



Networked Heat Pumps: Zero carbon heating for low density housing

Ground Source Heat Pumps

The solution for housebuilders' electricity grid capacity constraints

In collaboration with



Competitive, future-proof and ready to go

GTC is driving the electrification and decarbonisation of heat for UK developers. Our networked heat pumps deliver 80% lower carbon emissions from day one, exceeding the aims of the Future Homes Standard. Plus, they will become zero-carbon when the grid reaches net zero emissions, without the need for any further work or additional cost.

Networked ground source heat pumps are an effective and deliverable solution for heating, hot water and cooling in residential homes and other buildings on your site. The solution not only brings financial savings for developers but also lowers costs for residents. Plus, its outstanding efficiency and environmental sustainability minimises grid demand.



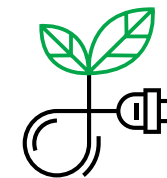
Cost Saving

We invest in the solution so it provides a lower cost per plot to developers than individual air source heat pumps.



Carbon Saving

With higher system performance and lower electricity usage, GSHP Networks are the most carbon-efficient option.



Energy Saving

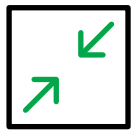
3-4 kWh of heat is produced for every 1 kWh of electricity, resulting in significant energy savings for residents.



Grid Saving

The efficiency of ground source reduces the strain on the grid, requiring no more capacity than gas-heated homes.

We're proud to collaborate with Kensa, the UK's foremost experts in heat pumps for over 25 years. This partnership provides housebuilders with access to award-winning, British-made heat pumps, ensuring top-notch quality and reliability.



Space Efficient

We have one of the world's smallest units - made in the UK and designed specifically for UK housing. With no box on the outside the visual appearance of the home is unaffected and no garden space is used.



Low Running Cost

Residents benefit from lower heat and hot water costs through a simple monthly Community Heat Charge (similar to a gas standing charge), without seasonal variations or cold weather premiums. Plus, there are no maintenance costs.



Year Round Efficiency

With a constant ground temperature, heat pumps maintain high efficiency levels throughout the year, and are not impacted by air temperature even when it's cold outside.



Long Lifespan

With a design life of up to 25 years for the ground source heat pump, the underground infrastructure can last 100 years.



Quiet Operation

Quiet inside the home - similar to a fridge with no noisy fans. The heat pump's cupboard location further reduces noise.



Cooling Options

Passive cooling is available at limited additional capital cost and no extra cost to residents - providing Part O compliance benefits.

