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Heating and Hot Water Comfort

SEDBUK Band A Gas Boilers

The Worcester Greenstar CDi Gas-fired Condensing Regular & System Boiler Series

Technical and Specification Information



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Heating and Hot Water Comfort

The Greenstar CDi regular and system condensing boiler series

The Greenstar CDi regular and system condensing series

Features	Benefits					
Aluminium silicon heat exchanger.	High efficiency.					
SEDBUK Band A.	High efficiency – money saving.					
Wall mounting jig.	Allows pre-fabrication of system.					
Compact dimensions.	Space saving, ease of siting.					
Anti-cycle control.	Energy saving.					
Electronic ignition.	Energy saving.					
Built-in frost protection.	Money saving, economic protection.					
Multi-directional fluing.	Siting flexibility.					
No ventilation grilles required for compartment installations.	Money and labour saving.					
Fault finding diagnostics and service modes displayed.	Time saving.					
Operational status indicator.	Consumer friendly.					
Class 5 NOX levels.	Environmentally friendly.					
Variable pump speed.*	Automatically adjusts to meet system flow demand.					
Intelligent system package.*	No electrician required.					

Pump seizure protection.* Prevents call backs.

It's often said that you can't please everybody all of the time - but the advanced new series of Greenstar CDi Conventional and system condensing boilers from Worcester has so much to offer that it's already disproving such a notion.

Here is a ground-breaking range of energy-saving boilers which is very good news for the environment and excellent news for specifiers, developers, installers and consumers alike.

HE stands for Higher Efficiency and for **Highly Cost Effective** The Greenstar CDi condensing

boilers have an average annual efficiency (SEDBUK value) of over 90%, efficiently producing heat for your heating and/or hot water system. Other types of



boiler achieve around 78% efficiency. Therefore, compared with a new conventional boiler, Greenstar CDi condensing boilers can cut heating and hot water bills and it's cheaper to run than an older boiler.

Hence SEDBUK Band A ratings for all models in the new Greenstar CDi condensing range.

Greenstar CDi condensing boilers deliver this energy-saving performance by ingeniously recycling exhaust gases to extract and re-use the latent heat – a highly efficient use of energy which also significantly reduces carbon dioxide emissions into the atmosphere.

To all these major benefits you can add yet more: superlative Worcester quality and reliability; a range of outputs to satisfy the heating demands of a range of households; and truly exceptional all-round value for money.





<u>~</u>

The Greenstar CDi regular & system series at a glance								
	30CDi Conventional		40CDi Conventional		30CDi _{System}			
Min	7.7kW		9.4kW		7.7kW			
Output KVV Max	30kW		40kW		30kW			
Primary temperature control	1		✓		\checkmark			
Modulating control	1		1		✓			
Natural gas	1		✓		1			
LPG	1		1		✓			
Electronic ignition	1		 Image: A second s		✓			
SEDBUK Band	А		А		А			



The Greenstar CDi regular େର୍ system series accessories
After-sales

Installation requirements

The Greenstar CDi regular & system series fluing options

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The Greenstar CDi regular and system condensing boiler series

The Greenstar CDi regular and system condensing boiler series

The Worcester Greenstar CDi Conventional is a wall-mounted, gas-fired condensing 'heating only' or regular boiler. The appliance combines, within one casing, a cast-aluminium heat exchanger, fan, gas valve and other electronic and mechanical equipment necessary to provide central heating.

It is particularly suited to an older system which may not sustain the higher pressures a system boiler or combi operates under. With a feed and expansion cistern in the roof space, any 'topping up' of the system is automatic, unlike a sealed system which requires manual filling.

The Greenstar 30CDi System boiler is a compact and highly efficient unit giving all the heating and hot water required, with significant savings on running and installation costs. The Greenstar 30CDi System boiler incorporates all the major components built-in, including an expansion vessel and modulating pump. All components are pre-wired, pre-plumbed and pre-tested for greater reliability as well as quicker and neater installation. A condensing boiler is more efficient due to its ability to extract more heat from the flue gases normally lost to the environment through the flue system.

All the Greenstar CDi models use the same Aluminium-Silicon heat cell with an extra large surface area.

As the flue gases pass through the heat exchanger this extra surface area cools the flue gases to around 55°C whereupon the latent heat within, which would normally be lost to the atmosphere, is instead released and applied to the system.

