RENEWABLE ENERGY DEVICES LIMITED

Freedom Heat Pumps

SALES | SERVICE | SUCCESS

RED

AIR SOURCE HEAT PUMPS: RE-IMAGINED

BEST IN CLASS EFFICIENCY

Designed and manufactured in the UK, Renewable Energy Devices (RED) strive to be best in class for heat pump efficiency. Using innovative design and technology combined with an understanding of our temperate maritime climate, to bring benefits to the home owner and achieve their goals.

With a capacity turn down ratio of over 80%, RED heat pumps can run for longer and minimise inefficient stop / start scenarios.

RED-HOT TECHNOLOGY

Running at a high flow temperature of 65°C allows RED's hot water storage tank to store water up to 60°C without inefficient immersion heaters. Utilising a novel refrigerant circuit design allows us to maintain heating output as temperatures drop. Where other heat pumps would loose significant capacity, the A16-UHE is rated 16kW at 7°C air temperature and at -10°C it still can output 14kW, the A10-UHE is 10kW at 7°C and 8kW at -10°C. This is achieved by the heat pump alone without backup heaters.

RED heat pumps work when you need them most – when it is cold.

STAND THE TEST OF TIME.

Designed as a heat pump, with a long lasting all plastic corrosion proof casing and stainless steel fixings. The evaporator heat exchanger coils have a minimum of 5,000 hours salt spray resistance as standard.

All cabling and pipework can enter from underneath the casing, leaving a clean and simple install with nothing exposed to corrode or perish.

COMPLETE CONTROL

The system is controlled via a easy to use, high definition, 5" touch screen. Up to 4 heating zones can be independently timed with a separate scheduler for hot water production. The controller is Wi-Fi enabled and allows control, diagnostic and performance data to be synchronised over the cloud.

THE KEY TO EFFICIENCY

A heating system is only as good as the sum of its parts. Approximately 50% of a heating systems efficiency is down to the heating appliance and the other 50% comes down to the controls and plumbing distribution system.

When coupled with underfloor heating and high levels of insulation, a heat pump can help reduce heating bills by up to 50% compared to an oil-fired boiler* . Even when using radiators, the savings are significant.

The key system building blocks have been designed to work seamlessly together. All control units are connected using the RED-NET allowing them to communicate and work as efficiently as possible.

We will design the primary system layout and schematics for your plumber and then commission the system to ensure it has been installed correctly and working at it's optimum efficiency.

* based on oil at 55p per litre and a 35°C water flow temp

HOW IT WORKS

The RED heat pump captures energy from the outside air and uses this energy to heat a wet space heating system or hot water storage tank.

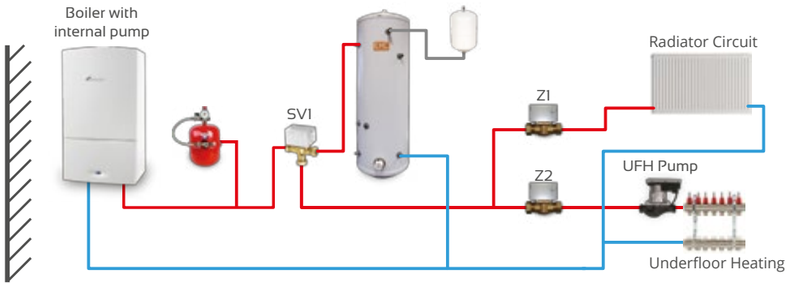
The advantage of the heat pump compared to alternative heating appliances is that it uses the free energy in the air that surrounds us to produce much more heat energy than it consumes in electrical energy.

The energy in the air is extracted in temperatures down to -20°C. This gives the heat pump unparalleled heating efficiency at point of use, and most importantly zero emissions.

A FEW THINGS TO CONSIDER

Every heating system is made up of 3 distinct parts.

