



AERONA

AIR SOURCE HEAT PUMPS

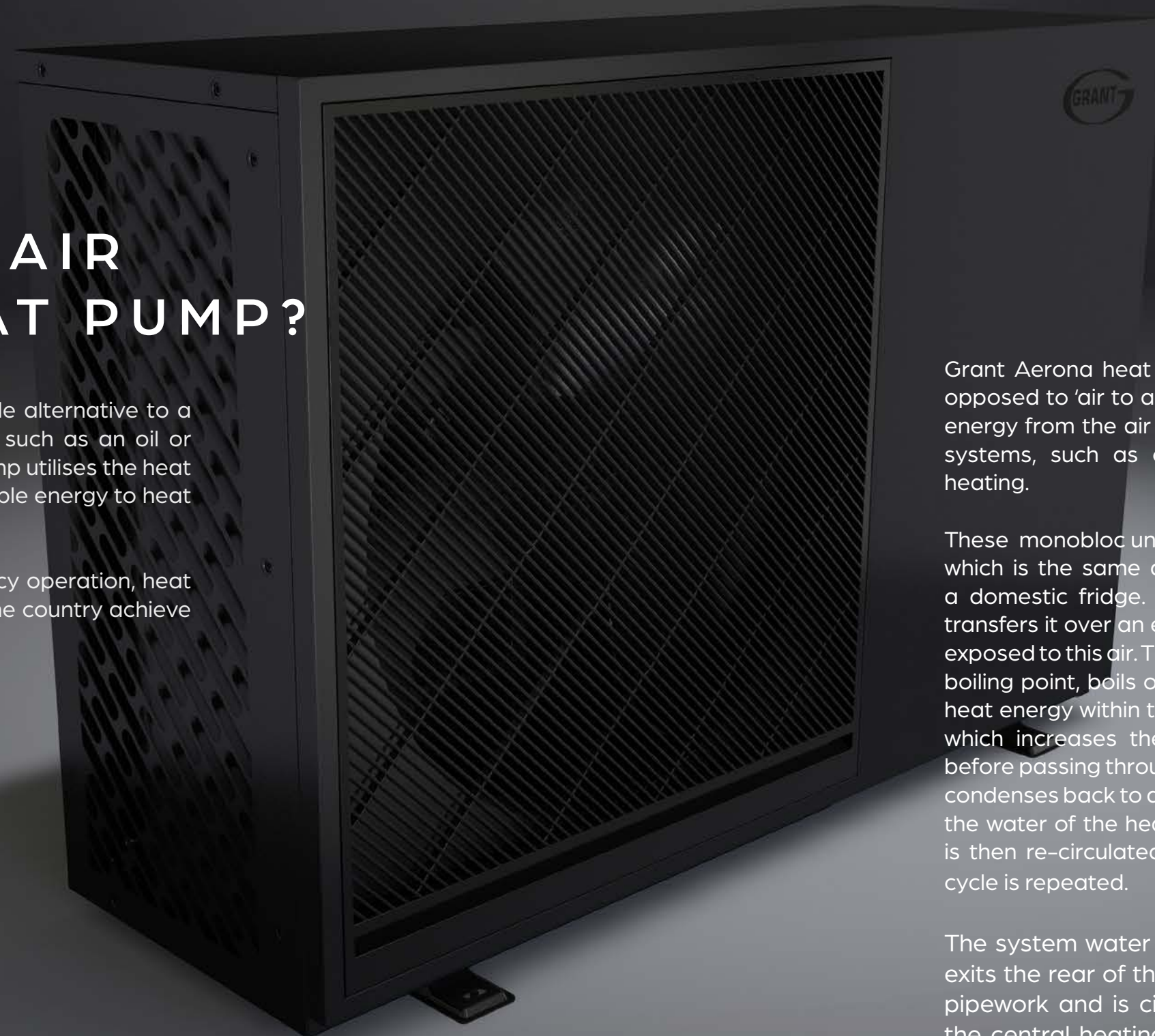


FOR THE NEXT GENERATION

WHAT IS AN AIR SOURCE HEAT PUMP?

