



HEATING SOLUTIONS

Firebird ENVIROAIR Hybrid Heat Pump,

the natural hybrid combination.

Enviroair Heat Pumps • **Enviro**cyl-HP Cylinders **Enviro**floor Underfloor Heating

















Born in West Cork in the Gaelteacht

Firebird offer individual solutions for optimum living and working that are straightforward, intelligent, and future proof. We are a manufacturer and supplier of complete, innovative and environmentally responsible heating systems - building on decades of experience. For 38 years Firebird has stood for innovation and know-how in the field of manufacturing in the heating industry, developing some of the most renowned products on the market.

At the forefront of technology, Firebird is committed to providing cost-effective, energy efficient heating solutions that not only meet, but easily exceed today's stringent legislative requirements. Historically an oil fired boiler manufacturer, the addition of renewable heating options, which include air source heat pumps, biomass boilers and solar thermal systems enable Firebird to offer a total heating solutions package.

Whether in new build or modernisation projects. Firebird products stand for unique cost efficiency with maximum environmental compatibility and the highest levels of flexibility.

















"Firebird heating solutions... first for innovation"



Firebird Hybrid Heating Systems

Adaptable

Modular design allows ease of installation.

Renewable Energy

Converts 1kW into 5kW output for economical heating and domestic hot water.

Compact & Space Saving

Single monobloc unit is installed outside the property.

Money Saving

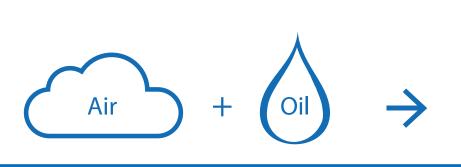
Can save money on running costs due to high levels of efficiency.

Flexible Connection Options

Traditional radiators, under floor heating and domestic hot water up to 60°C.

Ultra-Quiet Operation

Amongst the best in their class for sound power levels.



Hybrid Heating & Hot Water



Why Choose a Firebird **Enviroair**Hybrid System?



Our hybrid **Enviroair** heating systems deliver efficient, renewable heating in conjunction with our "A" rated condensing oil boilers.



The Firebird **Enviroair** hybrid heat pump solution combines air-to-water heat pump technology with oil boiler condensing technology, using smart heating controls that select the optimum economical condition for its operation, combining parameters of energy costs (electricity, oil).

By using an **Enviroair** hybrid system to provide space heating and hot water, it is possible to reduce a home's CO₂ emissions and running costs. **Enviroair** uses inverter-driven heat pump technology to harvest and upgrade free, renewable energy from the outdoor air to deliver heating and hot water.

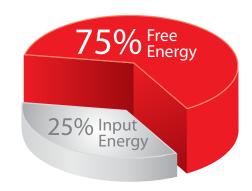
For every 1kW of input electrical energy, **Enviroair** harvests and upgrades renewable heat from the outdoor air to provide the home with an average of at least 4kW of heat output.

What the Customer Requires:

- Ultra quiet operation the next generation of ultra quiet heat pumps the **Enviroair** heat pump has an acoustically engineered design ensuring one of the lowest sound levels on the market (61-65 dB(A)).
- The heat pump and boiler can also be positioned without worrying about sound issues.
- Guaranteed reliable comfortable heat throughout the year 365 days ensuring constant comfort for you and your family.
- Low running costs for heating and domestic hot water.
- Easy and fast installation As the heat pump and boiler are delivered as separate units they are easier to handle and manipulate and easier to install.
- Firebird a Brand you can trust offering leading heating solutions for over 38 years.

The Firebird Solution: Choose an **Enviroair** Hybrid Solution:

- Combination of Europe's leading 'A' rated oil condensing boiler on the market today and an A+++ rated air-to-water heat pump.
- Best in class COP of up to 5.00.
- World-renowned, highly-reliable high pressure scroll compressor.
- Outstanding efficiency at all times and all temperatures.







Enviroair air source heat pumps provide an economical and environmentally friendly alternative to traditional heating and hot water systems.

- Constant reliable heat (even in the depths of winter).
- Low investment costs.
- Environmentally friendly.
- Best seasonal efficiencies, providing the highest savings on running costs.
- Optional easy to use state of the art wireless controls.
- Frost protection as standard.
- Weather compensation control as standard.
- Irish designed for Irish homes.
- Installed nationwide through a network of locally approved heating engineers.
- Easy servicing & maintenance.
- Full reliable back up service with local engineering teams.