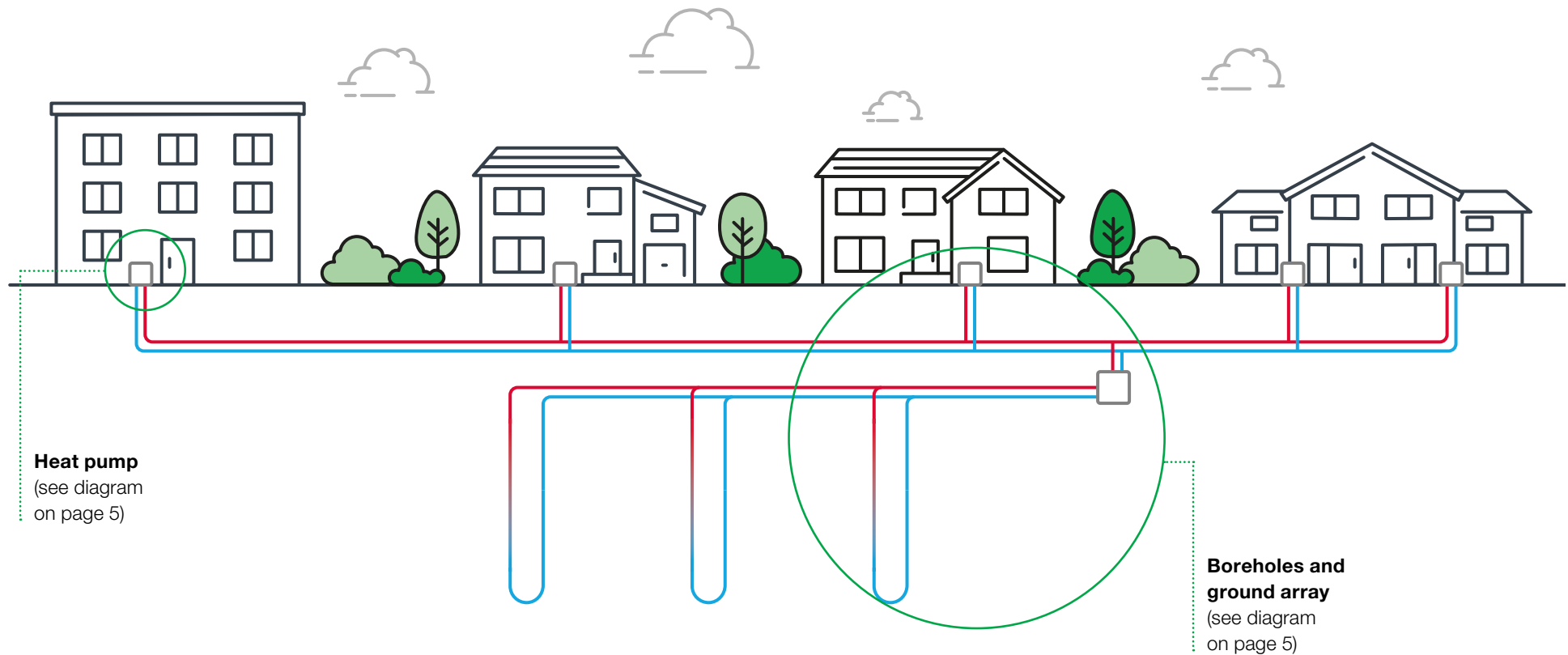


Reliably Comfortable

Provides 100% of heating and hot water needs without electrical back up, perfect for underfloor heating or modern radiators.

Networked Ground Source Heat Pumps explained

Networked heat pump systems mimic the gas grid and are infinitely scalable, tailored to meet the layout and heat demand of the site.



Boreholes and Ground Source Array

1

Vertical boreholes (width 150mm, average depth 180-200m) with closed loop to capture low grade heat from the ground.

2

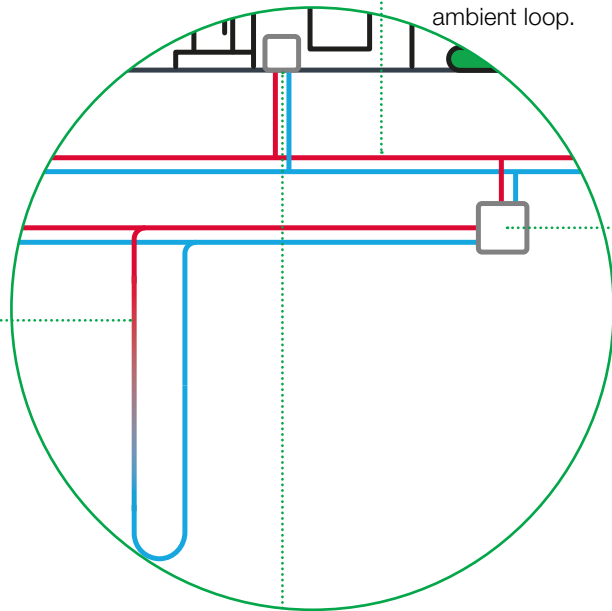
Low grade heat gathered from the ground travels around uninsulated polyethylene (PE) pipe to and from boreholes to houses or apartments, this is the ambient loop.

3

Boreholes are shared between dwellings via a manifold.

