

# Greenstar gas-fired condensing boilers from Worcester.

Making a positive difference to your life,  
your fuel bills and the environment.



**Dedicated to heating comfort**

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# The comfort of knowing that every Worcester Greenstar boiler can save you money.



By appointment to  
Her Majesty The Queen  
Boiler Manufacturer  
Worcester, Bosch Group T/A  
Bosch Thermotechnology Ltd.

For the third year running, in the 2013 survey of Which? members who own a boiler, no other brand beat the Worcester Greenstar range of gas-fired condensing boilers for efficiency and reliability. This is why all of the boilers tested from the Greenstar range qualify to be a Which? Best Buy.

In addition to receiving Best Buy recommendations, the latest Which? report also praised the Worcester, Bosch Group brand after sales service which came top for the fifth consecutive year.

**Call 0330 123 9339 or visit [www.worcester-bosch.co.uk](http://www.worcester-bosch.co.uk) to find out more.**



Worcester is a market leader in high efficiency, condensing boiler technology and all of our products are designed to deliver reliable and efficient heating and hot water comfort.

Our Greenstar range of gas-fired and LPG condensing boilers can help reduce your fuel bills and your carbon footprint. We are also leading the way in environmentally-friendly heating and hot water production through our commitment to developing innovative renewable energy solutions.

Inside this brochure, you will find all you need to know about the Worcester options available and how we can help make it easy for you and your qualified installer to find the right boiler for your home and lifestyle.

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# Wherever you live, Worcester keeps it feeling like home.

## **It only feels like home if it's warm and comfortable**

Which is why the boiler you choose is so important.

With Worcester, you have a boiler you can rely on year in, year out. As part of the Bosch Group, our products are designed and built to exacting standards, and constructed with only the highest quality materials, to provide the levels of quality and reliability which are synonymous with the Bosch name throughout the world. Every boiler is rigorously tested before it leaves the factory, to ensure that it is fit for everyday use and meets our customer requirements.

So with annual maintenance, a Worcester condensing boiler will provide you and your family with warmth, comfort and all-important peace of mind for many years.



**BOSCH**  
Invented for life



Product testing at Worcester.

## **The Robert Bosch Foundation**

As part of the Bosch Group, a percentage of the profits made by Worcester is donated to charities and good causes by the Robert Bosch Foundation, a non-profit charitable trust. 92% of Bosch Group shares are held by the Robert Bosch Foundation, helping the organisation as a whole to focus on long term activities, rather than concentrating on share dividends. It means that you won't see any companies associated with the Bosch Group on any stock markets. Since its founding in 1964, the Robert Bosch Foundation has spent £757 million on funding for social improvement initiatives.

# Worcester. Trusted for half a century.



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

And a recent Worcester customer satisfaction survey revealed that 9 out of 10 professional installers would choose Worcester for their own homes. This 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**

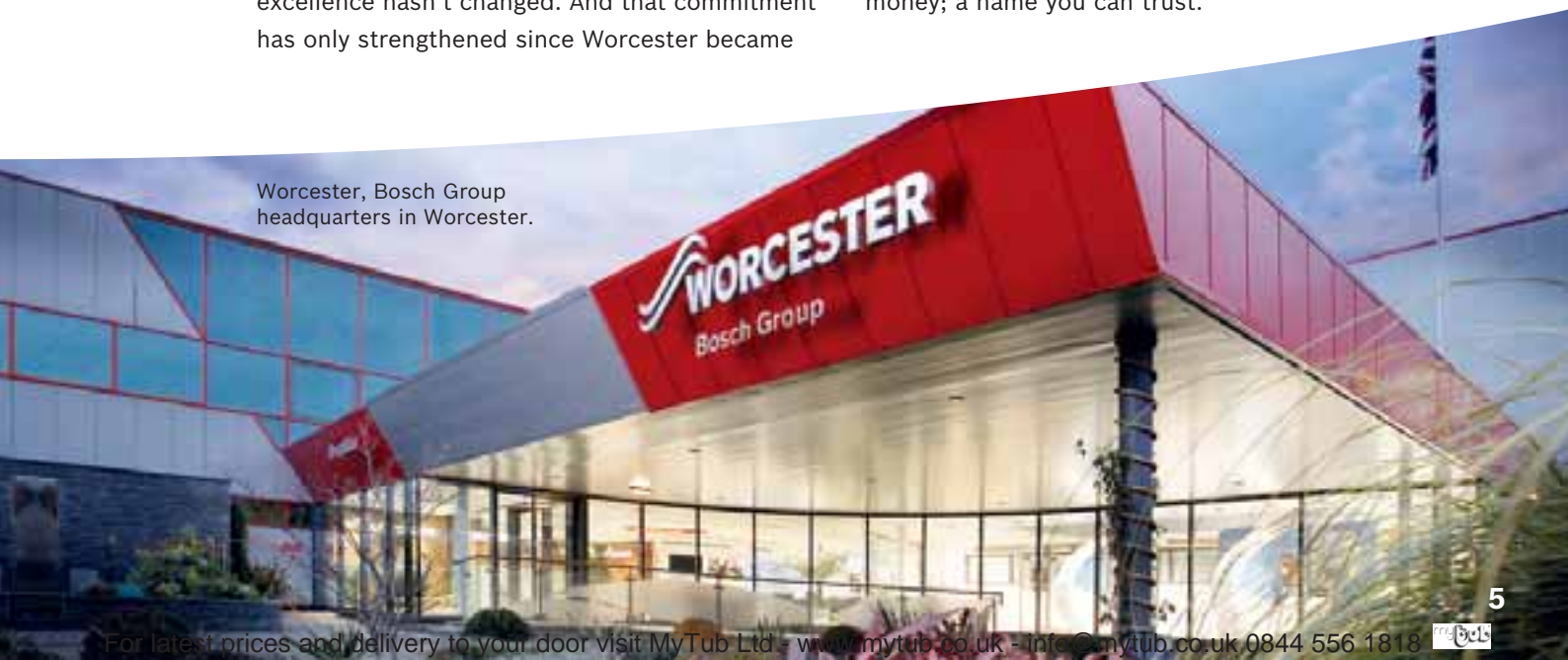
Since 1962, when Worcester pioneered domestic oil-fired boilers, the company's commitment to excellence hasn't changed. And that commitment has only strengthened since Worcester became

a part of the Bosch Group – one of the world's leading names in innovative technology.

Today, many years and millions of boilers later, Worcester is a market leader in domestic heating and hot water appliances. The company employs over 1,500 people at our headquarters and manufacturing plants in Worcester and at Clay Cross in Derbyshire – including a nationwide network of over 300 directly employed Service Engineers and over 40 technical advisors based at Worcester.

All of this makes Worcester a name that stands for reliability, quality, efficiency and value for money; a name you can trust.