- Firebird service packages available.
- Low running costs for heating and domestic hot water all year round, when properly commissioned.
- Legionella protection.
- Two heating circuits.
- Screed floor drying function as standard (ideal for new builds).
- Generate water up to 60°C.
- Help in complying with Building Regulations Part L and achieving a BER A rated home.
- Full availability nationwide through our distribution partners.
- Customer service & support team with onsite back up through our nationwide network of special service engineers.

The **Enviroair** heating system allows consumers to have the best of both worlds in one single heating system.

HEATING SOLUTION

Control & Connectivity

Firebird offers its customers cutting edge technology, especially designed to ensure our **Enviroair** heat pump systems deliver maximum performance. You can properly manage the heat pump and perform comprehensive monitoring and control, with all of the features the remote control provides.

Wired Controls - pc-arfhe

- New wired thermostat with dedicated end user view.
- Weekly timer.
- Holiday mode.
- Smart function.
- Favourite button.
- Setup wizard.



Wireless Controls - atw-rtu

- New wireless remote thermostat.
- Easy to fit.
- Simple to use.
- Control remotely via smartphone app.











Technical Data

Enviroair Heat Pump Sizing Guide

ERP Rating up to A+++

A heat pump that uses air as its heat source will perform better as the air temperature increases. The industry standard for quoting the output and efficiency of an air to water (ATW) heat pump is 7°C external temperature and a 35°C flow temperature. However, to meet MCS (Microgeneration Certification Scheme) criteria, the heat pump should be sized according to the lowest geographical temperature where the heat pump is to be installed.

The heat requirement for a property should be designed in accordance with MCS 3005 and include a room by room heat loss calculation. The calculated heat requirement should then be matched to the output of the heat pump (shown below). Please note that the information contained in these tables is for guidance purposes only. For exact quotations please contact the Firebird Technical Hub on **026 45253** or newbuild@firebird.ie

Water Flow Temperature 30-35°C

Envirogir Model		door rature 7°C	Outdoor Air Temperature -7°C		
	Capacity ¹ (kW)	COP1	Capacity² (kW)	COP ²	
Enviroair 7.5kW	7.50	4.55	5.80	2.57	
Enviroair 11kW	11.00	5.00	9.70	2.74	
Enviroair 14kW	14.00	4.71	11.50	2.65	
Enviroair 16kW	16.00	4.57	12.00	2.57	

Water Flow Temperature 40-45°C

Enviroair Model		door rature 7°C	Outdoor Air Temperature -7°C		
	Capacity ¹ (kW)	COP1	Capacity² (kW)	COP ²	
Enviroair 7.5kW	7.50	3.50	6.00	2.25	
Enviroair 11kW	11.00	3.80	10.00	2.45	
Enviroair 14kW	14.00	3.61	11.00	2.25	
Enviroair 16kW	16.00	3.40	11.50	2.15	

Water Flow Temperature 47-55°C

Enviroair Model		door rature 7°C	Outdoor Air Temperature -7°C		
	Capacity ¹ (kW)	COP1	Capacity ² (kW)	COP ²	
Enviroair 7.5kW	7.50	2.70	5.00	1.72	
Enviroair 11kW	11.00	3.00	8.70	1.78	
Enviroair 14kW	14.00	2.80	9.70	1.85	
Enviroair 16kW	16.00	2.50	10.50	1.75	

^{*} Three phase capacities of 11 kW to 17.5 kW are also available – please contact Firebird Heating Ltd for further information.



