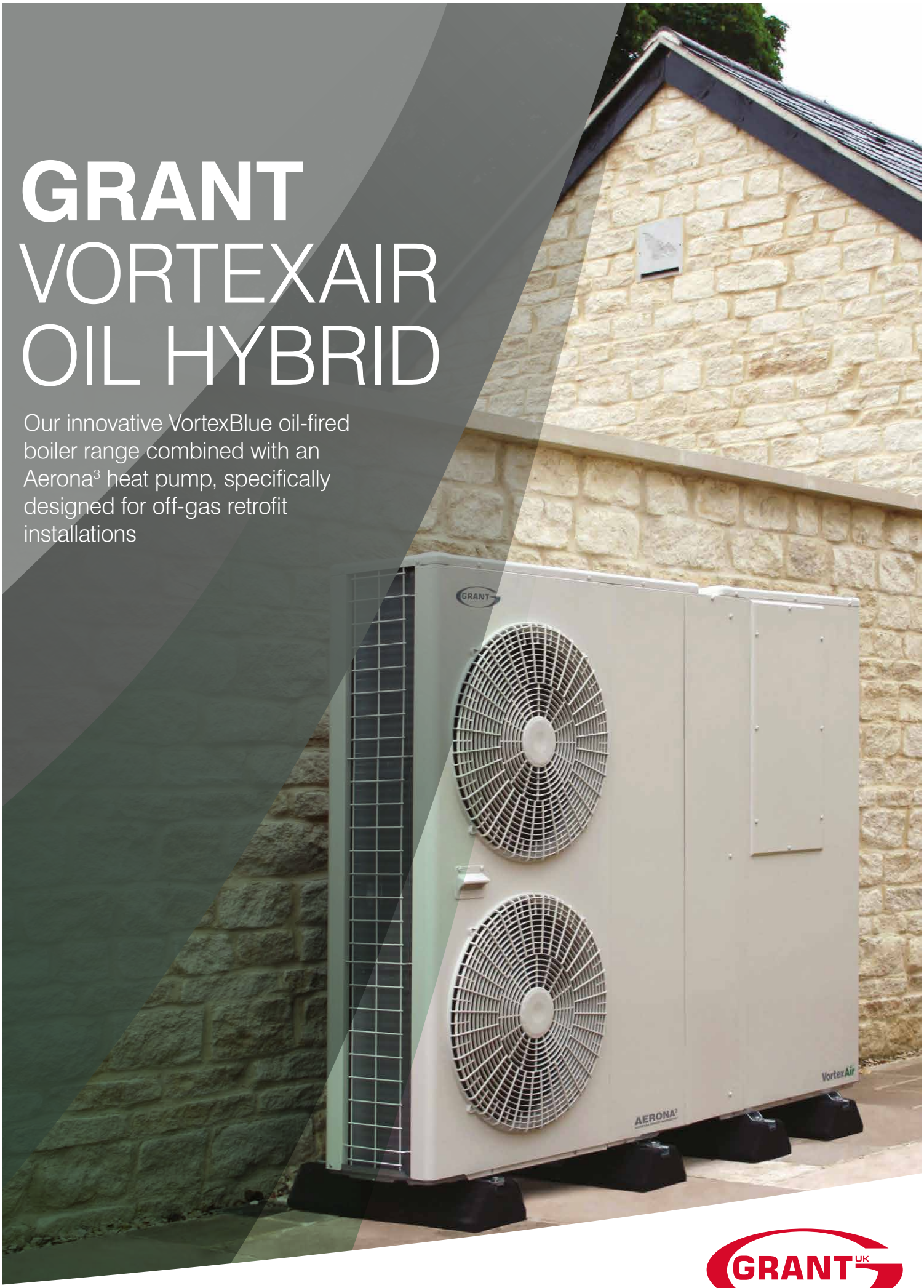
GRANT VORTEXAIR OIL HYBRID

Our innovative VortexBlue oil-fired boiler range combined with an Aerona^3 heat pump, specifically designed for off-gas retrofit installations

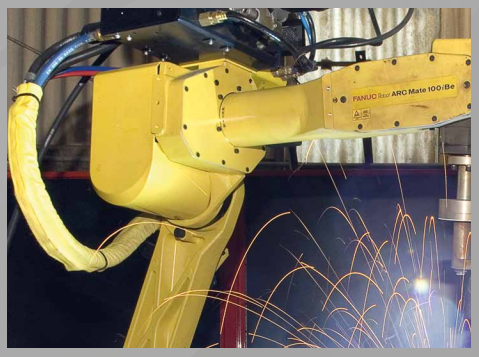


GRANT UK

Grant Profile

At Grant we have been designing and manufacturing reliable and easy to install heating products for four decades. From award winning oil-fired condensing boilers to the latest renewable technologies, our heating systems have a reputation for quality that is second to none.

We combine precision engineering, innovation, performance and value for money to produce sustainable heating solutions that are trusted by both installers and householders.



