



Clean recycled industrial heat

Decarbonize heating with High-Temperature Heat Pumps (HTHP)



Brown-field installation

As long as power and a steam line are available, the HoegTemp can be installed in existing and new plants.

Replicable

Optimized solutions for several industries have been developed, in co-operation with established solution providers across many sectors.

Low environmental footprint

With its inert-gas refrigerant, with zero Ozone Depletion Potential, zero Global Warming Potential, which is also non-toxic, non-flammable and contains no PFAS, the HoegTemp is future-proof.

The HoegTemp is almost silent, due to the absence of internal valves.



Highest-temperature lift for industrial heat

The Enerin HoegTemp High Temperature Heat Pump (HTHP) can generate heat up to 200°C, from any heat source, even cooling above -10°C.

Using recycled waste heat, or ambient heat sources, and electricity, the HoegTemp recycles the energy and converts it to very high temperatures for industrial processing.

The Horizon Europe SUSHEAT sustainable heat upgrade project will map the HoegTemp performance across the whole operating range up to 250°C.

At high temperature lifts, the HoegTemp is the most efficient heat pump on the market, while at lower temperatures the Coefficient of Performance (COP) is higher.

Compared to a traditional fossil fuel boiler, which usually has an efficiency of 80% – 90%, the typical customer will experience two to three times less energy consumption than with fossil heating.

Variable operating conditions

The HoegTemp's low thermal inertia and single-phase stirling process, allows it to follow the operating conditions and deliver the desired heating regardless of variations in source temperature or changing steam pressure demands.

Ease of integration

The HoegTemp is installed and controlled like a boiler, except that it has a different heat source. The heat source can be a cooling circuit, a waste heat stream, like humid air, or ambient air through a fancoil. The heat pump heats a steam generator connected to any steam line in the plant. No need to stop production during scheduled maintenance – just connect the heat pump to a steam line during the process.



Simple control

The heating capacity of the HoegTemp can be adjusted by a factor of two, in seconds, and from zero to full capacity in minutes. There is no internal process that needs time to adapt to changes in demand, just heat exchangers that react instantly.

One process – one refrigerant

The HoegTemp is the same no matter which temperatures or steam pressures are used in the plant. That means that if process equipment is replaced with more efficient models in the future, the HoegTemp will adapt to the new conditions, without modifications.

Temperature glide

The HoegTemp can be set up for any desired temperature glide, from a small glide for steam generation to a high glide for the heating of air or fryer oil. It can utilize low-glide sources such as condensation heat, or high-glide sources such as humid air.

Low cost of operation

The HoegTemp is designed to be easy to maintain, and the control system is continuously monitoring the performance and condition, for high reliability and less maintainance. Every HoegTemp is delivered with a 10-year operating contract covering consumables, maintenance, and extended warranty.



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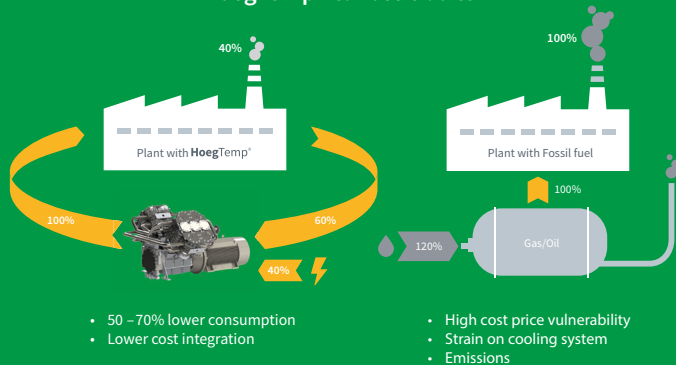
Specification

- **Heating Capacity:** 500 kW to 1 MW per module, multiple modules can be combined for larger capacities
- **Heating temperature:** Up to 250°C
- **Source temperature:** -10°C to +130°C
- **Temperature glide:** Small to very large, for both source and sink
- **COP:** Carnot efficiency 50% to 60%
- **Refrigerant:** Helium (nitrogen and hydrogen also possible)
- **Size:** 3 m x 4 m x 2 m tall for 1 MW module
- **Operating contract:** 10 or 15 years

References:
IVAR, Norway – Biogas
GE Healthcare, Norway
– Pharmaceuticals
Pelagia, Norway – Seafood



HoegTemp vs. Fossil boiler



COP Chart

