

**Oil and LPG heating from Worcester.**  
Saves energy.  
Saves money.  
Wherever you are.



 **WORCESTER**  
Bosch Group

**Dedicated to heating comfort**



Are you up hill?  
Or down dale?  
Don't worry.  
Our off-mains heating solutions  
can heat homes anywhere.

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Dedicated to heating comfort

# Worcester. Trusted for over half a century.

*Worcester is the choice of thousands of quality- and value-conscious people all over the UK – and it's the choice of the heating industry too.*

*Installers themselves voted Worcester's Greenstar boilers CORGI's Boiler of the Year in 2005, 2006 and 2007. Industry experts also recognised the Greenskies solar thermal panels, making them CORGI's Energy Efficient Product of the Year in 2007 and 2008 and OFTEC's Green Product of the Year in 2008.*

*All of which gives you the reassurance of knowing that when you invest in a Worcester product, its quality is endorsed by the professionals.*



**Quality is the bedrock of the Worcester brand. It always has been and it always will be.**

*"Our commitment to quality hasn't changed since 1962."*

Since 1962, when Worcester pioneered domestic oil-fired boilers, the company's commitment to excellence hasn't changed. And that commitment has only strengthened since Worcester became a part of the Bosch Group – one of the world's leading names in innovative technology.

Today, many years and thousands of boilers later, we are the market leader in domestic heating and hot water systems, employing 2,000 people at our headquarters and manufacturing plants in Worcester and at Clay Cross in Derbyshire – including a nationwide network of over 300 Service Engineers and over 80 technically-trained Field Sales Managers. It makes Worcester a name that stands for reliability, quality, efficiency and value for money.

So although buying a new boiler might seem daunting, there's no need to worry. Worcester is a name you can trust.



*A history of innovation: Worcester introduced the combi boiler to the UK in the 1970s.*



*Proud origins: the original Worcester factory.*



## To understand why a reliable boiler is so important, simply think about home.

**Nothing is more important than a warm and comfortable home. Because that's where we feel safe – and so do our families.**

That's why it's so important to know that your boiler won't let you down.

Our Greenstar oil-fired and LPG boilers, as well as our renewable products, are designed and built to exacting standards, and constructed with only the highest quality materials. Each component is tested rigorously to provide long-term reliability.

In other words, our boilers are built to give A-rated performance day in, day out. So with annual maintenance, a Worcester boiler will give you many years of dependable service, providing you and your family with warmth, comfort and all-important peace of mind.

### **The Bosch pedigree**

The Bosch name stands for quality, reliability, innovation and service – a reputation that's been built over a century of working to the most demanding benchmarks.

As a member of the Bosch Group, Worcester shares that approach, and draws on Bosch's wealth of expertise to develop innovative products you can rely upon.



Dedicated to heating comfort



If your boiler is 10 years old,  
it's not as efficient as it could be.



**It's surprising but true: a boiler that's just 10 years old could be costing you 30%\* more in fuel than a Worcester Greenstar.**

So with the instability of fuel prices, there's never been a better time to think about changing your boiler.

**How can a Worcester boiler reduce my fuel bills?**

Every boiler in the Worcester range is A-rated for efficiency, meaning it turns over 90% of the fuel it uses into heat.

Compare that to older boilers, which are as little as 50% efficient. That means 50% of the fuel you pay for literally goes up the chimney.

\*Source: Energy Saving Trust.

Many modern boilers are still only 70-75% efficient – so installing just any new boiler is no guarantee of money-saving efficiency.

When you factor in the quality and durability Worcester is renowned for, an award-winning Greenstar boiler makes perfect sense.

**Worcester Energy Houses**

You can see how Worcester products could make a difference to your life, your fuel bills and the environment at our Energy Houses website. The site shows working examples of Worcester heating and hot water systems designed for people with a range of different needs.

They let you see first hand how our products can reduce your energy consumption. Visit our site at [www.worcester-bosch.co.uk/energyhouses](http://www.worcester-bosch.co.uk/energyhouses)

*"A Worcester condensing boiler can reduce your fuel bill by 30%\*. It's just one of the ways we're saving Britain money."*





**We're as committed to the environment as we are to our customers.**

*"The long-term protection of the environment is an integral part of the way Worcester and Bosch work now and in the future."*

Whether it's energy efficient boilers, or sustainable heating solutions like solar water heating panels, Worcester's commitment to the environment goes back many years. In 2000, Worcester established an industry awards scheme that recognises and celebrates environmental innovation.

The Environment 2020 Awards is just one of the ways we're demonstrating our passion for ecological responsibility. The greatest contribution we make is by ensuring every

one of our products is as fuel efficient as technology will allow, or uses completely sustainable fuel like solar energy or air. Worcester is also behind a forward-looking scheme to educate younger generations on environmental issues. A free book, 'Picture a Greener Future', is available from our website and, through a fun story, shows how we can all reduce our energy consumption and shrink our carbon footprint.

We're also working with the Woodland Trust to help reduce our own carbon footprint. For every Worcester boiler installed, we'll plant a tree in the UK. All you need to do is register your details on our website and we'll do the rest.

#### **Making a difference**

We think we've made a significant difference to the UK's effect on the environment: since 1996, the combined energy savings of all the products we've sold have helped reduce Bosch Thermotechnology's carbon footprint by 20%.

As we continue to develop new and innovative energy-efficient products, we fully intend to make even more of a difference to our planet.

*"Since 1996, Bosch Thermotechnology has reduced its carbon footprint by 20%."*

# Home heating made simple.



*"Worcester technology is incredibly advanced – but that doesn't mean it can't be understood."*

Home heating systems can seem complex, but the basics aren't too difficult to understand. Here you'll find a few answers to some common questions, as well as an insight into some of the ways a Worcester boiler uses advanced technology to do more than simply heat your home.

#### **What is a combi boiler?**

Combi is short for 'combination'. It refers to the way this type of system serves as both a central heating boiler and a hot water heater. That means there's no need for a water tank as hot water is provided

direct from the mains. As well as saving the space normally taken up by a water tank (in the loft or airing cupboard) a combi boiler saves on hot water costs as well as giving you hot water at mains pressure.

#### **What is a regular boiler?**

This typically forms part of a conventional heating system, and is linked to a series of water tanks that feed the boiler and radiators. Storing hot water is what this system is all about, so unlike a combi system, you have to wait for hot water and space in the loft and airing cupboard is required for tanks.

#### **What is a system boiler?**

Like a regular system, this uses stored hot water. But because the water is pumped from the boiler straight to the radiators and hot water tank, it's a faster, more economical system. What's more, many of the components of the system are built-in, making it easier, quicker and more affordable to install.