Quality Design

There is never a compromise on quality. We design all of our products so that you can be sure that the durability and efficiency are sector leading. We continually develop new technologies and use only the best materials to ensure our products exceed all performance and environmental standards.

Our belief in simple solutions ensures that, while our technology is sophisticated, our products are low maintenance and easy to install. For a high quality, reliable and sustainable heating system, trust in Grant.

Heating Responsibly

Grant manufacture heating systems that respond to the challenges of rising fuel costs whilst protecting our environment. Environmental responsibility is central to all we do and we continue to develop and innovate to produce even more efficient products that make best use of our natural resources.

We are passionate about developing sustainable, high-performance and affordable alternatives for heating homes into the future.

Our Guarantee

The Grant label is a guarantee of reliability, quality and value. We put our customers first and our independence ensures that we can monitor our standards and processes to deliver the very best quality and service.

That's why, when you order your system from a Grant stockist, you can be sure of a tailored service and excellent after sales support.

Hybrid Revolution

In the UK around 4 million homes have no connection to the mains gas network, and over a quarter of these have oil boilers as their main heating source.

Each year many older oil boilers are updated or changed, most often as distress purchases, requiring a quick replacement heating solution. There is often very little opportunity in this situation to choose an alternative fuel source, such as a renewable technology, as the work involved in updating the system would leave the property without heating for an extended period of time. A different approach to this problem is therefore required.

What is a hybrid?

A hybrid is a unique combination of two or more efficient heating technologies, such as a boiler and a renewable appliance like an air source heat pump. These are packaged together as one unit, maximising system efficiency for the end user, whatever the weather.

The Grant VortexAir is a hybrid unit that couples together a Grant VortexBlue condensing blue flame oil-fired boiler with our Aerona^3 inverter driven air source heat pump (ASHP), with just a single flow and return connection into the house.

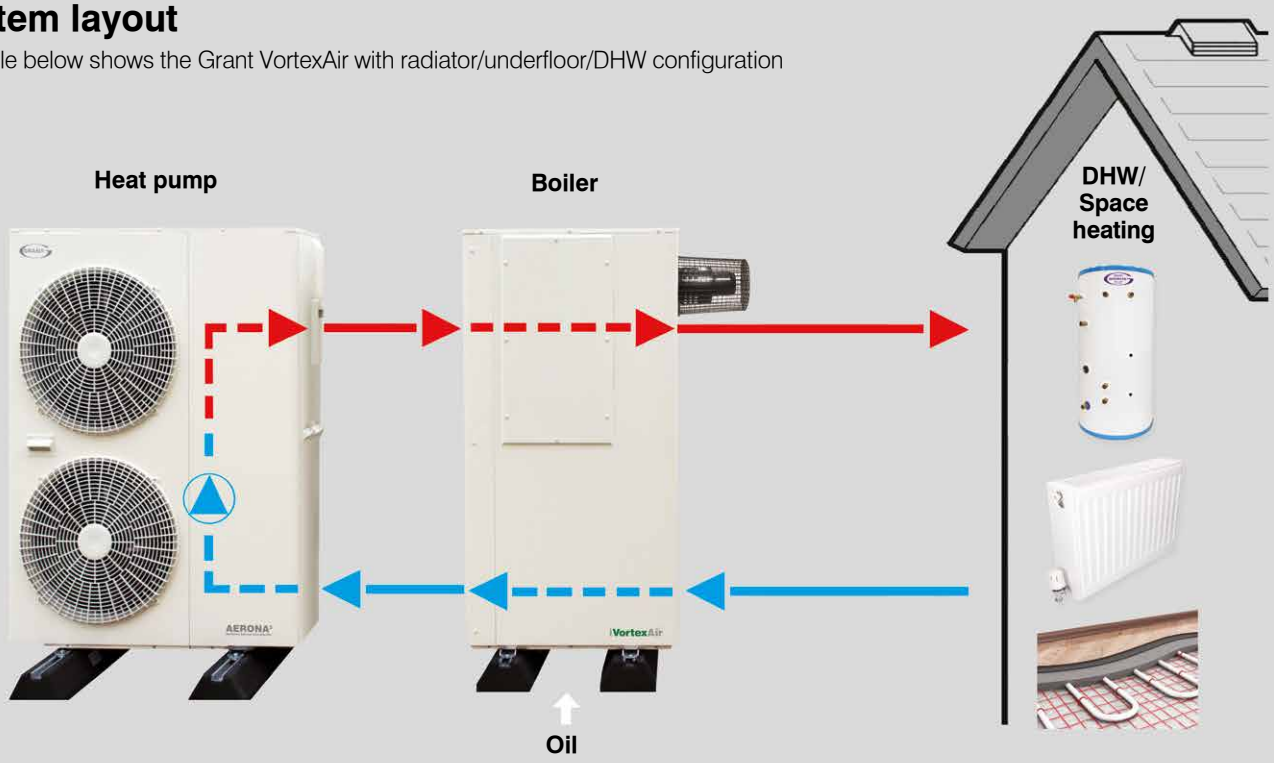
This unique arrangement allows the oil boiler to be installed first as a stand-alone unit internally or externally, replacing an older oil fired appliance and providing immediate heat and hot water for the householder.