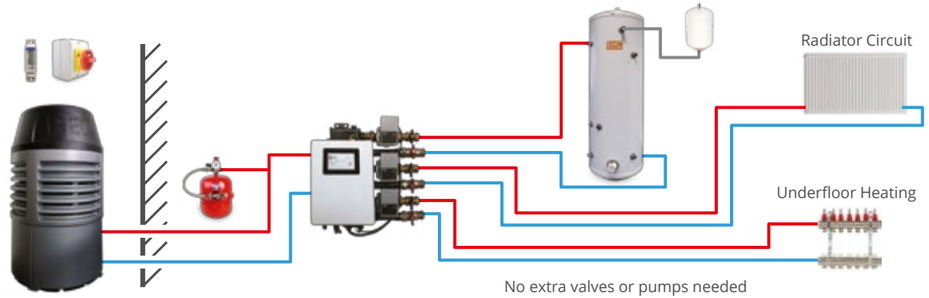
The part that heats the water, in our case a heat pump, but traditionally a fossil fuel boiler. The distribution network made up of pipes, valves and pumps and the heat emitters themselves, typically radiators and underfloor heating.



Heating & domestic hot water with a traditional boiler

With fossil fuel boilers the setup is fairly easy because the boilers tend to be larger than needed, so if anything struggles you can increase the temperature to hide problems. This is a very inefficient way of heating your home.

To get the best from your heat pump the secret is to get all 3 parts of the heating system working together. With heat pumps we size them closely to the heating demands of the house to keep the cost down. You do not have the luxury of turning the unit up if the heat emitters (radiators and underfloor heating) are not set up correctly, so you need to pay a little attention to the pipework, or you could have reverse circulation in the radiator circuits. This is where the RED system comes in.



Heating & domestic hot water with the RED system

The RED heating system is not just a heat pump, RED want to control all the water moving in the house in harmony, so the RED system was designed to control all 3 parts of your heating system. You get a heat pump which contains a pump and flow meter, this connects to a RED low loss header.

The RED Header includes the pumps to push the water around the radiators, the hot water cylinder, and the Underfloor heating. With this system you do not have any valves or extra pumps installed. The RED header has sensors and pump speed controllers and a microprocessor which works with the feeds back system performance to the heat pump outside, the two work together and match the heat requirements and flow rate of the water around the house. It is constantly balancing the heating system automatically as you change the room temperatures and adjust your thermostatic radiator valves.

It's a simple way to make sure your heating system is working at the very peak of its performance all the time.

RED HEAT PUMPS

The RED heat pump is a self contained Monobloc with a footprint of diameter 780mm, pipework connections along with the power supply and data cable to indoor controller can be mounted through the side of the casing or enter from underneath for a discreet and uncluttered installation.

Where competing products may have started life as an air conditioning unit, the RED heat pump was designed as a heat pump from the start for uncompromising efficiency.

Key Benefits

- ERP Band A++
- Patent pending heat recovery system to scavenge waste heat from compressor components.
- Operate at flow temperatures up 65°C and external temperatures down to -20°C.
- High efficiency fan, mounted vertically for reduced noise.
- Round heat exchanger to maximise surface area.
- Corrosion resistant plastic casing with stainless steel fixings.
- Simple installation, with the delivery pallet doubling as a carrying device.
- Factory installed circulating pump managed by the RED controller to run at the minimum speed possible whilst optimising the differential between flow and return temperatures.

RED HEAT PUMP TECHNICAL

	A10-UHE	A16-UHE
Type	Monoblock ASHP	Monoblock ASHP
Nominal output (kW)	10	16
ERP Average climate (Low flow temp)	A++	A++
Operating range (°C)	-20 ~ +35	-20 ~ +35
Dimensions of heat pump H x D (mm)	1420 x Ø780	1620 x Ø780
Dimensions of indoor display H x L x W (mm)	360 x 270 x 35	360 x 270 x 35
Weight (kg)	110	120
Noise at nominal capacity	63 dB(A)	64 dB(A)
Maximum flow temperature (°C)	65	65
Refrigerant type and charge weight (kg)	R410A, 2.9	R410A, 3.3
Electrical supply	230v/1ph/50Hz	230v/1ph/50Hz
Maximum current (A)	20	32
Pipe connections (mm)	28 copper	28 copper
Air discharge	Vertical	Vertical
COP at A7W35 (Low temp)	4.37 @ 8.40kW	4.66 @ 13.30kW
COP at A7W45 (Medium temp)	3.59 @ 8.40kW	3.76 @ 13.40kW
COP at A7W55 (High temp)	3.08 @ 8.40kW	3.25 @ 13.90kW
COP at A7W65 (Very high temp)	2.64 @ 8.50kW	2.77 @ 14.10kW
COP at A12W24	5.71 @ 2.04kW	8.17 @ 4.06kW
COP at A7W27	5.04 @ 3.65kW	6.05 @ 5.88kW
COP at A2W30	3.68 @ 5.04kW	3.66 @ 7.76kW
COP at A-7W34	2.69 @ 6.93kW	2.80 @ 12.0kW
COP at A-10W35	2.5 @ 7.80kW	2.58 @ 14.0kW

MANIFOLDS

The fully pumped manifold combines a hydraulically separated low loss header with zone distribution, greatly reducing installation time and cost.