#### **What is a condensing boiler?**

A condensing boiler is one which makes more of the energy it runs on – by using the heat normally expelled through the flue. By converting over 90% of the fuel used (rather than just 50% in the case of some boilers) a condensing boiler makes your fuel go further – saving you money and helping to reduce your carbon footprint.

#### **What is OFTEC?**

OFTEC is the professional association for the oil-fired heating industry. Make sure that your installer is OFTEC-registered. This will ensure they have been trained and assessed to a high level of competence.

If you struggle to find an installer, let us help. Just call us on 08457 256 206 or visit us at [www.worcester-bosch.co.uk](http://www.worcester-bosch.co.uk)

# Choosing the right boiler. We'll help you take a big decision in small steps.



The information on this page should help you determine which kind of boiler is right for you – and it's actually quite a simple process. You just need to weigh up the needs of your household, the size of your home and a few other considerations and you should have an answer.

### Make the right choice

It's important that you find out as much as you can before you buy a boiler, so here are a few ways you can get the information you need. You'll find a helpful tool on our website at [www.worcester-bosch.co.uk/findaboiler](http://www.worcester-bosch.co.uk/findaboiler)

It'll help you get an idea of the specific boiler you need, just by answering a few simple questions.

You can also use the table opposite to answer some immediate questions about the type of boiler you need: combi, regular or system.

***"Yes, it's a big decision.  
But it needn't be as scary  
as you might think."***

Consideration	Most suitable boiler
You want to use your loft space for a room conversion or other purpose	Combi
You live in a flat or bungalow (i.e. have very little or no roofspace)	Combi
Your home has more than 2 bathrooms	Regular or System
Your mains water pressure is low	Regular or System
You want to replace an old boiler to improve an existing conventional central heating system	Regular, System or Combi
There is a need to have hot water available immediately, without waiting for it to heat up	Combi

## Other things to consider

### Controls

Controls can help make your high-efficiency boiler even better at saving energy. As well as helping you control when your heating and hot water comes on and is switched off, it can also accurately regulate the temperature in your home.

### Planning permission

In April 2005, Building Regulations were changed. They now state that it is a legal requirement to install a condensing boiler, unless an exemption certificate is obtained. The only types of boiler Worcester manufactures are A-rated high-efficiency condensing boilers.

### The lifetime of your boiler

Worcester Greenstar boilers are engineered to last – meaning you can think ahead about how your heating and hot water needs may change. Whether you have a growing family or are thinking about adding solar water heating panels in the future, you can choose the right Greenstar boiler now, secure in the knowledge that it will still be performing if your circumstances change.

\*Source: Energy Saving Trust.

### EPCs and HIPs

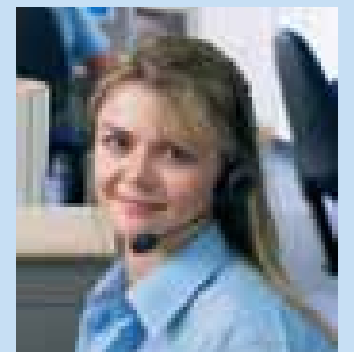
The Energy Performance Certificate (EPC) is part of the new Home Information Pack (HIP), which is now required by anyone selling a home. It rates a home's energy efficiency, giving potential buyers an idea of how green – and how costly – their new home will be. It is widely recognised that installing a high efficiency condensing boiler will improve your home's rating.

### CO<sub>2</sub> and NO<sub>x</sub> Emissions

As well as A-rated efficiency, a Worcester condensing boiler delivers dramatically reduced emissions of both CO<sub>2</sub> and NO<sub>x</sub> (nitrogen oxide). As domestic boilers currently account for 21%\* of the UK's total CO<sub>2</sub> emissions, that makes a significant contribution to the battle against climate change.

All Worcester Greenstar boilers are within class 5 for NO<sub>x</sub> emissions meaning they are in the lowest of the 5 categories.



*Need to discuss your decisions with us?  
Call our customer service team on **08457 256 206**.  
To find out more online, visit us at [www.worcester-bosch.co.uk](http://www.worcester-bosch.co.uk)*







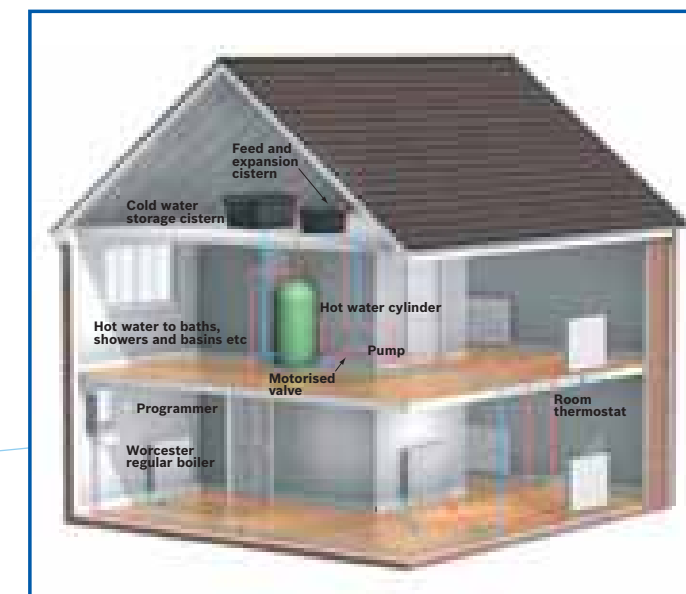
## Worcester Greenstar condensing regular oil-fired boiler range.

Boiler	CH output	Programmer option	Solar compatible
<b>Floor standing models</b>			
<b>Greenstar Camray &amp; Greenstar Danesmoor Kitchen series</b>			
Greenstar Camray 12/18	12 – 18kW	•	
Greenstar Camray 18/25	18 – 25kW	•	
Greenstar Camray 25/32	25 – 30kW	•	
Greenstar Danesmoor 18/25	18 – 25kW	•	
<b>Greenstar Camray Utility &amp; Greenstar Utility series</b>			
Greenstar Camray Utility 12/18	12 – 18kW	–	
Greenstar Camray Utility 18/25	18 – 25kW	–	
Greenstar Camray Utility 25/32	25 – 30kW	–	
Greenstar Utility 18/25	18 – 25kW	–	
Greenstar Utility 32/50	32 – 50kW	–	
Greenstar Utility 50/70	50 – 70kW	–	
<b>Greenstar Danesmoor wall mounted series</b>			
Greenstar Danesmoor wall mounted 12/18	12 – 18kW	•	
Greenstar Danesmoor wall mounted 18/25	18 – 25kW	•	

### Solar compatibility

All Greenstar regular boilers can be used with a Worcester Greenskies solar water heating system to provide hot water for your home (see pages 37 and 38).