Worcester, Bosch Group  
headquarters in Worcester.



If your boiler is over 10 years old, it could be time to consider replacing it with a new model.





### Why should I consider changing my boiler?

It's surprising but true; older boilers can be as little as 60% efficient and even many comparatively modern boilers are still only 70-75% efficient. Compare that to Worcester Greenstar condensing boilers which are more than 90% efficient.

Put another way, with our condensing boilers, more than 90p of every £1 you spend on fuel for your boiler is used effectively for your heating and hot water.

### What makes a condensing boiler so efficient?

Condensing boilers work by recovering the waste heat which is expelled through the flue system of a non-condensing boiler and passing it through a second heat exchanger where it extracts additional heat.

This is why it makes such good sense to switch to an award-winning Worcester boiler. With a boiler that's 10 years old or more, which doesn't have the benefit of today's condensing technology, as much as 30%\* spent on fuel for your heating and hot water is wasted. It could make a big difference to your household energy bills. The recent upward trend in fuel prices could mean that even bigger savings are possible when you upgrade your heating system. This will not only save you money, but also help to reduce your carbon footprint at the same time.


Combine a new Greenstar boiler with the latest in digital and intelligent heating controls and you can make your money go even further.

Measure	Annual saving (£/yr)	CO <sub>2</sub> saving a year
Condensing boiler and heating controls upgrade	Around £300**	Up to 1,100kg

Changes to the Building Regulations in recent years mean that in virtually all new and replacement boiler installations† a high-efficiency condensing boiler must be used.

### Your home's energy rating

The Energy Performance Certificate (EPC) is required by anyone selling a home. It rates a home's energy efficiency, giving potential buyers an idea of how green, or how costly, their new home will be. It is widely recognised that installing a high-efficiency condensing boiler will improve your home's rating. Some Greenstar gas-fired boilers are also compatible with a Greenstar Plus – Hybrid system.

One more way to help improve the energy-efficiency rating of your home, and to significantly reduce your fuel bills and carbon dioxide emissions, is to install a solar water heating system. All Greenstar regular and system boilers can be used with a Worcester Greenskies solar water heating system to generate your hot water (see page 30). Depending on the positioning of the solar panels, they could provide up to 60%†† of your annual hot water, free of charge from a clean, renewable source of energy. Look for the  symbol to indicate boilers which are solar compatible.

### Worcester Energy Houses

Worcester's Energy Houses are real-life case studies which show the difference that switching to Worcester products can make to your bills, your lifestyle and the environment. You can see how we could help you reduce your energy consumption by visiting [www.worcester-bosch.co.uk/energyhouses](http://www.worcester-bosch.co.uk/energyhouses)

\*Source: Energy Saving Trust. †Exceptions can apply. ††Energy Saving Trust (Publication CE102). \*\*Source: Energy Saving Trust. Based on replacing a G-rated gas-fired boiler with a new A-rated gas-fired condensing boiler and full set of heating controls in a typical 3 bedroom semi-detached home.

# Which type of condensing boiler is right for you?

## It's so simple to make your mind up

Every household is different, so the heating and hot water needs of someone living in an apartment will be very different from those with a large family home – our Greenstar range is available in three boiler types: 'combi', regular and system.

Each of the three types of boiler delivers all the benefits of high-efficiency technology, so you just need to weigh up which suits your needs, the size of your home and your lifestyle and it's easy to come to a decision on what's best for you.

## The easy way to choose

It's important that you find out as much as you can before you decide on the boiler that's right, so why not try the helpful 'find a boiler' tool you'll find on our website at [www.worcester-bosch.co.uk/findaboiler](http://www.worcester-bosch.co.uk/findaboiler)

Alternatively you can call our customer helpline on **0330 123 3366**. It is also essential that you consult your Gas Safe registered engineer or installer to help advise you on what boiler is most suitable for your property.

## The lifetime of your boiler

All Worcester Greenstar gas-fired 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 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.

## Guarantees and spare parts



All Worcester Greenstar gas-fired boilers come with a 2 year\* guarantee as standard and a 10 year\* guarantee on the primary heat exchanger.



For added peace of mind, we also hold spares for our boilers for at least 10 years after they have been discontinued.

## Considerations for choosing a new boiler

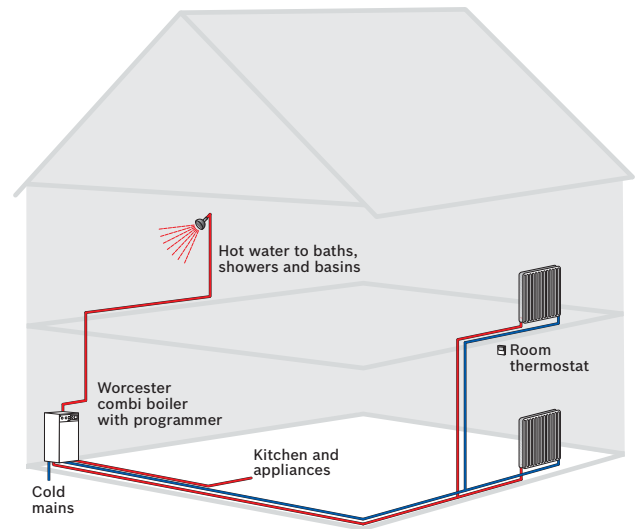
Consideration	Most suitable boiler
You want to use your loft space for a room conversion or other purpose	Combi or System (unvented cylinder)
You live in a flat or bungalow (i.e. have very little or no roof space)	Combi or System (unvented cylinder)
Your home has more than 2 bathrooms	Regular, System or floor standing Combi
Your mains water pressure is low	Regular or System
You want to replace an old boiler to improve an existing conventional central heating system	Combi, Regular or System
There is a need to have hot water available on tap without waiting for it to heat up	Combi
<b><i>If you need to discuss your boiler requirements, call our customer helpline on 0330 123 3366</i></b>	



### What is a 'combi' boiler?

A 'combi' or combination boiler is a high efficiency water heater and a central heating boiler combined (hence the name) within one compact unit. Water is heated directly from the mains eliminating the need for a hot water storage cylinder and the associated cold water storage cistern in the roof space. Because your hot water is delivered to your taps or shower at mains pressure it's very convenient and can save on your hot water costs. As an added benefit, showers from a 'combi' can be comparable with the performance of a power shower.