An air source heat pump is a sustainable alternative to a traditional fossil fuel heating appliance such as an oil or gas boiler. In brief, an air source heat pump utilises the heat energy in the air and converts it into usable energy to heat homes.

With green credentials and high efficiency operation, heat pumps will play a major role in helping the country achieve its net zero carbon emission targets.



Grant Aerona heat pumps are 'air to water' units (as opposed to 'air to air') which means they capture heat energy from the air and transfer this into 'wet' heating systems, such as one with radiators or underfloor heating.

These monobloc units use a vapour compression cycle which is the same as that used to extract heat from a domestic fridge. The heat pump draws air in and transfers it over an evaporator where the refrigerant is exposed to this air. The liquid refrigerant, which has a low boiling point, boils off to a gas and absorbs the latent heat energy within the air. The gas is then compressed which increases the heat content in the refrigerant before passing through a heat exchanger. Here, the gas condenses back to a liquid while transferring the heat to the water of the heating system. The liquid refrigerant is then re-circulated through the evaporator and the cycle is repeated.

The system water which has been heated up then exits the rear of the heat pump via flow and return pipework and is circulated throughout the rest of the central heating to provide space heating and hot water within the home.

AERONA³

Consisting of four single phase models – 6kW, 10kW, 13kW and 17kW – the AERONA³ R32 heat pumps provide heating and hot water for properties. Each unit operates at high efficiencies even when the external temperatures are low, making for a cost-effective renewable alternative to traditional off-gas heating methods. Furthermore, the AERONA³ heat pumps have minimal impact on their surroundings being compact in size and quiet in operation.

6kW

Model	HPID6R32
ErP Rating* (Heating)	A+++
Height (mm)	675
Width (mm)	898
Depth (mm)	379.4
Weight (Full) (kg)	52.8
SCOP average climate conditions ³	4.61
Sound pressure level at 1m (dBA)	54.2

10kW

Model	HPID10R32
ErP Rating* (Heating)	A+++
Height (mm)	882
Width (mm)	874
Depth (mm)	405
Weight (Full) (kg)	71.8
SCOP average climate conditions ³	5.20
Sound pressure level at 1m (dBA)	53

13kW

Model	HPID12R32
ErP Rating* (Heating)	A+++
Height (mm)	1418
Width (mm)	1024
Depth (mm)	403
Weight (Full) (kg)	101
SCOP average climate conditions ³	5.40
Sound pressure level at 1m (dBA)	49.8

17kW

Model	HPID17R32
ErP Rating* (Heating)	A+++
Height (mm)	1418
Width (mm)	1024
Depth (mm)	403
Weight (Full) (kg)	120
SCOP average climate conditions ³	4.54
Sound pressure level at 1m (dBA)	50.6

AERONA 290

Using the more sustainable R290 refrigerant, which has an incredibly low Global Warming Potential of 3, the AERONA 290 heat pumps combine exceptional performance with an eye-catching design. Five single phase units are available – 4kW, 6.5kW, 9kW, 12kW and 15.5kW – all of which are QuietMark approved. Not only does the AERONA 290 have ultra-low noise levels and a modern colourway, it is also very energy efficient providing homeowners with a reliable, low carbon and even more environmentally friendly solution for heating their homes and hot water.