It is this ability to extract as much heat as possible from the gas it burns that gives the Greenstar CDi series an exceptionally high level of operating efficiency.

This higher efficiency is recognised within section L of the Building Regulations, subsequently achieving a higher SAP or NHER rating.



The CDi regular and system series design benefits in operation

Whenever a demand for DHW or CH is made, the boiler's electronic control system is energised and the burner electronically ignites via a flame ionisation system.

The pre-mix burner automatically adjusts to the set level. The flow temperature of the boiler is then maintained at the customer setting by the facia mounted variable control. Should the system requirements reduce during operation (TRVs closing down, etc.) and the flow temperature exceed the customer setting then the burner will modulate downwards to match the system demand level. Should the flow temperature continue to rise then the burner will be de-energised and the control system will go into an anti-cycle mode and not allow the appliance to re-fire for a set period.

Options

Fluing

The Greenstar CDi series features 2 different sizes of multi-directional RSF flue systems, 100mm or 125mm.

The flue can be run horizontally or vertically with additional 90 or 45 degree in-line bends allowing changes of route or direction, providing an extremely flexible and versatile fluing system enabling the appliance to be sited virtually anywhere.

More details are shown on page 11.

Versatility

Gas

The Greenstar CDi regular and system series are available for use with both natural gas and LPG.

Controls

- The Greenstar CDi Conventional series feature:
- Power on/off switch.
- Variable temperature control selector.
- An integral facia with status display lights and a digital display which also operates as a fault diagnosis display.
- DHW control for use with Intelligent System Package*.



*30CDi System boiler only.

Optional plug-in controls for the Greenstar 30CDi System boiler

When used with optional diverter valve kit

DT20RF digital RF thermostat with twin channel programmer



A wall-mounted RF room thermostat with digital display, combined with a twin channel digital timer in the boiler fascia. The fascia mounted programmer benefits from automatic time and date setup, automatic summer/winter time changeover and a backlight for use in low light conditions.

DT20 twin channel digital programmer



A versatile, easy-to-learn, 7 day, digital programmer offering up to 3 on/off settings per day. The programmer has a host of innovative features including automatic setup, which sets the correct time and date at power-up, automatic summer/winter time changeover and a green backlight for use in low light conditions.

DT10RF digistat



A familiar wall-mounted 24 hour programmable RF digital thermostat combined with a fascia mounted single channel programmer to time the hot water cylinder or combi preheat functions. The programmer includes a built-in receiver for the room thermostat and all of the functionality of the DT20.

DT10RF optimiser



A seven day digital programmable RF thermostat with a seven day programmer/ receiver in the boiler fascia. The transmitter is the tried and tested optimiser as available with other Worcester boilers. The optimum start feature, where the thermostat delays the firing of the boiler until necessary, is a option

useful energy-saving option.

Intelligent System Package (30CDi System only)



system boilers. The combination of the TD200 text display and RT10 room thermostat with a built-in diverter valve motor provides an intelligent control upgrade with easy-to-use features.

An optional package for Greenstar CDi

TD200 text display*



A seven day programmer with easy-to-use text display with automatic time and date setup, automatic summer/winter time changeover and a backlight for use in low light conditions. Three on/off periods can be set per day. The TD200 can be fascia

mounted or hard wired outside the boiler using the optional wall mounting socket. The TD200 features an easy-to-use full text display providing more information than standard digital controls. A hard wired room thermostat is available to provide optimum start functionality.

RT10 room thermostat*



A hard wired optimising room temperature controller with digital display for use with the TD200. The display shows current and desired temperature and an advance button allows the user to move to the next heating switch point on the TD200.

Wall mounting socket



A Worcester branded wall mounting socket which allows the TD200 to be hard wired away from the boiler.

Increased SAP ratings

As well as the CDi models achieving very high SAP ratings for dwellings, the addition of the optimising temperature controller further increases these ratings as well as being part of the recommended best practice, as covered by the CHESS design standard.