The manifold ensures that the heat pump can get the heat where it needs to go, increasing efficiency and heat transfer rate.

Key Benefits

- Compact pre-plumbed design for easy installation
- Pre-wired pump controller, mounted neatly to the header
- Supplied with high quality Wilo 7.5m head pumps
- Pumps are managed by the RED controller, measuring the flow and return temperatures to each circuit and dynamically balancing the heating system by modulating the pump speed to ensure each circuit gets just the right amount of heat

Note: The manifold must have enough pumps for the heating zones plus one zone for hot water.

DISTRIBUTION MANIFOLD TECHNICAL

	MAN-P3	MAN-P4	MAN-P5
Pumped zones (Inc DHW)	3	4	5
Dimensions L, H, W (mm)	495 x 525 x 135	495 x 675 x 135	495 x 825 x 135
Heat pump flow and return	1" Male	1" Male	1" Male
Zone connections (mm)	28 Comp	28 Comp	28 Comp
Water Volume (L)	5.8	7.0	10.0
Weight (kg)	24	30	35
Electric supply	230v / 1ph / 50Hz		
Maximum current (A)	5A	5A	6A

Harlequin® HeatStream®
HOT WATER SYSTEM

TANKS

Designed and made in the UK, specifically to work with the RED system, these tanks work very differently to your conventional hot water cylinder.

The tank is just a vessel holding water but this is not the water you bathe in. Instead, the heat pump warms an internal coil, increasing the temperature of the contained water and a second separate coil brings cold water into the tank which is instantly warmed up.

The advantage is large amounts of hot water, quickly.

The tank is made of lightweight plastic and is not pressurised making it easy to install. The tank shape allows it to fit neatly into many locations and even through a standard door width.

Key Benefits:

- Mains pressurised hot water on demand
- Safe, quick and easy installation
- Tough and durable plastic casing with a non-corrosive polypropylene storage tank
- No pressure test certification required to install the system
- 25 Year warranty for complete peace of mind*

*Terms & Conditions apply

DOMESTIC HOT-WATER CYLINDER TECHNICAL

	INC-200	INC-250
Volume (L)	200	250
Dimensions H, W, L (mm)	520, 520, 1650	520, 520, 1980
Empty weight (kg)	48	56
Full weight (kg)	250	308
Standing heat loss (W)	52	65
ErP rating	B	B
Heat pump coil maximum operating pressure (bar)	3.0	3.0
Heat pump coil pressure drop at 15L/min (mbar)	134	142
Domestic hot water coil maximum operating pressure (bar)	3.0	3.0
Maximum permissible storage water temp (°C)	95.0	95.0
Domestic water coil connections (mm)	22 tail	22 tail
Heat pump coil connections (mm)	22 Comp	22 Comp
Safety overflow	G3/4" F	G3/4" F
Immersion electric supply	230v/1ph/50Hz	230v/1ph/50Hz
Maximum current	16A	16A

CONTROL

The RED indoor heat pump controller is designed to manage all user inputs to the heat pump and heating system, this includes some of the following:

- Time scheduler for DHW, space heating and cooling (when enabled) with individual zone control.
- Up to four heating / cooling time zones.
- Manual control of the DHW, space heating and cooling (when enabled) with individual zone control.
- Booster function for time clock overrides.
- Temperature flow set points for both DHW, space heating and cooling (when enabled).
- DHW immersion heater boost function.
- Weather compensation
- Backup boiler/ system configurations.

