

Glow-worm

Nottingham Road
Belper
Derbyshire
DE56 1JT

Head Office:
01773 824 639

Literature:
01773 596 105

After Sales Service:
01773 596 510

Technical Advice:
01773 828 300
(Boilers)
08447 361 143
(Renewables)

Training:
01773 596 156

www.glow-worm.co.uk



INVESTOR IN PEOPLE

Glow•worm

Glow-worm

Straightforward Renewables

Heating, Hot Water and
Ventilation Solutions



welcome



Contents

This brochure has been developed to provide you with all the information you could ever want to know about the Glow-worm range of renewable solutions, all in one place.

Either use the contents list below to navigate straight to the exact information you are looking for, or sit down and have a good read of everything that we can do to create a perfect renewable heating and hot water system for you, making your life warm, simple and extremely energy efficient.

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Why renewables?

Using renewable energy means different things to different people. For some it works on a high level reducing our contribution to global warming. For others it is mainly on a personal level reducing fuel bills and making property attractive to future buyers.

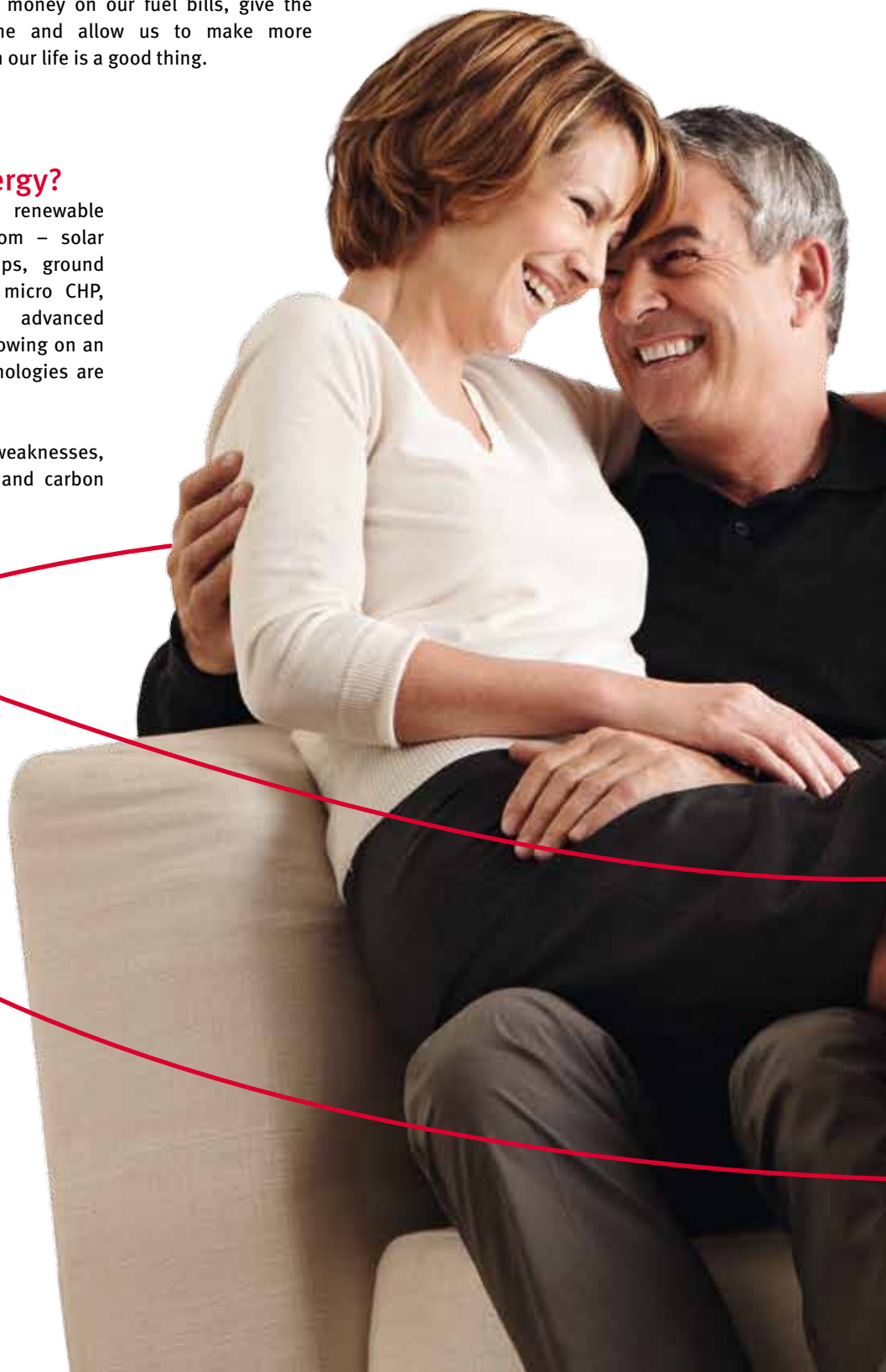
At Glow-worm, we like to think that it does both. Over a third of all UK emissions are generated in the home, so any renewable energy use or energy saving can have a big impact on our contribution to global warming.

And anything that can save us money on our fuel bills, give the family more disposable income and allow us to make more responsible choices elsewhere in our life is a good thing.

Which renewable energy?

There are various types of renewable energy solutions to choose from – solar thermal, air source heat pumps, ground source heat pumps, biomass, micro CHP, solar photovoltaics (pv) and advanced Hybrid technology. The list is growing on an almost daily basis as new technologies are developed.

All have different strengths and weaknesses, capital costs, payback periods and carbon savings.



Basic guide to renewable technologies

Solar Thermal: Provides hot water for the home by capturing solar energy through flat plate collectors or evacuated tubes on your roof and uses it to heat hot water in your cylinder. It usually works in tandem with a high efficiency boiler which provides your heating.

Air to Water Heat Pumps: Provides heating and hot water by taking energy from outside and transferring it to the heating system via a heat pump, using the principle of vapour compression (or the refrigeration cycle as it is more commonly known).

Air to Air Heat Pumps: This is essentially an air conditioning unit working in reverse, drawing air into the unit, heating it up and pumping it out into the room to warm it rather than cool it.

Ground Source Heat Pumps: Draws energy from the ground and converts it via the heat pump into useful energy that can provide your heating and hot water.

Mechanical Ventilation with Heat Recovery: This works by drawing in the energy that you would normally extract (e.g. in the kitchen and bathroom) and uses it to heat the fresh air that is sucked in from the outside. Then the warm air is fed into other rooms in the house like bedrooms and the living room via air ducts. This solution needs to be designed into the house before it is built.

Biomass: Generic term for a heating and hot water system which creates energy by burning wood pellets, wood chips, waste products or bio-oil. This is most suitable for non-gas areas or light commercial applications.

Solar Photovoltaics: This isn't actually a way of heating your house at all, instead you generate electricity through the solar panels on your roof which you can use in your own home and/or sell back to the national grid. This technology can be used as part of the government's Feed in Tariff (FiT) scheme.

Micro CHP (combined heat and power): Various technologies are used to achieve this including combustion engines, stirling engines and fuel cells. They all provide heat and hot water for the property whilst simultaneously generating electricity that can be fed back to the grid offsetting the energy used in the house. mCHP is a good future technology, but not yet developed and proven enough to be considered a mainstream option.

Advanced Hybrid technology: The development of Hybrid technology, where two or more fuel sources can be used, allows advanced systems to offer real cost and environmental benefits to the user.

Glow-worm's revolutionary heating and hot water system; Clearly Hybrid, offers homeowners the UK's first renewable Hybrid system that automatically chooses when to use low carbon renewable energy from the heat pump or traditional energy from the High Efficiency boiler, to always deliver cost effective heating and hot water.

Why choose Glow-worm?



At Glow-worm we specialise in the most practical and straightforward renewable energy solutions that are ideally suited to the average UK house:

- Clearly Solar - Solar Thermal
- Clearly Heat Pumps - Air to Water Heat Pumps
- Clearly Heat Recovery - Mechanical Ventilation with Heat Recovery
- Clearly Hybrid – the UK’s first hybrid renewable heating system that thinks for itself

All supported from beginning to end by Glow-worm’s experienced pre and after sales services, assisting you to make the right choices in this new world of heating and hot water technologies.

Straightforward systems

Whatever energy source you choose, ultimately it is a heating and hot water system, and that is exactly what Glow-worm have over 75 years experience of dealing with; we know them inside and out. We also know that as with your traditional heating system, even if you are using renewable energy you still want your system to be easy to install, easy to use and provide totally reliable heating and hot water comfort day in, day out.

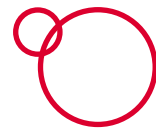
Quality assured

As part of one of the world's largest heating manufacturing groups, we use our extensive skills and expertise to ensure each of our products are produced to the highest standards. Constant product development and innovative manufacturing practices create first class, quality products, which are constantly being re-affirmed by independent institute tests – so you don’t just have to take our word for it.



Beginning to end support

As well as providing durable, reliable products, Glow-worm supports you from the beginning of your installation to the end of the product life, from design, technical help, extensive training courses and specialist on-site support to a nationwide after sales and spares network, Glow-worm provide you with expert help and support whenever you need it.



Clearly Solar

Straightforward Solar Thermal Solution

Designed specifically for use on UK homes, Clearly Solar has everything you need to look for in a flat plate solar thermal solution. Glow-worm's Clearly Solar system delivers between 50 and 60% of your domestic hot water every year. In the summertime it can be as high as 100% which means that your boiler may never have to fire up, saving energy and money.

Robust and subtle design

Clearly Solar comes in a really simple pack solution ensuring that you have everything you need for your solar thermal installation. The flat plate collectors are made from black anodised aluminium which makes them hard wearing, robust and very subtle, neatly fitting into or onto your roof. Alternatively, if the inclination or aspect of your roof is not perfectly suited for a solar installation, Clearly Solar can also be installed on A-frames which are extremely easy to construct and site on a flat roof or in a garden.