4

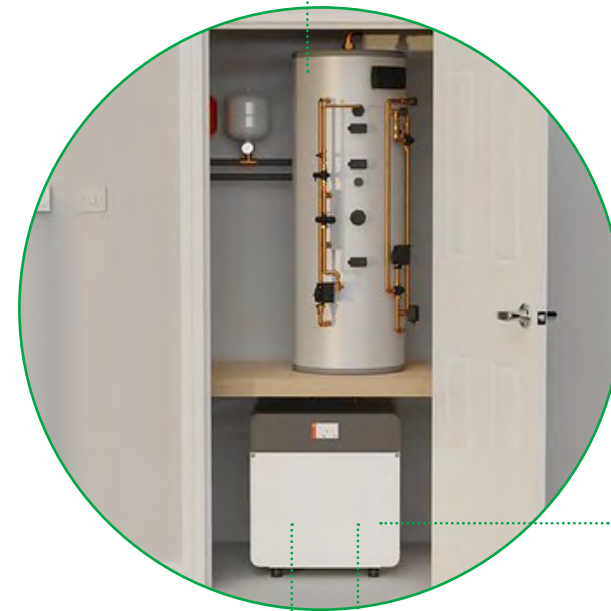
The antifreeze mix in the array is circulated by a ground-side circulation pump integrated within heat pumps located in the homes.



Ground Source Heat Pump

Our Shoebox heat pump can be located under the water cylinder, saving space.

There is an option for passive cooling, with the simple addition of a fan coil unit.



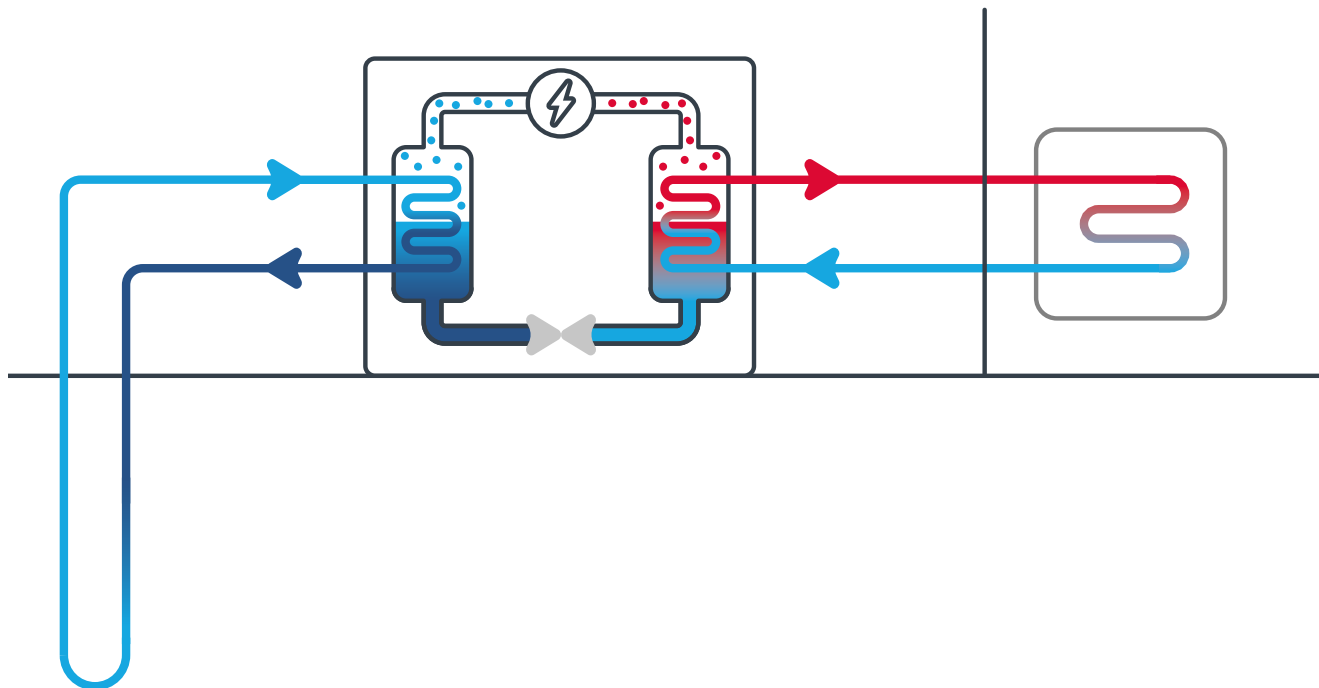
The heat pump is compatible with all heating and control systems.