Key Benefits

- 5" HD colour touch screen for intuitive setup and operation
- On-board Wi-Fi allows for real time control and system optimisation by RED
- The indoor unit doubles as a as heating system controller and wiring centre
- Preconfigured plumbing configurations for easy commissioning

FOREVER ADAPTING

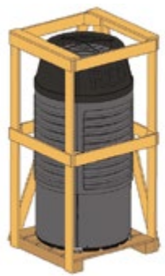
The controller constantly monitors the performance of your heating system and adapts, communicating with the pump and manifold to maximise the efficiency of your home.

The performance summary screen, details real time Coefficient of Performance and Seasonal Coefficient of Performance along with run hours and number of starts / defrosts.

Image depicts real world data from a home in Northern Ireland with underfloor heating

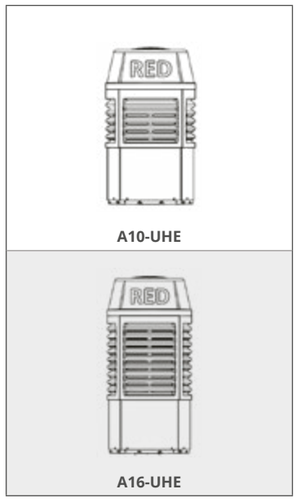
CLEVER PACKAGING

The RED heat pump will come packaged upright in a wooden crate with a plastic sleeve. The Pump is supplied with lifting brackets, allowing part of the protective wooden construction to be used as a lifting device for moving the pump into it's installation position.

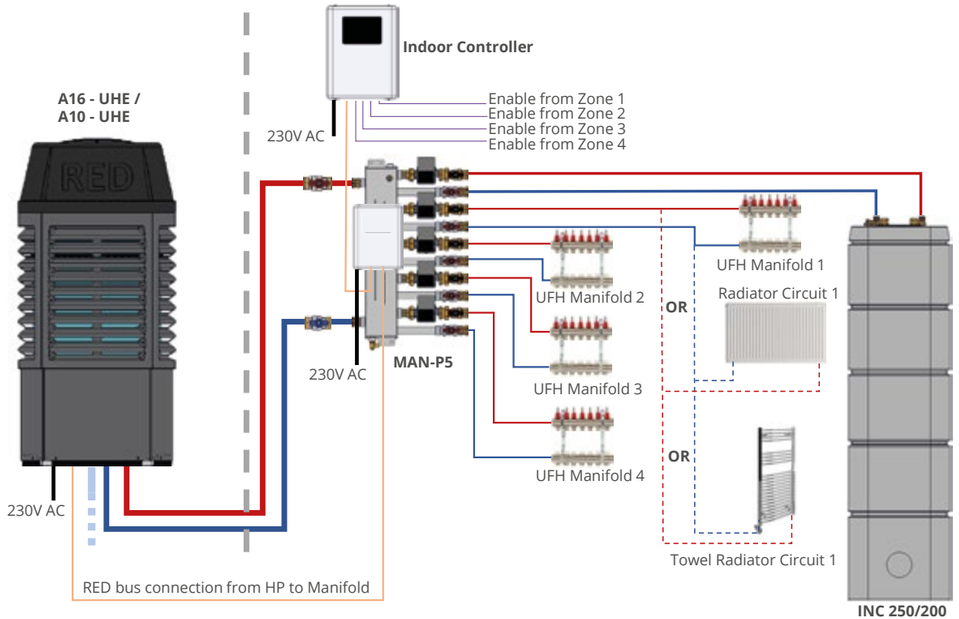
			
1. Carefully remove the plastic sleeve and dismantle wooden crate retaining the diagonal uprights.	**2.** Remove the LHS and RHS door panels and pallet fixing brackets (X 4).	**3.** Fasten the lifting brackets (x4) to unit as shown ensuring to tighten securely in place.	**4.** Using the timber supports provided lift the unit into the installation position taking care to follow HSE lifting guidelines.