Greenstar CDi Conventional condensing regular boiler – inside story

Technical data – CDi regular and system series

Model	Greenstar 30CDi Conventional (30kW) Regular Boiler	Greenstar 40CDi Conventional (40kW) Regular Boiler	Greenstar 30CDi System (30kW) System Boiler
Height (mm)	760 (max)	760 (max)	760 (max)
Width (mm)	440	440	440
Depth (mm)	360 (max)	360 (max)	360 (max)
Weight – dry (kg)	39.5	39.5	46.5
Flow/Return Connections	22mm compression	22mm compression	22mm compression
Condensate Connection	22mm Plastic Pipe	22mm Plastic Pipe	22mm Plastic Pipe
Gas Connection	22mm compression	22mm compression	22mm compression
Primary Water Content (litres)	3.5	3.5	3.5
Output kW (Btu)	7.7 - 30 (26,272 - 102,360)	9.4 - 40.8 (32,073 - 139,210)	7.7 - 30 (26,272 - 102,360)
Wall Mounting Jig	Yes	Yes	Yes
Plug-in Timer	-	-	Yes (optional)
Optimising Room Temperature Control	-	-	Yes (optional)
Intelligent Controls	-	-	Yes (optional)
Modulating Pump	-	-	Yes
Fault Diagnostic Display	Yes	Yes	Yes
Flow and Return Pipes Supplied to Allow Pipes Behind Installation	Yes	Yes	Yes
Max. Vertical Flue (mm) (100mmØ) inc. terminal	9,400	4,900	9,400
Max. Horizontal Flue (mm) (100mmØ)	7,900	2,600	7,900
Max. Horizontal Flue (mm) (125mmØ)	18,500	12,500	18,500
Max. Vertical Flue (mm) (125mmØ) inc. terminal	18,500	16,000	18,500
SEDBUK Value %/Band	90.3%/Band A	90.2%/Band A	90%/Band A
NOX Classification	Class 5	Class 5	Class 5
PRV Connection	N/A	N/A	15mm compression



Key to components

З.

1. Aluminium/Silicon WB5 Heat Exchanger 7. Temperature Control 8. Digital Display 2. Pre-mix Fan Down Firing Low Nox Burner 9. Auto Air Vent 4. Gas Valve 10. Drain Point 11. Air/Gas Adjustment Screw 5. Syphon 6. On/Off Button

Greenstar 30CDi System condensing boiler – inside story



Key to components

- 1. Aluminium/Silicon WB5 Heat Exchanger
- 2. Pre-mix Fan
- 3. Down Firing Low Nox Burner
- 4. Gas Valve
- 5. Syphon
- 6. On/Off Button
- 7. Temperature Control

- 8. Digital Display
- 9. Auto Air Vent
- 10. Drain Point
- 11. Air/Gas Adjustment Screw
- 12. Expansion Vessel
- 13. Modulating Pump
- 14. Plug-in Control

Installing the Greenstar CDi regular and system boiler series

The Greenstar CDi range is designed for connection to a traditional heating and hot water system. The major benefits of the Greenstar CDi regular or system boilers are:

- The boiler is compatible with S and Y plan systems
- The boiler comes supplied with a wall mounting bracket
- WB5 cast aluminium/silicon heat cell
- A syphonic condensate trap is pre-plumbed within
- Built-in pump and expansion vessel*
- No feed and expansion cistern in the loft space*
- Less pipe work*

*30CDi System boiler

Siting of appliance

General

The appliances are not suitable for external installation.

The wall on which the boiler is to be mounted should be capable of supporting an overall weight of approximately 50kg.

The wall does not require special protection. However, if the appliance is to be fitted in a timber frame building the guidelines laid down in BS 5440:Part 1:2000 and the gas installer manual Chapter 11, "Gas in Timber Frame Housing" should be adhered to.

The appliances may be installed into an airing cupboard if required. Use a non-combustible perforated material (max. hole sizes of 13mm) to separate the boiler from the airing space.

Clearances

The minimum clearances shown opposite should be allowed for installation and servicing, and are also the minimum clearances required for installation into an unventilated compartment (see below).

Compartment installation

The appliance may be installed in any room, although particular attention is drawn to the requirements of the IEE regulations applicable and in Scotland the electrical provisions with respect to installation in a room containing a bath or shower.

Wall preparation

The drawing shows the CDi Conventional wall mounting jig which enables a simple and straightforward method of attaching the boiler to the wall surface.

After fixing the jig to the wall, the appliance can be lifted onto the jig and the union connections tightened. The pipe work can be routed behind the boiler without the need for an additional wall spacing frame.