The heat pump is then installed externally and coupled via a simple plumbing and electrical arrangement to the oil boiler, giving the finished appearance of a single product, but with the added benefit of a two stage installation, for those distress purchase situations.

The Grant VortexBlue oil boiler utilised within the hybrid is well renowned for its high efficiency and reliability, and the latest blue flame boiler models are leading the way in low emission oil burner technology.

System layout

Example below shows the Grant VortexAir with radiator/underfloor/DHW configuration

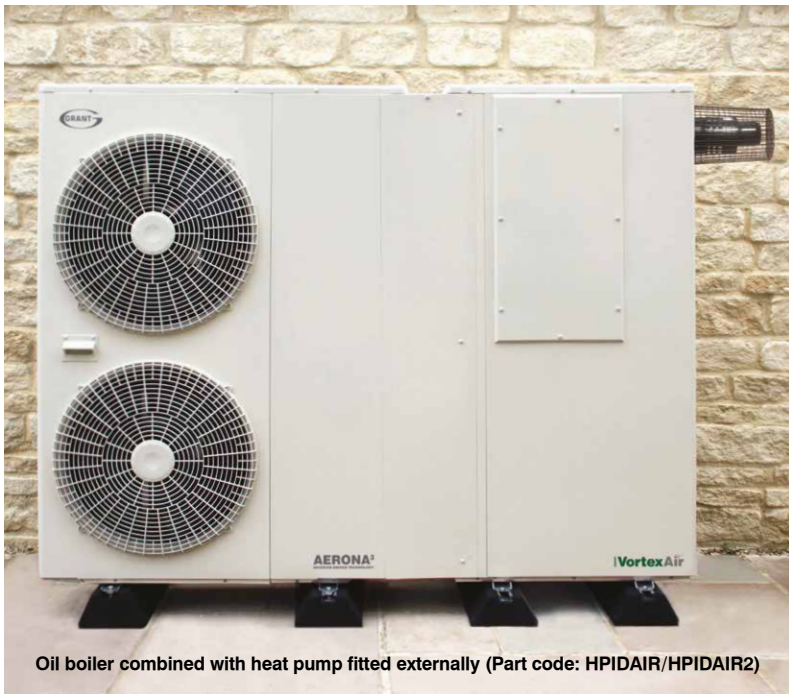


Benefits

Oil Boiler

Heat Pump

- Designed by Grant
- Easy to install and maintain
- 16kW ASHP coupled to either a unique 15-21kW or 21-26kW blue flame oil boiler
- Boiler works as a stand-alone unit and can be installed internally or externally
- Heat pump always fitted externally
- Boiler can be used to provide heat before the ASHP is fitted
- Property always has back-up heating
- Offers householder a choice of fuels
- Meter ready, fully pre-plumbed and wired
- Option to manually switch between hybrid and oil



Oil boiler combined with heat pump fitted externally (Part code: HPIDAIR/HPIDAIR2)

Oil boiler fitted internally with Grant plume diverter utilised for flue (Part code: VTXBFAIR/VTXBFAIR2)

Heat Pump fitted externally (Part code: HPID16)

Maximising **system efficiency**

The Grant VortexAir Hybrid has been designed to maximise overall system efficiency, with the use of an advanced control system. Automatically monitoring the system temperatures, the unit will seamlessly switch to the most effective heating mode, whether that be heat pump, oil, or a combination of both.

There are four unique operating modes incorporated into the Grant VortexAir's controller (detailed right). Working in this way, the heat pump is able to contribute to the heat requirement of the house for longer, thereby reducing running costs and maximising RHI payments for the metered, eligible renewable heat that is generated (where applicable).

