



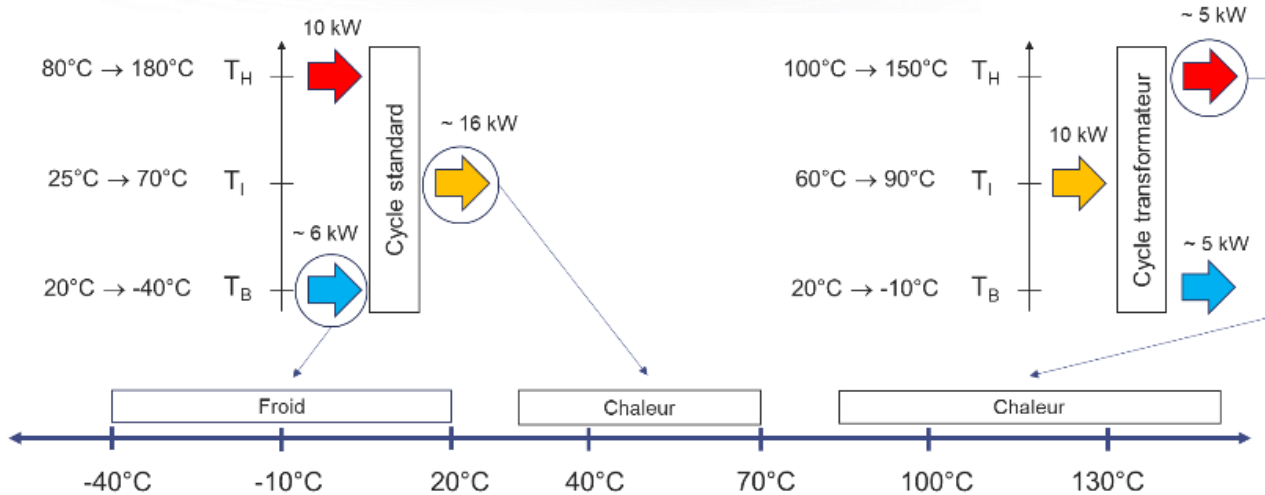
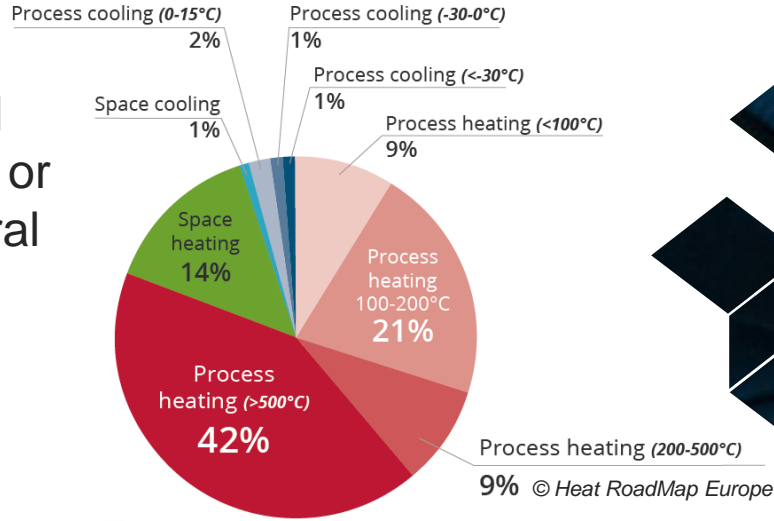
Absorption machine for heat and cold production

LITEN/DTCH/SSETI/L2TS



Our technology

High-performance machine for cold or heat production from waste heat or renewable heat source, using natural refrigerants (GWP = 0)



TRL ~ 2 TRL ~ 4 Produit commercial existant

TRL ~ 3 TRL ~ 2

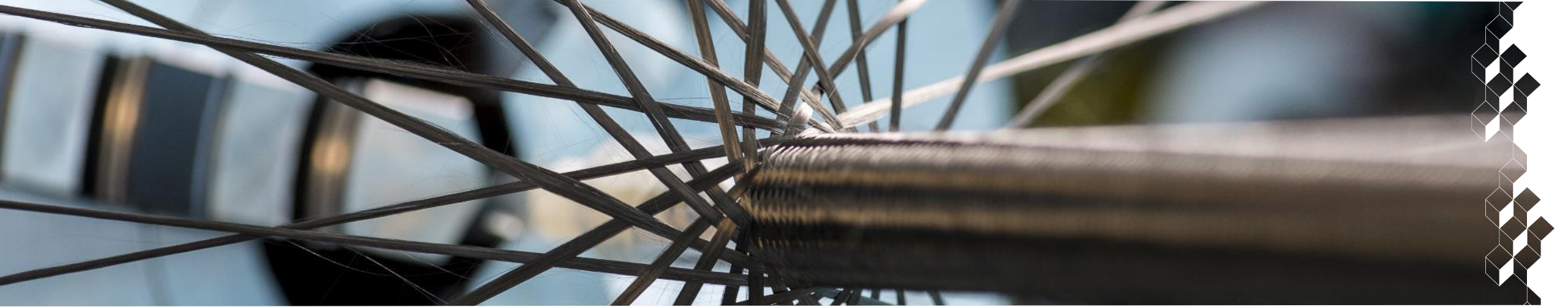
* Maturité 1 élevé avec cycle hybride Absor/Compression ou avec LiBr/H₂O



Key features

- **Low consumption of electricity: $ECOP_{\text{machine}} > 10$**
- Thermal efficiency:
 - ✓ Cold production : $COP_{\text{cold}} \sim 0,7$ (142 kW of waste heat for production of 100 kW of cold)
 - ✓ Heat production (up to 70°C) : $COP_{\text{heat}} \sim 1,7$ (59 kW of waste heat for production of 100 kW of heat)
- Use of **natural fluids** Ammoniac / Water: **GWP= 0, ODP =0**
- **Versatility**: production of cold or heat, or both in reversible mode
 - ✓ Cold : positive or negative (down to -30°C)
 - ✓ Heat: production of hot water (up to 70°C)
 - ✓ Reversible functioning
 - ✓ High temperature heat pump (> 100°C)
- **Scalability** of the CEA prototype : up to 500 kW





15 years of experience with successful realization of 7 prototypes & 2 demonstrators (TRL 6-7) from 5 kW to 100 kW

❖ **Knowledge:**

- ✓ **Fine modeling** at local scale & simulations of the processes of absorption and desorption
- ✓ **Component sizing** & 3D machine design
- ✓ Deep knowledge on working with **ammonia**
- ✓ **Commissioning, system control** and **data analysis**