Model	HPR2904
ErP Rating* (Heating)	A+++
Height (mm)	803
Width (mm)	1155
Depth (mm)	422
Weight (Full) (kg)	102
SCOP average climate conditions ²	5.00
Sound pressure level at 1m (dBA)	40

Model	HPR29065
ErP Rating* (Heating)	A+++
Height (mm)	854
Width (mm)	1223
Depth (mm)	461
Weight (Full) (kg)	117
SCOP average climate conditions ²	5.08
Sound pressure level at 1m (dBA)	44

Model	HPR2909
ErP Rating* (Heating)	A+++
Height (mm)	854
Width (mm)	1223
Depth (mm)	461
Weight (Full) (kg)	133
SCOP average climate conditions ²	4.74
Sound pressure level at 1m (dBA)	46

Model	HPR29012
ErP Rating* (Heating)	A+++
Height (mm)	1365
Width (mm)	1155
Depth (mm)	425
Weight (Full) (kg)	157
SCOP average climate conditions ²	4.74
Sound pressure level at 1m (dBA)	44

Model	HPR290155
ErP Rating* (Heating)	A+++
Height (mm)	1365
Width (mm)	1155
Depth (mm)	425
Weight (Full) (kg)	184
SCOP average climate conditions ²	4.56
Sound pressure level at 1m (dBA)	45



See the AERONA 290 here



² When installed by a G1 accredited installer. T&C's apply
³ (BS EN 14825 average climate conditions @ 35° flow)



¹ When installed by a G1 accredited installer. T&C's apply
² (BS EN 14825 average climate conditions @ 35° flow)

AERONA³ REMOTE CONTROLLER



The AERONA Remote Controller, which is compatible with AERONA³ heat pump models only, is a compact white-cased wall-mounted unit. With a simple interface, the AERONA Remote Controller provides installers and end-users with access to the heat pumps' core parameters to set, view and adjust these as required. Homeowners can also keep informed about the operating status of their heat pump by viewing the symbols and icons shown on the LCD display screen.

-  ORIGINAL AERONA LCD REMOTE CONTROLLER
-  EASY TO READ SYMBOLS TO INDICATE OPERATING MODE
-  PROVIDES ACCESS TO CORE HEAT PUMP AND SYSTEM PARAMETERS
-  PROVIDES REAL-TIME OPERATING DATA PARAMETERS

Also available on the Grant UK YouTube channel is a video playlist on the AERONA³ remote controller.

Including videos on programming through to fault finding, the playlist is a great resource if you have an AERONA remote controller installed in your home.



AERONA SMART CONTROLLER



Designed for installation with both AERONA³ and AERONA 290 heat pumps, the AERONA Smart Controller is intuitive and stylish. Using advanced controller technology, the AERONA Smart Controller can help customers maximise the efficiency of their Grant heat pump system with weather and load compensation as well as heating curve configuration. The 4.5" colour touchscreen display is user-friendly to navigate and, when installed with the AERONA WiFi hub, the AERONA Smart Controller can be remotely accessed using an app or web-based portal.

-  INTUITIVE
-  EASY SET UP
-  HEATING CURVE SELECTION
-  3 HEATING ZONES+DHW
-  WEB BASED MONITORING & CONTROL
-  7 DAY PROGRAMMING

YouTube

A playlist of handy videos about the AERONA Smart Controller is available to watch on Grant UK's YouTube Channel. The videos provide an overview of this intuitive heat pump controller as well sharing step-by-step demonstrations on how to set the core settings.

This playlist includes videos explaining the controller display icons, how to adjust the circuit temperature and heating schedule, setting up an ecoNET account and much more.

Scan to view or head to youtube.com/MyGrantUK to subscribe



LOCATION

Choosing the right place to locate your air source heat pump is an important decision because the incorrect siting of a heat pump can impact its performance. There are several factors to consider and it is always worth discussing these with your installing engineer.

Ideally, homeowners should avoid locating their heat pump on the North side of their property, unless there is no other alternative, because this will be the colder side. A South facing side of a building is best for a heat pump but when this is not possible, a South East or South West position is the next best alternative followed by an East or West facing side. It is also important to choose a position that is protected from the wind and other adverse weather conditions.