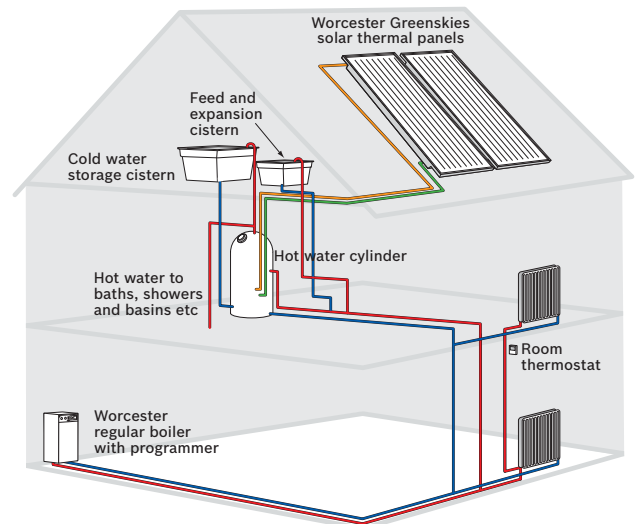
So a 'combi' can also give you a little extra room to play with, making it ideal for a flat or a bungalow with very little or no roof space and it's also the right choice if you want to use your loft space for a room conversion. Another 'combi' benefit is that it can generally save you money on installation time and costs as well as installation materials.



**Combi boiler layout**

### What is a regular boiler? ☀️

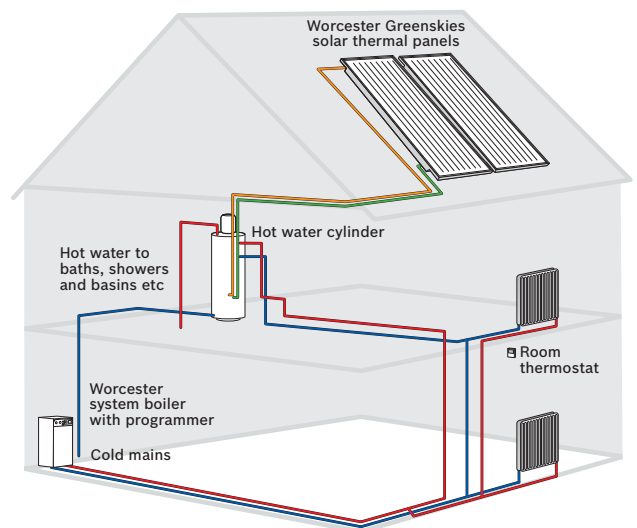
Regular boilers – sometimes referred to as traditional or conventional boilers – are suitable for homes that already have a traditional heating and hot water system that requires a separate hot water cylinder. Regular boilers also require a cold water storage cistern to feed the hot water cylinder and an expansion cistern in the loft. They are a good option for any home where a large volume of stored hot water is required e.g. homes with two or more bathrooms, or in areas where the water pressure is low. A regular boiler may be the best option when replacing an existing boiler in a property with an old radiator system which might not be able to cope with the higher pressure of a combi system. Regular boilers are compatible with solar water heating systems to bring you the added benefits of environmentally friendly hot water and further cost savings.



**Regular boiler layout and solar water heating system**

### What is a system boiler? ☀️

Both a system boiler and a regular boiler work on the principle of stored hot water – but a system boiler is different in two important ways. Firstly, many of the components of the heating and hot water system are built into the boiler itself, making it quicker and easier to install. Secondly, it doesn't need a feed and expansion vessel in the loft. There are two kinds of cylinder which this type of system may have – a mains pressure hot water cylinder or a low pressure hot water cylinder. They are also compatible with solar water heating systems to bring you the added benefits of environmentally friendly hot water and reduced hot water and heating costs.



**System boiler layout and solar water heating system**  
(System boiler with unvented hot water cylinder)



Worcester offers a range of Greenstore unvented hot water cylinders for use with Greenstar regular and system boilers. See pages 24-25 for details.

*Drawings are for illustrative purposes only.*

**NEW**



The CDI Compact's dimensions allow it to be installed inside a cupboard.

# The all-new Greenstar CDi Compact.

## CDi performance, compact design.

The Worcester Greenstar CDi Compact combi series, with domestic hot water flow rates of 11.4, 13.1 and 14.7 l/min, is our next generation of innovative, wall-mounted gas combi boilers. The Greenstar CDi Compact is an addition to our top-of-the-range CDi boiler series and is suitable for small, medium and large-sized properties with one or two bathrooms.

The CDi Compact comes with a host of design features that makes the boiler easy to site, simple to install and effortless to use and service.

At the forefront of the CDi Compact design is the feedback that Worcester has gathered from both installers and homeowners. Its standard kitchen cupboard dimensions, a unique wall mounting jig, practical hydraulic unit and simple-to-use intelligent controls are just some of the new features manufactured purely with our customers in mind.



### Advanced, easy-to-use controls

The Greenstar CDi Compact has a new in-built boiler display, to give both the installer and homeowner a vast range of features that allow the heating system to be as efficient and flexible as possible.

**Combi Pre-heat mode** – With the Domestic Hot Water Combi Pre-heat Accessory, the CDi Compact intelligent control allows the boiler to accept pre-heated water at temperatures of up to 60°C\* from a secondary source such as Greenskies solar thermal.

**ECO mode** – When set to ECO mode, the CDi Compact will use less gas or LPG, as the energy will only be used on demand, allowing for energy-saving fuel consumption.

**Comfort mode** – All Greenstar combi boilers have an in-built ‘keep hot or pre-heat’ facility which will keep the primary water within the heat cell hot. This ensures that hot water is delivered instantaneously to an opened outlet.

**Optional plug-in controls** – With front-access easy-wiring, the Greenstar CDi Compact is also compatible with all Worcester on/off and intelligent controls options. Third party heating controls may also be used.



Desired central heating and domestic hot water temperatures can be easily read and adjusted.

\*At a temperature rise of 35°C to the incoming water mains.



Greenstar CDi Classic condensing combi boiler.

# Greenstar condensing combi boiler range.



## Wall mounted



**NEW**

### Greenstar 29CDi Classic, 34CDi Classic, 38CDi Classic and 42CDi Classic series

**Central heating outputs:** All models – 30kW

**Hot water flow rates:** from 12.3 to 17.2 litres per minute\* at 35°C temperature rise

- Our 'top-of-the-range', award-winning, wall mounted combi series has just got better. CDi Classic appliances offer a wide choice of operating features for greater user comfort and economy with their higher central heating outputs and increased hot water flow rates
- The higher output CDi Classic combis can be suitable for larger two bathroom properties
- CDi Classic appliances condense in both heating and hot water modes for even greater efficiency and fuel savings
- They also feature a modulating pump which uses up to 30% less electricity to run than a non-modulating pump
- An extensive choice of controls is available for use with CDi Classic combis, including sophisticated intelligent controls which provide the ultimate in user convenience, performance and economy
- All CDi Classic appliances come with in-built frost protection and filling link.



