



CLADE

OAK RANGE //

50kW – 500KW CO₂ AIR SOURCE HEAT PUMPS

April 22 //



— THE OAK //



LOW CARBON HEATING TECHNOLOGY

Clade CO₂ heat pumps will reduce carbon emissions whilst maximising efficiency with existing cooling and heating systems. Our full-service offering makes heat pumps a simple and low risk way to improve your ESG and operational performance.

Flow temperatures up to 90°C

Return temperatures 30°C to 35°C for highest COP





BENEFITS OF THE CLADE OAK CO₂ RANGE //

50-500kW of heating capacity, with COPH of up to 3.84*

Integrated electrical control panel to work seamlessly alongside client selected BMS system.

Specialist compressors provide a greater operating temperature range and increased COP.

Compressor inverter drive to control compressor speed, enabling smoother running in low load conditions, whilst minimising electrical input.

Full mechanical service integration, incorporating pumps for simplified installation.

* COPH is based on a specific flow, return and ambient conditions



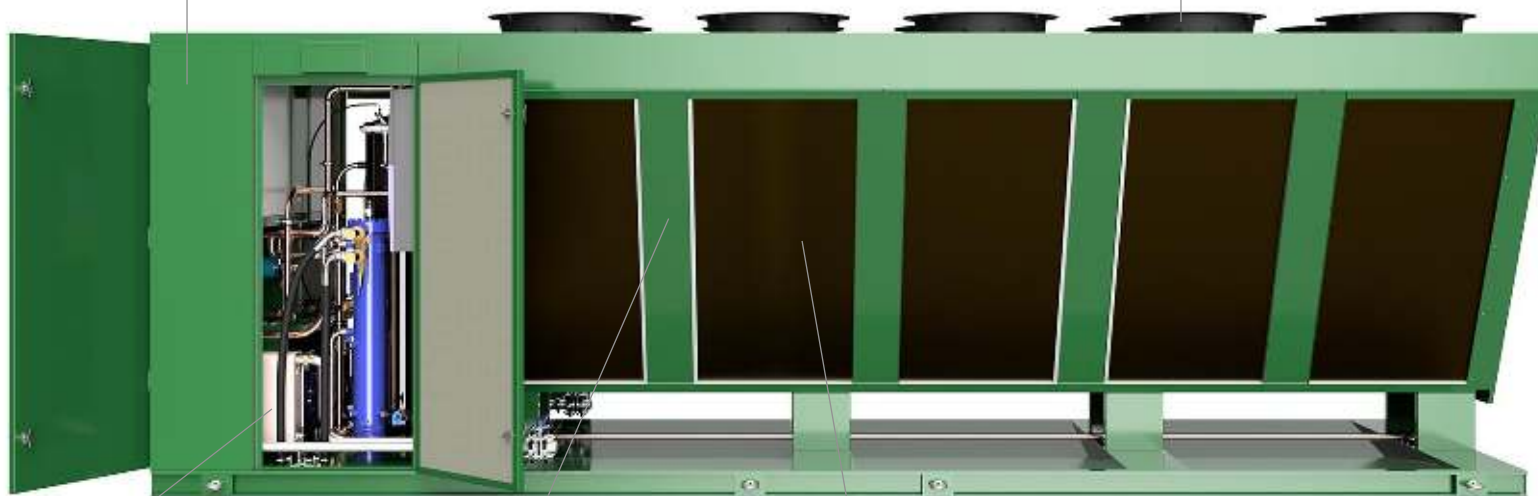


BENEFITS OF THE CLADE OAK RANGE //

500-500kW of heating capacity

Low noise weather proof housing ensures low noise levels as expected by local Environmental Health Authorities.

Supplied with one fan per evaporator coil section, reducing noise levels and enabling advanced defrost adaptive control whilst simplifying the overall control process.



Gas cooler plate heat exchanger transfers heat from refrigerant to water.

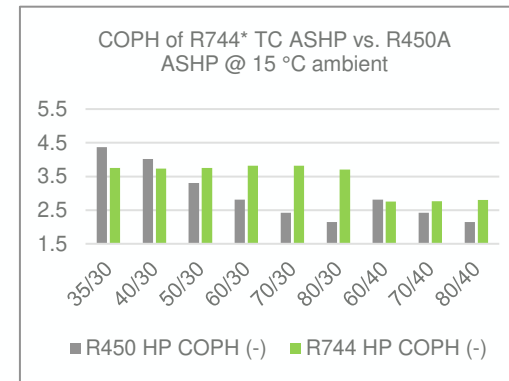
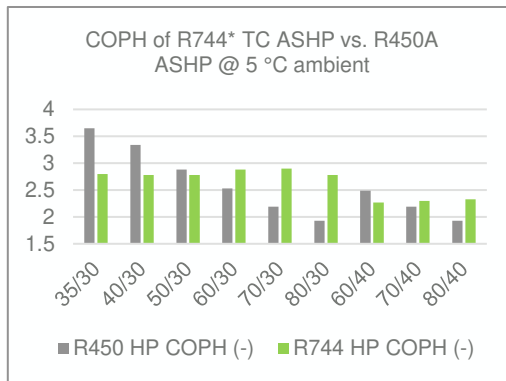
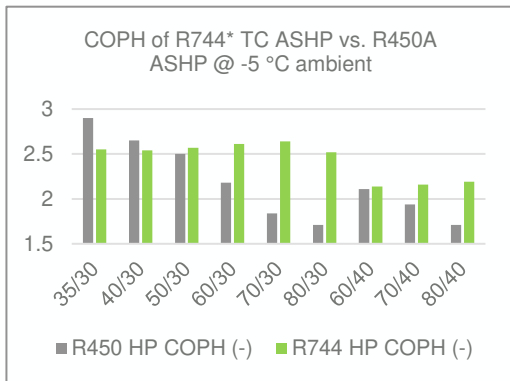
Removable panels for access to individual evaporator expansion devices.