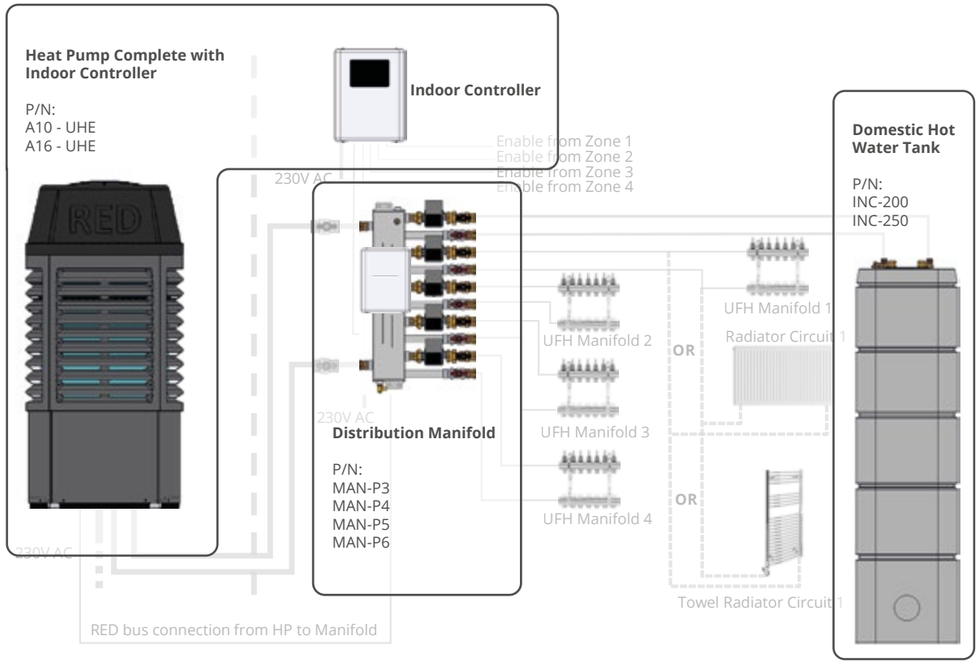
PACKAGED SOLUTIONS

Each package will typically consist of a 10kW or 16kW heat pump plus a RED domestic hot water tank in either 200L or 250L, depending on the hot water demand from the install and a distribution manifold, to match the required number of heating zones.



HEATING & DOMESTIC HOT WATER EXAMPLE SCHEMATIC





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www.freedomhp.co.uk

WHO ARE FREEDOM HEAT PUMPS?

Freedom Heat Pumps is a wholesale distribution company for the RED Renewable Energy Devices, air source heat pumps and underfloor heating systems.

We offer technical support, training, design and consultancy services Freedom Heat Pumps was founded in 2010 and have been market leaders in this sector with over 7500 units out in the field.

How we work

Our approach is very straightforward. If you have a set of plans or an outline of the requirements for a project, send them to sales@freedomhp.co.uk. From there, we will produce a heat loss calculation in line with today's standards, and put together a list of the kit required at your cost price.

Alternatively, if you don't currently have a heat pump project, but would like to become a heat pump installer, and don't know where to start, contact us on 02380 274833 or email us at sales@freedomhp.co.uk and we can set you on the correct course.

PRICING INFORMATION

ITEM NO.	MODEL	DESCRIPTION	LIST PRICE *
A-00793	A10-UHE	10kW Monoblock ASHP with indoor controller/ wiring centre.	£8,406
A-00792	A16-UHE	16kW Monoblock ASHP with indoor controller/ wiring centre.	£9,910
A-01104	INC-200	200L DHW heat pump tank.	£1,110
A-01103	INC-250	250L DHW heat pump tank.	£1,286
A-01091	MAN-P3	Three zone distribution manifold with low loss header and integral Wilo 7.5m head variable speed pumps, check valve and pump speed controller.	£1,682
A-01093	MAN-P4	Four zone distribution manifold with low loss header and integral Wilo 7.5m head variable speed pumps, check valve and pump speed controller.	£1,944
A-01094	MAN-P5	Five zone distribution manifold with low loss header and integral Wilo 7.5m head variable speed pumps, check valve and pump speed controller.	£2,207

* Prices are ex works ex VAT, errors and omissions excluded

HEAT PUMP MODELS:

- A10-UHE
- A16-UHE

INCLUDING:

- Manifolds MAN-P3 – P5
- Hot water tanks INC 200 – 250

Freedom
Heat Pumps
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Head Office

Unit 2 Warrior Park,
Eagle Close
Chandlers Ford,
Hampshire
SO53 4NF

Northern Office

Unit 5, Roundhouse Court,
Buckshaw Village,
Chorley,
Lancashire
PR7 7JN

Tel: 02380 274 833
Email: sales@freedomhp.co.uk
www.freedomhp.co.uk

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