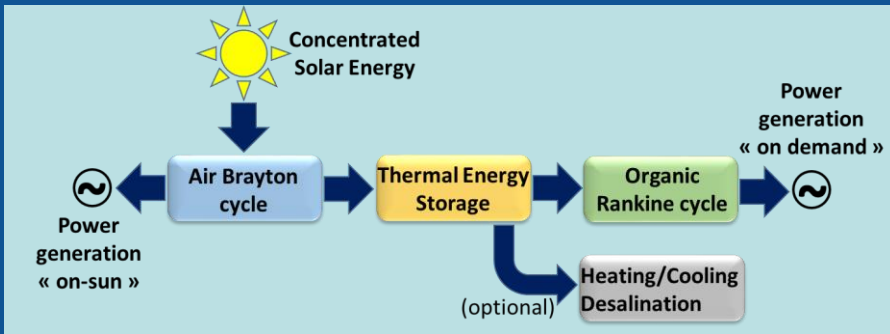
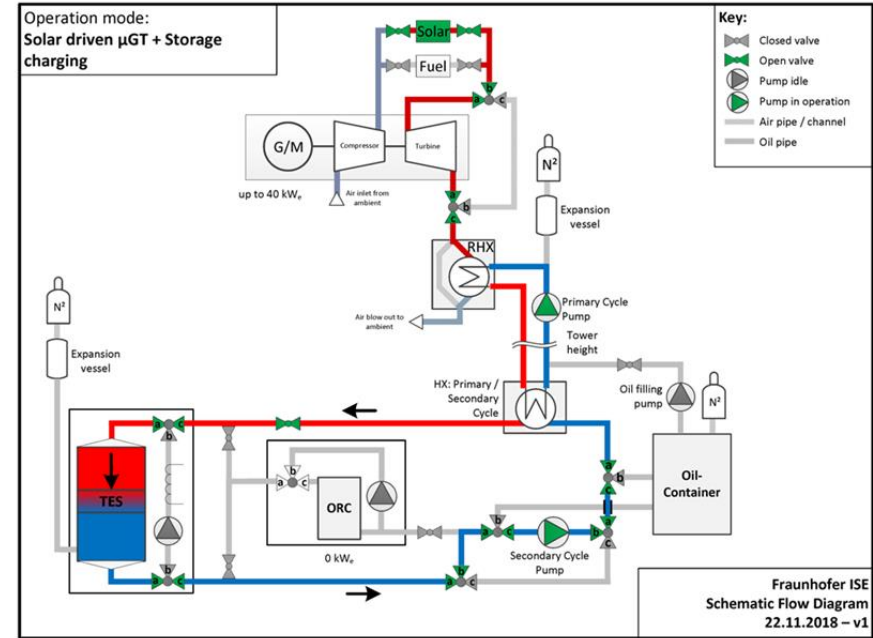


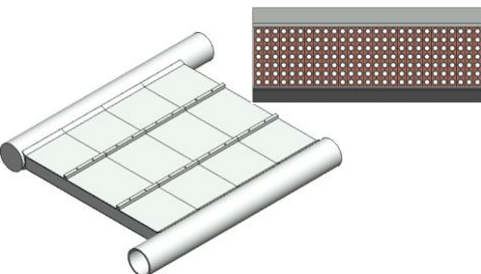
### Small-scale solar combined cycle



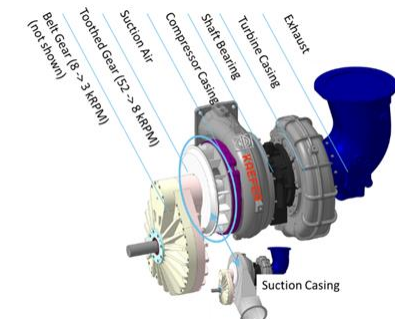
- Solar tower micro gas-turbine with integrated pressurized air solar receiver
- Recovery heat exchanger and thermal energy storage
- Organic Rankine cycle at the bottom



### Design of solar receiver and micro gas-turbine



Parameter	Value
Length	1000 mm
Width	1200 mm
Thickness	84 mm
Number of modules	4
Number of air channels	756
Number of rows of channels	7
Channels diameter	6 mm
Twisted tape thickness	0.8 mm
Twisted tape helicity	30 mm
Air ducts diameter	150 mm



Parameter	Value
Air mass flow	0.82 kg/s
Compression ratio	4
Compressor discharge pressure	3.32 bar
Compressor discharge temperature	190°C
Turbine inlet temperature	750°C
Turbine outlet temperature	495°C
Max pressure loss in receiver	170 mbar
Max pressure loss in RHX	10 mbar

- Low cost thermocline thermal energy storage using concrete materials
- Flexible operation modes and power generation
- Robust and commercially available components



- Balanced EU consortium:  
4 research centers (F,D,E)  
4 companies (D,E, DN)
- Complementarity among industries:  
1 large company + 3 SMEs
- Prototype plant to be tested at Themis solar tower platform in France
- First-of-a-kind plant to be designed for decentralized power generation market