Greenstar CDi boilers are exceptional for their number of additional time saving installation features:

- Built-in frost protection for boiler
- Built-in fault finding diagnostics
- Automatic gas pressure adjustment
- Highly versatile multi-directional fluing system
- Combined ignition and control board means fewer connections
- Pre-fabricated pipes allowing top exit from the boiler
- A rigid 22mm compression gas connection eliminating the need for pre-fabricating the gas pipe onto the isolating valve
- The large output range capability of the appliances



- 1. The room in which the appliance is installed does not require a purpose provided air vent.
- 2. If the appliance is installed in a cupboard or compartment with dimensions that allow the minimum clearances shown in the siting of appliance section above, then no ventilation is required.

Condensate disposal

All condensing boilers generate condensate discharge which needs to be piped away from the appliance via a plastic pipe.

The amount of condensate generated depends on the efficiency and operating status of the appliance. This can be up to 2 litres of condensate water an hour.

Condensate termination and route

The condensate connection on the Worcester appliances is in 22mm plastic. The pipe should be extended and directed away from the appliance with a constant minimum fall of 2.5 degrees or 50mm in every metre.

The condensate pipe can terminate into any one of five areas:





Internal sink/washing machine drain

Internal waste drainage system



Soil and vent stack

C ⁄

External drainage system

G - 300mm x 100mmØ sealed plastic tube



External condensate absorption point (unsuitable for clay soil types)

- A Condensate from boiler syphon/trap
- B Sink with integral overflow

D - External drain or gully

- C 21.5mmØ plastic condensate pipe
- H Ground level J - Drainage holes 50mm facing away from building K - Limestone chippings
- E Internal soil and vent stack K Limestone chip
- F Serviceable condensate trap (75mm min.) L Weather resistant insulation

Whilst all of the above methods are acceptable it is always the best practice to terminate the condensate pipe via an internal waste system. This will eliminate the need for any external condensate pipe runs which can be susceptible to freezing in extreme weather. Best practise is not to run external condensate pipe any further than 3m. If it is necessary to run more than 3m externally increase pipe size to 35mm.

External condensate pipe work

All Worcester condensing boilers have within a syphonic condensate trap. Rather than the condensate constantly dripping into the discharge pipe, the condensate is collected into a trap which releases it in 100ml quantities. This will help prevent freezing occurring.

Wherever possible the condensate discharge pipe work should be routed and terminated internally. Should this not be possible, and the only available route is external, the following conditions should be observed:

- The pipe work length should be kept to a minimum and the route as vertical as possible
- Where pipe work could be subjected to extreme cold or wind chill, a weather proof insulation should be used. Alternatively, the condensate pipe work could be increased to a minimum 32mm without the requirement to insulate





Flue terminal positioning

RSF horizontal and vertical

Minimum dimensions of flue terminal positions for balanced room sealed flues with fanned draught:



The flue system must be installed and terminated in accordance with the recommendations of BS 5440:Part 1.

General position

- 1. The terminal must not cause an obstruction nor the discharge a nuisance. Particular care should be exercised with regards to the pluming of the flue gases and any increase in noise levels.
- 2. If a terminal is fitted less than 2 metres above a surface to which people have access, then a guard must be fitted. A terminal protective guard is available from Tower Flue Components, Vale Rise, Tonbridge. Tel No. (01732) 351555. The terminal guard must be securely fixed to the wall using suitable plugs and corrosion resistance screws. The guard must be symmetrically positioned about the terminal assembly and

Boiler location & clearances

Bathrooms

The boiler can be installed in zones 2 or 3. If a mechanical or RF mechanical timer or text display with room thermostat (IP 20 only) is fitted the boiler can only be installed in zone 3.

A non mechanical timer can be installed in zone 2.

See IEE wiring regulations. (See Technical Data for IP ratings).

IMPORTANT: any switch or appliance control using mains electricity must not be able to be touched by a person using the bath or shower.

Electrical switches, fused spur and socket outlets must not be situated in the bathroom.

All pipe work to the appliance must be cross bonded.



In addition, the terminal should not be nearer than 150 mm (fanned draught) to an opening in the building fabric formed for the purpose of accommodating a built-in element such as a window frame.

² Not recommended.

* See instructions supplied with vertical flue kits.

** Care should be taken to ensure terminal siting does not cause a nuisance to adjacent properties.

spaced such that there is a gap of 50mm between the end of the terminal and the guard.

- 3. In certain weather conditions, a white plume of condensation will be emitted from the flue terminal and siting where this could be a nuisance, eg. near security lighting, should be avoided.
- 4. The air inlet/outlet duct and the terminal of the boiler must not be closer than 25mm to any combustible material. Detailed recommendations on protection of combustible materials are given in BS 5440:1.