It is essential that the design of the heat emitter (whether for underfloor heating or radiators), is calculated correctly to ensure best performance for the **Enviroair** Air Source Heat Pump. For exact quotations please contact the Firebird Technical Hub on **026 45253** or **newbuild@firebird.ie**

Enviroair Heating Capacity

	Outdoor Unit Model	Enviroair 7kW	Enviroair 11kW	Enviroair 14kW	Enviroair 16kW
Nominal Capacity (max) Water 30/35°C, Ambient 7db/6wb°C	kW	7.50 (11.00)	11.00 (15.20)	14.00 (16.70)	16.00 (17.80)
	COP	4.55	5.00	4.71	4.57
Nominal Capacity (max)	kW	7.50 (10.00)	11.00 (14.10)	14.00 (15.70)	16.00 (17.30)
Water 40/45°C, Ambient 7db/6wb°C	COP	3.50	3.80	3.61	3.40
Nominal Capacity (max)	kW	7.50 (9.20)	11.00 (13.50)	14.00 (15.20)	16.00 (17.00)
Water 47/55°C, Ambient 7db/6wb°C	COP	2.70	3.00	2.80	2.50
Nominal Capacity (max)	kW	5.50 (8.90)	9.50 (12.80)	10.50 (13.90)	11.10 (15.00)
Water 30/35°C, Ambient 2db/1wb°C	COP	3.53	3.70	3.55	3.41
Nominal Capacity (max)	kW	5.80 (6.70)	9.70 (10.60)	11.50 (12.00)	12.00 (13.00)
Water 30/35°C, Ambient -7db/-8wb°C	СОР	2.57	2.74	2.65	2.57
Nominal Capacity (max)	kW	6.00 (6.40)	10.00 (10.00)	11.00 (11.60)	11.50 (12.50)
Water 40/45°C, Ambient -7db/-8wb°C	СОР	2.25	2.45	2.25	2.15
Nominal Capacity (max)	kW	5.00 (5.50)	8.70 (9.70)	9.70 (11.20)	10.50 (12.00)
Water 47/55°C, Ambient -7db/-8wb°C	COP	1.72	1.78	1.85	1.75
Water Flow Rate (min/max)	(m³/hr)	0.6/2.1	1.0/2.8	1.1/3.0	1.2/3.0
Minimum Water Volume (defrost)	(1)	28.0	38.0	46.0	55.0
Water Connections	(in)		1 1/4" female		
Expansion Vessel Size	(1)		6.0		
Water Temperature Range	(°C)	20–55	20–60		
Power Supply		230V/1Ph/50Hz	230V/1	Ph/50Hz + 400V/3	Ph/50Hz
Circuit Breaker Size (with DHW tank heater)	А	32.0	50/32		
Circuit Breaker Size (without DHW tank heater)	А	20.0	32/20		
Maximum Operating Current (with DHW tank heater)	А	33.0	45.8/30.0 45.8/39.		45.8/39.4
Maximum Operating Current (without DHW tank heater)	А	18.0	30.8		
Sound Power Level @7/35*	dB(A)	61.0	63.0	64.0	65.0
Dimensions (H x W x D) Including Connections	(mm)	800 x 1252 x 370	1380 x 1252 x 370)
Gross Weight	(kg)	115.0	135.0	140.0	144.0
				*	•

^{*} Sound power level in accordance with Standard EN 12102 at conditions specified in EN 14511 performance test.





Why have underfloor heating?

Underfloor heating is not a new concept, it has been around since the Roman times. In Scandinavia 80% of homes are already heated by underfloor heating and the Irish and UK markets are catching up fast.

It's no surprise that underfloor heating is growing in popularity. It's relatively cheap to install, economical to run and with little maintenance required. It also frees up wall space, normally dedicated to radiators, and can now be installed under virtually any type of floor. It's generally considered to be a more eco-friendly option than radiators too, because of the way it heats the space.

to 25% more efficient than radiators





- Even heating for the whole room.
- Individual room control.
- Free up wall space.
- No more cold floors.
- Energy efficient.
- Mo exposed pipe joints.
- Minimal maintenance.
- Reduced airborne dust pollution.

Efficient even heat distribution

The radiant form of underfloor heating with even heat distribution is far more comfortable and efficient than the convected heat provided by radiators, which draws cold air across the floor, heating it and then convecting it upwards towards the ceiling.



Typical Central Heating

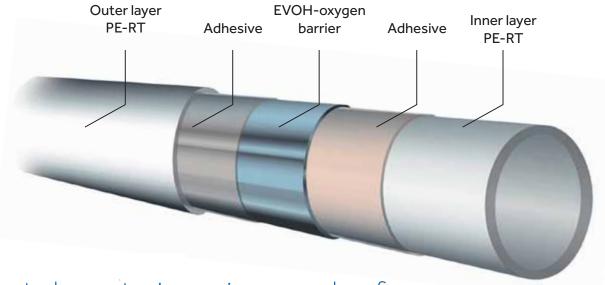


Radiant underfloor heating



Envirofloor PE-RT Pipe (5 - Layers)





What characterises pipes made of PE-RT?