Total compatibility

Clearly Solar is a pressurised system, meaning that it is completely full of heat transfer fluid and sealed from the atmosphere (a similar concept to a sealed heating system). As with all Solar Thermal systems, you will still require a secondary heat source to provide your central heating. Clearly Solar is fully compatible with all new and existing open vent and sealed system boilers (including the complete Glow-worm range).



Clearly Solar system

5 key components join together to create a Clearly Solar system: the flat plate collectors; a twin coil cylinder; Solar Pump Station; Solar controller and a High Efficiency Open Vent or Sealed System boiler.

Clearly Solar Flat Plate collectors

Robust and subtle flat plate collectors.

Construction

- Black anodised aluminium frame
- Serpentine absorber made of copper
- Solar glass thickness 3.2mm (tough and resistant to vandalism)
- Absorber laser welded and not soldered, suitable for high temperature
- High selective absorber coating
- 10 year warranty on Clearly Solar collector

Fixing

- Horizontal and vertical collectors available
- Mounting accessories for pitched roofs (on-roof and in-roof)
- A-frame for flat roofs

Performance

- Leading performance flat plate collector
- Light transmission 91%
- Solar radiation absorption 95%
- Solar radiation emission 5%
- Shutdown temperature 210°C
- 40mm insulation for improved efficiency

Dimensions

- Dimensions 1.23 x 2.03m
- Gross collector area 2.51m²
- Absorber surface areas 2.35m²
- Low flat plate weight only 38kg
- Total depth 80mm achieving low protrusion within threshold normally required for planning permission



Clearly Solar Twin Coil Cylinder

High recovery stainless steel twin coil solar cylinder which evenly heats the domestic hot water.

- Compatible with all open vent and sealed systems including the full range of Glow-worm boilers
- Available in 200, 250 and 300 litres
- High grade stainless steel cylinder with laser welded seams
- Insulation meets CH₂SS best practice (loss as low as 1.9kWh/24 hours)
- 25 year warranty on cylinder shell
- 554mm width for flexible siting, narrow enough to fit through any standard airing cupboard door
- 3kW immersion heater as standard
- Supplied with thermostatic mixing valve and 3 thermal cut outs all fully integrated and approved
- Supplied with carrying handle for ease of transportation



Clearly Solar controller

Easy to use and intelligent solar controller – the brains of the operation. Uses solar gain modulation to steadily pulse the solar fluid into the bottom coil of the cylinder, ensuring that the boiler does not fire up until it really has to.

- Differential temperature control
- East / West system control (additional collector sensor and pump station connection)
- Solar gain modulation
- Solar gain display
- Temperature sensors
- Two channels for solar and auxiliary heating (boiler)
- Easy wiring connections
- Boiler heating delay function (similar to optimum start)



High Efficiency boiler

- Clearly Solar Twin Coil Cylinder is fully compatible with all open vent and sealed systems, including the full range of Glow-worm boilers



Clearly Pump Station

Compact 3 speed pump which can match the flow rate of a wide range of properties.

- 6m head pump
- Integrated flow meter
- 2 check valves ensures the heat stays in the cylinder rather than transferring back to the collector
- Expansion vessel connection
- Integrated flow adjuster and meter

Clearly Solar Straightforward ordering

Glow-worm has created a series of prepared packs designed to provide you with all the necessary components needed to complete the installation .

The simple 3 step process takes you through all the selections you need to make.

Developer packs

If you're a developer, we know that you don't always want all of the Solar System delivering to site at the same time. Glow-worm have created a series of developer specific packs that split the order into two deliveries, first delivering the external fix items (like the panels), then once you're ready, the final items to complete the installation.



3 step ordering

Step 1: Select a flat plate panel pack

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Clearly Solar Flat Plate Collectors are available to order for either on-roof or in-roof installations in either small (1 panel), medium (2 panel) or large (3 panel) packs for either horizontal or vertical installations. The flat plate packs also include the controller, pump station, expansion vessel, solar fluid, hydraulic connections and roof brackets or in-roof kit.

Step 2: Select a pipe work pack

Page 48

The Clearly solar pipe work pack is a simple grab and go solution which contains all necessary fittings and enough pipe to plumb a typical solar solution. The insulated flexible pipe has compression fittings, no joints, an integral sensor wire and is fully insulated to keep as much heat in the solar fluid as possible.

Step 3: Select a Cylinder Pack

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Clearly Solar Twin Coil Cylinder packs are available in 200, 250 or 300 litre versions.

Fixings & Accessories Page 48

Clearly Solar can also provide a wide range of accessories to give you flexibility of installation. This includes a variety of fixing brackets to suit all types of roof tiles and tools to help you out on the job including harnesses and filling pump.



NEW

Clearly Heat Pumps 7, 12 & 14kW

Glow-worm's new straightforward air to water heat pump system - designed for hassle free installation and complete heating comfort

At Glow-worm, we specialise in creating the most practical and straightforward air to water heat pump solutions for homes across the UK.

Utilising next generation technology, Glow-worm's new Clearly Heat Pumps range offers a high performance Central Heating and Domestic Hot Water solution for a wide range of domestic properties.

The new 7, 12 and 14kW models combine high performance inverter compressor technology with straightforward and hassle free installation to form the basis of a brand new Clearly Heat Pumps range.

Simple and quick installation

The Clearly Heat Pumps range has been designed to make installation as straightforward and hassle free as possible.

The heat pump unit itself is simple to install, being prefilled with non ozone depleting R410a refrigerant, meaning no F gas qualifications are required for installation, and advances in the range's new Hydraulic Module also eliminate the need to fill the whole system with glycol, saving time and cost on installation. With a choice of delivery options either to a merchant branch or direct to site, the new Clearly Heat Pumps range is designed with the installer in mind.



Complete system control

As a complete home heating system, the new Clearly Heat Pumps system fits neatly into a wide range of UK homes, and offers homeowners simple control of their specific heating and hot water requirements for each part of every day, using the innovative Climapro₂ RF handheld programmable room thermostat.

Green credentials

With an impressive Coefficient of performance (CoP) of up to 4.06*, the new Clearly Heat Pumps range delivers excellent green credentials with possible carbon savings of up to 40%** . The new range can contribute significantly towards meeting a range of environmental legislative targets, can help to achieve level 4 of the Code for Sustainable Homes, and has been designed to take advantage of future government funding initiatives such as RHI.

* Air 7/Water 35 (EN 14511)

** When replacing an older, standard efficiency boiler

Key benefits

- Straightforward range of air to water heat pump systems for high-performance central heating and domestic hot water
- 7,12 and 14kW output models available
- Range features innovative inverter compressor technology
- MCS-accredited range
- Hydraulic module eliminates the need for glycol in the central heating circuit
- No additional buffer vessels required - creating one compact space-saving system
- Can deliver significant carbon savings and help to achieve level 4 of Code for Sustainable Homes
- Quick and easy installation with no F gas qualifications required
- Ultra-quiet operation
- One complete system: heat pump, hydraulic module and controls in a package that's simple to order
- Can be used in conjunction with the intuitive Climapro₂ RF handheld programmable room thermostat



Clearly Heat Pumps 5kW



Clearly Heat Pumps 5kW is an extension to the Clearly Heat Pumps range, combining high performance renewable technology with straightforward installation. Clearly Heat Pumps 5kW uses highly efficient renewable technology to provide central heating and domestic hot water for smaller properties.

This highly efficient heat pump system provides excellent green credentials and can help to meet a range of environmental legislative targets. Clearly Heat Pumps 5kW can deliver carbon savings of over 40%* and can be used to help achieve level 4 of the Code for Sustainable Homes. Clearly Heat Pumps 5kW also has full MCS Accreditation meaning that it is eligible for possible RHI funding.

*When replacing an older, standard efficiency boiler



Installation and servicing are made straightforward and hassle free with no F gas qualifications needed to install and no need for glycol in the central heating circuit. All components are easily accessible within the compact unit and no separate expansion vessels or additional buffer vessels are required, making this one of the most installation friendly heat pumps available on the UK market.

The EnviroSorb 5 Heat Pump unit can be used in the standalone Clearly Heat Pumps 5kW system to provide excellent efficiencies from an air to water heat pump system, or can also be used as part of the revolutionary Clearly Hybrid system – the UK's first intelligent Hybrid renewables domestic heating system, which always provides the most cost efficient method of heating the home. For more information about Clearly Hybrid see page 20.

Key benefits

- Highly efficient heating and hot water solution for smaller properties
- One complete system: includes system control unit, wireless outdoor sensor & Climapro₂ RF wireless programmable control
- Compact in size
- Ultra quiet operation
- Quick and straightforward to install & service, with no F Gas qualifications required
- No Glycol needed in the central heating circuit
- Hydraulic module including small buffer vessel, expansion vessel, circulating pump, filling valves, PRV and in line heater
- MCS accredited
- Can help to achieve Code for Sustainable homes level 4
- Comprehensive back up from nationwide after sales service
- Can be used in conjunction with the intuitive Climapro₂ RF handheld programmable room thermostat



Clearly Heat Pumps

System components

Envirosorb₂ (for Clearly Heat Pumps 7, 12 & 14kW)

7, 12, & 14kW models available

The air to water heat pump offers a slimline and attractive outdoor unit solution. The impressive Envirosorb₂ also benefits from advanced inverter compressor technology.

Dimensions

7kW Model: 821mm x 908mm x 326mm

12 & 14kW Models: 1363mm x 908mm x 326mm

Key features

- 7, 12 and 14kW models feature inverter technology
- No F gas qualifications needed for installation
- Prefilled with R410A non ozone depleting refrigerant
- All components easily accessible for installation/ servicing
- Excellent coefficient of performance up to 4.06*
- High flow temperature up to 60°C

*Measured at air temperature 7°C and water at 35°C



Envirosorb 5 (for Clearly Heat Pumps 5kW)

5kW model available

The slimline air to water heat pump is extremely quiet and very compact. With a COP of 3.73 it produces almost 5kW of heat energy which can be used for central heating and domestic hot water.