The location of the heat pump and cylinder is flexible and can be positioned in different places, e.g. heat pump under the stairs and cylinder in upstairs cupboard.

A compact heat pump within each home connected to an ambient loop delivers space heat and hot water at c. 60°C (with lower temperature if required).

How Ground Source Heat Pumps Work

A ground source heat pump is a renewable heating system that extracts low-temperature solar energy stored in the ground or water using buried pipework and compresses this energy to a higher temperature.



- The heat pump provides a building with **100% of its heating and hot water all year round.**
- A ground source heat pump is powered through electricity, delivering 3-4kW of renewable energy for every 1kW of electricity used. **It is the most energy-efficient heating technology available.**
- Having surrendered the absorbed energy from the ground to the heat pump, the antifreeze fluid continues its circuit back to the borehole to begin the cycle all over again. **It's the ultimate renewable energy.**
- Ground temperature is consistent through the year (compared to air) **so high efficiency is maintained in winter during the height of the heating season when you need it the most.**

The Next Generation of Home Heating and Cooling

Kensa Shoebox & NX

The Shoebox is the world's smallest ground source heat pump. Our 3kW Shoebox and 5kW NX models are perfect for apartments and homes with 2 to 5 bedrooms.

They're made in Britain, tailored for UK developments and **designed to be installed as simply as a gas boiler, making it easy for housebuilders' M&E teams.**



The heat pumps installed inside each property are the most technically-advanced available and designed specifically for UK homes for maximum efficiency and performance.



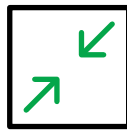
Heating and Cooling

Keeping homes cosy and warm in the winter with the option of providing cooling in the summer.



Economical and Efficient

Impressive efficiencies of up to A+++ (the NX is A+++ and the shoebox is A+) means economical homes and more cost savings.



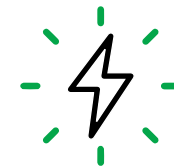
Small and Sleek

A premium product with a sleek, stylish aesthetic. Fits inside a cupboard.



Quiet and Discreet

Designed for quiet operation, the NX makes less noise than most traditional boilers.



Small and Powerful

A compact powerhouse that matches the performance of larger heat pumps.



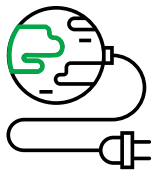
Flexible and Durable

Suitable for various properties, with up to a 25 year life expectancy and minimal maintenance.

Total Control

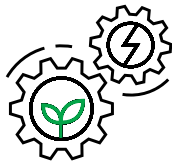
The Passiv Smart Thermostat is the first smart thermostat designed specifically for controlling heat pumps and is the result of over 10 years of R&D in low-carbon heating.

In 2022, the Energy Saving Trust conducted an independent study into the Passiv controls. It verified that they can increase the efficiency of a heat pump by 17% when compared to a standard manufacturer thermostat. In addition, the Passiv Smart Thermostat can optimise to smart 'time-of-use' electricity tariffs and rooftop solar panels. Taken together, this can reduce a homeowner's heating bill by a massive 30%!



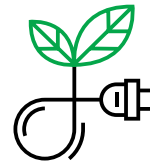
Effortless Comfort

- Control from anywhere with the Passiv App. See how much heating and hot water is costing.
- Complete in-home control, even without an internet connection, with the Passiv Thermostat and Programmer.
- Perfect comfort, tailored to the home with smart preheating using local weather forecasts.