Depending on the positioning of the solar water heating panels this could provide between 50-70% of your annual hot water free of charge from a sustainable source of energy.



How a Greenstar condensing **regular** system fits into your home.



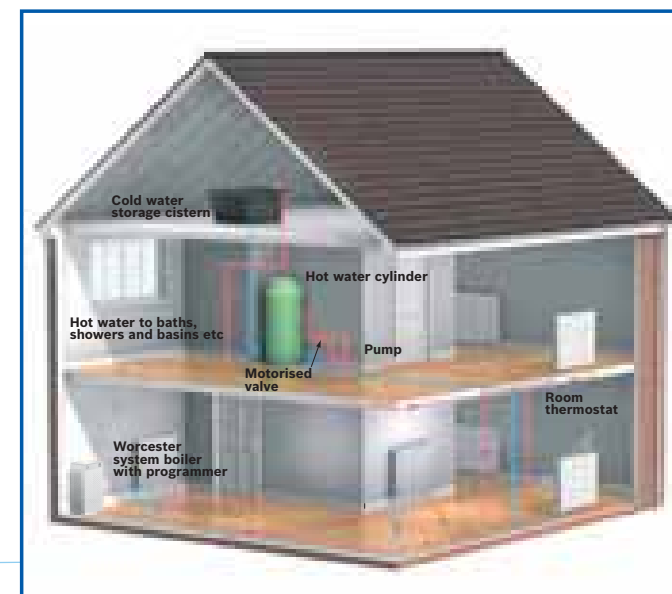
## Worcester Greenstar condensing system oil-fired boiler range.

Boiler	CH output	Programmer option	Solar compatible
<b>Floor standing models</b>			
<b>Greenstar Camray Utility System series</b>			
Greenstar Camray Utility System 12/18	12 – 18kW	–	☀️
Greenstar Camray Utility System 18/25	18 – 25kW	–	☀️
Greenstar Camray Utility System 25/32	25 – 30kW	–	☀️
<b>Greenstar Camray Kitchen System series</b>			
Greenstar Camray Kitchen 12/18	12 – 18kW	•	☀️
Greenstar Camray Kitchen 18/25	18 – 25kW	•	☀️
Greenstar Camray Kitchen 25/32	25 – 30kW	•	☀️

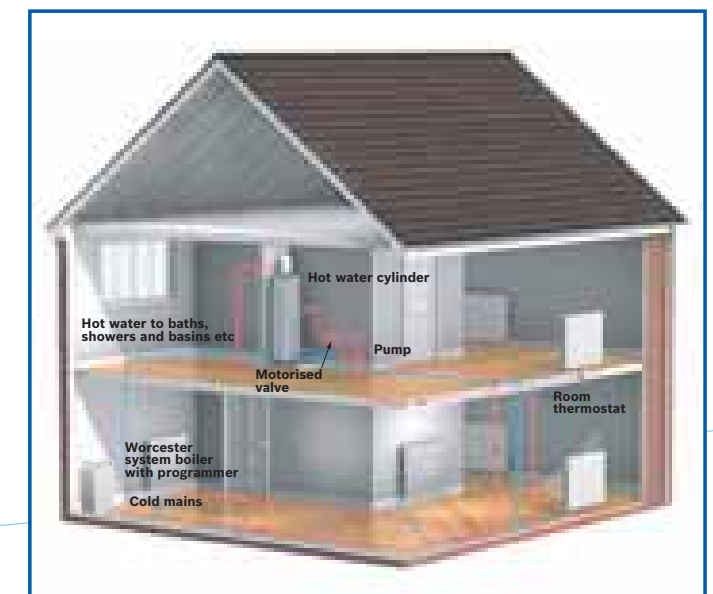
### Solar compatibility ☀️

All Greenstar system boilers can be used with a Worcester Greenskies solar water heating system to provide hot water for your home (see pages 37 and 38).

Depending on the positioning of the solar water heating panels this could provide between 50-70% of your annual hot water free of charge from a sustainable source of energy.



How a Greenstar condensing **system** boiler fits into your home. Here, with low pressure hot water cylinder...



...and here with an unvented hot water cylinder. To find out more about both these systems, visit our website or speak to your local OFTEC-registered installer.



## Worcester Greenstar condensing combi oil-fired boiler range.

Boiler	CH output	Programmer option	Flow rate Litres per minute*
<b>Floor standing models</b>			
<b>Greenstar Heatslave series</b>			
Greenstar Heatslave 12/18	12 – 18kW	•	15
Greenstar Heatslave 18/25	18 – 25kW	•	18
Greenstar Heatslave 25/32	25 – 32kW	•	22

\*At 35°C Δ T.



How a Greenstar condensing **combi** system fits into your home.






## Worcester Greenstar External condensing combi boiler range.

Boiler	CH output	Programmer option	Flow rate Litres per minute*
Floor standing models			
Greenstar Heatslave series			
Greenstar Heatslave External 12/18	12 – 18kW	–	15
Greenstar Heatslave External 18/25	18 – 25kW	–	18
Greenstar Heatslave External 25/32	25 – 30kW	–	22

\*At 35°C Δ T.

## Worcester Greenstar External condensing regular boiler range.

Boiler	CH output	Programmer option	Solar compatible
Floor standing models			
Greenstar Camray External series			
Greenstar Camray External 12/18	12 – 18kW	–	
Greenstar Camray External 18/25	18 – 25kW	–	
Greenstar Camray External 25/32	25 – 30kW	–	

### Solar compatibility







All Greenstar regular and system boilers can be used with a Worcester Greenskies solar water heating system to provide hot water for your home (see pages 37 and 38).

Depending on the positioning of the solar water heating panels this could provide between 50-70% of your annual hot water free of charge from a sustainable source of energy.





## Worcester Greenstar condensing regular LPG boiler range.

Boiler	CH output	Solar compatible
<b>Greenstar Ri series</b>		
Greenstar 12Ri	4 – 12kW	
Greenstar 15Ri	5 – 15kW	
Greenstar 18Ri	6 – 18kW	
Greenstar 24Ri	8 – 24kW	
<b>Greenstar CDi Conventional series</b>		
Greenstar 30CDi Conventional	11.0 – 30kW	
Greenstar 40CDi Conventional	13.9 – 40kW	

Greenstar condensing regular boilers are also available as floor standing models. See pages 15-16.