**NEW**

### Greenstar 28CDi Compact, 32CDi Compact and 36CDi Compact series

**Central heating outputs:** All models – 24kW

**Hot water flow rates:** from 11.4 to 14.7 litres per minute\* at 35°C temperature rise

- Our smallest combi boiler, the CDi Compact can be installed in a wide range of locations, including inside a standard kitchen cupboard
- Despite their compact size, the CDi Compact combis' high outputs can make them suitable for larger properties with perhaps a bathroom and an en-suite
- CDi Compact appliances condense in both heating and hot water modes for greater efficiency and savings on fuel
- The CDi Compact's modulating pump uses up to 30% less electricity to run than a normal circulating pump
- An innovative new heat exchanger design and advanced manufacturing technology results in higher efficiency, greater reliability and durability
- Large easy-to-read, user-friendly displays
- Full range of optional controls is available for use with CDi Compact combis, including sophisticated intelligent controls for maximum user convenience and comfort
- All CDi Compact appliances come with in-built-frost protection and filling link.

For compatible optional controls see pages 20-23.

Greenstar CDi Classic and CDi Compact boilers are compatible with the Greenstar Plus – Hybrid system. For more information see page 29.

**We always recommend you consult a qualified Gas Safe installer prior to choosing your boiler.**

\*Provided adequate mains pressure is available. ^Solar compatible with the use of the Domestic Hot Water Combi Pre-heat Accessory.



Greenstar Si Compact condensing combi boiler.

# Greenstar condensing combi boiler range.

## Wall mounted



**NEW**

### Greenstar 25Si Compact and 30Si Compact series

**Central heating outputs:** Both models – 24kW

**Hot water flow rates:** 10.2 and 12.3 litres per minute\* at 35°C temperature rise

- Si Compact combis are suitable for apartments and small- to medium-sized 1 bathroom properties
- Si Compact combis allow the hot water temperature to be controlled and can be used with a wider range of optional mechanical, digital and wireless programmers
- Si Compact combis can be installed in a variety of locations, including kitchen cupboards, utility rooms, bathrooms, airing cupboards, lofts or garages
- All Si Compact appliances come with in-built frost protection.



**NEW**

### Greenstar 24i Junior and 28i Junior series

**Central heating outputs:** Both models – 24kW

**Hot water flow rates:** 9.8 and 11.4 litres per minute\* at 35°C temperature rise

- Our entry level wall-mounted combi boiler range for smaller 1 bathroom properties
- i Juniors now feature hot water temperature control
- Compact in size, i Junior combis can be installed in a number of locations and can be used with a choice of mechanical, digital and wireless programmers
- All i Junior appliances come with in-built frost protection.

## Floor-standing



### Greenstar Highflow 440CDi and 550CDi series

**Central heating outputs:** 29.2 and 30.6kW

**Hot water flow rates:** 20 and 25 litres per minute\*^ at 35°C temperature rise

- A choice of two floor-standing combis which have been developed specifically for larger 2 bathroom properties where there is a heavier requirement for heating and hot water
- Highflow CDi combis incorporate many of the operating features of our wall-mounted combis and can be used with mechanical, digital, wireless and intelligent controls
- All Highflow appliances come with in-built frost protection and filling link
- Built-in condensate pump – up to 4.5 metres head
- Comes complete with a floor mounted pre-plumbing jig.

For compatible optional controls see pages 20-23.

Greenstar Si Compact and Greenstar i Junior boilers are compatible with the Greenstar Plus – Hybrid system. For more information see page 29.

**We always recommend you consult a qualified Gas Safe installer prior to choosing your boiler.**

\*Provided adequate mains pressure is available. ^Dependent on volume of hot water being delivered to taps. Refer to your installer.



Greenstar i System condensing system boiler.

*Appliance shown with pipework behind trunking.*





# Greenstar condensing system boiler range.

## Wall mounted



### Greenstar 30CDi Classic System

**Central heating output:** 30kW

- Our top-performing system boiler for bigger properties with a larger heating requirement
- For added user comfort and economy, the 30CDi System can be used with a choice of digital controllers\*
- Single-button holiday mode and frost protection
- When combined with our new generation of intelligent controls and Greenskies solar, further savings are achieved.



### Greenstar 12i, 15i, 18i, 24i, 27i and 30i System series

**Central heating outputs:** 12, 15, 18, 24, 27 and 30kW

- With their compact, space-saving dimensions, i System appliances are a good option for small- to large-sized properties with a heating system which includes stored hot water
- A choice of optional digital controls is available for use with all models in the series\*
- Built-in pump, expansion vessel, pressure gauge and pressure relief valve
- Plug-in optional diverter valve
- When combined with our new generation of intelligent controls and Greenskies solar, further savings are achieved.



For information on Worcester Greenstore hot water storage cylinders see pages 24-25.

For compatible optional controls see pages 20-23.

Greenstar CDi System and i System boilers are compatible with the Greenstar Plus – Hybrid system. For more information see page 29.

**We always recommend you consult a qualified Gas Safe installer prior to choosing your boiler.**

\*Provided the optional internal diverter valve is used. \*Greenstar 27i & 30i System not included for 2013 Which? Survey.



Greenstar FS CDi condensing regular boiler.

# Greenstar condensing regular boiler range.

## Wall-mounted



### Greenstar 30CDi and 40CDi Classic Regular series

**Central heating outputs:** 30 and 40kW

- Impressive heating outputs make CDi Regular boilers an excellent choice for installation in larger properties
- Our top-performing, wall-mounted regular boiler with fascia-mounted heating temperature control knob and operational status display.



### Greenstar 12Ri, 15Ri, 18Ri, 24Ri, 27Ri and 30Ri series

**Central heating outputs:** 12, 15, 18, 24, 27 and 30kW

- There is an Ri appliance suitable for small, medium and larger properties
- Smaller output Ri appliances have a fascia-mounted heating temperature control knob and neon operational status indicators
- Can be installed within kitchen cupboard
- Compatible with solar thermal systems
- Optional fascia controls available for 27 and 30kW models\*
- Built-in frost protection.



## Floor standing



### Greenstar 30FS CDi and 40FS CDi Regular series

**Central heating outputs:** 30 and 40kW

- FS CDi Regular appliances are the ideal choice when replacing an older floor-standing boiler in a larger property or when a wall-mounted boiler is not an option
- The FS CDi Regular is compatible with the new flexible flue system which enables the flue to be routed through an existing brick chimney
- FS CDi Regular appliances have a fascia-mounted heating temperature control knob and operational status display.



For information on Worcester Greenstore hot water storage cylinders see pages 24-25.

**We always recommend you consult a qualified Gas Safe installer prior to choosing your boiler.**

\*Providing the new Greenstar Wiring Centre is used. †Greenstar 27Ri & 30Ri not included for 2013 Which? Survey.

# Efficiency that today's energy-conscious homeowner demands.

Over the last few years, boilers have become increasingly efficient and, with condensing boilers already offering typical efficiencies of over 90%, there is little scope for significant developments in boiler efficiency.