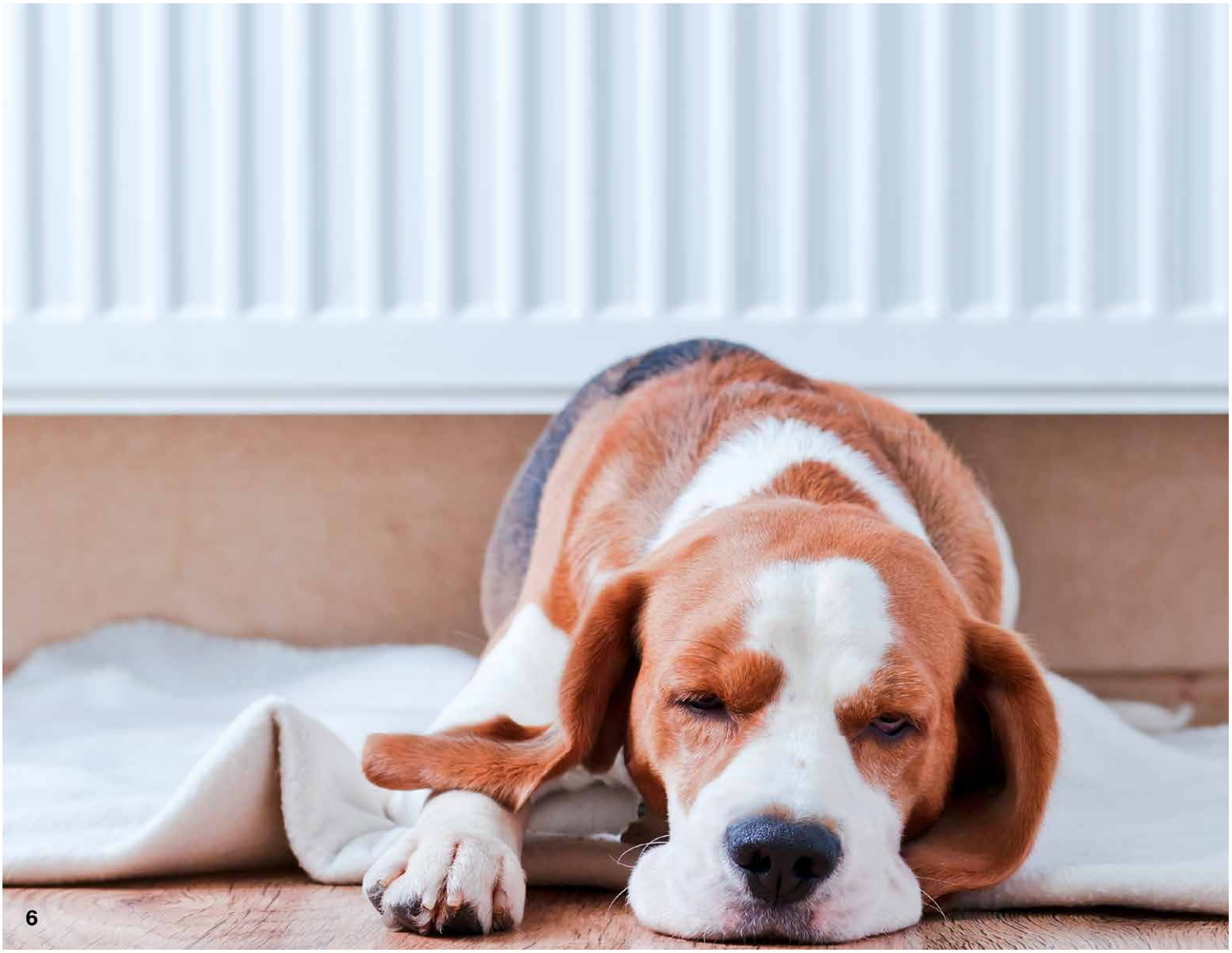
The graphs opposite show examples of how the operating modes seemlessly change depending upon the ambient air temperature and assumed heat loss for the property.

MODE 1
Heat Pump only at lower flow temperatures between 35°C - 55°C for space heating (DHW fixed at 60°C)

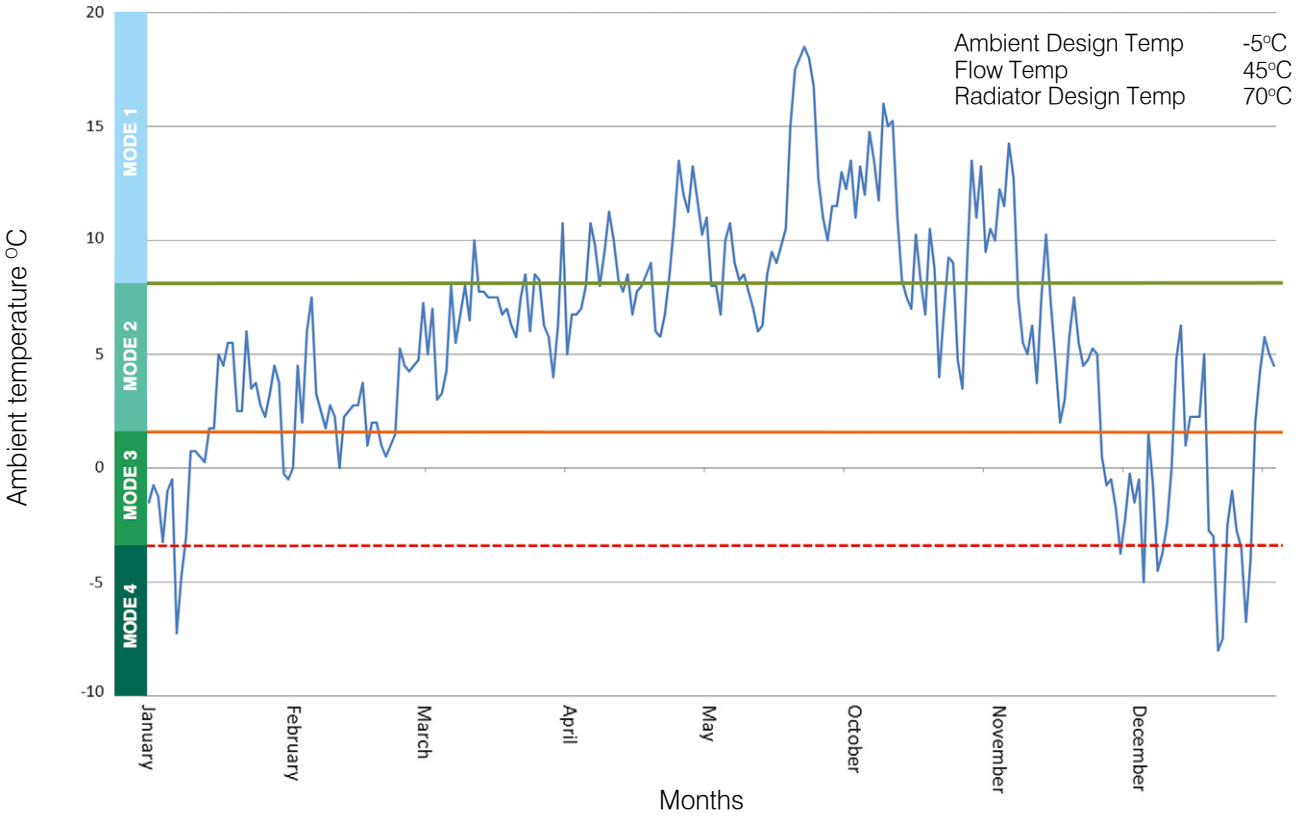
MODE 2
Heat Pump and Oil Boiler combined at lower flow temperatures between 40°C - 50°C