Polyethylene of raised temperature resistance: Due to the unique molecular structure a crosslinking is not necessary to achieve a long term temperature stability. Coextrusion: all layers being produced simultaneously; therefore a homogeneous and very stable material bonding is created. Due to the layer technology the oxygen barrier is protected from mechanical damage.

Technical properties

Working Temperature	70°C
Max. Temperature	95°C
Max. Operating Pressure (ISO 10508) at 70 °C	6 Bar
Standard Colour Inside	Transparent
Standard Colour Outside	White
Other Colours	On Request
Pipe Printing	Customer-Specific
Packing	Carton, Foil or Stretch Wrapped

Diameter	Outer Diameter (mm)	Wall Thickness (mm)	Max. Coil Length (m)	
12 x 2,0	12 + 0,3	2,0 + 0,3	600	
14 x 2,0	14 + 0,3	2,0 + 0,3	600	
16 x 2,0	16 + 0,3	2,0 + 0,3	600	
17 x 2,0	17 + 0,3	2,0 + 0,3	600	
18 x 2,0	18 + 0,3	2,0 + 0,3	600	
20 x 2,0	20 + 0,3	2,0 + 0,3	500	

Application:

- Wall heating.
- Underfloor cooling.
- Underfloor heating.
- Ceiling cooling.

Standards:

- ISO 22391.
- DIN 16833.

Approvals:

- SKZ A 522.
- Komo K77483.





System Design

Underfloor Heating Design

The process of Underfloor Heating "UFH" design will take the same route as any other heating system but with a few variations which will take into account the nature of UFH which ultimately lead to lower heat losses. This in turn means lower fuel costs for the occupier and also benefits the environment.

It is often stated that savings of between 15-40% can be found over conventional radiator systems. However there are a number of factors that will determine the fuel savings. The highest savings can be found if the UFH is combined with a renewable energy source such as an air source heat pump.

Over 50% of the heat output from an UFH system is radiant heat with the majority of the remainder made up by convective heating and a small proportion of the balance via conductive heat transfer.

Since the elevated temperature of the floor increases the rooms mean radiant temperature, it is possible to reduce the air temperature while creating a more comfortable environment for the occupants. When designing UFH systems, it is normal practice to use a 1-2°C lower design temperature.

The only exception to this is in bathrooms and en-suites where it is standard practice to use the same design temperature. This is due to the higher ventilation rates, a lower available active floor area and the room usage, therefore towel rails are recommended to supplement the UFH.

Systems are available to suit most types of floor construction with a screed solid floor, for ground level and suspended floors with heat emission plates, for upper storeys, being the most popular.

Key Components

Pipes

Polyethylene of raised temperature resistance: Due to the unique molecular structure a crosslinking is not necessary to achieve a long term temperature stability.



Coextrusion: all layers being produced simultaneously; therefore a homogeneous and very stable material bonding is created.

Due to the 5 layer technology the oxygen barrier is protected from mechanical damage.

Water Temperature Controls

Water based UFH systems work by turning the entire floor into one large low temperature radiator, which is heated via a network of pipes that are embedded within the floor.



Since the floor is so large it only needs to run at a low temperature to heat the room. This means that the water that flows around the floor needs to be at a far lower temperature than a traditional radiator system.

Maincor offer a wide range of products to control the water flow and temperature including Control Packs, Thermostatic Mixing Valves and Weather Compensators.

Underfloor Heating Manifolds

Essentially the manifold allows for every loop of UFH pipe in a building to be connected to and from the manifold in a single continuous length with no fittings in



between, completely removing the possibility of joint leaks.

If there is a fault with an individual circuit or maintenance is required, that circuit can simply be turned 'off'.

Maincor 1-12 port UFH Manifolds are supplied complete with flowmeters for ease of commissioning. Also included within the manifold arrangement are fill and drain ports, automatic air vents and fixing brackets.

Air Temperature Controls

Using a wide range of wired and radio controlled systems, including app enabled technology, means that room temperatures can be individually controlled, allowing the occupier maximum flexibility, whilst



increasing the energy efficiency of the building.



