: Phase out fossil fuel in energy intensive industries through the efficient integration of renewable energy sources
- HORIZON-CL5-2026-09-D4-08: Full-scale demonstration of heat upgrade solutions in industrial processes .

Our Team & Technical Expertise



**Aykut
Yıldırım**

Founder &
Mechanical Engineer

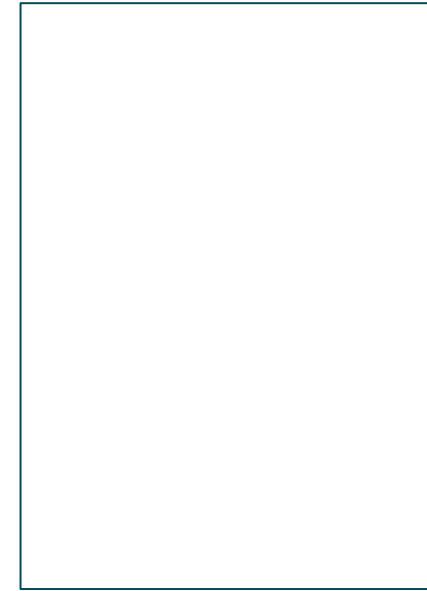
- High temperature heat pump development
- Compressor design
- Thermal cycle optimization
- Computational Fluid Dynamics



**Ferhat
Akpınar**

Structural Analysis
Engineer

- FEA, stress analysis
- Compressor design
- Fatigue Analysis
- Structural Optimization



**Ulaş Cem
Erten**

Computer Scientist
Data & Control

- Data processing
- Control & Monitoring



**Caner
Yıldırım**

Mechanical Designer
CAD & Tolerancing

- 3D modelling, drafting
- DFM, manufacturing planning
- Tolerancing



Let's Talk.

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