The brand new heat pump is also incredibly straightforward to install with no F Gas qualifications required and no glycol needed in the central heating circuit.

Dimensions

935mm x 880mm x 345mm

Key features

- Slimline and compact monobloc outdoor unit
- High COP efficiency of 3.73*
- Uses non ozone depleting R410a refrigerant
- No F-gas qualification needed to install
- Extremely quiet – modulating DC fan speed of 180-660rpm
- All components easily accessible for servicing/replacement

*Measured at air temperature 7°C and water at 35°C





Hydraulic Module SA

The Hydraulic Module contains the circulating pump, which transfers the heat generated by the heat pump into the heating system. The Hydraulic Module also separates the heat pump circuit from the central heating circuit meaning that you don't need to fill the whole system with glycol anti-freeze. The Hydraulic Module in itself is compact and easy to install, as no separate expansion vessel or additional buffer vessels are required.

Dimensions

890mm x 418mm x 370mm

Key features

- Single indoor unit
- 6 kW immersion heater to ensure maximum end user comfort
- Incorporates two three way valves for easy filling of the glycol circuit

Climapro₂ RF

Glow-worm's most intuitive and user friendly control; Climapro₂ RF is the main point of interaction with the system for the homeowner. The handheld control enables homeowners to simply and quickly programme their specific heating and hot water requirements in detail, from the comfort of their armchair.

Key features

- Wireless, programmable room thermostat for complete time and temperature control
- Large backlit display
- Handheld unit, can be wall mounted or taken around the home
- Provides room and weather compensation when combined with wireless outdoor sensor



Systempro

The Systempro acts as a central installer interface, where maintenance menus, fault history, system parameters, etc. can all be accessed.

Dimensions

290mm x 264mm x 45mm

Key features

- The wiring centre and system controller
- Central installer interface
- No need for end user interaction
- Can be used to control a multi-zone system

Wireless outdoor sensor

The Glow-worm wireless outdoor sensor intelligently communicates the outside temperature to the rest of the system to provide weather compensated flow temperatures for maximum efficiency. The sensor is small and discreet, and no wiring is required between the unit and the rest of the system.

Key features

- Works on indirect sunlight, which charges the inbuilt PV cells
- No maintenance required
- Simple and quick to install



Glow-worm cylinder

Clearly Heat Pumps is compatible with Glow-worm's range of stainless steel twin coil hot water cylinders (5-12kW models only)

Introducing Clearly Hybrid - The hybrid renewa

In today's rapidly developing market, saving on fuel bills and reducing carbon footprints are high up on every homeowner's wish list. This is why Glow-worm continually work to provide the very best heating and hot water systems, using the latest technology and expertise to create heating solutions which not only fit the bill today, but also look after tomorrow.

Over 75 years knowledge and experience of bringing market leading heating and hot water systems to homes across the country, means we've learnt a thing or two about delivering innovative and reliable products that are straightforward, dependable and designed with you in mind.

Now we're taking the next step...

Clearly Hybrid is the UK's first hybrid renewable domestic heating and hot water system which uses advanced controls to select the most cost effective method of heating at any time.

The Clearly Hybrid system combines the use of a new Glow-worm boiler, such as the Ultracom₂, with the Enviro-sorb 5 air to water heat pump. The revolutionary heating system automatically selects when to use low carbon renewable energy from the heat pump or traditional energy from the High Efficiency boiler, to always deliver cost effective heating and hot water to your customers.

The Clearly Hybrid system provides a perfect solution for consumers and organisations that are looking to use new, yet proven, technologies to deliver cost effective heating and reduce their carbon footprint.

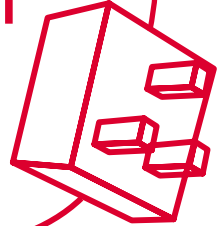


Hydraulic Module HB



Glow-worm High Efficiency boiler (Ultracom₂)

ble heating system that thinks for itself



Envirosorb 5



Systempro



Wireless outdoor sensor



Climapro₂ RF

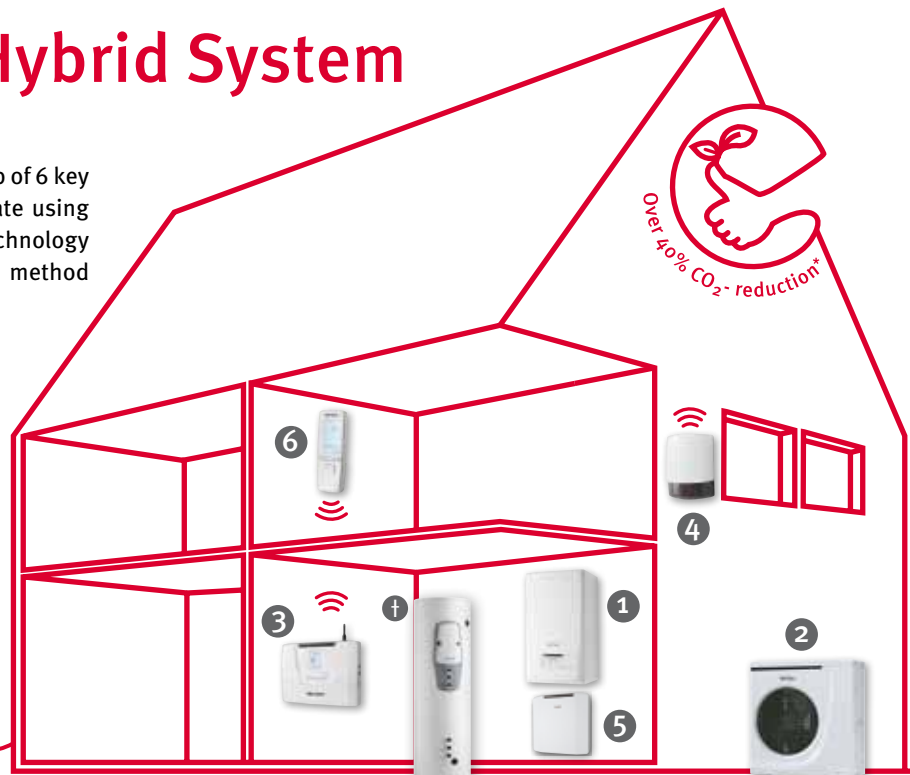
Key benefits of Clearly Hybrid

- Automatically chooses the most efficient fuel source - cost effective operation and lower carbon footprint
- One complete package: heat pump, hydraulic module and control - easy to install and commission
- Use with any new Glow-worm High Efficiency boiler: combi, system and open vent models
- Includes Glow-worm's high performance Envirosorb 5 air source heat pump
- Full system with clear and simple operating controls
- Can achieve over 40% carbon savings*

*When replacing an older, standard efficiency boiler

The Clearly Hybrid System

The Clearly Hybrid System is made up of 6 key elements which cleverly communicate using Glow-worm's advanced eBus technology to always select the most effective method of heating.



† Glow-worm cylinder

Clearly Hybrid is compatible with Glow-worm's range of stainless steel twin coil hot water cylinders (sold separately), when using a system or open vent boiler.

* Possible when replacing an old standard efficiency boiler



1 Glow-worm High Efficiency boiler (Such as Ultracom₂)

The Clearly Hybrid system is compatible with a range of Glow-worm combi, system and open vent High Efficiency boilers. The High Efficiency boiler provides cost effective support to the system whenever gas is the preferred fuel source for use, whilst also ensuring comfort and familiarity to the homeowner.

Dimensions

(Typical dimensions for Ultracom₂ cxi)
740mm x 418mm x 346mm

Key Features

- High Efficiency boiler providing reliable domestic hot water and heating support
- Provides security of traditional heating system to homeowner
- Wide range of combi, system and open vent models with outputs ranging between 12kW - 35kW
- Wide choice of flueing options available
- Straightforward to install and easy to use



2 Envirosorb 5

The slimline air to water heat pump is extremely quiet and very compact. With a COP of 3.73 it produces almost 5kW of heat energy which can be used for central heating.

The heat pump unit communicates with the rest of the Clearly Hybrid system to provide heating whenever it is most cost effective to do so. The brand new heat pump is also incredibly straightforward to install with no F Gas qualifications required and no glycol needed in the central heating circuit.

Dimensions

936mm x 880mm x 345mm

Key features

- Slimline and compact monobloc outdoor unit
- High COP efficiency of 3.73*
- Uses non ozone depleting R410a refrigerant
- No F-gas qualification needed to install
- Extremely quiet – modulating DC fan speed of 180-660rpm
- All components easily accessible for servicing/replacement

*Measured at air temperature 7°C and water at 35°C



3 Systempro

The Systempro provides the intelligence behind the Clearly Hybrid system, and frequently communicates with each element of the heating system to optimise it for energy use, and select the most cost efficient method of heating. The Systempro acts as a central installer interface, where the homeowner energy tariff ratio is programmed, and maintenance menus, fault history, system parameters etc can all be accessed. Following installation, there is no need for the end user to use this part of the system, unless they want to update their energy tariffs.

Dimensions

290mm x 264mm x 45mm

Key features

- The wiring centre and system controller
- Central installer interface
- No need for end user interaction
- Uses intelligent eBus technology to coordinate entire Clearly Hybrid system
- Can be used to control a multi-zone system



5 Hydraulic Module HB

This houses the circulating pump which transfers the heat generated by the heat pump into the heating system. The Hydraulic Module also separates the heat pump circuit from the central heating circuit meaning that you don't need to fill the whole system with glycol. The Hydraulic Module in itself is compact and easy to site, as no separate expansion vessel or additional buffer vessel are required.

Dimensions

431mm x 414mm x 157mm

Key features

- Compact and discreet unit; designed to be housed close to the boiler
- Separates the heat pump circuit from the main central heating system eliminating the need for glycol antifreeze in the central heating circuit



4 Wireless outdoor sensor

The Glow-worm wireless outdoor sensor intelligently communicates the outside temperature to the rest of the system to provide weather compensated flow temperatures for maximum efficiency. The sensor is small and discreet, and is paired with the Systempro on installation meaning no wiring is required between the unit and the rest of the system.