MODE 3
Heat Pump and Oil Boiler combined at higher flow temperatures up to 70°C

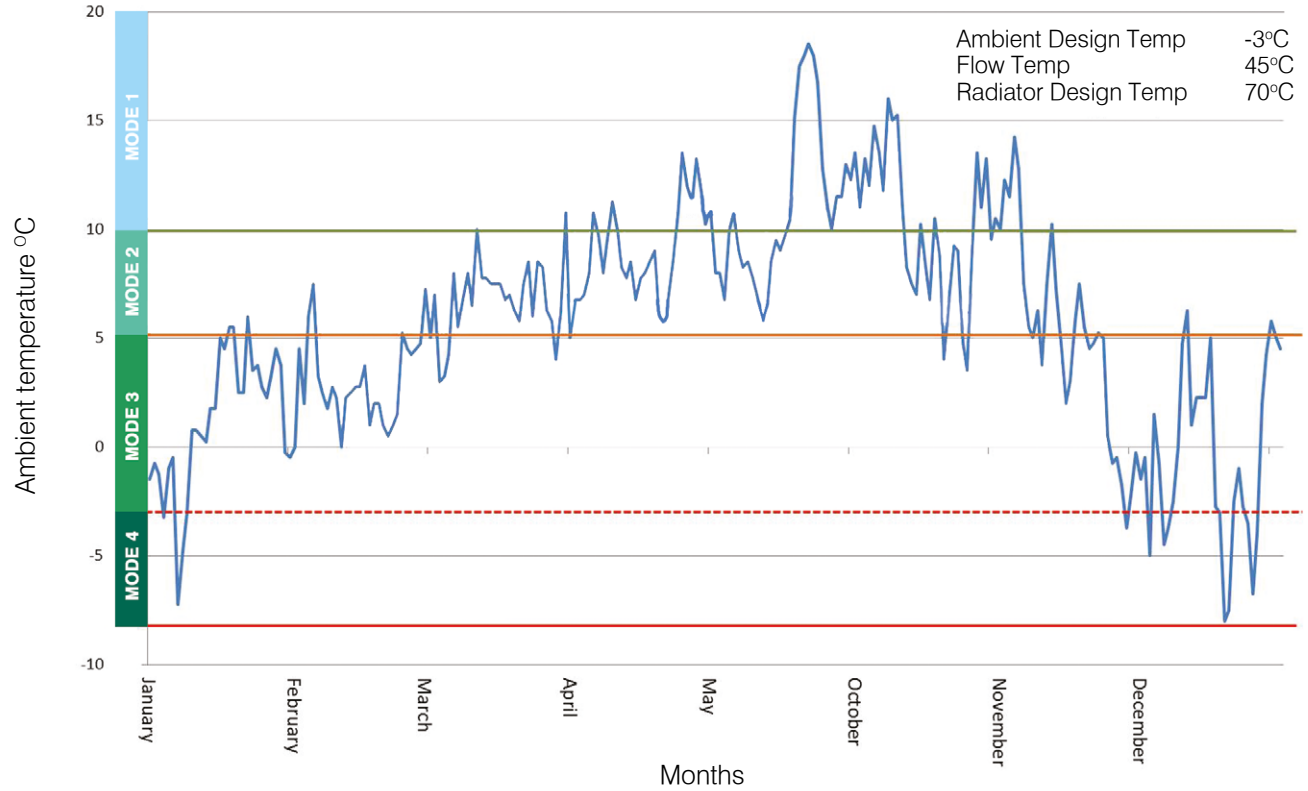
MODE 4
Oil Boiler with higher flow temperatures up to 70°C and little heat pump contribution



Example of operating modes for a property with a 18kW assumed heat loss



Example of operating modes for a property with a 23kW assumed heat loss



What is the Grant VortexAir Hybrid?

