

HEAT  
PUMPS  
IN  
SPAIN

# NATIONAL WORKSHOP

11<sup>TH</sup> NOVEMBER 2024

📍 CIEMAT / Madrid

Ongoing  
Spanish  
Team activity  
on HPT

## SIMULTANEOUS COOLING AND HEATING WITH HTHP

# Rank.®

José P. Martí // Sales Director  
*Madrid, 11th november 2024*



**IEA HPT TCP**  
Technology Collaboration Programme

SPAIN  
**NATIONAL  
TEAM**



**Ciemat**  
Centro de Investigaciones  
Energéticas, Medioambientales  
y Tecnológicas



## COMPANY

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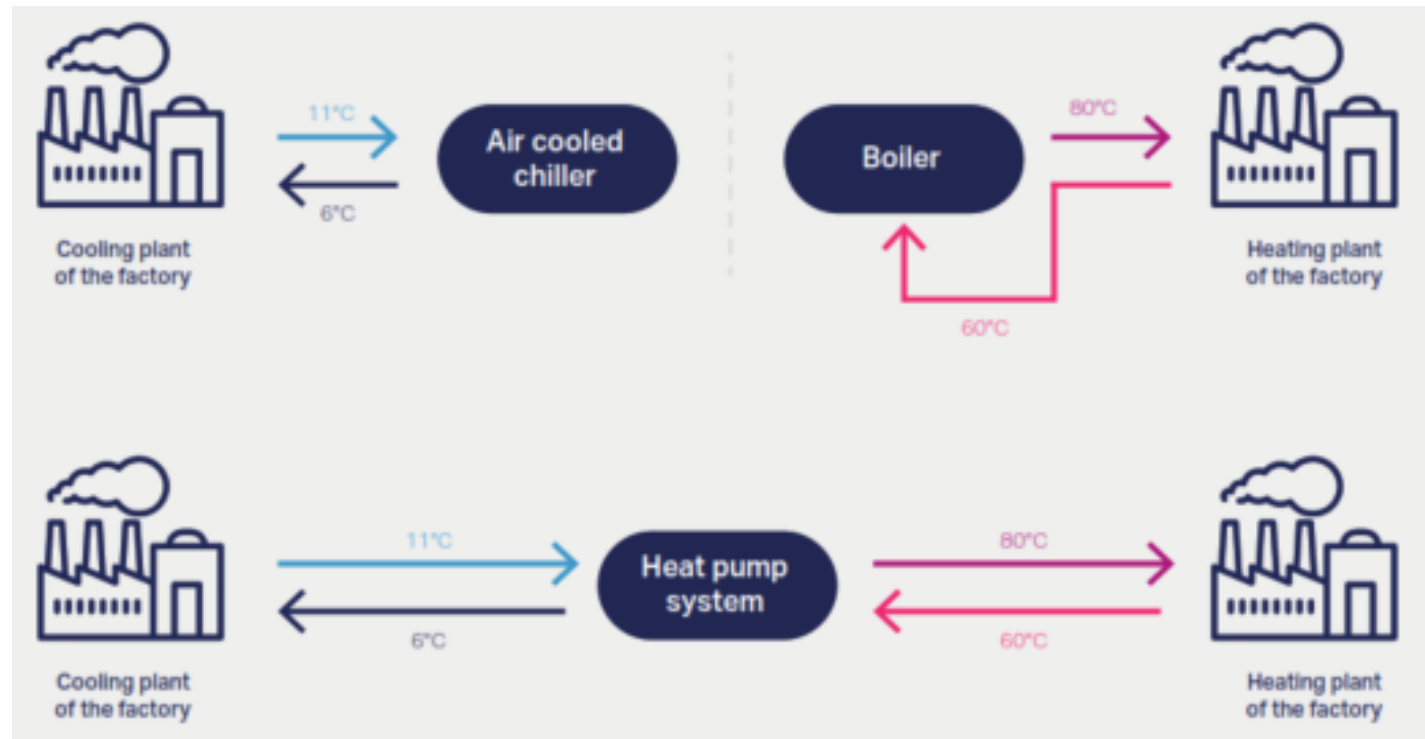
- **Founded in 2010 as Spin off of Jaume I University.**
- **Based on La Vall d'Uixó (Castellón).**
- **ORC design and manufacturing since 2010 (research since 2007).**
- **Around 40 machines installed around the world.**
- **HHP research since 2014.**

## HTHP TECHNOLOGY

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- **Totally developed by RANK.**
- **Twin Screw compressors.**
- **HFO Working fluid.**
- **Magnetic coupling.**
- **500 kWt Standard machine with many different working points.**
- **Up to 150°C Water and Steam production.**

# HHP SIMULTANEOUS COOLING & HEATING



Source: Industrial Heat Pumps: it's time to go electric. WBCSD. September 2023

# HPTP SIMULTANEOUS COOLING & HEATING

- **ADVANTAGES**

- Total or Partial substitution of Cooling and Heating Systems.
- 24/7 Function.
- Savings:
  - Water consumption (If cooling tower or adiabatic coolers).
  - Electrical consumption (At cooling).
  - Fossil fuel consumption (At existing heating system).
  - CO2 rights payment.
- Zero Carbon Heating if renewable power used.

- **BARRIERS.**

- Industrial processes modification.
- Investment.
- Grid connection



## AHEAD PROJECT

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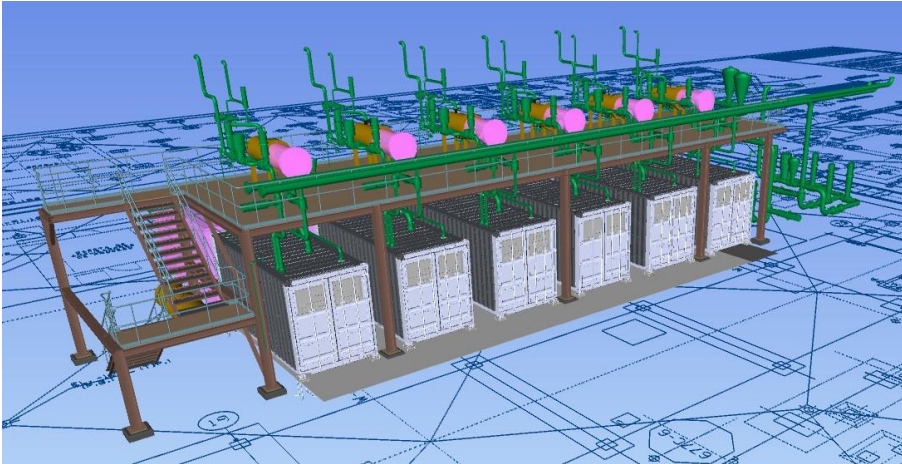


uni  
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EVONIK  
Leading Beyond Chemistry

- Client: UNIPER Kraftwerke GmbH.
- Location: Evonik chemical plant. Herne. Germany
- Turn key Project. 2xHTHP + Intermediate circuits.
- Heat source: 25-15°C from Cooling tower circuit.
- Heat Sink: 65-95/105/130°C District Heating.
- 2x500 kWt. Agregated COP: 4,64 (HTHP+circuits).
- IT/OT Integration with DH Power Grid.

## CIRCLAR PROJECT



- Client: REPSOL PETROLEO, S.A.
- Location: Repsol Refinery. A Coruña. Spain
- Turn key Project. 6xHTHP + Steam production.
- Heat Source: 105-70°C Cooling Tower circuit.
- Heat Sink: 108-149°C Steam boiler.(4,6 bara).
- 6x670 kWt HTHP. Agregated COP: 5,84.

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