An air source heat pump needs adequate clearances on all sides so that the unit can be easily accessed for operation, servicing and maintenance purposes. For a Grant AERONA³ heat pump for example, the minimum clearances are: 300mm above and to the rear, 100mm to the left side, and 600mm to the right side and around the front.

A heat pump also requires sufficient clearances so that the air flow to and from the unit is free and uninterrupted, and the inlet and outlet grills must always be kept unobstructed otherwise the heat pump will not be able to operate properly.

Heat pumps require a level, flat base to be installed upon so they should not be installed on loose, uneven surfaces such as grass, soil, gravel or shingle. The base should be capable of taking the weight of the heat pump as well as minimising the transmission of noise and vibration. Examples of suitable bases for a Grant heat pump include a 150mm thick concrete base or paving slabs on compacted hard core.

Preparing your home

For a heat pump to operate effectively, the property it is heating needs to be energy efficient and well insulated. Working at lower temperatures (compared to conventional heating systems such as oil and gas boilers), air source heat pumps require a property to be sufficiently insulated so that any heat loss through the walls, roof and floors is minimised. By reducing the amount of heat loss from the property, the heat pump can work at its highest efficiencies to meet the heating demand of the home and delivering comfort throughout.

Preparation is key with air source heat pumps. There are several energy-efficiency measures which homeowners can do to get their homes heat pump ready including loft insulation, wall insulation and double or triple glazing windows. To read more about the steps you can take to prepare your home for a Grant heat pump, please read our Blog here:

<https://www.grantuk.com/knowledge-hub/tips-advice/getting-your-home-heat-pump-ready/>



NOISE LEVELS

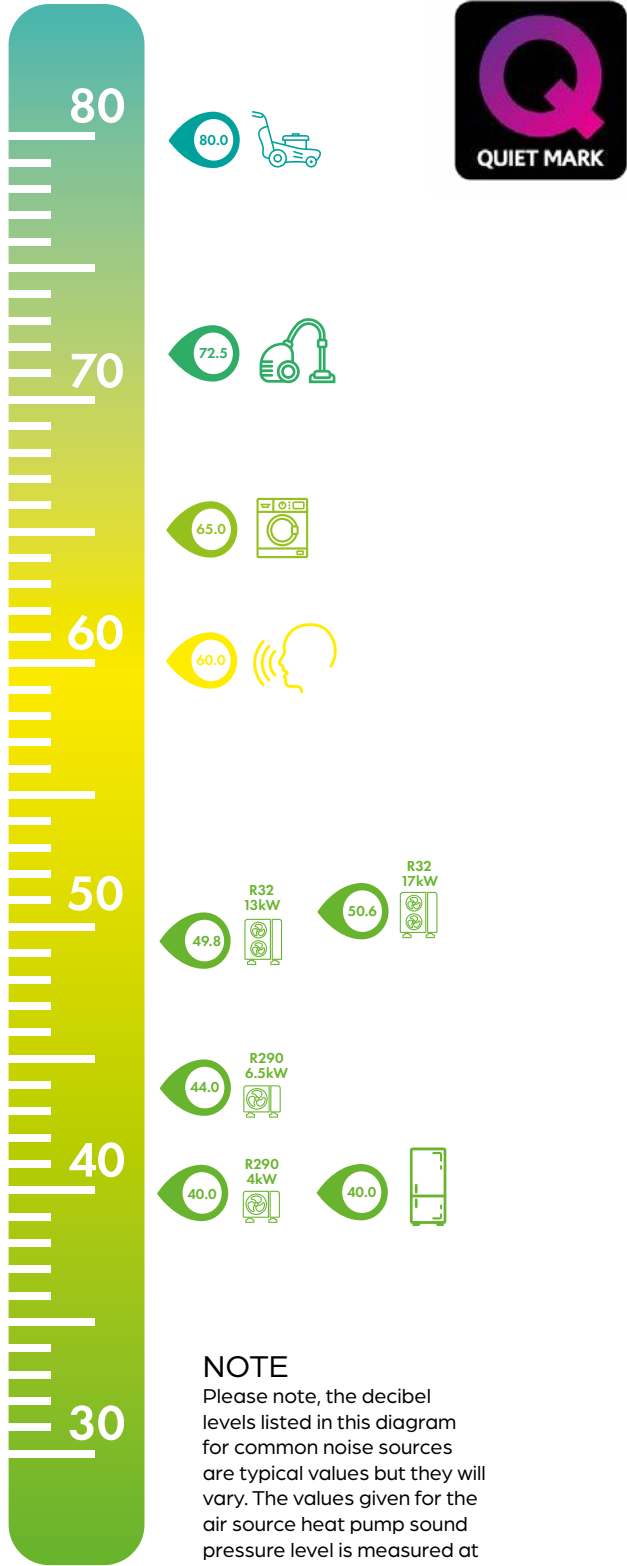
It is a common belief that air source heat pumps can be noisy when running. While the fans in a heat pump do make a sound as they rotate, Grant's air source heat pumps have been specifically designed to be quiet in operation to ensure there is little impact to the household and neighbouring properties.