It is a combination of a high efficiency condensing blue flame oil boiler and an air source heat pump, interconnected using a control system, such that they operate together as a single unit.

How does it work?

The control system on the hybrid unit monitors the ambient (outside) air temperature and allows only the heat pump to operate when the air temperature is high enough for it to meet the heat demand of the building on its own.
At lower ambient air temperatures the boiler will operate alongside the heat pump, providing a boost to the flow temperature.
When the ambient air temperature falls lower still, the boiler is operated at its full output at a higher flow temperature to enable the hybrid unit to meet the higher heating demand of the building.

What is the benefit of using a hybrid?

A hybrid unit enables the optimum use of both an inverter driven air source heat pump and a blue flame condensing oil boiler, throughout the year, as the ambient air temperature (and consequently the heat demand of the building) changes, thus providing the most efficient use of both the renewable and non-renewable energy sources.

What is the benefit of using a hybrid over using a heat pump only?

Heating system radiators in existing properties are usually sized using the higher water flow temperatures produced from a boiler and so, to meet the same heat demand using the lower flow temperatures produced by a heat pump, the radiators would normally need to be increased in size. Using a hybrid unit combines the higher flow temperatures produced by a boiler, with the efficient operation of a heat pump, to meet the buildings heat demand throughout the year. When the weather is warmer, i.e. in the spring and autumn, the heat pump works independently and the existing radiators can meet the heat demand with the lower flow temperature. This allows the very efficient use of electrical energy to drive the heat pump for large periods of the heating season. When the weather gets colder, the boiler operates to provide the additional energy required negating the need to increase radiator sizes.

How is the Grant VortexAir Hybrid connected to the heating system?

The boiler is always fitted first and the heating system in the building is connected directly to it, whether or not it is located outside next to the heat pump or indoors. The heat pump is then installed and also connected directly to the boiler.

Where should the Grant VortexAir Hybrid be located?

The VortexAir is designed to be installed outdoors, i.e. both the boiler and heat pump parts are located next to each other outside the building. However, it is also possible for the boiler part to be installed internally with the heat pump still outside. Full details for both types of installation are given in the installation instructions supplied with the unit.

Do both the oil boiler and heat pump parts have to be installed at the same time?

No. The boiler can be installed and, if necessary, operated as a stand-alone unit for an indefinite period until the heat pump can be installed and connected to it. This is particularly useful when an existing boiler has to be replaced in an emergency due to a breakdown. The installation of the heat pump can follow at a later date when convenient.

What are the benefits of the blue flame burner technology used in the Grant VortexAir Hybrid?

The boiler used in the Grant VortexAir Hybrid is the latest in a family of high efficiency condensing oil boilers.
Whilst maintaining the current high level of efficiency, the use of blue flame technology reduces emissions. In particular, the NOx level in the flue gases, such that the boilers will meet new emissions limits to be introduced in 2018.

Does the blue flame burner have any special servicing requirements?

No. The blue flame burner and boiler is serviced in exactly the same way as any other boiler from the award winning Grant high efficiency Vortex condensing range. The boiler is accessed via a removable door on the right hand end of the casing and most of the electrical servicing can be easily done from the front of the appliance.

What type of flue system is used for the oil boiler part of the Grant VortexAir Hybrid?

The VortexAir Hybrid uses the Grant low level balanced flue system (or Yellow system) irrespective of whether the boiler part is located inside or outside the building. In the case of it being located indoors, the flue system exits at the rear of the unit and passes through the external wall of the building. If the boiler is outside it is fitted through the right hand side of the unit, above the boiler access door. The hybrid unit must be located such that the flue terminal clearance requirements of BS5410-1:2014 are complied with.

What type of oil is used for the boiler of the Grant VortexAir Hybrid?

As with Grant Vortex boilers, the VortexAir Hybrid is only suitable for use with standard kerosene (Class C2 to BS2869). Gas oil (Class D to BS2869) must not be used with the hybrid boiler.

Does the Grant VortexAir Hybrid qualify for a Government RHI?

To qualify for an RHI (or Renewable Heat Incentive) payment, the unit must be MCS approved and both of the Grant VortexAir Hybrid models meet this requirement. Furthermore, the unit must be installed by an MCS approved Installer and fitted with both a heat meter and electricity meter in accordance with MCS requirements for the RHI. However, it should be understood that using both an MCS approved product and installer is not a guarantee that the installation will be eligible for an RHI payment.

Where can I buy the Grant VortexAir Hybrid?

