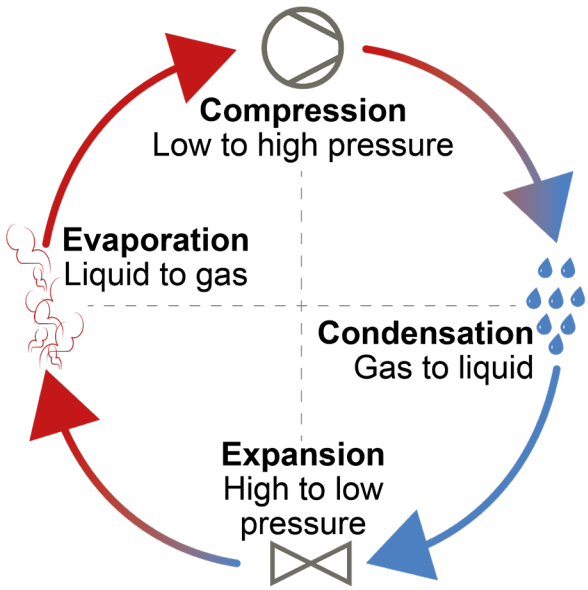
Waste heat recovery in dryers

Reduce your gas consumption by using industrial heat pump technology.

Increasing the energy efficiency of the drying process by installing a heat pump will result both in **energy cost reductions** and in a positive environmental impact (**reduction of CO_2 emission**)

By using the enthalpy of the wet air exhaust of the dryer, we create hot air for the drying process of heavy clay products.



Basic principle

Heat pumps take energy from a cold stream, increase the temperature, and release this energy to a warm stream.

The heat pump operates on the basis of a working fluid (refrigerant) which changes state (liquid/gas) in a continuous cycle and absorbs and releases heat (**Carnot cycle**).

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Heat pump technology

By recovering the enthalpy of the wet air exhaust, we are heating the drying air.

Applications

- Can be applied to different types of dryers (chamber dryer, tunnel dryer, fast dryer)
- And with different types of products (facing bricks, structural bricks, roof tiles, pavers)
- Can be combined with:
  - hot air recovery
  - wet air recirculation
  - cogeneration
- Integration in existing dryers based on feasability study

Fluids

- Primary circuit: NH_3 (ammonia)
- Secondary circuit: water

Our presales process

Feasability study

A feasability study is done, based on:

- the type of dryer
- the characteristics of the wet air exhaust
- the configuration of dryer
- the work organisation
- the characteristics of the product (water percentage, residual moisture)
- the drying curves
- the energy prices (gas & electricity)

Quote

The cost of this feasability study depends on the type of dryer.
The quote for the industrial equipment ends the feasability study.

Technological limits

- Water temperature ≤ 90°C
- Drying air temperature ≤ 80°C (with secondary circuit(s))
- Drying air temperature ≤ 90°C (without secondary circuit)

Your advantages

Increased energy efficiency
Production cost reduction
Lower CO_2 emission
Financial support depending on your country

