



European  
Commission

# Technology factsheet: Competitiveness of clean energy technology – Heat Pumps

December 2023

## Key technologies

Heat pumps are widely available commercially and increasingly being fitted to homes and commercial buildings for heating and cooling. Their increased use is set to be an important contributor to reduced building energy use.

### tech 1

Technological Readiness Level (TRL) 2-4: Thermo-acoustic; Transcritical thermal compression; Caloric

### tech 2

TRL 6: Membrane

### tech 3

TRL 8-9: Air-air; Air-water; Ground-source; Water-source; Gas-driven; Industrial and district heating and cooling (DHC – depending upon temperature)

## Key value chain figures

- **Sector turnover:** EUR 4.2 billion (2022) in EU according to Eurostat (production only, with more turnover for distributors, installers, etc.).
- **Employment:** 161 632 in EU (2022) according to the European Heat Pump Association (total, including installation, etc.).



## Key facts

### Fact 1

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In Europe, nearly 20 million individual heat pumps for heating and hot water are estimated to have been installed by the end of 2022. Production value and employment trends are positive.



### Fact 2

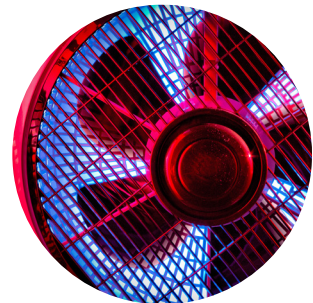
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Worldwide, the sales of heat pumps increased during 2021 (+34%) and 2022 (+39%). However, maintaining such growth rates will be challenging. There are potential bottlenecks and barriers in the short term, such as a lack of specialists.

### Fact 3

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There is no specific supply risk, due to a high degree of component commonality with other products, and parts with a typical lifetime of 17 years.



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