Grant UK sell products through a network of independent and national merchants. To find your nearest stockist, visit our website www.grantuk.com and use our online merchant search facility. Alternatively, please call our Sales Department.

Does the VortexAir come fitted with a heat meter?

No. As not all installations will require a heat meter and electricity meter, the Grant VortexAir Hybrid is supplied without any meters fitted. Usually only installations qualifying to receive an RHI payment will require both of these meters to be fitted. However, in accordance with MCS metering requirements, the Grant VortexAir Hybrid is supplied 'meter ready' to allow both the heat meter and electricity meter to be easily fitted if required. The heat meter and electricity meter are available as accessories from Grant.

Who can install the Grant VortexAir Hybrid?

Installation of the hybrid unit requires an installer who is both competent in the installation of oil fired boilers (preferably a registered oil installer, e.g. OFTEC registered or similar) and also able to install an air source heat pump. Grant strongly recommends that any installer intending to fit a VortexAir Hybrid should first attend a Grant training course. If an RHI payment is required, the installer will have to be MCS accredited for the installation of air source heat pumps.

Is Planning Permission required?

Usually, compliance with the Town and Country Planning legislation for England, and the MCS Planning Standards, for permitted development means that Planning Permission is not usually required to install a Grant VortexAir Hybrid. However, this should be checked with the Local Authority Planning Department in all cases. It is the responsibility of the householder to undertake this check.

What would the cost benefits be of installing a Grant VortexAir Hybrid?

This is a complicated question to answer. Any cost benefit is dependent on a variety of different factors, including the heat demand of the property, the type of heating system currently installed, the pattern of heating usage, the cost of both electricity and heating oil at the time of installation, etc. Consequently, cost benefits will vary from one installation to another. Grant has a calculator that allows installers to provide an approximate estimate of the payback period, including potential RHI payments (where applicable), for the VortexAir Hybrid compared to the installation and running cost of a high efficiency condensing oil boiler. Please call our pre-sales technical team for further information.

What is the guarantee period for the Grant VortexAir Hybrid?

Grant UK guarantees the manufacture of the VortexAir Hybrid, including all electrical and mechanical components for a period of twelve months from the date of installation, unless the installation was more than six months from the date of purchase, in which case the guarantee period will commence six months from the date of purchase, provided that the unit has been installed in full accordance with the installation and servicing manual issued. This will be extended to a total period of two years if the VortexAir is registered with Grant UK within thirty days of installation and serviced at twelve monthly intervals. This is subject to:

a) The Grant VortexAir Hybrid is operated correctly, in accordance with the installation and servicing manual.

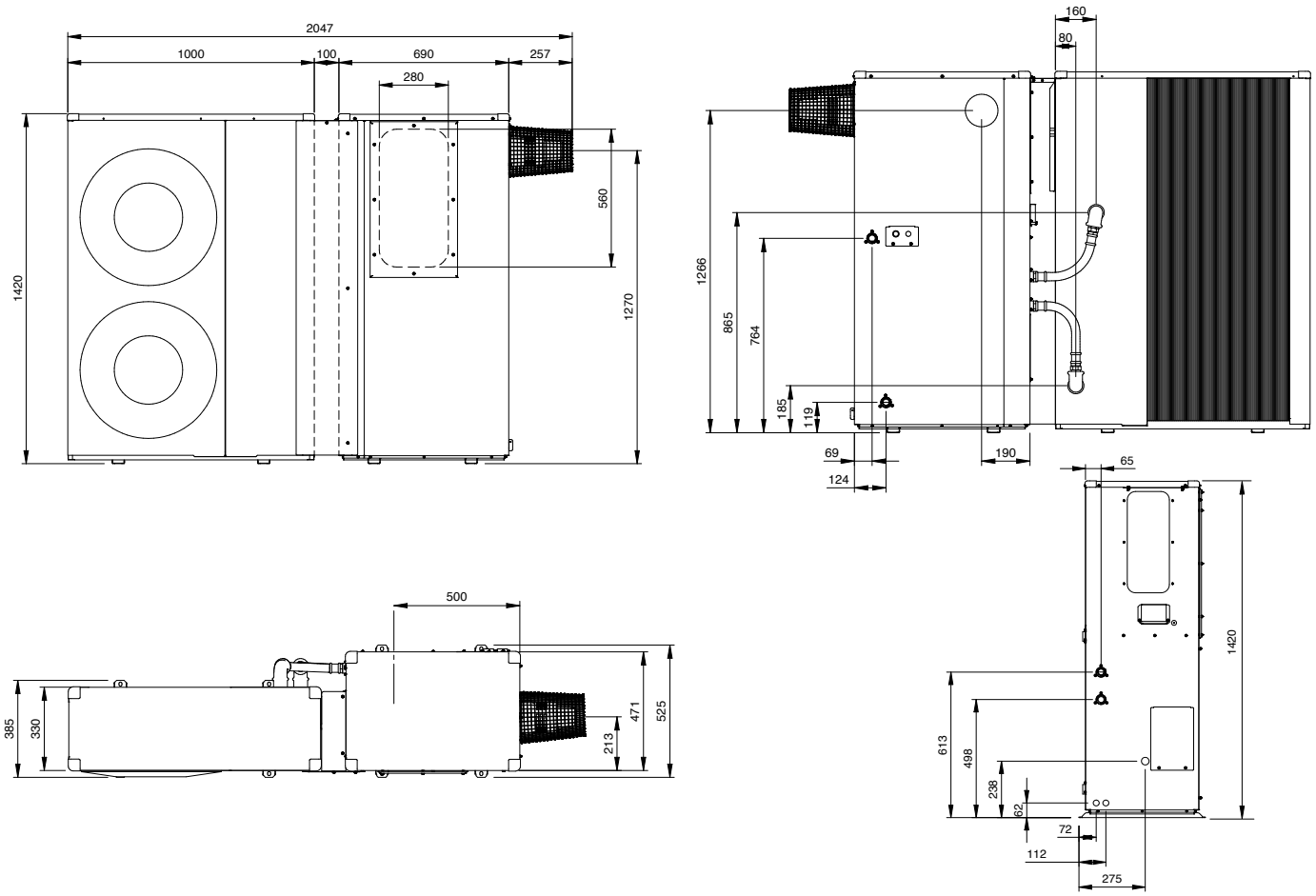
b) Proof is provided that the system has been flushed or chemically cleaned where appropriate (refer to BS 7593:2006) and the required quantity of a suitable corrosion inhibitor added.