The diagram on the right shows the sound levels of some of Grant's AERONA heat pumps compared with other common household appliances and noises. An average fridge freezer, which is considered quiet, has a sound level of 40dB or less and the Grant AERONA 290 4kW heat pump is just as quiet. Meanwhile, when two people are having a conversation, they create approximately 60dB of noise and the level of sound that all Grant heat pumps generate sits well below this value. Grant AERONA heat pumps are also considerably quieter than the average washing machine (at 65dB), household Hoover (at 72.5dB) and lawn mower (at 80dB).

The low operating sound levels enable AERONA models to easily integrate into outdoor environments, including those where noise restrictions may be in place. Their quiet operation has been acknowledged by Quiet Mark, an international award programme that validates and awards low-noise, high performance technologies.

Can you hear that?

Our short video features audio footage from an AERONA³ 13kW air source heat pump and compares this with other common household appliances. Scan the QR code below to watch the video or head to our YouTube channel [youtube.com/myGrantUK](https://www.youtube.com/myGrantUK).



NOTE
Please note, the decibel levels listed in this diagram for common noise sources are typical values but they will vary. The values given for the air source heat pump sound pressure level is measured at an external distance of 1m. Anti-vibration mounts/feet and flexible hose connections should be used to reduce any vibration on the building structure and heating system.



SCOP & GOVERNMENT SCHEMES

The efficiency of an air source heat pump is measured using 'SCOP' which stands for Seasonal Coefficient of Performance. The SCOP value is produced by calculating the overall performance of a heat pump during a particular heating season (warm, average or cold) and then dividing this by the annual energy consumed to run the heat pump.

For example, the Grant Aerona³ R32 6kW model produces 6kW at a SCOP of 4.62 when tested at a low temperature and in average climate conditions. This means, for every kilowatt of energy used to run the heat pump, over 4kW of energy is being given to the heating system in return.

In summary, the higher the SCOP, the more efficient the heat pump. Grant's Aerona heat pumps are incredibly efficient with excellent SCOPs across both the Aerona³ and Aerona 290 ranges. While the SCOP values can reduce slightly when the outdoor air temperature gets colder, homeowners who choose a Grant Aerona heat pump can be assured that their heating system is working as efficiently as it can all year round.



Government Schemes

To support homeowners who want to transition to a renewable, more sustainable source of home heating, there are government schemes which make grants and other financial support available to householders. The schemes and funding available varies according to location so it is recommended that homeowners research the support in their area by contacting their local authority.



For further information about some of the government schemes and incentives available for heat pump installations, please visit our Knowledge Hub www.grantuk.com/knowledge-hub/tips-advice/government-incentives-initiatives.