Key features

- Works on indirect sunlight which charges the in-built PV cells
- No batteries required meaning minimal maintenance
- Simple and quick to install



6 Climapro₂ RF

Glow-worm's most intuitive and user friendly control; Climapro₂ RF is the main point of interaction with the Clearly Hybrid system for the homeowner. The handheld control enables your customers to simply and quickly programme their specific heating and hot water requirements in detail, from the comfort of their armchair.

Key features

- Two channel wireless programmable room thermostat for complete time and temperature control of central heating and domestic hot water
- Large backlit display
- Simple handheld unit which can be wall mounted or portable within the home
- Provides room and weather compensation when combined with wireless outdoor sensor

Clearly Heat Recovery

Straightforward Mechanical Ventilation with Heat Recovery system

New practices for improving the fabric of a building to prevent heat loss, leaves the builder with the complex issue of maintaining air filtration and purity within the property. Sealed properties can lead to poor ventilation and the air becoming stale and humid. Such conditions allow dust mites and other Asthma associated allergies to thrive leading to potential health issues. As a result, part F of the Building regulations enforces the need for air purity through ventilation in the home. Mechanical Ventilation with Heat Recovery offers a simple and straightforward whole house solution, suitable for a wide variety of domestic dwellings.

Ventilation and heating in one unit

Clearly Heat Recovery is a single unit, light weight, whole house solution. Mechanical Ventilation with Heat Recovery is capable of recovering up to 85% of the wasted energy in the home*, an ideal solution for medium to larger sized new build properties.

* As measured by the BRE



Advanced home comfort system

Usually installed into a loft space, Clearly Heat Recovery is a discreet and compact solution, containing a tried and tested aluminium heat exchanger capable of operating at temperatures as low as -7°C . The two circulating fans only use minimal levels of electricity and are constructed from lightweight sound-absorbing Polypropylene creating an extremely quiet unit that is designed to be left running 24 hours a day to provide continuous home ventilation.

SAP Appendix Q listed for the extraction of air from up to 7 wet rooms in a domestic property, Glow-worm's Clearly Heat Recovery can be installed quickly and easily into rigid duct systems with minimum fuss thanks to multi-sized connections that come complete with the unit.

Glow-worm's Clearly Heat Recovery system can be used as part of a whole house climate solution and will integrate with a High Efficiency domestic boiler and all other renewables solutions from Glow-worm, providing you with an energy efficient and cost effective advanced home comfort system.



Cooling - with fresh air bypass

A fresh air by-pass is supplied as an optional accessory on both models. This automatically controlled accessory allows cooler external air to be directly supplied to the living spaces, providing 'free' cooling within homes during warm summer evenings.



Clearly Heat Recovery system

2 key components join together to create a Clearly Heat Recovery system: the Heat Recovery unit and the system controller.





Clearly Heat Recovery unit

Single, light weight, whole house unit capable of recovering up to 85% of the wasted energy in the home.

- 2 units available medium (HRD 275) or large (HRD 350)
- Aluminium heat exchanger
- Lightweight at 42 & 47kg
- Extracts from kitchen and up to 7 further 'wet' rooms
- Easy to change pull-out filters (grade 3)
- Optional high grade (F6) filters available
- Can be connected to different sizes of ductwork without the need for reducers/adaptors
- Can be operated by a simple 3 position switch if required (not supplied)
- Supplied with a 3 pin plug
- Easy to hang – wall bracket supplied
- 2 years parts and labour warranty as standard



Clearly Heat Recovery controller

Simple, 7 day, 24 hour control to automate the ventilation requirements of the home.

- 24 hrs / 7 day hard wired remote controller
- 3 daily programmable time windows
- Economy function
- Party mode for instant boost
- Filter change alert
- Positioned up to 30m from unit
- Automatically operates fresh air bypass (where fitted)
- Calculates energy saved in kW/h in cooling mode when bypass fitted
- Easy diagnostic fault codes
- Automatically controls fan speeds after set up

SAP Appendix Q listed and EST recommended

Glow-worm Clearly Heat Recovery units are listed under SAP appendix Q for the purpose of SAP assessments of ventilation products. These products have been approved for extraction of air from the kitchen and up to 7 wet rooms. In addition the HRD 275 medium sized unit also qualifies as an Energy Savings Trust 'Best Practice' appliance.

The quoted efficiency figures of 85% (HRD 275) and 80% (HRD 350), have been calculated using the BRE's strict test procedures.

For more information please visit: www.sap-appendixq.org.uk





Boilers & controls working effortlessly with renewables

Heating systems at the core

If your chosen renewables system requires a boiler or you have decided that a traditional heating system is still the best option for you, Glow-worm's range of High Efficiency boilers has been developed over many years to meet the needs of UK homes.

From the advanced Ultracom range with a choice of flexible controls to the flexible and compact Flexicom which will fit just about anywhere, Glow-worm has a solution that will meet your needs. Constant product development and innovative manufacturing practices ensure that we provide you with first class, quality products, which are constantly being re-affirmed by independent institute tests.

Optimising your traditional heating system

By pairing your boiler with intelligent controls which adjust the flow temperature of the water to the central heating system based on the temperature measured in the room, you can simply optimise your heating system.

Or to go a step further you could add weather compensation to your traditional system. Just like many of our renewable systems, by adding a simple outdoor sensor it will also take into account the external temperature and adjusts the operations of the system accordingly.

Both solutions make your boiler work in or closer to the condensing mode, reducing energy costs and creating a more stable and comfortable room temperature.

Whatever your decision, over 75 years of experience ensures that at Glow-worm we understand heating systems and are totally committed to delivering straightforward and dependable products designed with you in mind.



Expert support from start to finish

As well as providing straightforward renewables systems with easy ordering and totally flexible delivery, Glow-worm supports you from the beginning of your design process through installation right to the end of the product life. From design, technical help, extensive training courses and specialist onsite support to a nationwide after sales and spares network, Glow-worm provide you with expert help and friendly support whenever you need it.

Always within reach, always there for you

Head office:
01773 824639

Design Service
0116 2392393

Literature:
01773 596105

Spare Parts
01773 596020

After Sales Service
01773 596510

Technical Advice:
01773 828300
(Boilers)
08447 361143
(Renewables)



Top-class service

System design

Good designs are incredibly important if you are going to get the highest level of efficiency and pay back from a renewables system. Our expert design service is completely tailored to suit your individual site requirements. Using the latest state of the art CAD technology we provide high quality designs supported by full indemnity cover.

Our expert systems technologies team will also provide planning and on site support for the most unique and challenging of renewables projects.

Straightforward delivery

Glow-worm will deliver your renewables system anywhere you want, be it direct to site or to your local trade counter where you placed your order. Our standard delivery service is 3 – 5 days from receipt of order, but you can choose a next day or timed delivery if you need things quicker.*

To ensure the site is ready to accept the delivery, we will call when we are 1 hour away from the delivery destination and will arrive with all the correct lifting equipment to ensure that the product is safely transferred to site – life couldn't be easier.

*Subject to an additional charge

Technical help

If you are planning or even in the middle of an installation and have a technical question you need answering, simply call our technical help line for a straightforward answer.

Assisted commissioning*

Service engineers will visit the installation, and support you through the first system commissioning, helping with the final stages and handover of the installation as needed.

*A charge may apply for this service

Full local support

Our nationwide sales team provide installers and specifiers with support and partnership from beginning to end.

Nationwide after sales service

We are committed to supporting you with technical help and after sales service online, over the telephone and on the road.

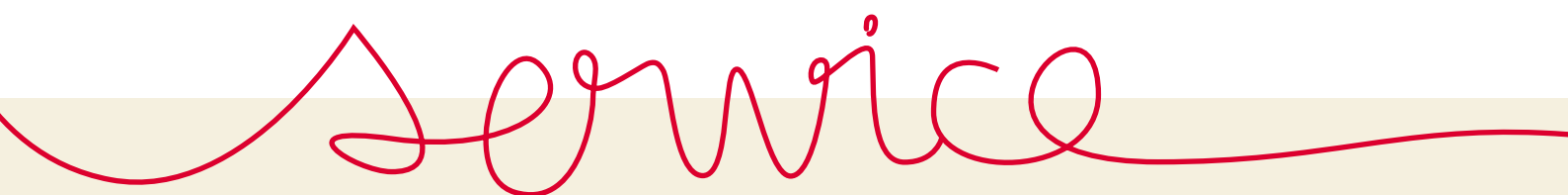
Our national network of 230 fully trained engineers based across the UK, each carrying over 1,500 different spare parts in their van, enables us to offer next working day or sooner response and an outstanding 97% first time fix. Our renewable engineers are fully trained on either solar or heat pumps. All our service engineers are Gas Safe registered.

Spares

Glow-worm has a network of dedicated approved spare part distributors in over 680 outlets across the UK. Each stockist has been approved by us and commits to hold the majority of Glow-worm spares requirements at any one time; otherwise it's only a call away! All our approved stockists sell only genuine Glow-worm spare parts. These have been endorsed as meeting the original safety and performance specification of our appliances, giving you the confidence that you're buying genuine spare parts for the maintenance repair of your customer's Glow-worm appliance.