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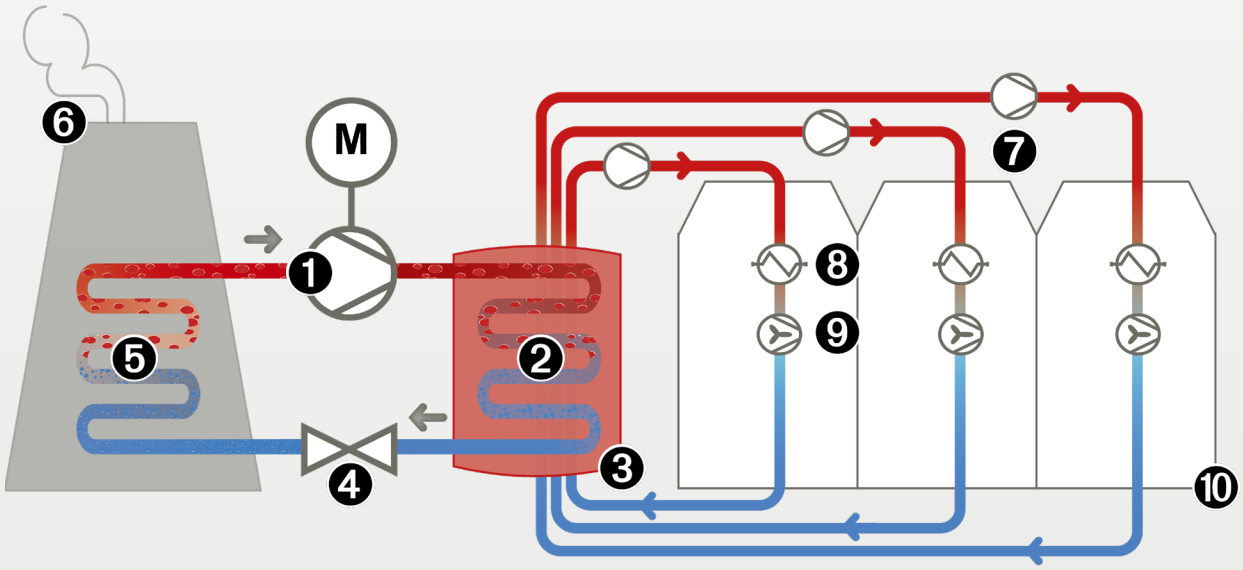
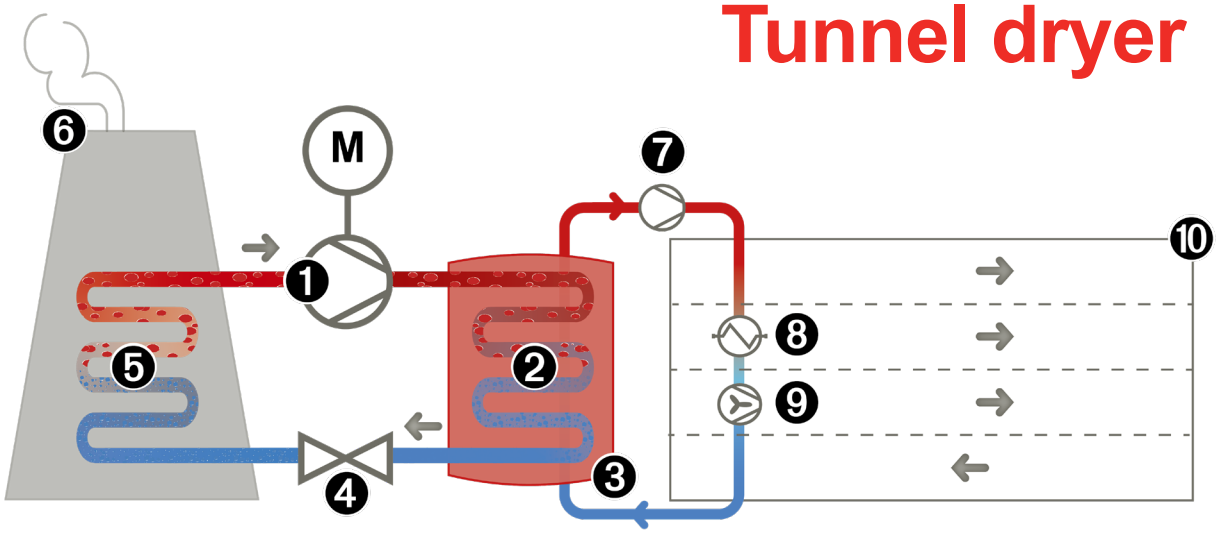
Example 1 - Chamber dryer



1. Compressor
2. Condenser
3. Boiler
4. Expansion valve
5. Evaporator
6. Chimney
7. Water pump
8. Heat exchanger
9. Fan
10. Chamber dryers

Example 2 - Tunnel dryer



1. Compressor
2. Condenser
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6. Chimney
7. Water pump
8. Heat exchanger
9. Fan
10. Tunnel dryer

The Ceratec Group

Ceratec is a Belgian technology and engineering company.

We are passionate about technology, and continuously adapt to changing market needs. We deliver top quality, think solution oriented, and work hard to win our customers' trust.

We offer our customers tailor-made solutions within our 3 core competences:

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handling & intralogistics
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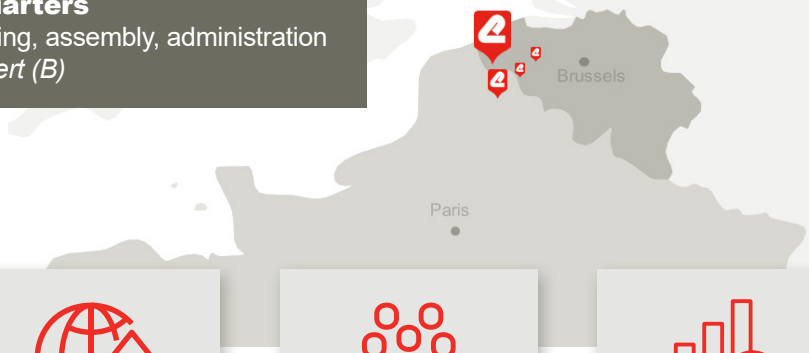
electrical installations
a business unit of Ceratec

Headquarters
Engineering, assembly, administration
Ploegsteert (B)



100%
family-run since 1986

operating in **27 countries** worldwide

520
employees

100
mil. €
business turnover

ceratec.eu

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