DALRADA
Climate Technology

Revolutionary heat pump technology *for decarbonized heating and cooling*

DCT One Series:

Heat Pumps for the Food Processing Industry

Rising Global Concern

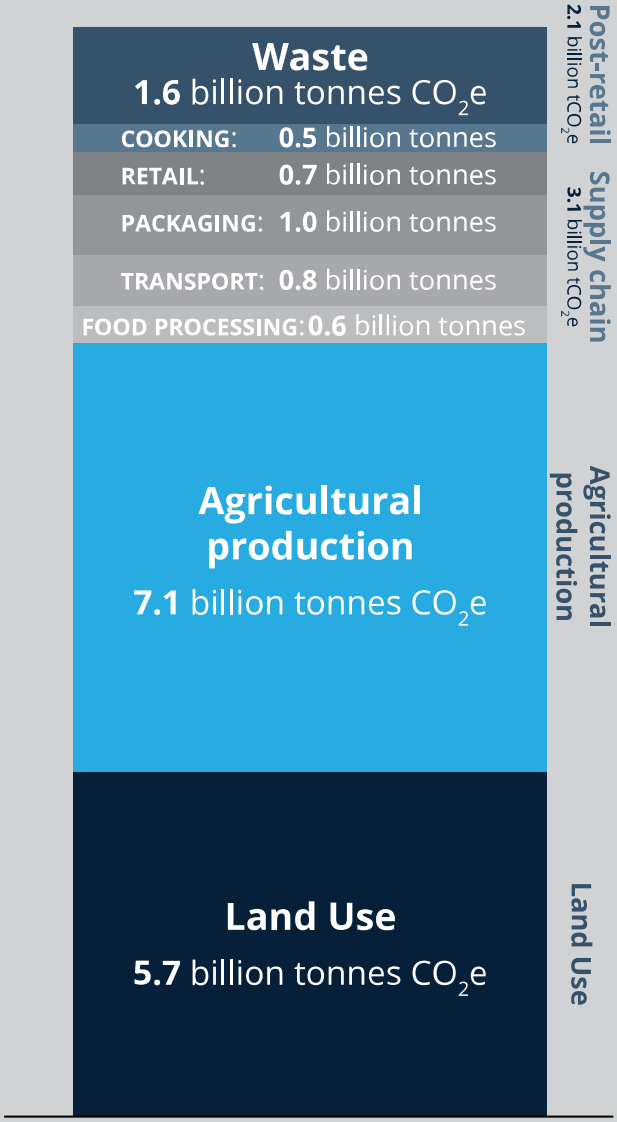
With countries striving to achieve their NetZero pledges through the development and implementation of global sustainability standards, many industries are discovering the best ways to reduce carbon emissions and cut energy costs.

The Food Processing industry has recognized the importance of utilizing renewable energy sources to comply with the upcoming standards and guidelines. This growing recognition reinforces the fact that businesses transitioning to sustainable practices is not only necessary for the environment but also imperative to the long-term success of their operations.

An Industry-Wide Issue

Food Processing itself is complex and comprised of several major segments including: agriculture, transportation, processing, and handling, among others. Each of these consume energy uniquely – while unfortunately contributing to global emissions.

A study by Crippa et al. (2021) revealed that the food system as a whole, is responsible for a staggering 17.9 billion tonnes of CO_2e, which accounts for approximately 34% of the world's total carbon emissions.



Crippa et al. (2021)
17.9 billion tonnes CO_2e from food

* CO_2e - carbon-dioxide equivalent
**Source: https://ourworldindata.org

Modernizing American Energy

The Inflation Reduction Act of 2022 recognizes the importance of American agriculture in addressing the climate crisis. **$21 billion** has been reserved for climate-smart farmers, ranchers, and forest landowners who are committed to reducing greenhouse gas (GHG) pollution and increasing carbon storage in soils and trees – while making operations more efficient and productive.

Did You Know?

Every DCT One Series machine installed has the potential to eliminate 250,000 kilograms of CO_2 equivalent.

A Dire Need

The inefficiency of traditional boilers and chillers has created a dire need for robust technology that addresses high energy consumption and combats rising energy costs.

A Real Solution

Through renewable and sustainable energy innovation, combustion-free Dalrada Climate Technology heat pumps reduce carbon and improve energy efficiency, delivering up to 70% cost savings while meeting Net Zero goals.

Up to

7X ***More Efficient***

than conventional heating & cooling systems

LOWER MAINTENANCE COSTS

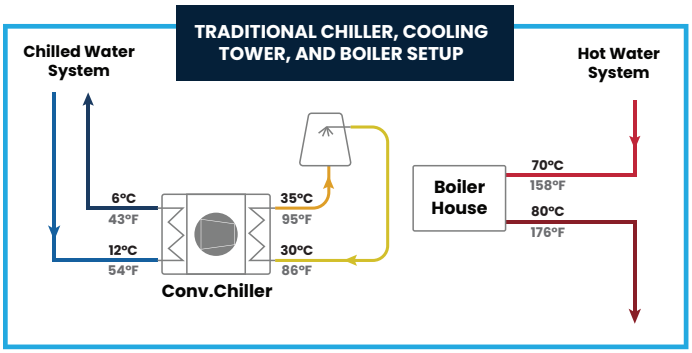
LESS DOWNTIME

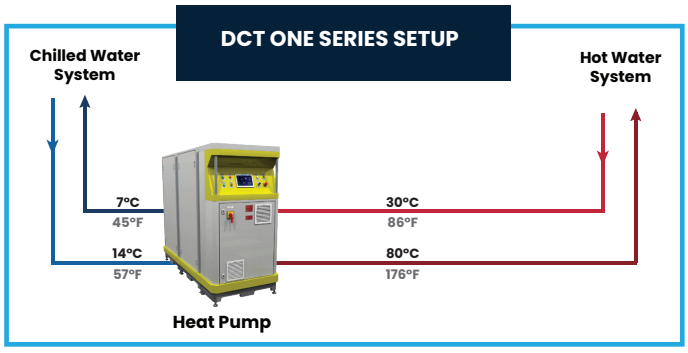
SWITCHING TO DCT HIGH-EFFICIENCY HEAT PUMPS

Less Energy Consumption **X** ***Lower Emissions*** **=** ***Higher Savings***

DALRADA CLIMATE TECHNOLOGY HEAT PUMP ADVANTAGES

- Effectively decarbonizes heat
- Combustion-free process
- Reduces global warming potential (GWP)
- Uses carbon dioxide (CO_2) as refrigerant in transcritical refrigeration cycle
- Retrofittable design, modular build
- Climate agnostic, works in multiple regions
- Can be implemented into new and existing building infrastructures





DCT ONE SERIES STANDARD CAPABILITIES

- Delivers up to **150 kW** of heating and **105 kW** of cooling power with **43 kW** of electrical input, making it ideal for various commercial building applications
- Every **1 kW** of electrical energy input produces **4.5 kWth** of heating energy and extracts **2.5 kWth** of cooling energy from a suitable source, giving a **COPhc of 1:7** for most applications.
- Closed system featuring a transcritical refrigeration cycle that employs supercritical CO_2 as the working fluid.
- Outperforms most traditional heating and cooling systems and can serve as a replacement solution for both.
- Uses non-toxic, non-flammable, environmentally-friendly natural refrigerants that are completely CFC and HFC free.

Reduce environmental impact *and* ***save money*** *on heating and cooling costs with* DCT One Series, *a true food processing solution.*

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www.DalradaClimateTech.com

1.858.529.9910