30% Lower Heating Bills

- Increase heat pump SCOP by 17%, as the Energy Saving Trust independently verifies.
- Optimises to smart time-of-use tariffs including Octopus Cosy, Go and Agile.
- Optimises to rooftop solar generation that would otherwise be exported back to the grid.*



Smarter Heating

- The only smart thermostat to enable Demand Side Response with the UK's first service for heat pump owners. Residents can get paid up to £100 a year for using their heat pump with Greener Grid Payments.



Network Benefit

- Controlled efficiency that requires no more electrical capacity than a gas-operated system.



Simpler Installation

- Removes the need to set a weather compensation curve, learning how the home warms and setting it dynamically.
- Quick and simple commissioning in under 2 minutes using the Programmer without a smartphone or internet connection.
- Simple installation using wired or wireless thermostats. Built-in wiring centre using entirely push-fit connections and clamps.

A Winning Team

Our team manages **every stage** of network build and delivery. We understand the importance of constructing quality assets and getting it right first time.

Trusted Customer Service

Our team looks after the heat pumps, network and residents. We have more than **15 years' experience** of managing heat networks and providing high-quality customer service.

Award-Winning Expertise

Our heat pump expertise comes from a recognised **award winning market leader** who are the UK's only manufacturer of ground source heat pumps. Their unparalleled expertise in design, borehole installation, and heat pump technology distinguishes them from the competition, making them the top choice for low rise developments.

From start to finish, you can trust us to deliver.



Ease Of Delivery for Housebuilders

Contract with GTC and we take care of it all - from bespoke design to installation and ongoing maintenance and operation.

- High efficiency allows site-wide electricity capacity and network to be the same as gas-heated homes.
- A regulated service delivered by GTC, your trusted multi-utility, one-stop-shop provider.
- Shared boreholes installed at an early stage, coordinated with groundworkers.
- GTC sites teams install the heat network, in the utility trench.
- House service connections called-off like any other utility service.
- Housebuilder M&E team installs heat pumps, designed to be installed like a gas boiler.
- Seamless adoption of heat pump, heat network and boreholes by Metropolitan.
- On-going hassle-free heat and hot water for homes, managed by Metropolitan.

Our zero-carbon-ready energy centres and low-carbon heat air source and ground source networks are already part of our established services, making us the perfect partner in your journey towards a greener, more sustainable future for heating.



Design

FHS compliant network design for optimised, electrified heat.



Build

Built to minimise CapEx and maximise reliability and cost-efficiency.



Operate

Guaranteed service standards and price for residents regulated by Ofgem.

Putting Residents First

Networked ground source heat pumps give our customers hassle-free heating and hot water, at costs no higher than individual air source heat pumps. In fact, our latest analysis shows they will typically save over 20% on their heating bills.

No hassle ownership

We own the heat pump, heat network, and boreholes. Residents are free from owning any equipment and all responsibility for maintaining them lies with us.

Clear and simple pricing

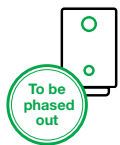
Residents pay a Community Heat Charge which is a fixed monthly payment, adjusted annually in line with inflation. They pay for the electricity to run their heat pump, benefiting from its high year-round efficiency, even in the coldest winter months.

No cost shocks

The Community Heat Charge combines connection and use of the ground source array. It also covers all servicing, repair, and replacement costs for their individual heat pump and the shared network so there are no extra charges or nasty surprises.

Regulatory Protection

Ofgem was appointed heat networks regulator in 2023, and regulation is expected in 2025. This will give our customers complete peace of mind that their prices and the standard of service they receive will be protected.



Gas boiler includes:

- Daily standing charge
- Gas used
- VAT

Extra costs

- Servicing and maintenance
- Repair
- Replacement

Hassle-free



Networked GSHP includes:

- Community Heat Charge
- Heat pump servicing and maintenance
- Heat pump repair and replacement
- Network maintenance and repair
- VAT

Extra costs

- Electricity used for heat pump
- VAT



Individual ASHP includes:

- Daily standing charge
- Electricity used
- VAT

Extra costs

- Servicing and maintenance
- Repair
- Replacement



Let's talk about ground source heat pump networks and how we can deliver the **complete solution** for you and your customers



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