DO'S & DON'TS

When fitting a heat pump, there are some clear do's and don'ts which homeowners and their installers should follow. Adhering to the do's and avoiding the don'ts will help ensure that a heat pump installation is successful in delivering years of reliable, sustainable and efficient home heating.

Do

Consider the property's insulation levels

As mentioned in the previous section, heat pumps can achieve optimum efficiency when the property is well insulated

Find the best location to site the heat pump

Location is key so positioning a heat pump in the right place will help the unit achieve its maximum performance (please refer to p.8 for more details)

Design the system correctly

Working with the installer to properly design a heat pump system is crucial as this planning can ensure that the correct heat pump model is sized and selected to meet the heat demand of the property most efficiently

Assess the radiator sizes

Correctly sizing the heat emitters, whether they be radiators or an underfloor heating system, is very important as there needs to be sufficient surface area to effectively transfer the heat from the low temperature system into the property (sizing the heat emitters is a key step in the system design)

Ensure the system is installed and commissioned correctly

The installer must fit the heat pump and commission the system in full accordance with the installation instructions

Receive a complete handover from the installer

Once the system has been commissioned and ready to operate, installers should provide homeowners with a detailed handover so that they understand how the system works

Service the heat pump annually

Heat pumps require minimum involvement from homeowners but regular servicing of the heat pump each year will help maintain the system and ensure it is working at its most efficient

Do not

Connect a heat pump to an old hot water cylinder

Unless the existing cylinder is heat pump ready, a new cylinder (which has the necessary insulation and larger internal coil) should be installed as part of the heat pump installation

Restrict the air circulation around the heat pump

If the air flow is obstructed in any way, this can limit the output of the heat pump and reduce the performance of the heating system

Turn off the heat pump

Heat pumps work most efficiently when they are not turned on and off throughout the day. Instead, it is more cost effective to use setback controls to adjust the heat pump's continuous operation according to the heating demand

Expect the radiators to be too hot to the touch

As heat pumps work at lower temperatures, the radiators or other types of heat emitters will not be as hot as those connected to a high temperature heating system

Leave doors and windows open unnecessarily

Any actions which allow heat to escape the property will lower the room temperatures to below the desired warmth that the system is asked to achieve

Touch the heat pump controls

Homeowners should not tamper with the heat pump controller settings as these will be set by the installer to ensure that the system operates correctly. To manage room temperatures, homeowners should use room thermostats, TRVs and other control systems.

It is worth noting that not all properties are suitable for a heat pump. If a home does not have sufficient insulation, a heat pump should not be installed unless the necessary energy-efficiency measures are fitted first.

YOUR QUESTIONS, ANSWERED.

What heat emitters work with heat pumps?

Heat emitters with larger surface areas are the best partners for an air source heat pump operating at lower temperatures. A larger surface area allows the heat from the system to be effectively transferred evenly into the property's occupied spaces. Grant's Uflex underfloor heating ranges as well as their Afinia aluminium radiators are both ideal heat emitters to install with a heat pump.

Do I need planning permission?

The installation of an air source heat pump on domestic premises is considered to be permitted development and should not require any planning permission providing that all conditions are met. It is recommended to check with your Local Authority Planning Department prior to any work commencing because in some cases, planning permission may be required.

Why is it important to size a heat pump correctly?

Air source heat pumps must be correctly sized to ensure that it can provide the required amount of heat output at the design conditions – typically when the outside temperature is at -3°C . To do this an installer must first accurately determine the heat loss from the property and then, using this information, correctly select the required size of heat pump based on the design outside air temperature. Grant can assist with sizing the ASHP and the heat loss of the building.

Where can I find a heat pump installer?

To find local air source heat pumps installers in your area, you can use the online search tool available on the Grant UK website – www.grantuk.com/support/find-an-installer/

Will my fuel and electricity costs go up with a heat pump?