Online information

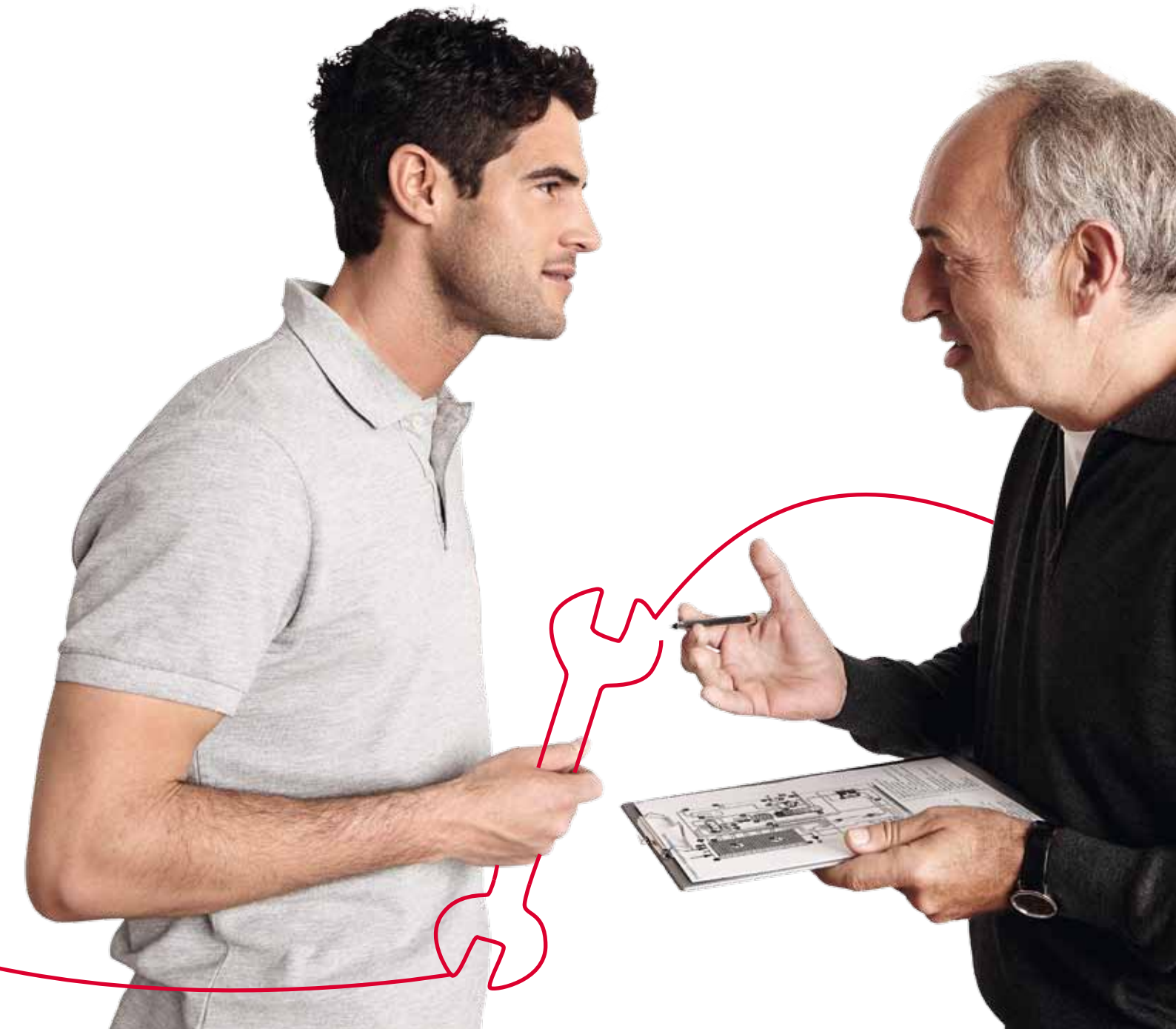
If you require standard technical advice information such as installation manuals and don't want to spend time on the telephone, visit our website at www.glow-worm.co.uk where you will find comprehensive technical information, solutions to common installation, system problems and advice on energy saving.



Market leading installer training

Here at Glow-worm, we believe that knowledge is the key to success, particularly in the new world of renewable technologies. This is why we offer installers a range of courses to keep you up to date with technological advances and industry regulations. Each year Glow-worm provides straightforward, industry leading no-nonsense training for thousands of professionals.

With state of the art training facilities located throughout the UK and each course only taking one or two days to complete, minimum time is taken away from the job. Our training is delivered by fully qualified practitioners in a relaxed and informal environment supported by a full reference materials and technical data sheets which you will take away with you, and we won't let you go hungry either as lunch and all refreshments are provided.



Training Centres

Glow-worm have five renewables training centres across the UK providing comprehensive training on solar thermal, air to water heat pumps and mechanical ventilation with heat recovery as well as our complete range of high efficiency boilers.

Training centres

Renewables training centres

Cambridge

Elland (Near Leeds)

Belper (Near Derby)

Bristol

Slough

Book Glow-worm training:

To book a training course at any of our four venues listed above, contact us by phone, email or online via the Glow-worm website.

Training: 01773 596156

Email: training@glow-worm.co.uk

Web: www.glow-worm.co.uk

Clearly Solar product training

1 day - £40.00 per person inc VAT

Full training on the Glow-worm Clearly Solar range, including insight into general solar thermal theory.

Solar BPEC course

2 day - £411.25 per person inc VAT

Intensive hands on course providing in-depth training on all domestic solar thermal systems including roof work. The course is certified through an examination at the end of the two days, providing you with a BPEC solar accreditation which is required to gain MCS approval.

BPEC Unvented DHWSS

1 day - £158.60 per person inc VAT and BPEC registration fee.

G3 is a mandatory qualification that you must hold when installing unvented cylinders. At the end of this 1 day course you will be fully qualified to work with unvented cylinders. A G3 unvented qualification must be held before taking a BPEC course.

BPEC Unvented DHWSS (Defined Scope)

1 Day - £158.60 per person inc VAT and BPEC registration fee.

Designed for a Specifier or contractor who wants to fully understand sealed systems, but does not need to be qualified to install at the end of the course.

BPEC Unvented DHWSS (Renewal)

Half Day - £92.50 per person inc VAT and BPEC registration fee.

For renewing existing G3 DHW certificate (after 5 years). A half day course focusing on refresher and updates prior to assessment.

Clearly Heat Pumps & Clearly Hybrid product training (Inc. 5kW)

1 day - £40.00 per person inc VAT

Full training on the complete Glow-worm range, including Clearly Heat Pumps 5, 7, 12 & 14kW and Clearly Hybrid.

Clearly Heat Recovery product training

1 day - £40.00 per person inc VAT

Full training on the Glow-worm Clearly Heat Recovery range, including insight into general Mechanical Ventilation with Heat Recovery theory.

MCS quality management course

Our training courses are continually reviewed to ensure they are up to date with the very latest legislative changes and new requirements.

Our new MCS quality management course aims to give renewable installers a helping hand in getting MCS certificated for solar thermal and heat pumps – a necessary certification for applying for government's funding programmes initiatives such as Renewable Heat incentive (RHI) or Feed in tariffs (FiT).*

* Current understanding at time of print

Solar Flat Plate technical specifications

Clearly Solar Flat Plate Collectors

	Vertical collector SRV 2.3	Horizontal collector SRH 2.3
Dimensions & weight		
Orientation	Vertical (Portrait)	Horizontal (Landscape)
Height / Width / Depth (mm)	2035 / 1233 / 80	1233 / 2035 / 80
Overall collector area (mm)	2.51	2.51
Aperture area (m2)	2.35	2.35
Absorber area (m2)	2.32	2.32
Weight (empty) (kg)	38	38
Capacity (solar fluid) (l)	1.85	2.16
Performance		
Solar glass transmission (%)	91	91
Solar radiation absorption (%)	95	95
Solar radiation emission (%)	5	5
Efficiency η_0 (%)	79.0	80.1
Efficiency coefficient a1 (W/M ² K)	2.41	3.32
Efficiency coefficient a2 (W/M ² K ²)	0.049	0.023
Max operating pressure (bar)	10	10
Stagnation temperature (°C)	210	210
Certification	CE 0036 & Solar Keymark	CE 0036 & Solar Keymark
Materials & construction		
Absorber Sheet	Aluminium	Aluminium
Absorber plate coating	Sunselect (selective)	Sunselect (selective)
Absorber tube	Copper	Copper
Absorber tube joints	Laser welded	Laser welded
Frame Aluminium	Extruded sides / sheet rear	Extruded sides / sheet rear
Glazing	Safety glass (low iron), 3.2mm	Safety glass (low iron), 3.2mm
Rear insulation	40mm	40mm
Solar fluid	Water / propylene glycol	Water / propylene glycol
Flow / return connections	DN 16 (G3/4")	DN 16 (G3/4")



Solar Twin Coil Cylinder technical specifications

Clearly Solar Twin Coil Cylinders

	200 Litres	250 Litres	300 Litres
Dimensions & weight			
Height / Width / Depth* (mm)	1499 / 554 / 598	1789 / 554 / 598	2109 / 554 / 598
Length of the immersion heater (mm)	430	430	430
Weight empty / full (kg)	39 / 245	44 / 310	49 / 340
* Excluding clearances for connecting fittings / pipework			
Performance			
Capacity (l)	200	250	300
Reheat capacity (boiler) (%)	63	63	60
Heat up time (boiler) (mins)	21	26	30
Recovery time (boiler) (mins)	13	16	21
Heat loss (kWh/24hrs)	1.9	2.1	2.4
Safety			
Max mains inlet pressure (bar)	10	10	10
Pressure reducing valve setting (bar)	3.5	3.5	3.5
Expansion relief valve setting (bar)	6.0	6.0	6.0
T&P relief valve settings (°C / bar)	95 / 7.0	95 / 7.0	95 / 7.0
Connections			
Mains inlet / hot water outlet ** (mm)	22	22	22
Balanced cold water outlet** (mm)	22	22	22
Boiler flow / return** (mm)	22	22	22
Solar flow / return** (mm)	22	22	22
Thermostats & thermal cut outs [V (Hz)]	240V (50Hz)	240V (50Hz)	240V (50Hz)
Immersion heater & motorised valve [V (Hz)]	240V (50Hz)	240V (50Hz)	240V (50Hz)
** Compression fittings supplied			