### Solar compatibility

All Greenstar regular boilers can be used with a Worcester Greenskies solar water heating system to provide hot water for your home (see pages 37 and 38).

Depending on the positioning of the solar water heating panels this could provide between 50-70% of your annual hot water free of charge from a sustainable source of energy.



How a Greenstar condensing **regular** system fits into your home.



# Worcester Greenstar condensing system LPG boiler range.

Boiler	CH output	Solar compatible
<b>Greenstar i System series</b>		
Greenstar 12i System	4 – 12kW	
Greenstar 24i System	7.2 – 24kW	
<b>Greenstar CDi System series</b>		
Greenstar 30CDi System	11.0 – 30kW	

## Solar compatibility

All Greenstar system boilers can be used with a Worcester Greenskies solar water heating system to provide hot water for your home (see pages 37 and 38).

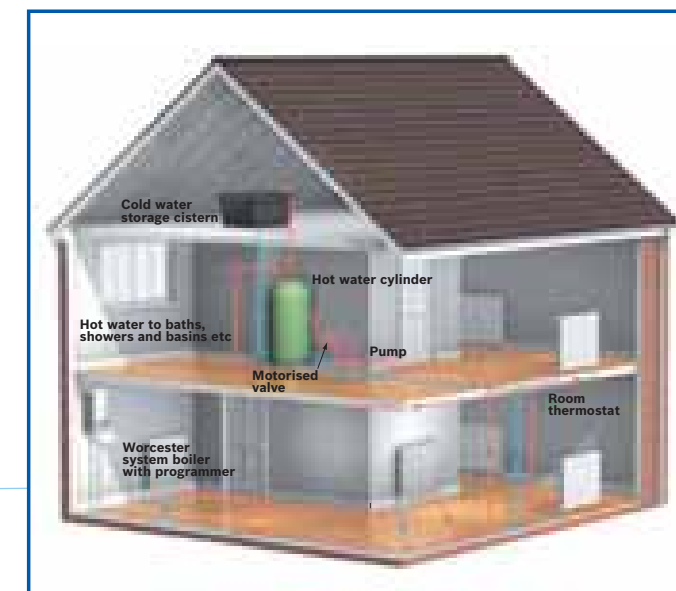
Depending on the positioning of the solar water heating panels this could provide between 50-70% of your annual hot water free of charge from a sustainable source of energy.

## Optional controls<sup>†</sup>

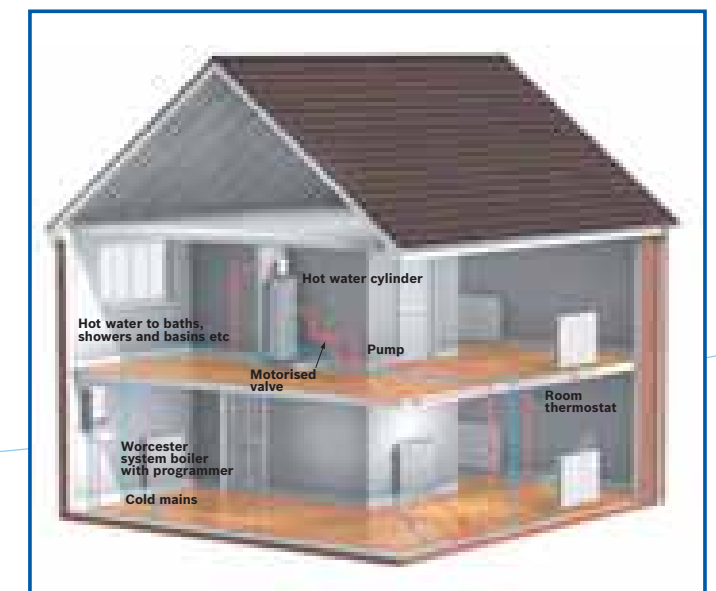
Boiler	DT20 twin-channel digital programmer*	DT20RF RF thermostat with digital twin-channel programmer*	DT10RF digital 24-hour programmable room thermostat*	DT10RF 7-day optimising digital programmable room thermostat*	Intelligent system package	FR10 intelligent room thermostat*	FR10 programmable room thermostat*	FW100 weather compensation controller	ISM1 Intelligent solar module*
<b>Greenstar i System series</b>									
Greenstar 12i System	•	•	•	–	–	–	–	–	–
Greenstar 24i System	•	•	•	–	–	–	–	–	–
<b>Greenstar CDi System series</b>									
Greenstar 30CDi System	•	•	•	•	•	•	•	•	•

\*Only when an optional internal diverter valve is used.

†See pages 31-33 for full details.



How a Greenstar condensing **system** boiler fits into your home. Here, with a low pressure hot water cylinder...



...and here with an unvented hot water cylinder. To find out more about both these systems, visit our website or speak to your local CORGI-accredited installer.



# Worcester Greenstar condensing combi LPG boiler range.

Boiler	CH output	Flow rate Litres per minute*
<b>Wall hung models</b>		
<b>Greenstar i Junior series</b>		
Greenstar 24i Junior	7.2 – 24kW	9.8
Greenstar 28i Junior	7.2 – 24kW	11.4
<b>Greenstar Si series</b>		
Greenstar 25Si	7.2 – 24kW	10.2
Greenstar 30Si	7.2 – 24kW	12.3
<b>Greenstar CDi series</b>		
Greenstar 27CDi	11.0 – 25kW	11.1
Greenstar 30CDi	11.0 – 30kW	12.7
Greenstar 37CDi	13.9 – 30kW	15.1
Greenstar 42CDi	13.9 – 30kW	17.2



How a Greenstar condensing **combi** system fits into your home.

\*At 35°C Δ T.

Greenstar condensing combi boilers are also available as floor standing models. See pages 29-30.

## Optional controls<sup>†</sup>

Boiler	MT10 mechanical timer	DT20 twin-channel digital programmer	MT10RF mechanical RF thermostat	DT20RF RF thermostat with digital twin-channel programmer	DT10RF digital 24-hour programmable room thermostat	DT10RF 7-day optimising digitalistat and RT10 room thermostat	FR10 intelligent room thermostat	FR110 programmable room thermostat	FW100 weather compensation controller
<b>Greenstar i Junior series</b>									
Greenstar 24i Junior	•	•	•	•	–	–	–	–	–
Greenstar 28i Junior	•	•	•	•	–	–	–	–	–
<b>Greenstar Si series</b>									
Greenstar 25Si	•	•	•	•	•	–	–	–	–
Greenstar 30Si	•	•	•	•	•	–	–	–	–
<b>Greenstar CDi series</b>									
Greenstar 27CDi	•	•	•	•	•	•	•	•	•
Greenstar 30CDi	•	•	•	•	•	•	•	•	•
Greenstar 37CDi	•	•	•	•	•	•	•	•	•
Greenstar 42CDi	•	•	•	•	•	•	•	•	•

<sup>†</sup>See pages 31-33 for full details.