But the one area of the system where we can help improve performance even further is in the controls.

More effective controls can improve the overall performance of your heating system, dramatically reducing the amount of fuel you use – and the amount you pay.

## Control options

Worcester can offer you three different types of control for use with 'combi' and system boilers. These range from simple-to-operate mechanical timers and more sophisticated digital programmers and room thermostats, right up to a new generation of intelligent controls.

Whichever you choose, you can rest assured that it is designed to be easy-to-use to make sure you get the benefit of being in full control of your heating and hot water.

For further information on each of these controls please visit [www.worcester-bosch.co.uk](http://www.worcester-bosch.co.uk)

## Heating controls – what are the differences?

The majority of heating systems have at least two controls: a timer clock or programmer and room thermostat. In fact, this is the minimum level of electrical controls specified by the Building Regulations for the installation of all boilers and is a legal requirement.

- A **timer or programmer** operates the heating system to turn on for set periods of time. Dial and digital controls can be either wall-mounted near to the boiler or attached to the fascia panel of the boiler. It will take at least 30 minutes for your home to reach the desired temperature when the boiler fires up, depending on insulation levels and the outside temperature. The main difference between the two controls is a timer will operate the system at the same times every day whilst a programmer allows different heating times for different days of the week to suit your lifestyle.
- A **room thermostat** controls the air temperature and is usually positioned in the hall or landing. The thermostat can be analogue or digital. It should be sited away from direct sunlight and clear of curtains and furniture. As a guideline, your thermostat should be set between 18°C-21°C for comfort temperature and 10°C-12°C for economy temperature.
- A **programmable room thermostat** allows you to programme the temperature levels to alter according to different times of the day and night. When programmed correctly, this type of control prevents the system having to heat the house from a “cold start”. The control always maintains a temperature within the property (as decided by the user). This ensures that the boiler is only ever “topping up” the temperature in the home.



## Mechanical timers



### **MT10 mechanical timer**

- The simplest Worcester control device
- Analogue clock for setting heating time periods.



### **MT10RF mechanical RF thermostat**

- Analogue display for setting comfort and economy time periods and temperature
- Receiver is activated remotely by radio frequency – requires no wiring
- Simple installation
- No need for a separate room thermostat.

## Digital and wireless programmers and room thermostats



### **DT20 twin channel digital programmer**

- Plugs into the boiler fascia panel and is pre-set to current time, date and day
- Adjusts automatically in line with British summer time
- Three separate time periods for both heating and hot water
- Use either the built-in pre-set programmes, or choose your own settings.



### **DT20RF digital RF thermostat with twin channel programmer**

- Features simple set-up
- Set up to three different time periods a day
- Room thermostat provides the temperature control
- Benefits from no wiring required
- Twin-channel facility times the domestic hot water function.



### **DT10RF digistat**

- 24-hour programmable room thermostat
- Set different temperatures for up to six different time periods.
- No separate room thermostat is required
- Benefits from no wiring required
- Complies with Buildings Regulations Best Practice.



#### **DT10RF optimiser**

- Sophisticated seven-day energy-saving device with the same features as the DT10RF digistat
- Optimum start – calculates the time needed to activate the boiler to precisely achieve the required temperature at the required time each day
- Set different temperatures for up to six different time periods for each day of the week
- As a radio frequency device, it offers the benefits of no wiring
- No separate thermostat necessary.

## Intelligent controls



#### **FR10 intelligent room thermostat**

- Intelligent room thermostat that enables load compensation
- Offers further energy savings compared to standard on/off controls.  
*(Load compensation means that, rather than just switching the boiler on and off, it 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.)*



#### **FR110 programmable room thermostat**

- Intelligent programmable room thermostat
- Load compensation for heating and time control of hot water systems
- Like the FR10 but with the added benefit of built-in programming
- Six weekly heating and hot water programmes, with six switching points per day.



#### **FW100 weather compensation controller**

- Weather compensation controller
- Anticipates changes in heating demand in relation to external temperatures
- Comprises a programmable indoor unit and an external sensor
- The indoor unit can be fascia-mounted or wall-mounted remotely
- Factory-set heat curves for use with radiators, underfloor heating and fan convectors.



#### **ISM1 intelligent solar module**

- The ISM1 integrates a solar heating system with the FW100 or FR110
- It enables the hot water system to take heat from the solar panels when appropriate or use the boiler
- Ensures the user gains maximum benefit from solar heating.

	FEATURES														BOILER TYPE										
	TYPE		MOUNT	TIME CONTROL					TEMPERATURE CONTROL				ELECTRICAL CONNECTION TYPE			COMBINATION			SYSTEM*		REG				
	Mechanical	Digital	Intelligent	Fascia-mounted	Wall mounted	Central heating	Hot water	24 hour	7 day	Auto switch – BST/GMT	Room thermostat	Programmable room thermostat	Optimum start	Boiler flow temp compensation	Plug-in	Radio frequency	Hard-wired	CDi Classic	CDi Compact	Si Compact	i Junior	Highflow CDi	CDi Classic System	i System	Ri
MT10	•			•		•		•						•			•	•	•	•	•				
MT10RF	•			•	•	•		•			•			•	•		•	•	•	•	•				
DT20		•		•		•		•	•					•			•	•	•	•	•	•	•		†
DT20RF		•		•	•	•		•	•	•				•	•		•	•	•	•	•	•	•		†
DT10RF digistat		•		•	•	•		•	•		•			•	•		•	•	•	•	•	•	•		†
DT10RF optimiser		•		•	•	•		•	•		•	•		•	•		•	•	•	•	•	•	•		†
Intelligent System Package		•		•	•	•		•	•		•	•				•						•			
FR10			•	•							•		•			•	•	•	•	•	•	•	•		
FR110			•	•	•			•	•		•	•	•			•	•	•	•	•	•	•	•		
FW100			•	•	•	•		•	•		•	•	•	•		•	•	•	•	•	•	•	•		
ISM1			•	•												•						•	•		

\*All compatible controls must be used with optional internal diverter valve.

†Only compatible with 27Ri and 30Ri models via a Worcester Greenstar Wiring Centre.

Intelligent controls.



# Greenstore unvented hot water storage cylinders – efficient hot water storage.

Worcester offers two types of Greenstore unvented hot water storage cylinder. The SC (single-coil) range is designed for use with Greenstar Regular or System boilers with a traditional radiator or underfloor system. Greenstar TC (twin-coil) cylinders have been developed specifically for use with Greenskies solar water heating systems. When used together, a combination of Greenstar and Greenskies appliances can provide a full system solution for the provision of heating and hot water comfort.

Greenstore cylinders are highly insulated to reduce hot water heat loss, addressing the growing demand of homeowners for reduced energy costs and lower carbon emissions.