Heat Pump technical specifications

Clearly Heat pumps Envirosorb₅ & Envirosorb₂

Description	Units	5	7	12	14
Min. operating outside temperature (in heating)	°C	-7	-20	-20	-20
Max. operating outside temperature (in heating)	°C	35	30	30	30
Specifications, with underfloor heating					
(flow : 35°C, return : 30°C, outside dry temperature (wet) : 7 (6)°C)					
Heating output	kW	4.7	7.2	11.9	14.5
Power input	kW	1.26	1.82	3.01	3.6
Rated electrical current	A	5.48	8	13	15.6
COP* A7(6) W35-30		3.73	3.96	3.94	4.06
Specification with radiators					
(flow : 45°C, return : 40°C, outside dry temperature (wet) 7 (6)°C)					
Heating output	kW	4.41	7.4	12.9	14
Power input	kW	1.46	2.32	4.2	4.4
Rated electrical current	A	6.34	10	18.5	19
COP* A7(6) W45-40		3.02	3.18	3.03	3.21
Refrigerant circuit					
Type of refrigerant		R410a	R410a	R410a	R410a
Quantity of refrigerant	kg	1.8	1.81	2.485	3.385
Type of compressor		Rotary			
Type of oil		Polyolester			
Type of regulator		Electronic			
Fan speed	rpm	180-660	200-680	250-750	200-820
Maximum operating pressure (PS)	bar	43.2	45	45	45
	Pa	43.2*10 ⁵	45*10 ⁵	45*10 ⁵	45*10 ⁵
Heat pump circuit					
Max. supply pressure	bar	3	3	3	3
	Pa	3*10 ⁵	3*10 ⁵	3*10 ⁵	3*10 ⁵
Nominal static pressure	bar	1	0.4	0.45	0.3
	Pa	1*10 ⁵	4*10 ³	4*10 ³	4*10 ³
Nominal water flow rate in heating mode	l/h	800	500	500	500
Minimum water flow rate	l/h	500	420	420	420
Minimum flow temperature setting (in heating)	°C	25	20	20	20
Maximum flow temperature setting (in heating)	°C	55	60	60	60
Heat pump water volume	l	1	1.2	2.3	2.3
Electrical					
Supply voltage/frequency	V/Hz	1/N/PE 230V 50Hz			
Fuse	A	15 type B	15 type B	25 type D	25 type D
Maximum absorbed power (P max)	kW	1.45	2.7	5.1	5.1
Maximum absorbed current (I max)	A	6.7	14	23	20
Index of electrical protection		IPX4	IPX4	IPX4	IPX4
Electrical classification		1	1	1	1
Dimensions					
Height	mm	935	821	1363	1363
Width	mm	880	908	908	908
Depth	mm	345	326	326	326
Ø Water circuit connections	"	1	1	1	1
Nett total weight	kg	82.5	71	105	130
Sound power level : overall exterior noise (according to EN 12102 and EN ISO 9614-1)	dBA	62.6	64	67	68

* Coefficient of Performance (according to EN 14511)

Heat Recovery technical specifications

Clearly Heat Recovery

	Units	HRD 275	HRD 350
Dimensions & weight			
Air volume flow (range)	m ³ /h	50 to 275	70 to 350
Dimensions (unit only)	mm	708 x 683 x 480	708 x 683 x 530
Fan adjustment		Stepless, electronic	Stepless, electronic
Max. air volume flow	m ³ /h @ Pa	275 @ 170	350 @ 265
All duct connections	Ø mm	150/160/180	180/200
Housing material		Sheet steel	Sheet steel
Colour		White	White
Weight	kg	42	47
Heat exchanger type		Cross-flow, aluminium	Cross-flow, aluminium
Efficiency level (SAP app Q)	%	85*	80*
Specific Fan Power (SAP app Q)	w/l/s	Down to 0.9*	Down to 0.9*
Heat exchanger material		Aluminium	Aluminium
Frost protection active	°C	< -7	< -7
Standard filter class (DIN EN 779) **		G3	G3
Sound pressure level of unit at a distance of 1m	dB(A)	48	52
AC Mains supply	V/Ph/Hz	230~1/50	230~1/50
Fan control	V DC	0-10	0-10
Power consumption (range)	W	25-175	30-295
Safety class		IP 10d	IP 10d
SAP Appendix Q listed		Yes	Yes
EST Best practice		Yes	-

* As measured by the BRE ** Fine grade 6 (F6) filters supplied as accessory if required



Clearly Hybrid system specification

(Recommended boilers)

Ultracom₂ cxi specifications - Combi

Ultracom ₂	24cxi	30cxi	35cxi
Size			
Casing dimensions (h w d) (mm)	740 x 418 x 346	740 x 418 x 346	740 x 418 x 346
Weight (lift) (kg)	37.1	37.7	38.3
Performance			
CH output (kW) Min/Max	4.9/18.2	5.9/24.6	8.4/30
DHW output (kW)	25.5	30.6	35.7
DHW flow rate (l/min, 35°C rise)	10.4	12.5	14.6
DHW response ¹	5 seconds	5 seconds	5 seconds
SEDBUK rating	A	A	A
SEDBUK %	90.3	90.3	90.4
NOx class 5 (natural gas)	Yes	Yes	Yes
Adjustable to LPG	Yes	Yes	Yes
Construction			
Main heat exchanger type	Coiled tube	Coiled tube	Coiled tube
Heat exchanger material	Stainless steel isothermic	Stainless steel isothermic	Stainless steel isothermic
Burner type	Pre-mixed	Pre-mixed	Pre-mixed
Fully modulating	Yes	Yes	Yes
DHW plate heat exchanger	Yes	Yes	Yes
Integrated hydrobloc	Yes	Yes	Yes
Installation			
Suitable for sealed systems	Yes	Yes	Yes
Suitable for open-vent systems	No	No	No
Filling loop	Inbuilt	Inbuilt	Inbuilt
Flow restrictor	Yes 8l/min	Yes 10l/min	Yes 12l/min
Inbuilt system bypass	Yes	Yes	Yes
Inbuilt condensate trap/siphon	Yes	Yes	Yes
Inbuilt frost protection	2 stage	2 stage	2 stage
Zero compartment ventilation	Yes	Yes	Yes

Ultracom₂ cxi specifications - Combi (Continued)

Ultracom ₂	24cxi	30cxi	35cxi
Clearances			
Top (mm)	150	150	150
Side (mm)	0	0	0
Bottom (mm)	200	200	200
Front (mm) ²	600	600	600
User Interface			
User display	Digital/plain text	Digital/plain text	Digital/plain text
Diagnostics	Advanced/Intuitive	Advanced/intuitive	Advanced/intuitive
User adjustable CH temp control	Yes	Yes	Yes
User adjustable DHW temp control	Yes	Yes	Yes
'Eco' setting on DHW	Yes	Yes	Yes
Optional plug in digital timer kit	Yes	Yes	Yes
Optional plug in analogue timer kit	Yes	Yes	Yes
Pipes			
Optional pre-fixing jig ³	Yes	Yes	Yes
Optional spacing frame	Yes	Yes	Yes
Water connections	2 x 22mm	2 x 22mm	2 x 22mm
	2 x 15mm	2 x 15mm	2 x 15mm
Flues			
Max horizontal Ø60/100	10m	10m	10m
Max vertical Ø60/100	10m	10m	10m
Max horizontal Ø80/125	25m	25m	25m
Max Vertical Ø80/125	25m	25m	25m
Optional plume management kit Ø60/100	Yes	Yes	Yes

Notes:

- 1 1 metre from the tap
- 2 This can be reduced to 5mm for removable panel
- 3 Upward and downward piping



Clearly Hybrid system specification

(Recommended boilers) Cont.

Ultracom₂ sxi specifications - Sealed System

Ultracom ₂	12sxi	18sxi	30sxi
Size			
Casing dimensions (h w d) (mm)	740 x 418 x 346	740 x 418 x 346	740 x 418 x 346
Weight (lift) (kg)	37.1	37.1	38.3
Performance			
CH output (kW) Min/Max	3.9/12	4.9/18.2	8.5/30
DHW output (kW)	N/A	N/A	N/A
DHW flow rate (l/min, 35°C rise)	N/A	N/A	N/A
DHW response	N/A	N/A	N/A
SEDBUK rating	A	A	A
SEDBUK %	90.4	90.4	90.5
NOx class 5 (natural gas)	Yes	Yes	Yes
Adjustable to LPG	No	Yes	Yes
Construction			
Main heat exchanger type	Coiled tube	Coiled tube	Coiled tube
Heat exchanger material	Stainless steel isothermic	Stainless steel isothermic	Stainless steel isothermic
Burner type	Pre-mixed	Pre-mixed	Pre-mixed
Fully modulating	Yes	Yes	Yes
DHW plate heat exchanger	N/A	N/A	N/A
Integrated hydrobloc	Yes	Yes	Yes
Installation			
Suitable for sealed systems	Yes	Yes	Yes
Suitable for open-vent systems	No	No	No
Filling loop	N/A	N/A	N/A
Flow restrictor	N/A	N/A	N/A
Inbuilt system bypass	Yes	Yes	Yes
Inbuilt condensate trap/siphon	Yes	Yes	Yes
Inbuilt frost protection	2 stage	2 stage	2 stage
Zero compartment ventilation	Yes	Yes	Yes
Clearances			
Top (mm) (from top of boiler)	150	150	150
Side (mm)	0	0	0
Bottom (mm)	200	200	200
Front (mm) ¹	600	600	600
User Interface			
User display	Digital/plain text	Digital/plain text	Digital/plain text
Diagnostics	Advanced/intuitive	Advanced/intuitive	Advanced/intuitive
User adjustable CH temp control	Yes	Yes	Yes
User adjustable DHW temp control	Yes ²	Yes ²	Yes ²
'Eco' setting on DHW	N/A	N/A	N/A
Optional plug in digital timer kit	Yes	Yes	Yes
Optional plug in analogue timer kit	No	No	No
Pipes			
Optional pre-fixing jig ³	Yes	Yes	Yes
Optional spacing frame	Yes	Yes	Yes
Water connections	2 x 22mm	2 x 22mm	3 x 22mm
Flues			
Max horizontal Ø60/100	10m	10m	10m
Max vertical Ø60/100	10m	10m	10m
Max horizontal Ø80/125	20m	25m	25m
Max Vertical Ø80/125	20m	25m	25m
Optional plume management kit Ø60/100	Yes	Yes	Yes