## Worcester Greenstar floor-standing LPG boiler range.

Boiler	CH output	Solar compatible	Flow rate Litres per minute*
<b>Greenstar FS series – regular*</b>			
Greenstar FS 30CDi Regular	10.5 – 30kW		–
Greenstar FS 42CDi Regular	12.0 – 40.8kW		–
<b>Greenstar Highflow CDi series – combi*</b>			
Greenstar Highflow 440CDi	10.5 – 30kW	–	20
Greenstar Highflow 550CDi	12.1 – 41.1kW	–	25

\*At 35°C Δ T.

\*LPG appliances to be launched May 2009.

### Optional controls†

Boiler	MT10 mechanical timer	DT20 twin-channel digital programmer	MT10RF mechanical RF thermostat	DT20RF RF thermostat with digital twin-channel programmer	DT10RF digital 24-hour programmable room thermostat	DT10RF 7-day optimising digital programmable room thermostat	TD200 text display programmer and RT10 room thermostat
<b>Greenstar FS series – regular</b>							
Greenstar FS 30CDi Regular	–	–	–	–	–	–	–
Greenstar FS 42CDi Regular	–	–	–	–	–	–	–
<b>Greenstar Highflow series – combi</b>							
Greenstar Highflow 440CDi	•	•	•	•	•	•	•
Greenstar Highflow 550CDi	•	•	•	•	•	•	•

†See pages 31-33 for details.

### Solar compatibility

All Greenstar regular boilers can be used with a Worcester Greenskies solar water heating system to provide hot water for your home (see pages 37 and 38).

Depending on the positioning of the solar water heating panels, they could provide between 50-70% of your annual hot water free of charge from a sustainable source of energy.



# What control options are offered by Worcester?

*There are a number of comprehensive, easy-to-use controls for Greenstar LPG and oil-fired boilers. All fascia mounted controls offer simple plug-in connection to the boiler circuit board.*



## Greenstar oil-fired boiler control



**Twin-channel digital programmer (for all Greenstar Heatslave combis, Greenstar Camray and Greenstar Danesmoor regular kitchen models and Greenstar Danesmoor wall mounted models)**

Plugs into the boiler fascia and offers up to 3 separate time periods a day for heating and hot water.

## Greenstar LPG boiler controls



**MT10RF Mechanical RF (radio frequency) thermostat (for condensing combi boilers only)**

Has an analogue display for setting night and day time periods and temperature. The receiver plugs into the boiler and is activated remotely by the RF (radio frequency) controller, which requires no wiring.

So installation is clean and simple – no disturbance to floorboards or carpets. Nor is there any need for a separate room thermostat.



**MT10 Mechanical timer (for condensing combi boilers only)**

The simplest Worcester control device – an easy-to-use analogue clock for setting heating time periods. It plugs into the boiler fascia via a pre-prepared plug and socket.



**DT20RF RF (radio frequency) thermostat with digital twin-channel programmer**

As with the DT20, this features convenient automatic set-up and is very simple to operate. The timer plugs into the boiler and offers up to 3 different time periods a day, with the room thermostat (no separate thermostat required) providing the temperature control. This device also has all the no-wiring benefits of the MT10RF.

Twin-channel function: when used with a Greenstar condensing system boiler, the second channel gives you 3 time periods for hot water. If used with a Greenstar condensing combi boiler, it times the keep hot function.



**TD200 text display programmer and RT10 room thermostat (for Greenstar CDi combi boilers only)**

The TD200 is an advanced plug in 7-day programmer which features automatic time and date set-up, automatic summer-time/winter-time changeover, and full easy-to-use text display (backlight for low light conditions) which provides more information than standard digital controls. You can set 3 on-off periods per day and the programmer's effectiveness is further enhanced by the RT10 room thermostat which gives optimum room temperature control. The digital display shows both the current and your desired (set) temperature. An advance button allows you to move on to the TD200's next heating switch point.

An optional wall-mounting socket is available, enabling the TD200 to be positioned away from the boiler if required.



**DT10RF 7-day optimising Digistat programmable room thermostat (for Greenstar Si and CDi combis and CDi system boilers using the optional built-in diverter valve)**

A sophisticated energy-saving device which automatically maintains a range of temperatures to avoid the wasteful hot-cold-hot-cold cycle. Also features an energy-saving optimum start, calculating when it needs to fire the boiler to precisely achieve the required temperature at the required time each day. You can set different temperatures for up to 6 different time periods for each day of the week individually. As an RF (radio frequency) device it has the additional benefits of no wiring required. Nor is a separate thermostat necessary.



**DT10RF Digistat 24-hour programmable room thermostat (for all Greenstar combis and system boilers using the optional built-in diverter valve)**

A 24-hour programmable room thermostat (which means your time settings remain the same for every day), with the ability to set different temperatures for up to 6 different time periods. No separate room thermostat is required and all the major benefits of no wiring required apply. This also helps you to comply with Buildings Regulations Best Practice, as programmable room thermostats can make even further savings over more traditional room thermostats and timers.



**DT20 Twin-channel digital programmer**

Plugs into the boiler fascia panel and sets automatically to current time, date and day, and adjusts automatically as appropriate in line with British summer time. There are 3 time periods for both heating and hot water (separately). Use either the pre-set programme built in, or choose your own settings.

*Add effective controls to your heating system and you can dramatically reduce the amount of fuel you use – and the amount you pay. Worcester has a wide range of controls, from mechanical devices to sophisticated digital and wireless systems. So whichever Worcester Greenstar boiler you choose, you can add controls that will suit you and your home.*



**Intelligent System Package (for Greenstar 30CDi system boiler only)**

The ultimate but easy-to-use control solution, this optional intelligent system upgrade is a combination of the TD200 text display 7-day programmer and RT10 room thermostat with a built-in diverter valve.

# The new generation of intelligent controls



## FR10 Intelligent Room Thermostat

The FR10 is an intelligent room thermostat that will offer around 11% energy savings compared to standard on/off controls. It does so by using a load compensation feature that, rather than just switching the boiler on and off, will adjust the flow temperature of the central heating water in line with set heating temperature requirements. The smaller the difference between the actual temperature and the set-point temperature, the lower the flow temperature from the boiler. In this way the FR10 minimises boiler cycling so less energy is wasted in firing up the boiler after each 'off' cycle.