Floor Systems

Most floor finishes are able to cope with a UFH system if the underside of the floor is well insulated. Care is required to check the floor finish manufacturer's maximum temperature limits against the maximum design floor surface temperatures for a given room or space.

Some finishes that are considered to be very hard wearing are actually quite sensitive to temperature and have similarly low surface temperature limits as for wood. For example, many vinyl tiles and plastic floor coverings fall into this category.

Some refurbishment projects, such as barn conversions, can require high heating outputs, where much greater care is required and hard floor surfaces such as tiles or stone may be the only options.

The floor finish manufacturer should be able to give

specific applications. If carpet and underlay is used the combined resistance of the two would ideally be less than $0.15 \text{m}^2\text{K/W}$ which is equal to a TOG* value of 1.5. The value of the combined resistance must not exceed 0.25 $\text{m}^2\text{K/W}$ (which is equal to a combined TOG value of 2.5).

When selecting your floor finish, it is recommended that you check with the manufacturer to ensure that it is suitable for use with underfloor heating. Consideration should also be given to any adhesives that are to be used, as some will limit the floor surface temperature that can be achieved.

* 1 Tog = Thermal resistance 0.10m² K/W Always refer to the floor covering manufacturer's instructions.

Thermal Resistance of floor coverings with Underfloor Heating

Thermal Resistance	TOG	Floor Covering		
0.00m² K/W	0.0	2mm Vinyl tile, 5mm Ceramic tile, 3mm Epoxy Coating		
0.05m² K/W	0.5	25mm Marble, Cushion Linoleum, 5mm Underlay		
0.10m² K/W	1.0	9mm Carpet floor tile, 13mm Hardwood, 8mm Underlay		
0.15m² K/W	1.5	Medium pile carpet, Wood blocks, 22mm Timber laminate		
0.20m² K/W	2.0	Deep pile carpet with 5mm Underlay		
0.25m ² K/W	2.5	Deep pile carpet with 8mm Underlay		

Source: CIBSE Underfloor heating Design and Installation Guide

Wooden Floors

There are many types of wooden floors which are suitable for use with underfloor heating and there are also many different methods of installing wood floors which is also important.

Advice should be sought from a specialist timber flooring supplier in order to get expert advice and suitable materials.

Often flooring grade materials are sold and supplied in laminated form and this type of flooring enables a

greater stability to be achieved by the use of cross-ply construction and also, this helps reduce the cost.

There may be instances where hardwood floor manufactures require the floor surface temperature to be limited (usually to 27°C), and this can be achieved by using a floor surface temperature and appropriate thermostat. We would always recommend that the wood floor manufactures advice should be obtained and followed.







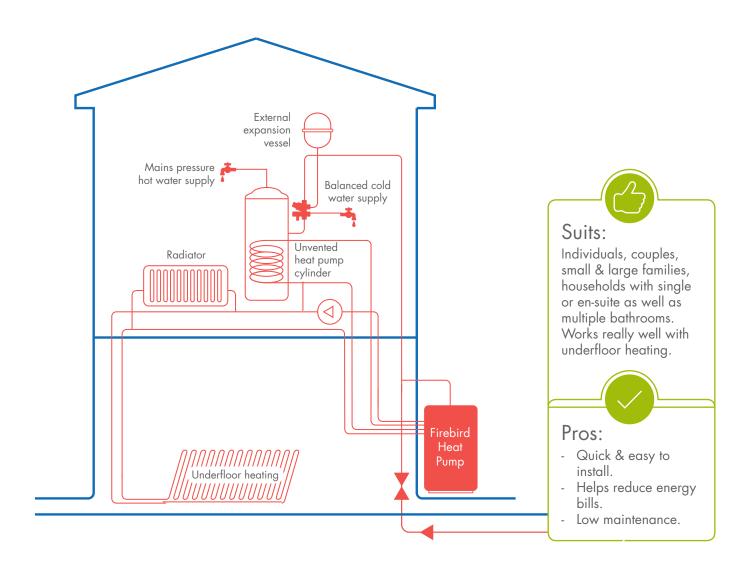
- Features an electric immersion heater for backup heating.
- Economical to run.