Notes:

- ¹ This can be reduced to 5mm for removable panel
- ² Activated with addition of Options Board or Smart Wiring Centre and Glow-worm intelligent controls

Clearly Hybrid system specification

(Heat Pump)

Envirosorb 5 specifications

Description	Unit	Envirosorb 5
Min. operational range (in heating)	°C	-7
Max. operational range (in heating)	°C	35
Dimensions		
Height	mm	935
Width	mm	880
Depth	mm	345
Ø Water circuit connections	"	1
Nett total weight	kg	82.5
Sound power level : overall exterior noise (according to EN 12102 and EN ISO 9614-1)	dB(A)	62.6
Specifications, with floor heating		
(flow: 35°C, return: 30°C, outside dry temperature (wet): 7 (6)°C)		
Heating output	kW	4.70
Power input	kW	1.26
Rated electrical current	A	5.48
COP* A7(6) W35-30		3.73
Specifications, with radiators		
(flow: 45°C, return: 40°C, outside dry temperature (wet) 7 (6)°C)		
Heating output	kW	4.41
Power input	kW	1.46
Rated electrical current	A	6.34
COP* A7(6) W45-40		3.02
Refrigerant circuit		
Type of refrigerant		R-410A
Quantity of refrigerant	kg	1.8
Type of compressor		Rotary
Type of oil		Polyolester
Type of regulator		Electronic
Fan speed	rpm	180-660
Maximum operating pressure (PS) in low pressure	bar Pa	34 34 x 10 ⁵
Maximum operating pressure (PS) in high pressure	bar Pa	43.2 43.2 x 10 ⁵

Description	Unit	Envirosorb 5
Heat pump circuit		
Min. supply pressure	bar	1
	Pa	1 x 10 ⁵
Max. supply pressure	bar	3
	Pa	3 x 10 ⁵
Minimum static pressure	bar	1
	Pa	1 x 10 ⁵
Nominal water flow rate in heating mode	l/h	800
Minimum water flow rate	l/h	500
Minimum recommended water flow	l/h	750
Maximum recommended water flow	l/h	850
Minimum outlet temperature setting (in heating)	°C	25
Maximum outlet temperature setting (in heating)	°C	55
Heat pump water volume	l	1
Electrical		
Supply voltage/frequency	V/Hz	1/N/PE 230V 50Hz
Fuse (x2)		T2A / 250V
Maximum absorbed power (P max)	kW	1.45
Real power absorbed by the fan and pump (with heating resistors)	kW	1.48
Real power absorbed by the fan and pump (without heating resistors)	kW	1.35
Maximum absorbed current (I max)	A	6.70
Real current absorbed by the fan and pump (with heating resistors)	A	6.43
Real current absorbed by the fan and pump (without heating resistors)	A	5.88
Starting current (with start-up current limiter)	A	<20
Index of electrical protection		IPX4
Electrical classification		I
Surge category		II
Pollution rating		2

Notes:

* Coefficient of Performance (according to EN 14511)

** Energy Efficiency Ratio (according to EN 14511)

The Glow-worm Service Centre lines are open: Monday to Friday 8:00am to 6:00pm,

Saturday 9:00am to 4:00pm and Sunday 9:00am to 12 noon.

Technical Support lines are open: Monday to Friday 8:30am to 5:30pm and Saturday 9:00am to 12 noon.

The information in this brochure was correct at the time of going to print.

Glow-worm reserve the right to make any modifications to product specifications, or any other details, without prior notification. For further clarification, please enquire in writing to the head office address on the reverse of this brochure.

Basic guide to solar system sizing

	1 Panel	2 Panel	2 Panel	3 Panel
Cylinder Size*	200 Litres	200 or 250 Litres	250 or 300 Litres	300 Litres
* Cylinder should be correctly sized				
Minimum number of persons in household	1 Person	1 Person	2 People	3 People
Maximum number of persons in household	2 People	3 People	4 People	5 People
Household average daily hot water usage	Up to 100 Litres	80 to 120 Litres	100 to 140 Litres	120 to 180 Litres
Note: This system sizing rule of thumb will deliver 60% of annual DHW assuming near optimum collector orientation. For precise sizing please refer to the product installation manual or seek advice from Glow-worm's technical helpline.				



Basic guide to heat pump system sizing

Naturally, a unit that uses air as its source for heat, will perform better as the temperature of that air increases. The industry standard for quoting the output of heat pumps is Air 7/ Water 35. So, a 14kW heat pump will deliver 14kW at an air temperature of 7°C when generating a flow temperature of 35°C. Below are the outputs at various other temperatures. The lower the flow temperature, and the higher the ambient temperature, the more efficient they become: the system should therefore be designed for as low flow temperature as possible.

Basic guide to Clearly Heat Pump system sizing

Outdoor temp	Units	5kW	7kW	12kW	14kW
35° Flow					
-5	kW	3.1	4.55	7.40	8.31
	COP	2.45	2.71	2.75	2.62
2	kW	4	5.41	8.72	10.2
	COP	3.1	2.99	3.11	3.2
7	kW	4.8	7.2	11.82	14.5
	COP	3.8	3.9	3.9	4.06
45° Flow					
-5	kW	2.6	4.45	6.96	7.9
	COP	1.8	2.28	2.24	2.1
2	kW	3.9	5.38	8.45	10.2
	COP	2.6	2.55	2.61	2.6
7	kW	4.5	7.4	11.38	14
	COP	3.1	3.16	3.03	3.21
55° Flow					
-5	kW	2.02	4.24	7.06	7.6
	COP	1.38	2.02	1.92	1.8
2	kW	3.7	5.14	8.47	10.2
	COP	2.15	2.34	2.2	2.6
7	kW	4.35	6.71	11.04	13.9
	COP	2.5	2.68	2.5	2.82

For a design with a 45 degree flow temperature, such as underfloor heating, or correctly sized radiators, the table below shows the maximum size of a property each output is suitable for based on build year. Please note this does not take into account DHW.

Year	5kW	7kW	12kW	14kW
New build (to 2010 regs)	up to 65m ²	up to 100m ²	up to 185m ²	up to 200m ²
2006 - 2010	up to 50m ²	up to 90m ²	up to 135m ²	up to 155m ²
1995 - 2005		up to 55m ²	up to 85m ²	up to 100m ²
1975 - 1995			up to 70m ²	up to 80m ²



Clearly Solar easy ordering

To select your Clearly Solar system follow the 3 step process.

Step 1

Select a flat plate pack.

Step 2

Select a pipe work pack.

Step 3

Select a cylinder pack.

For developers we have split the flat plate pack into first and second fix for convenience.



Step 1 flat plate panel pack

Vertical In roof packs

Panel Pack Options:	1 Panel Pack	2 Panel Pack	3 Panel Pack	
In Roof : Vertical Pack Codes	0020078858	0020078859	0020078860	
This pack contains:	Article No.			
Vertical Clearly Solar Flat Plate Collector	0010006294	1	2	3
In-roof one collector kit - Vertical	0020060316	1		
In roof two collectors kit - Vertical	0020060318		1	1
In roof kit - additional collector - Vertical	0020060327			1
Easy fit Hydraulic connection-set In-Roof	0020065271	1	1	1
Easy fit hydraulic extension set, In-roof/A-frame	0020059909		1	2
Clearly Solar Controller	0020054960	1	1	1
Clearly Solar Pump Station	0020054961	1	1	1
Expansion vessel 18 l	0020054963	1		
Expansion vessel 25 l	0020054963		1	
Expansion vessel 35 l	0020054993			1
Solar fluid 20 l	0020054968	1	2	2
Protection vessel	0020054966	1	1	1
Automatic air separator	0020054969	1	1	1

Horizontal In roof packs

Panel Pack Options:	1 Panel Pack	2 Panel Pack	3 Panel Pack	
In Roof: Horizontal Pack Codes	0020078870	0020078871	0020078872	
This pack contains:	Article No.			
Horizontal Clearly Solar Flat Plate Collector	0010006295	1	2	3
In-roof one collector kit - Horizontal	0020060315	1		
In roof two collector kit - Horizontal	0020060317		1	1
In roof additional collector kit - Horizontal	0020060326			1
Easy fit Hydraulic connection-set In Roof	0020065271	1	1	1
Easy fit hydraulic extension set, In-roof/A-frame	0020059909		1	2
Clearly Solar Controller	0020054960	1	1	1
Clearly Solar Pump Station	0020054961	1	1	1
Expansion vessel 18 l	0020054963	1		
Expansion vessel 25 l	0020054992		1	
Expansion vessel 35 l	0020054993			1
Solar fluid 20 l	0020054968	1	2	2
Protection vessel	0020054966	1	1	1
Automatic air separator	0020054969	1	1	1

Vertical: on roof with profiled tile brackets

Panel Pack Options:		1 Panel Pack	2 Panel Pack	3 Panel Pack
Tile packs: Vertical Pack Codes		0020078852	0020078853	0020078854
This pack contains:	Article No.			
Vertical Flat Plate Collector	0010006294	1	2	3
Roof brackets for concrete tiles x 4 (one collector) - Type P	0020060302	1	2	3
Easy fit Hydraulic connection-set	0020060207	1	1	1
Easy fit Hydraulic extension-set	0020055175		1	2
Clearly Solar Controller	0020054960	1	1	1
Solar Pump Station	0020054961	1	1	1
Expansion vessel 18 l	0020054963	1		
Expansion vessel 25 l	0020054963		1	
Expansion vessel 35 l	0020054993			1
Solar fluid 20 l	0020054968	1	2	2
Protection vessel	0020054966	1	1	1
Automatic air separator	0020054969	1	1	1

