ILK Dresden

Newest development:
Functional model of 4-Cycle-Pulse-Tube thermal engine; height 18 cm, width 10 cm

Customized cryosystems

Cryostats (metal, glass/carbon fiber reinforced resin)
Cooling and liquefaction systems
Cryogenic actuators, sensors and pumps
Energy storing systems (H_2, CH_4, …)
LNG technology
Sensor calibration
Customized electronics
Individual software and visualization
Engineering, calculation and simulation
Heat to Power
Thermal cycle and material tests (λ, α, c, P, …)
Cryobiology – Life Sciences

Waste heat recovery systems

Contact

Institut für Luft- und Kältetechnik Gemeinnützige Gesellschaft mbH
Hauptbereich Kryotechnik und Tieftemperaturphysik
Bertolt-Brecht-Allee 20, D-01309 Dresden
Telefon +49 (0)351 4081-628, Telefax +49 (0)351 4081-635
Dipl.-Ing. Gunar Schroeder, e-mail: gunar.schroeder@ilkdresden.de
www.ilkdresden.de

Certificate in accordance with the requirements of the Pressure Equipment Directive DGRL 97/23/EG, Modul A1 for cryostats
Ident-No. CE 0525

TÜV SÜD ISO 9001

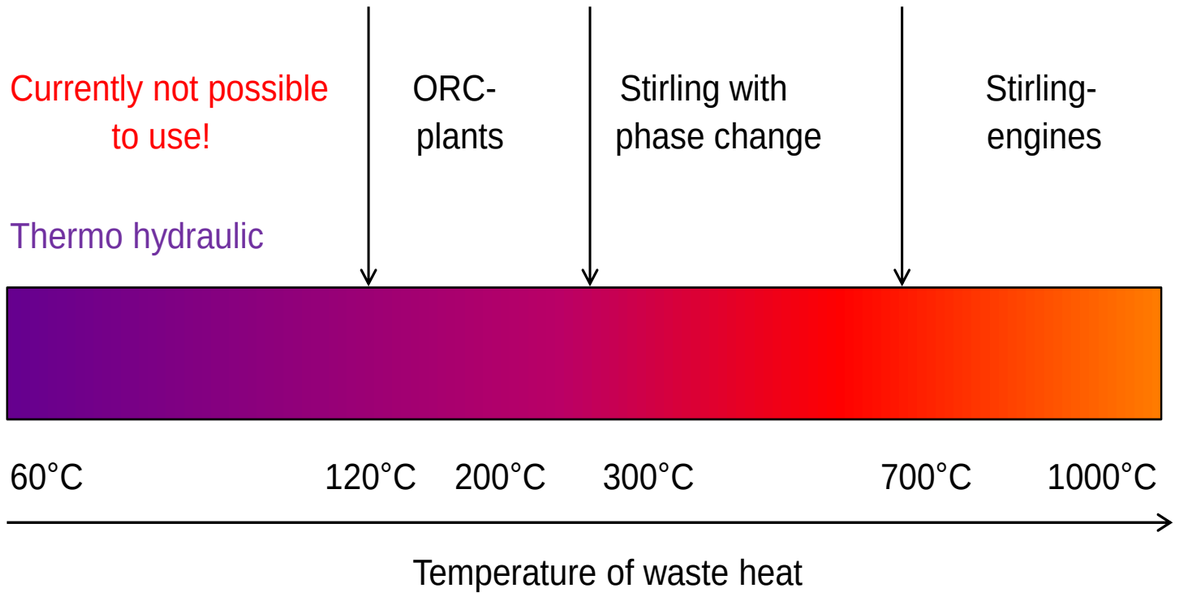
Waste heat recovery systems developed at ILK Dresden