## FR110 Programmable Room Thermostat

The FR110 is an intelligent programmable room thermostat that works in much the same way as the FR10 but with the added benefit of built-in programming so there is no need for a separate programmer. The controller provides the choice of six weekly heating programmes, with six switching points per day. When used with system boilers it also offers a weekly hot water programme with six switching points per day. On 'combi' boilers the six switching points can be used to switch preheat on where the hot water will be delivered to the tap quickly, and energy saving economy mode where the preheat function is turned off.

As well as providing the user with the ability to programme the system themselves, the FR110 offers 3 pre-set temperature profiles for added convenience.



Outdoor sensor

## FW100 Weather Compensation Controller

The FW100 is a weather compensation controller that helps the boiler anticipate changes in heating demand based on the temperatures outside. It comprises a programmable indoor unit to control the boiler and an external sensor that is fixed to a north facing wall. The indoor unit can be mounted on the fascia of the boiler using its simple plug-in connection, or wall-mounted remotely. The FW100 offers the user three weekly heating programmes, with six switching points per day and a weekly hot water programme with six switching points per day. For extra convenience there are also pre-set temperature profiles, including an economy setting to ensure the home does not get cold when unoccupied and will warm quickly when switched to comfort setting. It also includes a manual override for the user to boost or reduce heating if and when required.



## ISM1 Intelligent Solar Module

The ISM1 is a specially designed interface that integrates a solar heating system with a solar-compatible weather or load compensation unit such as the FW100 or FR110. As such, it lets the hot water system take heat from the solar panels when the sun is shining and then bring the boiler back on when there is not enough sunshine available. In this way, the user gets maximum benefit from solar heating at the same time as making sure that hot water is always available. Another major benefit is that you only need one controller to control both the solar and boiler systems, making the system much easier to use. The in-built intelligence of the FR110 and FW100 ensure that solar-related information is only displayed when the ISM1 is connected, to avoid confusion.

# The Greenstar condensing oil-fired boiler range specification and features.

Feature	CONDENSING REGULAR BOILERS												
	Danesmoor 18/25	Danesmoor Utility 18/25	Danesmoor Utility 32/50	Danesmoor Utility 50/70	Camray 12/18	Camray 18/25	Camray 25/32	Camray Utility 12/18	Camray Utility 18/25	Camray Utility 25/32	Camray External 12/18	Camray External 18/25	Camray External 25/32
SEDBUK (%) and band	92.9% Band A	92.9% Band A	93% Band A	92.5% Band A	93.1% Band A	93.2% Band A	94.2% Band A	93.1% Band A	93.2% Band A	94.2% Band A	93.1% Band A	93.2% Band A	94.2% Band A
Height (mm)	855	855	1012	1012	855	855	855	855	855	855	950	950	950
Width (mm)	370	370	520	520	370	370	370	370	370	370	565	565	565
Depth (mm)	600	600	815	815	600	600	600	600	600	600	780	780	780
Max. CH output (kW)	25	25	50	70	18	25	30	18	25	30	18	25	30
Multi-directional RS fluing, LH, RH rear & vertical	•	•	•	•	•	•	•	•	•	•	•	•	•
Maximum straight length RS horizontal flue (inc. terminal)	125mm 4,000	125mm 4,000	125mm 3,000	125mm 3,000	125mm 4,000	125mm 4,000	125mm 4,000	125mm 4,000	125mm 4,000	125mm 4,000	125mm 4,000	125mm 4,000	125mm 4,000
Maximum straight length RS vertical flue (inc. terminal)	125mm 6,000	125mm 6,000	125mm 6,000	125mm 6,000	125mm 8,000	125mm 8,000	150mm 8,000	125mm 8,000	125mm 8,000	150mm 8,000	125mm 8,000	125mm 8,000	150mm
Burner	Bentone Sterling 50	Bentone Sterling 50	Bentone Sterling 133	Bentone Sterling 146	Riello RDB 1	Riello RDB 2.2	Riello RDB 2.2	Riello RDB 1	Riello RDB 2.2	Riello RDB 2.2	Riello RDB 1	Riello RDB 2.2	Riello RDB 2.2
Weight (kg)	119	119	270	280	100	102	108	101	103	110	114	115	122
RS flue diameter (mm)	125	125	150	150	125	125	150	125	125	150	125	125	150
Open flue diameter (mm)	100	100	130	130	100	100	100	100	100	100	N/A	N/A	N/A
Optional plug-in timeclock	•				•	•	•						

Feature	CONDENSING SYSTEM BOILERS						CONDENSING COMBINATION BOILERS							
	Camray Utility System 12/18	Camray Utility System 18/25	Camray Utility System 25/32	Camray Kitchen System 12/18	Camray Kitchen System 18/25	Camray Kitchen System 25/32	Heatshave 12/18	Heatshave 18/25	Heatshave 25/32	Heatshave External 12/18	Heatshave External 18/25	Heatshave External 25/32	Danesmoor 12/18	Danesmoor 18/25
SEDBUK (%) and band	93.1% Band A	93.2% Band A	94.2% Band A	93.1% Band A	93.2% Band A	94.2% Band A	90.2% Band A	90.1% Band A	90.3% Band A	90.2% Band A	90.1% Band A	90.3% Band A	92.7% Band A	92.8% Band A
Height (mm)	855	855	855	855	855	855	855	855	855	950	950	950	880	880
Width (mm)	370	370	370	370	370	370	520	520	520	690	690	690	600	600
Depth (mm)	600	600	600	600	600	600	600	600	600	770	770	770	380	380
DHW flow rate @ 35°C ΔT							15	18	22	15	18	22	N/A	N/A
Max. CH output (kW)	18	25	30	18	25	30	18	25	32	18	25	32	18	25
Multi-directional RS fluing, LH, RH rear & vertical	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Maximum straight length RS horizontal flue (inc. terminal)	125mm 4,000	125mm 4,000	125mm 4,000	125mm 4,000	125mm 4,000	125mm 4,000	125mm 4,000	125mm 4,000	125mm 4,000	125mm 4,000	125mm 4,000	125mm 4,000	125mm 4,000	125mm 4,000
Maximum straight length RS vertical flue (inc. terminal)	125mm 150mm N/A	125mm 150mm N/A	125mm 150mm N/A	125mm 150mm N/A	125mm 150mm N/A	125mm 150mm N/A	125mm 150mm N/A	125mm 150mm N/A	125mm 150mm N/A	125mm 150mm N/A	125mm 150mm N/A	125mm 150mm N/A	125mm 150mm N/A	125mm 150mm N/A
Burner	Riello RDB 1	Riello RDB 2.2	Riello RDB 2.2	Riello RDB 1	Riello RDB 2.2	Riello RDB 2.2	Bentone Sterling 40	Bentone Sterling 50	Riello RDB 2.2	Bentone Sterling 40	Bentone Sterling 50	Riello RDB 2.2	Riello RDB 1	Riello RDB 1
Weight (kg)	109	111	118	109	111	118	177	177	179	195	195	206	117	117
RS flue diameter (mm)	125	125	150	125	125	150	125	125	125	125	125	125	125	125
Open flue diameter (mm)	100	100	100	100	100	100	100	100	100	N/A	N/A	N/A	100	100
Optional plug-in timeclock							•	•	•				•	•