Vertical: on roof with slate/flat tile brackets

Panel Pack Options:		1 Panel Pack	2 Panel Pack	3 Panel Pack
Slate packs: Vertical Pack Codes		0020078855	0020078856	0020078857
This pack contains:	Article No.			
Vertical Flat Plate Collector	0010006294	1	2	3
Roof brackets for Slate tiles x 4 (one collector) - Type S	0020080149	1	2	3
Easy fit Hydraulic connection-set	0020060207	1	1	1
Easy fit Hydraulic extension-set	0020055175		1	2
Clearly Solar Controller	0020054960	1	1	1
Clearly Solar Pump Station	0020054961	1	1	1
Expansion vessel 18 l	0020054963	1		
Expansion vessel 25 l	0020054963		1	
Expansion vessel 35 l	0020054993			1
Solar fluid 20 l	0020054968	1	2	2
Protection vessel	0020054966	1	1	1
Automatic air separator	0020054969	1	1	1

Horizontal on roof with profiled tile brackets

Panel Pack Options:		1 Panel Pack	2 Panel Pack	3 Panel Pack
Tile packs: Horizontal Pack Codes		0020078864	0020078865	0020078866
This pack contains:	Article No.			
Horizontal Flat Plate Collector	0010006295	1	2	3
Roof brackets for concrete tiles x 4 (one collector) - Type P	0020060302	1	2	3
Easy fit Hydraulic connection-set	0020060207	1	1	1
Easy fit Hydraulic extension-set	0020055175	1	1	2
Clearly Solar Controller	0020054960	1	1	1
Solar Pump Station	0020054961	1	1	1
Expansion vessel 18 l	0020054963	1		
Expansion vessel 25 l	0020054992		1	
Expansion vessel 35 l	0020054993			1
Solar fluid 20 l	0020054968	1	2	2
Protection vessel	0020054966	1	1	1
Automatic air separator	0020054969	1	1	1

Step 1 flat plate panel^{cont.}

Horizontal on roof with slate/flat tile brackets

Panel Pack Options:	1 Panel Pack	2 Panel Pack	3 Panel Pack
Slate packs: Horizontal Pack Codes	0020078867	0020078868	0020078869

This pack contains:	Article No.			
Horizontal Flat Plate Collector	0010006295	1	2	3
Roof brackets for Slate tiles x 4 (one collector) - Type S	0020080149	1	2	3
Easy fit Hydraulic connection-set	0020060207	1	1	1
Easy fit Hydraulic extension-set	0020055175		1	2
Clearly Solar Controller	0020054960	1	1	1
Solar Pump Station	0020054961	1	1	1
Expansion vessel 18 l	0020054963	1		
Expansion vessel 25 l	0020054992		1	
Expansion vessel 35 l	0020054993			1
Solar fluid 20 l	0020054968	1	2	2
Protection vessel	0020054966	1	1	1
Automatic air separator	0020054969	1	1	1

Vertical A-frame packs

Panel Pack Options:	1 Panel Pack	2 Panel Pack	3 Panel Pack
A-Frame packs: Vertical Pack Codes	0020078861	0020078862	0020078863

This pack contains:	Article No.			
Vertical Flat Plate collector	0010006294	1	2	3
A-frame vertical installation	0020060312	2	3	4
Mounting bar set Vertical	0020060308	1	2	3
Easy fit Hydraulic connection-set	0020060207	1	1	1
Easy fit hydraulic extension set, In-roof/A-frame	0020059909		1	2
Clearly Solar Controller	0020054960	1	1	1
Solar Pump Station	0020054961	1	1	1
Expansion vessel 18 l	0020054963	1		
Expansion vessel 25 l	0020054992		1	
Expansion vessel 35 l	0020054993			1
Solar fluid 20 l	0020054968	1	2	2
Protection vessel	0020054966	1	1	1
Automatic air separator	0020054969	1	1	1

Horizontal A-frame packs

Panel Pack Options:	1 Panel Pack	2 Panel Pack	3 Panel Pack
A-Frame packs: Horizontal Pack Codes	0020078873	0020078874	0020078875

This pack contains:	Article No.			
Horizontal Flat Plate Collector	0010006295	1	2	3
A-frame horizontal installation	0020060311	2	3	4
Mounting bar set Horizontal	0020060307	1	2	3
Easy fit Hydraulic connection-set	0020060207	1	1	1
Easy fit hydraulic extension set, In-roof/A-frame	0020059909		1	2
Solar controller	0020054960	1	1	1
Solar Pump Station	0020054961	1	1	1
Expansion vessel 18 l	0020054963	1		
Expansion vessel 25 l	0020054992		1	
Expansion vessel 35 l	0020054993			1
Solar fluid 20 l	0020054968	1	2	2
Protection vessel	0020054966	1	1	1
Automatic air separator	0020054969	1	1	1

Step 1 developer flat plate panel packs

In roof vertical developer pack A - first fix

Panel Pack Options:	1 Panel Pack	2 Panel Pack	3 Panel Pack
Developer pack A: Vertical Pack Codes	0020078876	0020078877	0020078878

This pack contains:	Article No.			
Vertical Flat Plate collector	0010006294	1	2	3
In roof one collectors kit - Vertical	0020060316	1		
In roof two collectors kit - Vertical	0020060318		1	1
In roof kit - additional collector - Vertical	0020060327			1
Easy fit Hydraulic connection-set	0020065271	1	1	1
Easy fit Hydraulic extension-set	0020059909		1	2
Solar controller	0020054960	1	1	1

or

In roof horizontal developer pack A - first fix

Panel Pack Options:	1 Panel Pack	2 Panel Pack	3 Panel Pack
Developer pack A: Horizontal Pack Codes	0020078879	0020078880	0020078881

This pack contains:	Article No.			
Horizontal Flat Plate collector	0010006295	1	2	3
In roof one collector kit - Horizontal	0020060315	1		
In roof two collectors kit - Horizontal	0020060317		1	1
In roof additional collector kit - Horizontal	0020060326			1
Easy fit Hydraulic connection-set	0020065271	1	1	1
Easy fit Hydraulic extension-set	0020059909		1	2
Clearly Solar Controller	0020054960	1	1	1

+

In roof developer pack B - second fix

Panel Pack Options:	1 Panel Pack	2 Panel Pack	3 Panel Pack
Developer pack B Pack Codes	0020078882	0020080375	0020080376

This pack contains:	Article No.			
Clearly Solar Pump Station	0020054961	1	1	1
Expansion vessel 18 l	0020054963	1		
Expansion vessel 25 l	0020054992		1	
Expansion vessel 35 l	0020054993			1
Solar fluid 20 l	0020054968	1	2	2
Protection vessel	0020054966	1	1	1
Automatic air separator	0020054969	1	1	1

Clearly Solar easy ordering

Step 2 Clearly Solar pipe work pack

Pipe work kit components	Pack Codes
Pipework Pack Codes	0020080631

This pack contains:	Article No.	
System flexible pipe 1 x 15m DN16	0020054964	2
System fittings pack for DN16 pipe	0020054965	1

Step 3 Clearly Solar twin coil cylinder pack

Clearly Solar Twin Coil Cylinders	200 Litres Pack	250 Litres Pack	300 Litres Pack
Cylinder Pack Codes	0010006232	0010006233	0010006234

This pack contains:	Article No.			
Twin Coil Cylinder 200 l	0010006232	1		
Twin Coil Cylinder 250 l	0010006233		1	
Twin Coil Cylinder 300 l	0010006234			1
Thermostatic mixing valve	0020054967	1	1	1

Clearly Solar accessories

Accessories	Article No.
Safety belt set for roof working	0020054985
Solar fluid 10 l	0020054983
Filling pump	0020054986
Antifreeze test kit	0020054984
Collector sensor	0020065994
Collector flexible pipe 2 x 1m DN16	0020055014
System flexible pipe "2-in-1" x 15m DN16 (insulated with sensor wire)	0020054994
Pipe clamps for flexible pipe "2-in-1" DN16	0020054990
Additional fittings pack (pump station to cylinder)	0020088208
In roof mounting set 15 - 22° low inclination x 2 collectors	0020059886
In roof mounting set 15 - 22° low inclination x 3 collectors	0020059888
System flexible pipe "2-in-1" x 15m DN20 (insulated with sensor wire)	0020054995
Gravel plate set small (2 pcs), G-w	0020060313
Gravel plate set big (3 pcs), G-w	0020060314
Pipe clamps for flexible pipe "2-in-1" DN20	0020055012



Clearly Heat Pump, Clearly Hybrid & Clearly Heat Recovery easy ordering

Clearly Heat Pump packs

Pack contents	Clearly Heat Pumps 5kW Pack	Clearly Heat Pumps 7kW Pack	Clearly Heat Pumps 12kW Pack	Clearly Heat Pumps 14kW Pack
Article No.	0020114863	0010012956	0010012957	0010012958
Envirosorb ₂ 5kW	✓	×	×	×
Envirosorb ₂ 7kW	×	✓	×	×
Envirosorb ₂ 12kW	×	×	✓	×
Envirosorb ₂ 14kW	×	×	×	✓
Hydraulic module SA	✓	✓	✓	✓
Systempro controller	✓	✓	✓	✓
Climapro ₂ RF	✓	✓	✓	✓
Wireless Outdoor Sensor	✓	✓	✓	✓

Clearly Hybrid pack

	Pack Codes
Clearly Hybrid pack	0020114862
Accessories	Article number
Envirosorb 5	0010009402
Hydraulic Module HB	0020088487
Systempro	0020094750
Climapro ₂ RF	0020085220
Outdoor sensor	0020093880

Clearly Heat Recovery packs & accessories

	Pack Codes
Clearly Heat Recovery - HRD 275 (supplied with 2x grade 3 filters)	0010008891
Clearly Heat Recovery - HRD 350 (supplied with 2x grade 3 filters)	0010008892
Accessories	Article number
Clearly Heat Recovery - By-pass unit (supplied with 1x grade 3 filter)	0020064713
High grade (grade 3) filters: set of 2	0020064722
High grade (grade 3) filters: for by-pass where fitted	0020064723
Fine grade (grade 6) filters: set of 2	0020064720
Fine grade (grade 6) filters: for by-pass where fitted	0020064721

Notes

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