## Greenstore cylinder features and benefits:

- Rapid re-heat – hot water quickly available
- 65mm insulation – outstanding heat retention and economical to run
- Duplex Stainless Steel construction – guaranteed for 25 years\*
- Wide range of cylinder capacities – suitable for properties and systems of all sizes
- Fully compliant with current legislation – allows funding to be gained from the Renewable Heat Incentive.



Greenstore SC and TC Cylinders

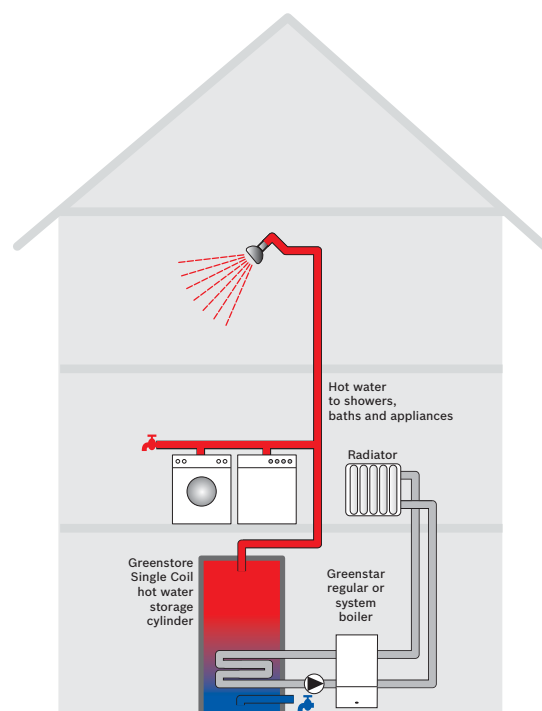
## The Greenstore SC single-coil series

The new Greenstore SC range benefits consumers who are looking for a cylinder to use with a boiler which offers an excellent flow rate with rapid re-heat, but who do not require solar compatibility.

The range is also suitable for consumers who require a smaller volume of hot water storage, being available with capacities from 93 litres.



Cylinder cross-section.



\*Terms and conditions apply.





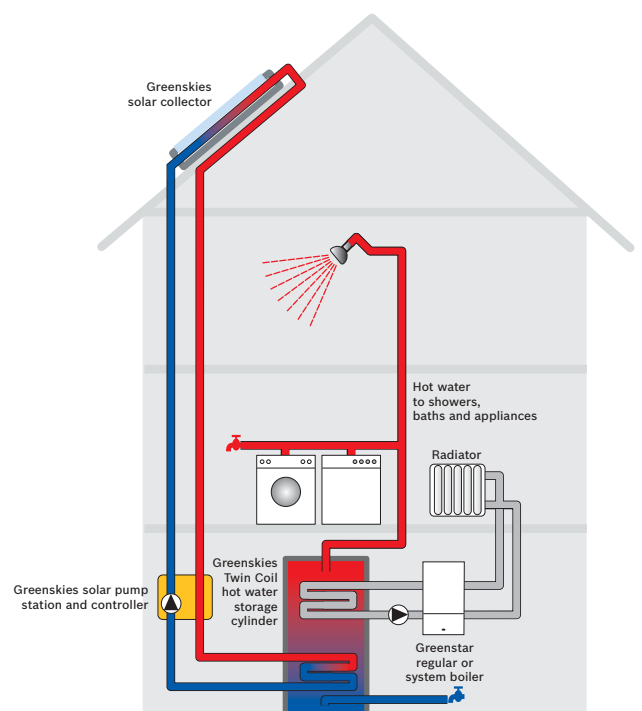
## The Greenstore TC twin-coil series

All of the models in the TC range feature high levels of insulation and dedicated volumes of solar hot water storage. Greenstore TC cylinders can also be used with Regular and System boilers, enabling solar water heating to be added to the system at a later date without the need to replace the cylinder. Capacities range from 158 litres to 287 litres.

TC cylinders are fully compliant with both current Building Regulations and the Microgeneration Certification Scheme (MCS), as well as anticipated future legislation.



Cylinder cross-section.



## The Worcester CondenseSure – eliminating the risk of frozen condensate.

All condensing boilers produce condensate which has to be discharged from the property. In the majority of cases, it will be possible to do this internally, but in some circumstances the location of the boiler means that the condensate pipe has to be routed externally or in an unheated area, with the possible risk of freezing in extreme weather conditions.

The Worcester CondenseSure is an innovative solution to freezing condensate that can be installed with any condensing boiler. Unlike other products designed to prevent freezing, the CondenseSure requires no electrical connection and has no moving parts.

### The CondenseSure features and benefits:

- No power consumption – zero running costs
- No moving parts – no failure of components
- Can be installed in new and existing installations – suitable for all Greenstar gas and oil boilers.



## The Worcester Greenstar System Filter – protecting your heating system.



The filter can be fitted under or away from the boiler.

Modern condensing boilers are precision-engineered and designed to run with a clean water-heating system. Over time, dirty system water will develop, damaging a boiler and its components, causing failures, shortening the life of the overall system and dramatically reducing the efficiency of the boiler.

### A highly effective solution

The Worcester Greenstar System Filter has been specifically designed to combat the damaging effects of system debris and pollutants, protecting the boiler and heating system for a fraction of its cost.

At the centre of its innovative design is a powerful magnet that removes the magnetic debris that is present in the heating system water. The central location of the magnet ensures that the debris is collected quickly and retained. Any non-magnetic debris is caught by the twin-action cyclonic trap, maximising overall protection.

### Greenstar System Filter features and benefits

- Highly effective – safeguards the boiler against damage and can save up to 6% a year on energy bills\*
- Prevents blockages in radiators – a warmer home and quieter system
- Twin action – effective against magnetic and non-magnetic system debris.