NOTE: This matrix is for a guide only, full technical details are available within the Technical and Specification brochures for these products. Correct at time of printing.

# The Greenstar condensing LPG boiler range specification and features.

Worcester. At your service.

	REGULAR								SYSTEM				COMBINATION								
	12Ri	15Ri	18Ri	24Ri	30CDi Conventional	40CDi Conventional	FS 30CDi Regular	FS 42CDi Regular	12i System	24i System	30CDi System	24i Junior	28i Junior	25Si	30Si	27CDi	30CDi	37CDi	42CDi	Highflow 440CDi	Highflow 550CDi
Wall hung (w) Floor standing (F)	W	W	W	W	W	W	F	F	W	W	W	W	W	W	W	W	W	W	W	F	F
Height (mm)	600	600	600	600	760	760	850	850	710	710	760	710	710	710	760	760	760	760	850	850	
Width (mm)	390	390	390	390	440	440	600	600	400	400	440	400	400	400	440	440	440	440	600	600	
Depth (mm)	270	270	270	270	360	360	400	400	330	330	360	330	330	330	360	360	360	360	600	600	
DHW flow rate @ 35°C ΔT	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.8	11.4	10.2	12.3	11.1	12.6	15.1	17.2	20	25	
CH output (kW)	4-12	5-15	6-18	8-24	11-30	13.9-40	10.5-30	12-40.8	4-12	7.2-24	11-30	7.2-24	7.2-24	7.2-24	11-26.2	11-30	13.9-30	13.9-30	10.5-29.2	12-30.6	
Multi-directional fluing LH, RH, rear & vertical	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Maximum horizontal flue length (mm) (inc terminal)	100mm 4000 125mm 13000	100mm 4000 125mm 13000	100mm 4000 125mm 13000	100mm 4000 125mm 13000	100mm 7900 125mm 18500	100mm 6000 125mm 12500	100mm 4000 125mm 13000	100mm 4000 125mm 13000	100mm 4600 125mm 13000	100mm 4600 125mm 13000	100mm 7900 125mm 18500	100mm 4600 125mm 13000	100mm 4600 125mm 13000	100mm 4600 125mm 13000	100mm 4600 125mm 13000	100mm 10000 125mm 23000	100mm 7000 125mm 16000	100mm 8000 125mm 16000	100mm 5000 125mm 12000	100mm 6000 125mm 13000	100mm 4000 125mm 13000
Maximum vertical flue length (mm) (inc terminal)	100mm 6400 125mm 15000	100mm 6400 125mm 15000	100mm 6400 125mm 15000	100mm 6400 125mm 15000	100mm 9400 125mm 18500	100mm 7500 125mm 16000	100mm 6400 125mm 15000	100mm 6400 125mm 15000	100mm 6400 125mm 15000	100mm 6400 125mm 15000	100mm 9400 125mm 18500	100mm 6400 125mm 15000	100mm 6400 125mm 15000	100mm 6400 125mm 15000	100mm 6400 125mm 15000	100mm 11500 125mm 23000	100mm 8000 125mm 16000	100mm 8000 125mm 16000	100mm 7500 125mm 16000	100mm 6400 125mm 15000	100mm 6400 125mm 15000
Modulation of CH and DHW	CH only	CH only	CH only	CH only	CH only	CH only	CH only	CH only	CH only	CH only	.	.	.	.	.	.	.	.	.	.	
Electronic ignition	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Built-in bypass	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	.	.	.	.	.	.	*	*	*	*	*	*	
Built-in filling link	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Optional	Optional	Optional	Optional	Optional	Optional	.	.	.	.	.	.	
Built-in frost thermostat	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Optional wireless room thermostats	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	. <sup>1</sup>	. <sup>1</sup>	. <sup>1</sup>	.	.	.	.	.	.	.	.	.	
Pipes behind boiler	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Ventilation free compartment installation	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
LPG boiler	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
LPG SEDBUK number (%)	91.4%	91.4%	91.4%	92.0%	92.3%	92.0%	91.9%	91.1%	91.4%	92.0%	92.3%	91.8%	91.8%	91.8%	92.2%	92.2%	92.2%	92.2%	92.2%	92.2%	
Fault finding diagnostics	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
Pre-plumbing jig	N/A	N/A	N/A	N/A	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	



*“Worcester is here to help, from choosing your boiler to keeping it maintained.”*

### A helping hand – even after installation

We’re always on hand to help, whether you’re just starting to think about buying a Worcester boiler, or you’ve owned one for years. We have over 300 Service Engineers to ensure your products deliver energy-saving performance year after year. Our experienced and award-winning technical support team are also available on the phone or online to offer help with any aspect of your Worcester boiler. They can help with choosing the right controls, as well as advising on combining your boiler with environmentally-friendly, cost-saving renewable systems like solar water heating panels.

### Warranties for extra peace of mind

To give you even more reassurance, we offer warranties on all our products. To find out more, visit [www.worcester-bosch.co.uk](http://www.worcester-bosch.co.uk)

### Find an installer

Of course, a qualified installer is always the best source of advice, and we’ll help you find a professional installer who’s local to you. Just call 08457 256 206, or visit us at [www.worcester-bosch.co.uk/findaninstaller](http://www.worcester-bosch.co.uk/findaninstaller)

### Worcester comes top of Which? customer service survey

We have worked hard to ensure our customer care is of the highest quality. So we're pleased to know that Which? think our efforts have paid off. They asked over 4,000 Which? members whether they were satisfied with their boiler cover. The result: 'The winner by far was Worcester, which was rated highly for customer care and value for money.'

NOTE: This matrix is for a guide only. Full technical details are available within the Technical and Specification brochures for these products. <sup>1</sup>Only when an optional built-in diverter valve is used. <sup>2</sup>LPG appliances to be launched May 2009. \*No bypass required.