For automobiles, e.g.,

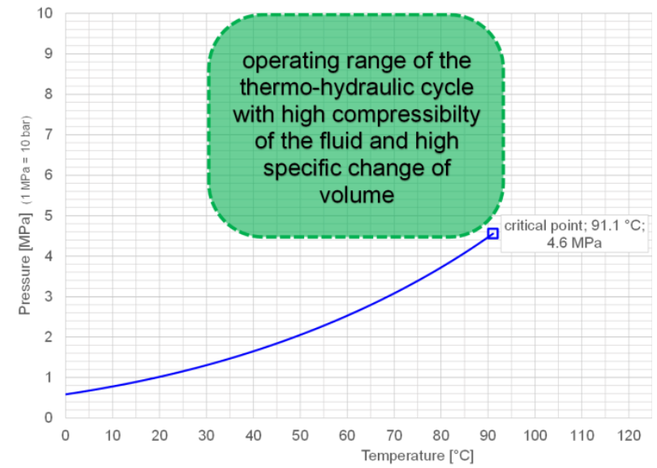
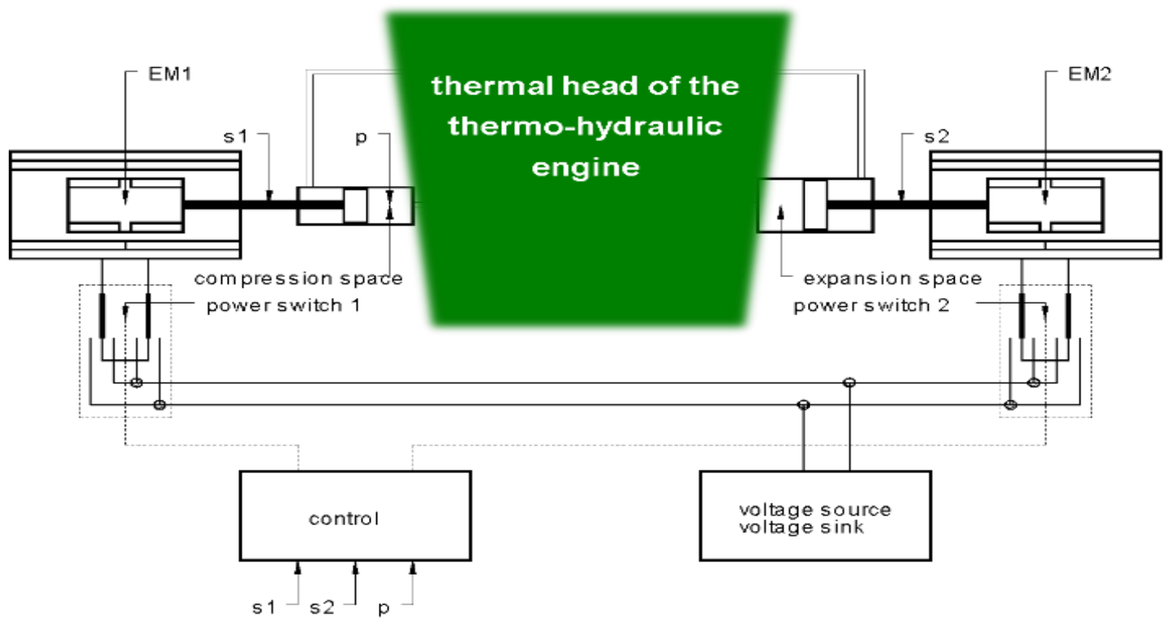
- Pulse-Tube thermal engine ≈ 900°C
- MEMS *– Stirling engine ≈ 500°C
- “Evaporator” – Stirling ≈ 350°C
- 2-Phase displacement engine ≈ 250°C
- new project: WHR for CNG-vehicles ≈ any °C

Systems for stationary applications, e.g.,

- ORC with “linear-expander-generator” for higher temperatures, ≈ 300°C



Transformation of low grade waste heat into a high quality form of energy (e.g. electricity) via a thermo-hydraulic cycle

- Temperature range of waste heat: between 60°C and 150°C
- High power range: 100 kW to 100 MW
- Low power (domestic) range: 1 kW to 10 kW

→ Usage of innovative thermo-hydraulic cycles on the basis of compressible fluids