Greenstar CDi regular and system boiler series horizontal fluing options

The Greenstar CDi series has the choice of 2 differently sized horizontal RSF flue systems, 100mm and 125mm. Both systems have different maximum lengths. Options 1 to 6 *Condensfit* **I** detail the permissible lengths.

Horizontal RSF Flue

9		
Flue Diameter	100mm	125mm
Minimum Flue Length	250mm	250mm
Maximum Flue Length		
- 30CDi Conventional	7,900mm	18,500mm
- 40CDi Conventional	2,600mm	12,500mm
- 30CDi System	7,900mm	18,500mm

Standard flue kit

Comprises: 1 x Flue Turret Elbow	
600mm (100mm dia) of flue duct 1,030mm (125mm dia) of flue duct including terminal (as measured from centre of flue outlet)	(Part No. 7 719 002 345 (100mm dia) discontinued) Part No. 7 719 002 497 (100mm dia) new Part No. 7 719 002 350 (125mm dia)

	Worcester	Part No.
	100mm	125mm
Extension Flue Kit	7 719 002 349 (960mm long)	7 719 001 892 (1,000mm long)
90° Elbow	7 719 002 348	7 719 001 891
45° Elbow	7 719 002 347	7 719 001 899
Vertical Adaptor	7 719 002 432	7 719 002 433

Accessories

- The following criteria should be noted when planning the installation. - The flue system inclines 21/2" (44mm per metre) from the appliance, to prevent condensation from dripping from the flue terminal.*
- Because the appliance operates at high efficiency a white plume of condensation will be emitted from the terminal. Care must be taken when selecting the flue terminal position.

Option 1 STANDARD HORIZONTAL FLUE ASSEMBLY							
			F				
	Maximum total	straigh	nt flue	length 125mm			
	30CDi Conventional	686	Smm	1,070mm			
	40CDi Conventional	686	6 9 mm	1,070mm			
0	30CDi System	686	δmm	1,070mm			
Flue Components							
30CDi Conventional							
Flue Diameter	Description	uantity	Wor	cester Part No			

Flue Diameter	Description	Quantity	Worcester Part No.
100mm	Standard Flue Kit	1	7 719 002 497
125mm	Standard Flue Kit	1	7 719 002 350
40CDi Convent	tional		
Flue Diameter	Description	Quantity	Worcester Part No.
100mm	Standard Flue Kit	1	7 719 002 497
125mm	Standard Flue Kit	1	7 719 002 350
30CDi System	·		L
Flue Diameter	Description	Quantity	Worcester Part No.
100mm	Standard Flue Kit	1	7 719 002 497
125mm	Standard Flue Kit	1	7 719 002 350

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40CDi Conventia 30CDi System s Required pnal	onal 2, 7,	,600mm 900mm	12,500mm								
30CDi System	7,	900mm	12,00011111				Maximum t	otal s	straigh	nt flue	length
s Required	7,	30011111	18 500mm				30CDi Conventi	onal	7,90	0mm	18,500m
s Required							40CDi Conventi	onal	2,60	0mm	12,500m
Description					•		30CDi System		7.90	Omm	18.500m
Description									1- 5		.,
Description	Quantity	/ Wo	rcester Part No.		Flue Componer	nts Re	equired				
Standard Flue Kit	1	7 7	19 002 497								
Extension Flue Kit	up to 8	8 77	19 002 349		Flue Diameter	Description		Quantity		Wor	cester Part No
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Extension Flue Kit	up to 1	8 7 7	19 001 892		100mm	0mm Extension Flue Kit		up	to 9	7 71	9 002 34
nal					100mm		90° Elbow		1	7 71	9 002 34
					100mm	Ve	ertical Adaptor		1	7 71	9 002 43
Description	Quantity	/ Woi	rcester Part No.		125mm	Sta	andard Flue Kit		1	7 71	9 002 35
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Extension Flue Kit	up to 2	2 77	19 002 349		125mm		90° Elbow		1		9 001 89
Standard Flue Kit	1	7 7	19 002 350		125mm	Ve	ertical Adaptor		1	7 71	9 002 43
Extension Flue Kit	up to 1	2 7 7	19 001 892		40CDi Conven	tiona		L			
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Extension Flue Kit	up to 8	8 77	19 002 349		100mm		90° Elbow		1	7 71	9 002 34
					100mm	Ve	ertical Adaptor		1	7 71	9 002 43
Standard Flue Kit	1	77	19 002 350		125mm	Ste	andard Flue Kit		1	7 71	9 002 35
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					120mm		90° Elbow		1	7 7 1	9 001 89
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30CDi System