ERP Rating Starting From:



Envirocyl-HP Model	Capacity	Height	Diameter (mm)	ERP	
	Capacity (L)	(mm)		Rating	Standing Loss (W)
Envirocyl-HP 210	210	1496	550	С	66
Envirocyl-HP 250	250	1746	550	С	77
Envirocyl-HP 300	300	2059	550	С	88
Envirocyl-HP 210 Pre-Plumbed	210	1496	550	С	66
Envirocyl-HP 250 Pre-Plumbed	250	1746	550	С	77
Envirocyl-HP 300 Pre-Plumbed	300	2059	550	С	88

Firebird heat pump cylinders have been designed specifically for use in conjunction with a heat pump as the main source of energy. Featuring a purpose-designed coil, which allows maximum heat transfer of renewable energy into the stored water, the cylinders offer an economic and environmentally friendly way of providing domestic hot water. All units come with an electric immersion heater that can act as a boost or a backup heating.



All units supplied with:

- Inlet control set.
- Temperature & pressure relief valve.
- Tundish.
- Expansion vessel.
- Two port valves.
- Incoloy long life 3kW immersion heater.

Pre-plumbed units include:

- Pre-plumbed pipework.
- Circulating pump.
- TP9000 programmer.
- Filling loop.
- Auto bypass valve.
- Manual bottle air eliminator.



Firebird **Enviroair**

Part - L compliance made easy!



Firebird **Enviroair Hybrid Heat Pumps**

An air source heat pump is a system that transfers heat from the outside air and releases it at a higher temperature into your home.

Heat pumps also have some limitations where they have been known to have lower efficiency at low temperatures.

A simple solution to this problem is to install a backup system like a hybrid system which includes a heat pump, a boiler and a sophisticated smart control system to cater for all central heating and hot water demands.

COMPLIANCE PACKAGE FOR NEW BUILDS

Part L Compliance Consultation With Our Expert **Team Of Technical Advisors**

Assistance With Preliminary Part L Compliance Reports

> **Home Heating Design** Consultation For Your Home/Project



Hybrid Heating & Hot Water



Who we work with...



Architects/Engineers/BER Assessors

When working with Architects/Engineers/
BER Assessors, it is important that we inform
them of the latest control systems available,
allowing them to specify the best products for
their clients, which is why we have a dedicated
Specification Manager to help and assist
with ideas, ensuring the final installation is a
complete success. Contact 026 45253 or
email: newbuild@firebird.ie



Self Builders

Our presence at national exhibitions help us to demonstrate the latest products available and enable self builders to submit their planned drawings to be assessed for the best system suitable to their requirements. To ensure successful installations, our Specification Manager and technical advisors are only a phone call away. Contact 026 45253 or email: newbuild@firebird.ie



Building Contractors

We have liaised with numerous house builders from large contractors to small building companies. We realise the end product must satisfy the occupants, which is why we offer a consultancy service from the initial planning stage to final installation. Contact 026 45253 or email: newbuild@firebird.ie



Independent Installers

We supply independent trade installers with competitive prices including heat pump sizing, underfloor heating kit and installation schematics. These are available through our retail and merchant partners with branches nationwide. We offer all aspects of design with expert advise and step by step guidance across our entire product range, our high level of technical proficiency is essential to the service we provide. Contact 026 45253 or email: newbuild@firebird.je



Firebird Product Range













SALES & SPECIFICATIONS

Contact the Firebird Technical Team on 026 45253 or newbuild@firebird.ie Firebird pride themselves on offering the highest levels of customer service possible. The level of service provided is monitored on a regular basis to ensure customers' requirements are always met.



TECHNICAL SUPPORT

Our Technical Team provides customers with a comprehensive technical support package which is designed to make the specification and installation process as simple as possible. For technical support please contact the Firebird Technical Team on 026 45253 or service@firebird.ie



QUALITY

All Firebird products are produced to the highest quality standards and are put through rigorous testing procedures by external standards agencies. Every product is designed to meet a specific requirement and has been manufactured using premium quality materials to precise standards and tolerances.



WARRANTY

Firebird offers a 5 year warranty on Boilers, Heat Pumps, Solar, Stoves and Range Cookers, provided installation has occurred within 12 months from date of purchase. Full details on Firebird's warranty programme can be viewed on www.firebird.ie.



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