# The Greenstar condensing gas-fired boiler range.

## Technical specification and features overview.

	FEATURES														
	Wall hung	Floor standing	Height (mm)	Width (mm)	Depth (mm)	SEDBUK (%) Natural Gas†	SEDBUK (%) LPG†	Domestic hot water flow rate @ 35°C ΔT* (litres per min)	Central heating output (kW)	Domestic hot water control	Condenses in domestic hot water and central heating modes	Max. horizontal flue length (mm) (100mm dia)	Max. vertical flue length (mm) (100mm dia)	Fault finding diagnostics	Energy saving modulating pump
<b>COMBI BOILERS</b>															
<b>29CDi Classic</b>	•		760	440	360	90.1	92.0	12.3	7.7-30.0	•	•	7,900	9,400	•	•
<b>34CDi Classic</b>	•		760	440	360	90.1	92.0	14.3	7.7-30.0	•	•	7,000	8,000	•	•
<b>38CDi Classic</b>	•		760	440	360	90.2	91.9	16.4	9.4-30.0	•	•	6,000	7,500	•	•
<b>42CDi Classic</b>	•		760	440	360	90.2	92.2	17.2	9.4-30.0	•	•	6,000	7,500	•	•
<b>28CDi Compact</b>	•		690	390	280	90.5	92.6	11.4	7.03-24.0	•	•	6,000	6,000	•	•
<b>32CDi Compact</b>	•		690	390	280	90.5	92.6	13.1	7.03-24.0	•	•	6,000	6,000	•	•
<b>36CDi Compact</b>	•		690	390	280	90.5	92.6	14.7	7.03-24.0	•	•	6,000	6,000	•	•
<b>25Si Compact</b>	•		690	390	280	90.5	92.6	10.2	7.03-24.0	•	•	6,000	6,000	•	
<b>30Si Compact</b>	•		690	390	280	90.5	92.6	12.3	7.03-24.0	•	•	6,000	6,000	•	
<b>24i Junior</b>	•		710	400	330	90.1	91.9	9.8	7.2-24.0	•		4,600	6,400	•	
<b>28i Junior</b>	•		710	400	330	90.1	91.9	11.4	7.2-24.0	•		4,600	6,400	•	
<b>Highflow 440CDi</b>		•	850	600	600	90.4	92.2	20	7.4-29.2	•	•	4,000	6,400	•	•
<b>Highflow 550CDi</b>		•	850	600	600	90.1	92.2	25	9.7-30.6	•	•	4,000	6,400	•	•
<b>SYSTEM BOILERS</b>															
<b>30CDi Classic System</b>	•		760	440	360	90.3	92.3	N/A	7.7-30.0	•		7,900	9,400	•	•
<b>12i System</b>	•		710	400	330	90.1	91.4	N/A	3.0-12.0	•		4,600	6,400	•	
<b>15i System</b>	•		710	400	330	90.1	91.4	N/A	5.0-15.0	•		4,600	6,400	•	
<b>18i System</b>	•		710	400	330	90.1	91.4	N/A	6.0-18.0	•		4,600	6,400	•	
<b>24i System</b>	•		710	400	330	90.2	92.0	N/A	7.2-24.0	•		4,600	6,400	•	
<b>27i System</b>	•		690	390	280	90.3	91.8	N/A	7.03-27.0	•		6,000	6,000	•	•
<b>30i System</b>	•		690	390	280	90.3	91.8	N/A	7.03-30.0	•		6,000	6,000	•	•
<b>REGULAR BOILERS</b>															
<b>30CDi Classic Regular</b>	•		760	440	360	90.3	92.3	N/A	7.7-30.0			7,900	9,400	•	
<b>40CDi Classic Regular</b>	•		760	440	360	90.2	92.0	N/A	9.4-40.8			6,000	7,500	•	
<b>12Ri</b>	•		600	390	270	90.1	91.4	N/A	4.0-12.0			4,600	6,400	•	
<b>15Ri</b>	•		600	390	270	90.1	91.4	N/A	5.0-15.0			4,600	6,400	•	
<b>18Ri</b>	•		600	390	270	90.1	91.9	N/A	6.0-18.0			4,600	6,400	•	
<b>24Ri</b>	•		600	390	270	90.2	92.0	N/A	8.0-24.0			4,600	6,400	•	
<b>27Ri</b>	•		600	390	270	90.3	91.8	N/A	7.03-27.0			6,000	6,000	•	
<b>30Ri</b>	•		600	390	270	90.3	91.8	N/A	7.03-30.0			6,000	6,000	•	
<b>FS 30CDi</b>		•	850	400	600	90.5	91.9	N/A	7.7-30.0			4,000	6,400	•	
<b>FS 42CDi</b>		•	850	400	600	90.3	91.6	N/A	9.6-40.8			4,000	6,400	•	

\*Boiler flow rates limited by regulators to give 40°C ΔT. Minimum operating pressure required.

†SEDBUK percentage rating is 2005 measurement and CDi Compact, Si Compact, 27i System, 30i System, 27Ri and 30Ri (2005 equivalent) is included for comparison purposes.

This matrix is for a guidance only, full technical details are available within the Technical and Specification brochures for these products and should be consulted prior to selection with the assistance of a qualified Gas Safe installer.



# Greenstar Plus – Hybrid system.

The Greenstar Plus – Hybrid system combines the energy and cost-saving benefits of gas condensing boilers and heat pumps in a single unit, with intelligent fuel management controls to ensure economical operation.

The system comprises a variable speed electric (inverter) heat pump, outdoor unit, a buffer tank and a controller. When the system is combined with a new high-efficiency Greenstar gas condensing boiler (natural gas or LPG), the integral Hybrid Manager, which incorporates weather compensation, ensures that either the boiler or the heat pump is used to deliver maximum economy, depending on indoor/outdoor temperatures, time of day, etc.

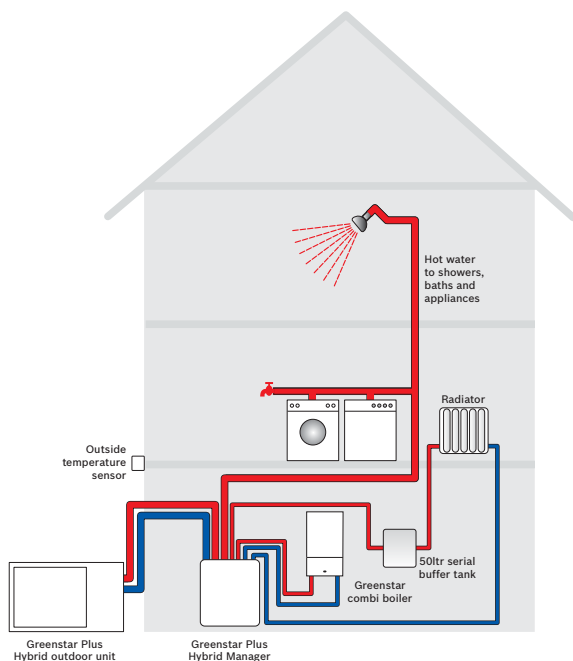
For example, you can enter your current gas and electricity tariffs into the Hybrid Manager and it will automatically determine whether it is more economical to use low carbon energy from the heat pump or to use gas to run the boiler. And if you change your energy provider, you simply enter the new tariffs to maintain maximum economy.

For additional energy savings, the Greenstar Plus – Hybrid features a low energy circulation pump, compliant with future legislation.

The compact design of both indoor and outdoor units, combined with very quiet operation, ensures that the Greenstar Plus - Hybrid is very discreet and unobtrusive.