Flue Diameter	Description	Quantity	Worcester Part No.
100mm	Standard Flue Kit	1	7 719 002 497
100mm	Extension Flue Kit	up to 9	7 719 002 349
100mm	90° Elbow	1	7 719 002 348
100mm	Vertical Adaptor	1	7 719 002 432
125mm	Standard Flue Kit	1	7 719 002 350
105mm	Extension Elus Kit	un to 10	7 710 001 800
12011111	Extension Flue Kit	up 10 19	7 719 001 692
125mm	90° Elbow	1	7 719 001 891
125mm	Vertical Adaptor	1	7 719 002 433

Option 4 **EXTENSION FLUE HORIZONTAL USING A** SECOND 90° BEND



Flue Components Required **30CDi Conventional**

Flue Diameter	Description	Quantity	Worcester Part No.
100mm	Standard Flue Kit	1	7 719 002 497
100mm	Extension Flue Kit	up to 7	7 719 002 349
100mm	90° Elbow	1	7 719 002 348
125mm	Standard Flue Kit	1	7 719 002 350
125mm	Extension Flue Kit	up to 17	7 719 001 892
125mm	90° Elbow	1	7 719 001 891
40CDi Conven	tional		
Flue Diameter	Description	Quantity	Worcester Part No.
100mm	Standard Flue Kit	1	7 719 002 497
100mm	Extension Flue Kit	1	7 719 002 349
100mm	90° Elbow	1	7 719 002 348
125mm	Standard Flue Kit	1	7 719 002 350
125mm	Extension Flue Kit	up to 11	7 719 001 892
125mm	90° Elbow	1	7 719 001 891
30CDi System			
Flue Diameter	Description	Quantity	Worcester Part No.
100mm	Standard Flue Kit	1	7 719 002 497
100mm	Extension Flue Kit	up to 7	7 719 002 349
100mm	90° Elbow	1	7 719 002 348
125mm	Standard Flue Kit	1	7 719 002 350
125mm	Extension Flue Kit	up to 17	7 719 001 892
125mm	90° Elbow	1	7 719 001 891

A SECOND 90° BEND +

Description

Standard Flue Kit

Extension Flue Kit

90° Elbow

Vertical Adaptor

Standard Flue Kit

Extension Flue Kit

90° Elbow

Vertical Adaptor

Description

Standard Flue Kit

Extension Flue Kit

Option 5

Flue Components Required **30CDi Conventional**

Flue Diameter

100mm

100mm

100mm

100mm

125mm 125mm

125mm

125mm

Flue Diameter

125mm

125mm

125mm 125mm

14

40CDi Conventional

EXTENSION FLUE UPWARDS AND HORIZONTAL USING



Quantity

1

up to 8

2

1

1

up to 18

2

1

Quantity

1

Worcester Part No.

7 719 002 497

7 719 002 349

7 719 002 348 7 719 002 432

7 719 002 350

7 719 001 892

7 719 001 891

7 719 002 433

Worcester Part No.

7 719 002 350

up to 12 7 719 001 892

Option 6 EXTENSION FLUE UPWARDS AND HORIZONTAL USING A THIRD 90° BEND



Flue Components Required 30CDi Conventional

125mm

125mm

125mm

125mm

Flue Diameter	Description	Quantity	Worcester Part No.
100mm	Standard Flue Kit	1	7 719 002 497
100mm	Extension Flue Kit	up to 7	7 719 002 349
100mm	90° Elbow	3	7 719 002 348
100mm	Vertical Adaptor	1	7 719 002 432
125mm	Standard Flue Kit	1	7 719 002 350
125mm	Extension Flue Kit	up to 17	7 719 001 892
125mm	90° Elbow	3	7 719 001 891
125mm	Vertical Adaptor	1	7 719 002 433
40CDi Conven	tional		
Flue Diameter	Description	Quantity	Worcester Part No.
125mm	Standard Flue Kit	1	7 719 002 350
125mm	Extension Flue Kit	up to 11	7 719 001 892
125mm	90° Elbow	3	7 719 001 891
125mm	Vertical Adaptor	1	7 719 002 433
30CDi System	L		L
Flue Diameter	Description	Quantity	Worcester Part No.
100mm	Standard Flue Kit	1	7 719 002 497
100mm	Extension Flue Kit	up to 7	7 719 002 349
100mm	90° Elbow	3	7 719 002 348
100mm	Vertical Adaptor	1	7 719 002 432