c) Proof of annual servicing must be provided if and when requested by Grant UK.

IMPORTANT - Grant UK strongly recommends that a MagOne in-line magnetic filter is fitted in the heating system pipe work. This should be installed and regularly serviced in accordance with the installation instructions.

Dimensions

For both HPIDAIR and HPIDAIR2 models (shown in mm)



Grant VortexAir

Model			HPIDAIR	HPIDAIR2
ErP Rating	Heat Pump	Heating	A++	A++
		Hot Water*	A	A
	Boiler	Heating	A	A
Weight (kg)	Boiler	Empty	149	151
	Heat Pump	Empty	121	121
	Combined**	Empty	280	282
Boiler Output (kW)			15 - 21	21 - 26
Heat Pump Capacity (kW)			16.0	16.0
Heat Pump Power input (kW)			3.90	3.90
Heat Pump Running current (Max) (A)***			17.0 (25.3)	17.0 (25.3)
Heat Pump sCOP			4.10	4.10
Heat Pump Refrigerant (R410A) (kg)			2.99	2.99
Heat Pump Operating voltage (v)			230	230
Heat Pump Flow/ return tappings (BSPF)			1 1/4"	1 1/4"
Heat Pump Min/max operating temperatures		Air (°C)	-20/43	-20/43
Heat Pump Sound power level at 1m (dB(A))			63	63
Heat Pump Sound pressure level at 1m (dB(A))			37	37

* When fitted with a Grant MonoWave HP 200ltr A rated cylinder (HPMONOA/IND200)

** Includes cover strip and hoses

*** In accordance with BSENISO3744:2010

VortexAir Heat Meter Kit

If you intend to access the RHI, the VortexAir Heat Meter Kit will be required. Our heat meter is accuracy class 3 Measuring Instruments Directive (MID) compliant.
Part code: HPIDHEATMETER

VortexAir Electricity Meter

Just as the heat meter kit, a VortexAir Electricity Meter is needed in order to access RHI payments. Our electricity meter is class A Measuring Instruments Directive (MID) compliant.
Part code: HPIDKW/HMETER

Flexi-foot kit

The flexi-foot kit comes with two 600mm anti-vibration feet specifically designed for the Aerona^3 heat pump. When using these with a Grant VortexAir where both the boiler and heat pump are sited together externally, two kits will be required (totalling four feet).
Part code: HPIDFOOT/KIT

Magnetic Central Heating Filter

The MagOne (Part code: VM01) provides innovative protection for your Grant VortexAir.

Using a simple to install, triple action filtration design, the MagOne filters magnetite and non-ferrous debris from central heating systems with a 12000 gauss neodymium magnet.

Features
- Manual air bleed
- 500ml dosing capacity
- 360° installation
- 6 bar max working pressure
- Installation/servicing date wheel
- 120°C max working temperature
- Full bore flat face 28mm isolation valves
- Complete with 28-22mm reducers
- Supplied with spare sealing washers & o-rings
- Un-blockable – even if the filter isn't serviced

This leaflet is accurate at the time of printing but as Grant UK has a policy of continual improvement it may be superseded. We reserve the right to amend specifications without prior notice. The statutory rights of the consumer are not affected. All products manufactured under I.S. EN ISO 9001. Grant UK additionally holds ISO 14001 accreditation. ™THE GRANT 'EZ-FIT FLUE' SYSTEM is a trade mark of Grant Engineering Limited.

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