Plug and Play - Close coupled V block evaporator eradicates the requirement for on-site connections between the heat pump and heat source.





CO₂ HEAT PUMPS PERFORMANCE //



AT HIGHER FLOW TEMPERATURES THE CO₂ HEAT PUMP DELIVERS SIGNIFICANTLY BETTER PERFORMANCE

* R744 is CO₂, R450A is a typical HFO



CLADE PERFORMANCE //



Customer benefits from full Clade services offering

- **100% decarbonization**
- **20% electricity price reduction**
- **10% energy reduction**
- **0 refrigerant legacy**
- **20% reduced cost to maintain**
- **Performance guarantee**





COMPLETE TECHNICAL SUPPORT BASED IN UK //



Clade offer full technical support from our Leeds Technology Centre.

- **Design assistance** – we have an in house design team who are experts in heat pump system design.
- **Product** – our products are developed by our selves from metal frames to the digital controls. Our experts are on hand to assist with any issues or adaptations required.
- **Installation support** – Our full service installation team can arrange delivery, install and carry out specialist services to ensure a successful project.
- **Commissioning** – Our own commissioning Engineers will set up, test and handover your heat pumps. Our team are some of the UK's leading experts in this field.
- **Aftercare** – All servicing and repairs are taken care of, we use online tools and field technicians to ensure maximum availability and reliability.





CLADE INDUSTRIAL CONTROLS //

The future value of heat pumps will largely depend on rewards for providing grid flexibility and on optimal efficiency in all conditions.



Clade heat pumps are fitted with high specification PLC controls that are networked to cloud services. Delivering multiple benefits

The Clade digital platform enables continuous operational improvements and lower service and maintenance costs.

- Data is captured, analysed and insights generated to improve performance
- Alerts and alarms can be raised automatically
- Online diagnostics save call out time and charges

The Clade digital platform provides dispatch services via pre-built access to the flexibility market or time of day tariff control.

- Time and control of thermal storage for tariff and timing optimisation
- Access to grid flexibility platforms
- Safe operation of the heat pump in response to market signals that maintains warranty
- Performance and data analytics, reporting in multiple formats

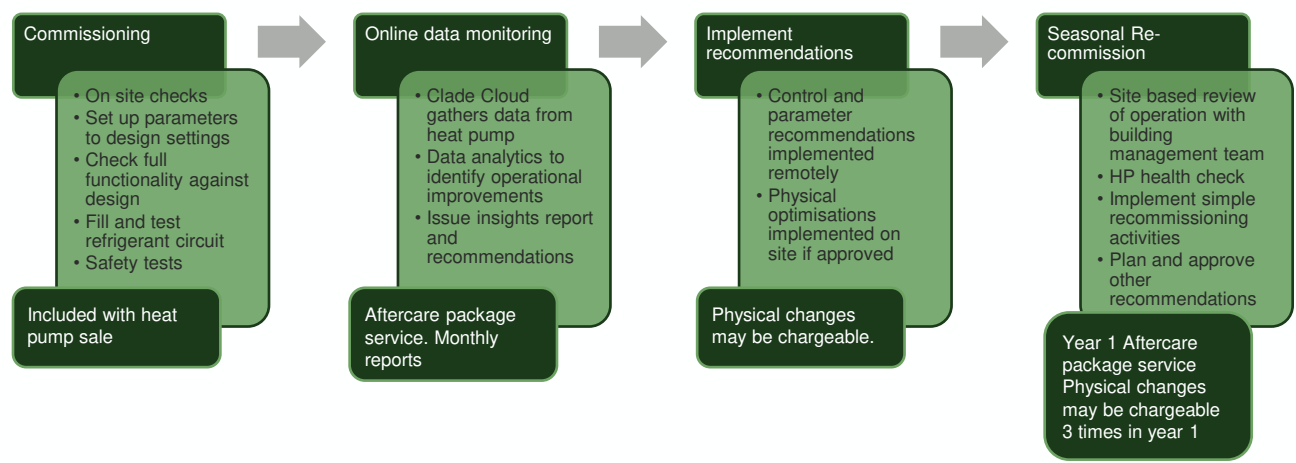


AFTERCARE OPTIMISATION SERVICES //

Heat pump performance is dependent on four major sets of variables; the ambient conditions, the demand conditions, the physical health of the heat pump and the controls.

The ambient and demand conditions are variable across the day, week, season and year. This means that optimal year round performance is only achieved over a period of time.

Clade Aftercare package provides the basic maintenance services which maintain the physical health of the heat pump and a series of services that optimise heat pump operation over time. These optimisation services are provided by Clades expert Engineers who are on hand to analyse and assist improvements throughout the contract.





ABOUT CLADE //



- UK based
- 35 years of engineering experience
- Leeds manufacturing division
- Committed to sustainable business and sustainable products
- Investing in people, diversity & inclusion
- Non leveraged, owner operated



ACCREDITATIONS

ISO 9001: 2015
 ISO14001: 2015
 OHSAS ISO 18001: 2007



CERTIFICATIONS

Altius Assured Vendor Award
 Altius CDM Vendor Award
 CHAS
 Sales Contractor



———— THANK YOU //

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