Standard Flue Kit

Extension Flue Kit

90° Elbow

Vertical Adaptor

1

up to 17

3

1

7 719 002 350

7 719 001 892

7 719 001 891

7 719 002 433

125mm		90° Elbow 2 7 7		7 719 001 891		
125mm		Vertical Adaptor		1		7 719 002 433
30CDi System						
Flue Diameter		Description		Quantity		Worcester Part No.
100mm		Standard Flue Kit		1		7 719 002 497
100mm		Extension Flue Kit	Γ	up to 8		7 719 002 349
100mm		90° Elbow		2		7 719 002 348
100mm		Vertical Adaptor		1		7 719 002 432
125mm	h	Standard Flue Kit	t	1	Ì	7 719 002 350
125mm		Extension Flue Kit	Γ	up to 18		7 719 001 892
125mm		90° Elbow		2		7 719 001 891
125mm		Vertical Adaptor	Γ	1		7 719 002 433

Greenstar CDi regular and system boiler series vertical fluing options

The Greenstar CDi series have the choice of 2 differently sized vertical RSF flue systems, 100mm and 125mm. Both systems have different maximum lengths. Options 1 to 3 detail the permissible lengths.

Vertical RSF Flue

<u>y</u>		
Flue Diameter	100mm	125mm
Flue Terminal Assembly Diameter	135mm	135mm
Maximum Flue Length (inc terminal) - 30CDi Conventional - 40CDi Conventional - 30CDi System	9,400mm 4,900mm 9,400mm	18,500mm 16,000mm 18,500mm
Flue Terminal Assembly Length	1,140mm	1,365mm

Vertical balanced flue kit

Comprises:

```
1 x Flue Terminal Assembly
1 x Weather Sealing Collar
1 x Fire Stop Spacer
```

Part No. 7 719 002 430 (100mm dia) Part No. 7 719 002 431 (125mm dia)

1 x Vertical Adaptor **Accessories**

	Worcester Part No.						
	100mm	125mm					
Extension Flue Kit	7 719 002 349 (960mm long)	7 719 001 892 (1,000mm long)					
90° Elbow	7 719 002 348	7 719 001 891					
45° Elbow	7 719 002 347	7 719 001 899					



Maximum total straight flue length (inc. terminal)						
	100mm	125mm				
30CDi Conventional	9,400mm	18,500mm				
40CDi Conventional	4,900mm	16,000mm				
30CDi System	9,400mm	18,500mm				

Flue Components Required

30CDi Conventional

Flue Diameter	Description	Quantity	Worcester Part No.
100mm	Vertical Flue Kit		7 719 002 430
100mm	Extension Flue Kit	up to 9	7 719 002 349
105			
125mm	Vertical Flue Kit	1	7 719 002 431
125mm	Extension Flue Kit	up to 18	7 719 001 892

40CDi Conventional

Flue Diameter	Description	Quantity	Worcester Part No.		
100mm	Vertical Flue Kit	1	7 719 002 430		
100mm	Extension Flue Kit	up to 5	7 719 002 349		
125mm	Vertical Flue Kit	1	7 719 002 431		
125mm Extension Flue Kit		up to 16	7 719 001 892		
30CDi System					
Flue Diameter	Description	Quantity	Worcester Part No.		
100mm	Vertical Flue Kit	1	7 719 002 430		
100mm	Extension Flue Kit	up to 9	7 719 002 349		
125mm	Vertical Flue Kit	1	7 719 002 431		
125mm	Extension Flue Kit	up to 18	7 719 001 892		
·	۲ <u>ــــــــــــــــــــــــــــــــــــ</u>		·		