## Key features and benefits

- Energy efficient – significant energy savings compared to traditional boiler-only system
- More environmentally-friendly – reduces carbon emissions and environmental impact
- Intelligent control – manages the system in-line with your energy provider's tariffs
- Compatible with Greenstar CDi Classic, CDi Compact, Si Compact, i Junior combi boilers and Greenstar CDi Classic System and i System system boilers
- Weather compensation improves heating control.



# Even more ways of providing heating and hot water comfort to you.

Worcester's innovative heating and hot water product range is designed for the needs of today's modern home. In addition to combi boilers, the Greenstar gas-fired range also features Regular and System models.

## **Greenstar oil-fired condensing boilers**

Worcester also manufactures a range of high-efficiency oil-fired Greenstar boilers. Our oil manufacturing heritage stretches back to the foundation of the company in 1962 and, like all our Greenstar gas combi boilers, our range of oil-fired boilers is recommended by the Energy Saving Trust, and runs at 90% efficiency (SEDBUK 2005 rating) or over.

## **Greenskies solar thermal water heating**

Worcester's Greenskies solar thermal evacuated tubes and flat plate panels are capable of providing up to 60%\* of a home's hot water requirements. The panels are designed to link into any existing heating system that uses a cylinder, using even diffused sunlight to convert energy into heat and produce hot water for the home.

## **Greenstore LECP ground source heat pumps**

Greenstore low energy circulation pumps (LECP) meet future legislation and allows the homeowner to take advantage of renewable and sustainable energy. They harness the energy stored in the earth to provide heating

and hot water for the home. For every single kilowatt of electricity used to power the ground source heat pump, the system can generate four kilowatts of energy for the home. Not only that, but the system is designed to be the sole heating source in the home.

## **Greensource air source heat pumps**

Greensource air source heat pumps gather energy from the air and transfer it into low cost heating and hot water for the home. Worcester's range of air source heat pumps can offer a choice of three systems: air to air, air to water and split air to water, each offering significant savings compared with a conventional heating system.

## **Information whenever you need it**

To help you make the most of your heating and hot water system, Worcester has produced an informative 'handy hints' guide.

To obtain a copy or to find out more about Worcester's full range of heating and hot water solutions, visit [www.worcester-bosch.co.uk](http://www.worcester-bosch.co.uk) or call our literature line on **0330 123 9119**.







## Worcester. At your service.



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 our products deliver energy-saving performance year after year. We are placed in the top 10 of the top 50 UK call centres.

Our experienced and award-winning technical support team is also available on the phone or via email 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.

Of course, the advice of a qualified installer is also essential, and we can also help you find a professional installer who's local to you. Just call **0330 123 3366** or visit **[www.worcester-bosch.co.uk/findaninstaller](http://www.worcester-bosch.co.uk/findaninstaller)**. You will also need to contact a professional installer in order to purchase our products.





### Guarantees for extra peace of mind

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

### What is Gas Safe Register?

Gas Safe Register is the hallmark for gas safety in the United Kingdom. By law, only Gas Safe registered engineers should carry out work on gas appliances or installations in your home. To make sure that your gas-fired boiler is installed, maintained and serviced safely you must employ a Gas Safe registered engineer to carry out the work.



on the primary heat exchanger\*



\*Terms and conditions apply.

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

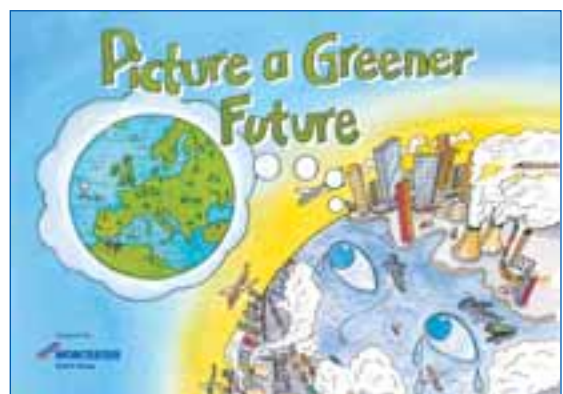


Whether it's energy-efficient boilers, or sustainable heating solutions, Worcester's commitment to the environment goes back many years.

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.

But that's not all. In 2000, The Environment 2020 Awards were initiated to celebrate and promote activities dedicated to conserving the environment for future generations. The initiative includes an annual children's art competition. For more information visit our website.

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 at [www.worcester-bosch.co.uk/greenerfuture](http://www.worcester-bosch.co.uk/greenerfuture) and, through a fun story, shows how we can all reduce our energy consumption and shrink our carbon footprint.





Worcester has also accomplished its environmental commitment by reaching 100% recyclability for all its products, thereby achieving its zero waste-to-landfill objective.

In addition, a partnership has been set up with a Swansea-based company which now transforms Worcester's previously non-recyclable waste, including some plastics, into an eco-friendly concrete replacement which is now used in housing, meaning that Worcester's range of Greenstar gas-fired boilers are now 100% recyclable.

### **Making a difference**

Since 1996, the combined energy savings of all the products we've sold have helped reduce our company's carbon footprint by 20%, making a significant difference to the UK's impact on the environment.

As domestic boilers currently account for 21%\* of the UK's total CO<sub>2</sub> emissions, the fact that a Worcester condensing boiler also delivers dramatically reduced emissions of both CO<sub>2</sub> and NO<sub>x</sub> (Nitrogen Oxide) helps in the battle against climate change. All Worcester Greenstar boilers are within UK Class 5 – the lowest of the 5 categories – for NO<sub>x</sub> emissions.

## Useful numbers

### Consumer Technical Helpline (Pre & Post Sales)

Tel: 0330 123 3366

Fax: 01905 752741

Email: [technical.enquiries@uk.bosch.com](mailto:technical.enquiries@uk.bosch.com)

### Renewables Technical Helpline

Email: [renewable.energy@uk.bosch.com](mailto:renewable.energy@uk.bosch.com)

or telephone 0330 123 9229

### Literature

Email: [literature@uk.bosch.com](mailto:literature@uk.bosch.com)

or download instantly from our website

or telephone 0330 123 9119

## Customer Service

### Engineer Appointments

Email: [appointment.worcester@uk.bosch.com](mailto:appointment.worcester@uk.bosch.com)

or telephone 0330 123 9339

### Enquiries

Email: [service.mailbox@uk.bosch.com](mailto:service.mailbox@uk.bosch.com)

or telephone 0330 123 9559

### Guarantee Registration

To register your Worcester guarantee, please visit our website

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

or telephone 0330 123 2552

Calls to 03 numbers cost no more than a national rate call to an 01 or 02 number and must count towards any inclusive minutes in the same way as 01 and 02 calls.

These rules apply to calls from any type of line, including mobile, BT, other fixed phone line or payphone. Calls from mobiles and some other networks may vary.

Calls to and from Bosch Thermotechnology Ltd may be recorded for training and quality assurance purposes.

# [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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Part No. 8 716 109 642 H 09/13



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