

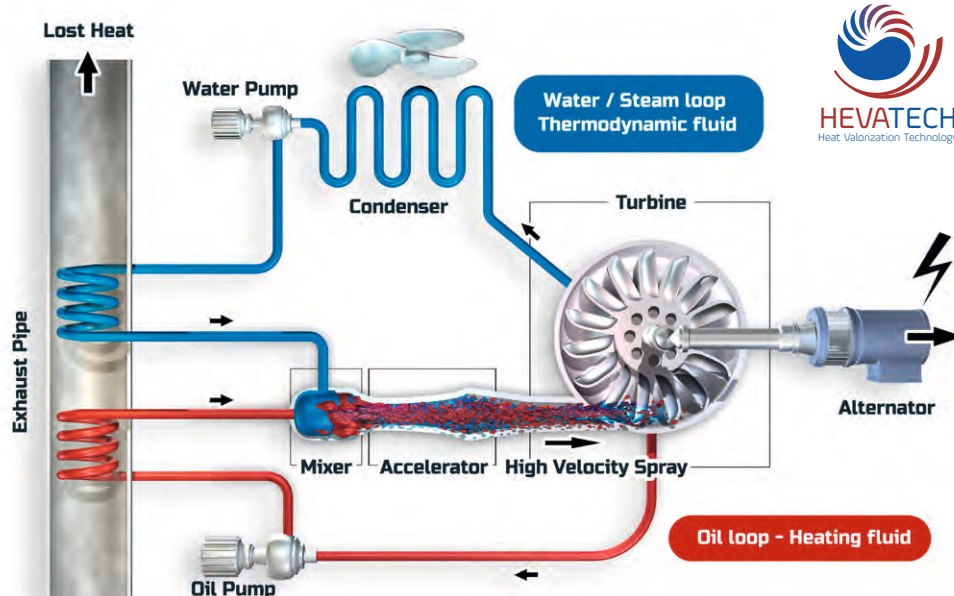
TURBOSOL:

INNOVATIVE HEAT-TO-POWER CONVERSION TECHNOLOGY

WORKING PRINCIPLE

An innovative and patented concept based on :

- A **water/steam loop** (thermodynamic fluid) **combined with an oil loop** (heating fluid)
- A **double phase injector/accelerator** that generates acceleration of the oil by the isothermal expansion of the steam
- An **impulse Pelton-type turbine** with small diameter, and operating at low pressure and low speed



The oil transfers its **heat** to the water
The water/steam provides its **energy** to the oil

TARGETED MARKETS



Waste/Biowaste
incineration



Biomass
combustion
Cogeneration



Industry



Genset

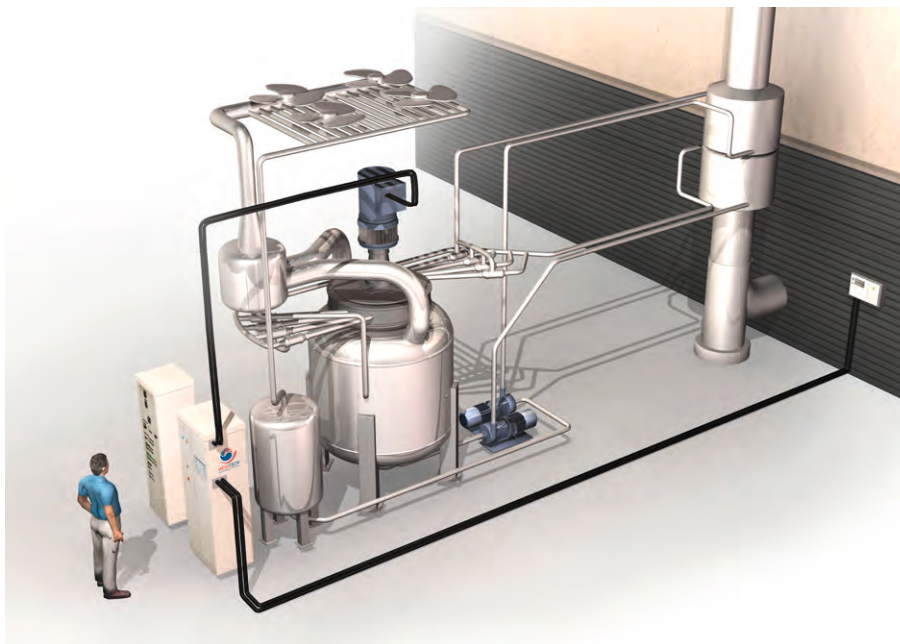
TECHNICAL FEATURES



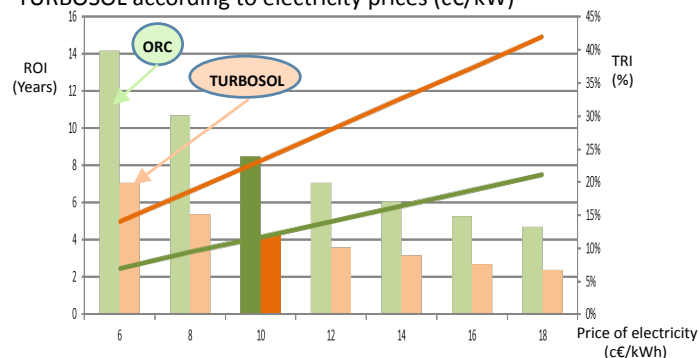
- **Electrical power range** : 25 – 100 kWe (soon 500 kWe)
- **Temperature of off gases** : > 300 °C
- **Temperature of exit gases** : from 120 °C
- **Working pressure** : turbine at 1 bar, loops at 10 bar
- **Global turnkey supply package** : process, equipment including heat exchangers, set-up, starting operations

DECISIVE ADVANTAGES

- **Low investment and maintenance costs**, that allow an attractive return of investment
- **Simple, robust, non-noisy, easy to install and to operate** (small diameter, low rotation speed)
- Operates at **low pressure** (turbine at 1 bar, loops at 10 bar)
- **Safe, clean and environment friendly technology** (no pressure, non-organic fluid, no complex regulatory constraint)
- **Flexibility** (compatible with a broad variety of heat sources) and **modularity** (possibility to couple several accelerators on a single turbine)
- **Valorization of a high rate of off-heat** thanks to the use of two fluids
- **A cold source close to 100 °C** (that allows a complementary valorization by cogeneration)



Return of investment (Year) and TRI (%) comparing ORC versus TURBOSOL according to electricity prices (c€/kW)



Quick return of investment of 4 years (for EE price = 10c€/kW).
Halved compared to ORC, the main competing technologies

Simplicity of design and robustness...
...Providing a net benefit over the competing technologies.

HEVATECH IN A FEW WORDS

- **Technological start-up** dedicated to technologies, processes and products, for off-heat valorization
- Creation : 2010 – young innovative company status
- **The team** : 8 persons with technical expertise and complementary profiles, supported by teams of external experts
- Place : Drôme (France)
- Awarded in 2013 by **AMI TOTAL-ADEME** for its TURBOSOL technology (patented)

THEY SUPPORT US AND WORK WITH US



IN ORDER TO GO FURTHER

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