Air source heat pumps do use electricity so you will likely see a small increase in your electricity usage and costs. However, you will not have any fuel costs so, by not needing to pay for gas, oil, LPG or another fuel, you will make savings here.

How often should a Grant heat pump be serviced?

Grant heat pumps should be serviced annually in order to comply with the product guarantee Terms & Conditions.

Will a heat pump work if the outside air temperature is below freezing?

Yes, despite some misconceptions, air source heat pumps will continue to work when the outside air temperature falls below 0°C . Heat pumps, such as Grant's Aerona³ range, have clever, in-built features which enable the unit to operate successfully even in freezing temperatures.

Can I replace my old boiler with a heat pump?

In many cases, yes, a heat pump can provide all the heating and hot water you need for your home. Depending on the build type of your property, some energy efficiency measures may need to be implemented such as improving the level of controls, property insulation, increasing the heat emitter sizing and pipe sizes.

Do I have to pay VAT when installing an air source heat pump?

Between 1st April 2022 through to 31st March 2027, the rate of VAT on the installation of certain energy saving materials, such as a heat pump, is 0%. If you have a heat pump installed at your home during this period and you live in Great Britain, you should not have to pay VAT.

For more FAQ's, tips, advice and much more please visit our knowledge hub at www.grantuk.com/knowledge-hub



CASE STUDY

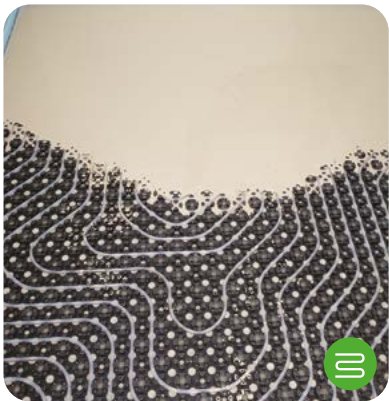
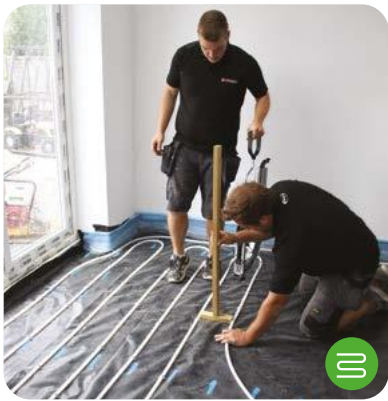
Project Overview

This four-bedroom semi-detached property in Wiltshire underwent a complete heating system upgrade as part of a wider renovation project. In addition to building a large extension off the side of the property, this home's heating system was also updated, swapping from a gas boiler to a renewable system with the installation of a Grant Aeron3 air source heat pump.



Products Installed

-  Aeron3 13kW R32 Air Source Heat Pump
-  High Performance 300ltr Cylinder
-  Uflex Underfloor Heating System (throughout the downstairs of the new extension)
-  Uflex MINI Underfloor Heating System (throughout the downstairs of the original property)
-  Afinia Aluminium Radiators (throughout upstairs of the entire property)



