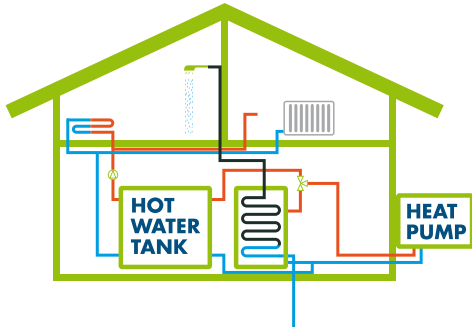


# HFCs AND HEAT PUMPS



**Heat pumps** are much **more efficient** than other forms of heating and are widely used: **they extract energy from air or water and transfer it to heat homes and office buildings.** Compared to direct heating with fossil fuels they are much more energy efficient.

Heat pumps **use the refrigeration cycle.** They rely on the specific properties of a refrigerant to provide a greater heat output than the energy used to run the heat pump.

## WHY USE HEAT PUMPS?



Heat pumps can **reduce energy use** for heating by up to **60%**.



Heat pumps deliver about **3 times the amount of energy as heat** compared to the electricity they consume.



Heat pumps replace fossil fuel heating systems **reducing carbon dioxide emissions.**

## WHY USE HFCs?

HFC are used as the refrigerant in heat pumps



**Adaptable** to a wide range of systems



**Safety properties** allow efficient heat pump designs



**Non** or low **flammability** and low toxicity



**Energy savings** benefit an order of magnitude **greater than emissions** due to refrigerant loss

## HEAT PUMPS AND HFCs

Heat pumps contribute to the increasing use of renewable energy, extracted from air, water or the ground. Increased use of renewable energy is a key objective in the EU.



Currently the **majority** of heat pumps use **HFC-410A.**



There are about **7 million** heat pump systems working in Europe.



**Yearly sales** typically exceed **700,000 units**

**F-GAS REGULATION 517/2014 AND HEAT PUMPS CONTAINING HFCs**  
Measures in the F-Gas Regulation have the **objective of reducing HFC emissions** from heat pumps through leakage checking, recovery, and training and certification. While the HFCs used in heat pumps and, from 2017, for imported pre-charged heat pumps must be within the HFC quota system, there are no placing on the market restrictions for heat pumps. **This recognises the valuable role of HFCs as refrigerant for heat pumps.**