## Worcester Greenskies solar water heating panels. The award-winning way to save energy and reduce bills.



*To get up to 70% of your hot water free – and to make more of a positive impact on the environment – combine our Greenstar regular and system boilers with Greenskies solar water heating panels. It's the future of home heating – and it's here today.*

Our high-efficiency Greenstar boilers are helping cut the amount of fossil fuels we use to heat our homes. But we're committed to doing even more for the environment.

Our range of alternative systems is growing all the time as we develop products that use renewable, sustainable sources of energy to provide you with hot water and heating all year round.

### **Solar savings**

To add to the savings on fuel costs a Greenstar boiler can deliver – and to make even less of an impact on the environment – combine it with our Greenskies solar water heating panels. They can save up to 70% of your hot water costs using the energy from the sun.

It works alongside your existing system (regular and system boilers only) seamlessly, and is highly efficient, completely controllable and very easy to maintain.

### **Works come rain or shine**

Greenskies solar water heating panels do not always rely on high temperatures or direct sunlight to work. Even on cloudy days, they can deliver significant energy savings. That's because they work on the principle of light absorption, rather than needing heat or direct sunlight.

### **Planning permission now simpler**

Unless your home is a listed building or in a conservation area, planning permission for solar water heating panels is no longer required.

### **Up to £400 cashback on installation**

Through the government's Low Carbon Buildings programme, you can apply for a grant of £400 to help with the cost of installation. To find out more, visit [www.lowcarbonbuildings.org.uk](http://www.lowcarbonbuildings.org.uk)

### **Pay just 5% VAT**

The Low Carbon Buildings programme also entitles you to a reduction of the VAT you pay for installing renewable heating and hot water systems. Install Greenskies solar water heating panels and you pay just 5% VAT – a saving of 10%.

*Worcester Greenskies solar water heating panels.  
Voted CORGI's Energy Efficient Product of the Year,  
2007 and 2008 and OFTEC Green Product of the  
Year 2008.*



# Greenstore ground source heat pumps. Heating and hot water from natural energy.

## Ground source heat pumps

Worcester has been leading the way in alternative heating and hot water systems for many years – as demonstrated by Greenstore ground source heat pumps. There are 2 types – system and combi. The system models require a separate cylinder which is also solar compatible. The combi models have an integrated cylinder.

The ground loop is installed under the ground on your property, they can meet your total heating and hot water needs, using the heat energy stored in the earth when sized correctly. The principle is simple and the result is low-cost comfortable heating that uses sustainable energy and causes no direct emissions or other damage to the environment. There's no need for a boiler, and once installed, you need never pay another gas bill.\*

**£2000  
cashback**

on Greenstore ground  
source heat pumps until  
end of 2009.

See website for more details.

This cannot be claimed in conjunction  
with a government grant.

## How efficient is Greenstore?

The only energy needed for Greenstore is electricity, which powers the heat pump itself. For every one unit of electrical energy used, up to four units of heat can be produced from stored natural energy. It makes a Worcester ground source heat pump a highly efficient source of heating and hot water, helping you cut bills and reduce your carbon footprint.

## Government grants

The government's Low Carbon Buildings program offers a grant of up to £1,200 towards the cost of a heat pump installation. To find out more, visit [www.lowcarbonbuildings.org.uk](http://www.lowcarbonbuildings.org.uk)

## A system to suit every property

Greenstore ground source heat pumps can be connected to a range of collectors, allowing the flexibility to fit in most gardens. Ask your registered installer to find out more.

To find out if ground source heat pumps are suitable for your property, use our "Would ground source heat pumps suit my property?" facility on our website at [www.worcester-bosch.co.uk](http://www.worcester-bosch.co.uk)

\*Electricity is used to run ground source heat pumps.

## Methods of collection



Horizontal collector



Compact collector



Bore hole collector



Greenstore ground source heat pump.

# Greensource air source heat pumps.

## The next generation of greener heating solutions.

These products are used extensively in Scandinavia and use latent energy stored in the air to generate useable heat. They work at temperatures as low as -20°C and could reduce your fuel bills, as well as your carbon footprint.

Though powered by electricity, Greensource air to water heat pumps could produce up to 4kW units of energy for every 1kW used – making them very fuel- and cost-efficient.

### Air to water heat pumps

The Greensource air to water heat pump heats water up to 65°C for use in baths, showers and radiators – although it's ideal for underfloor heating systems. It can fit new or existing heating systems and is simple to install.

#### The benefits of air to water

- Reduces your bills and your carbon footprint
- Simple to install and easy to maintain
- Compatible with all types of wet heating systems
- Delivers heating comfort all year round – even in the coldest winter



*Air to water heat pump (outdoor unit) connects to the indoor unit*

### Air to air heat pumps

The Greensource air to air heat pump needs no radiators or additional components.

A unit on the outside of your home draws air in, converting the energy stored in the air into useable heat to provide comfortable temperatures inside the home all year round. For every 1kW of energy used Greensource air to air heat pumps could produce 5kW. Even when the air is cold outside, they will continue to work effectively in temperatures as low as -20°C, which are not typical of British winters.

As an additional benefit the Greensource air to air heat pump also incorporates plasmacluster Ion Technology, a unique air purification feature which neutralises airborne bacteria, viruses and allergies and is particularly beneficial to asthma and hay fever sufferers.

#### The benefits of air to air

- Suitable for a wide variety of properties – including apartments and conservatories
- Quiet operation
- Provides warm air in winter and cool air in summer
- Saves fuel and money with sustainable energy
- Improves the air quality in your home
- Simple to use remote control

Find out more about Worcester's renewable technology solutions at our Energy Houses website.

[www.worcester-bosch.co.uk/energyhouses](http://www.worcester-bosch.co.uk/energyhouses)



*Air to air heat pump (indoor unit)*

*This unit must be installed by a qualified refrigeration engineer*

## Useful numbers

Consumer Helpline  
(Pre- & Post-Sales)  
Tel: 08705 266241  
Fax: 01905 752741

Service  
Tel: 08457 256206  
Fax: 01905 757536

Literature  
Tel: 01905 752556  
or download instantly from our website

Renewables Phone Team  
Tel: 01905 752780  
email: [renewable.energy@uk.bosch.com](mailto:renewable.energy@uk.bosch.com)

# [www.worcester-bosch.co.uk](http://www.worcester-bosch.co.uk)



In partnership with



Worcester, Bosch Group is a brand name of Bosch Thermotechnology Ltd.

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