Why renewables

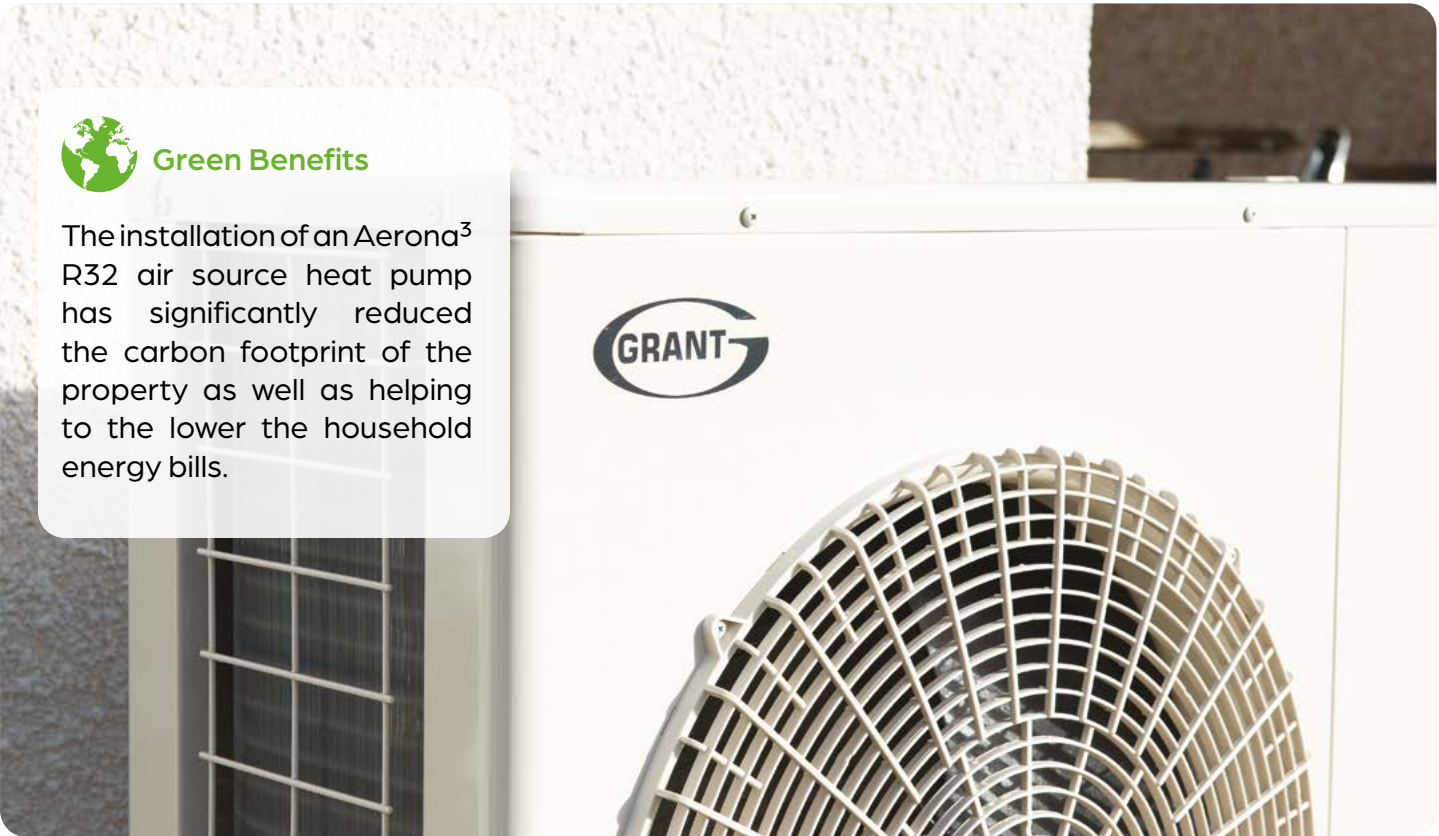
Having lived in the property for five years, the owners wanted the renovation project to not only deliver their forever home but to enable them as a family to live as sustainably as they could. To achieve this, they needed to improve the efficiency of their heating and change the heat source to a greener alternative. This was the reason why a Grant whole house renewable heating system was selected and installed.



“The renovation project gave us the opportunity to completely transform our heating system, moving away from a fossil fuel and going green with a new heat pump. Our heating and hot water demand is now being efficiently fulfilled by an air source heat pump which is working effectively alongside the complementary technologies also supplied from Grant UK. Today, we have complete peace of mind that our renewable heating system is reliable and environmentally friendly and will be for many years to come.”

Green Benefits

The installation of an Aeron3 R32 air source heat pump has significantly reduced the carbon footprint of the property as well as helping to the lower the household energy bills.





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