Option 2 MINIMUM HEIGHT VERTICAL BALANCED FLUE SYSTEM WITH TWO 45° BENDS 500mm L = 100mmØ 1140mm 300mm Flat roof L = 125mmØ 1365mm 100mm 30CDi Conventional 7,400mm Flue Components Required 40CDi Conventional 2900mm **30CDi Conventional** 30CDi System Flue Diameter Description Quantity Worcester Part No. 7 719 002 430 100mm Vertical Flue Kit Flue Components Required **30CDi Conventional** 7 719 002 431 Vertical Flue Kit 125mm 1 40CDi Conventional Flue Diameter Description Quantity Worcester Part No. 100mm Vertical Flue Kit 7 719 002 430 1 125mm Vertical Flue Kit 7 719 002 431 30CDi System Flue Diameter Description Quantity Worcester Part No. **40CDi Conventional** 100mm Vertical Flue Kit 7 719 002 430 1 7 719 002 431 125mm Vertical Flue Kit

16



Flue Diameter	Description	Quantity	Worcester Part No.
100mm	Vertical Flue Kit	1	7 719 002 430
100mm	Extension Flue Kit	up to 8	7 719 002 349
100mm	45° Elbow	2	7 719 002 347
125mm	Vertical Flue Kit	1	7 719 002 431
125mm	Extension Flue Kit	up to 17	7 719 001 892
125mm	45° Elbow	2	7 719 001 899

Flue Diameter	Description	Quantity	Worcester Part No.
100mm	Vertical Flue Kit	1	7 719 002 430
100mm	Extension Flue Kit	up to 3	7 719 002 349
100mm	45° Elbow	2	7 719 002 347
125mm	Vertical Flue Kit	1	7 719 002 431
125mm Extension Flue Kit		up to 14	7 719 001 892
125mm 45° Elbow		2	7 719 001 899

30CDi System

Flue Diameter	Description	Quantity	Worcester Part No.
100mm	Vertical Flue Kit	1	7 719 002 430
100mm	Extension Flue Kit	up to 8	7 719 002 349
100mm	45° Elbow	2	7 719 002 347
125mm	Vertical Flue Kit	1	7 719 002 431
125mm	Extension Flue Kit	up to 17	7 719 001 892
125mm	45° Elbow	2	7 719 001 899

Installation requirements

Installation of the Greenstar CDi series must be in accordance with the relevant requirements of the Gas Safety (Installation Use) Regulations (as amended), current IEE Wiring Regulations, local Building Regulations, Building Standards (Scotland) (Consolidation) regulations and bylaws of the local Water company and Health and Safety Document No. 635 (Electricity at Work Regulations 1989). It should be in accordance with the relevant recommendations of the following British Standards:

BS 6798; BS 5449; BS 5546:1; BS 5440:1; BS 5440:2; BS 6891.

Gas Safety (Installation and Use) Regulations. All gas appliances must be installed by a CORGI registered person in accordance with the above regulations. Failure to install appliances correctly could lead to prosecution.

The manufacturers notes must not be taken in any way as overriding statutory regulations.

Sealed primary systems

The appliance is fitted with a manual reset high limit thermostat and is suitable for use with a sealed primary system.

The system should be installed in compliance with the requirements of BS 5449: Part1. The system must be fitted with a spring loaded safety valve set to operate at 3bar (45 psi) and the pipe connections made through the system must be capable of sustaining a pressure of up to 3bar.

Manual air vents should be fitted at any high points in the system.

The following is a list of major items which must be fitted to the system:

- 1. Safety valve 3bar
- 2. Pressure gauge 0 4bar
- 3. Expansion vessel
- 4. Automatic air vent



Option 3 VERTICAL BALANCED FLUE SYSTEM WITH TWO 90° BENDS



Flue Components Required

30CDI Conven	tional		
Flue Diameter	Description	Quantity	Worcester Part No.
100mm	Vertical Flue Kit	1	7 719 002 430
100mm	Extension Flue Kit	up to 7	7 719 002 349
100mm	90° Elbow	2	7 719 002 348
125mm	Vertical Flue Kit	1	7 719 002 431
125mm	Extension Flue Kit	up to 16	7 719 001 892
125mm	90° Elbow	2	7 719 001 899
40CDi Conver	ntional		·
Flue Diameter	Description	Quantity	Worcester Part No.
125mm	Vertical Flue Kit	1	7 719 002 431
125mm	Extension Flue Kit	up to 13	7 719 001 892
125mm	90° Elbow	2	7 719 001 899
30CDi System			
Flue Diameter	Description	Quantity	Worcester Part No.
100mm	Vertical Flue Kit	1	7 719 002 430
100mm	Extension Flue Kit	up to 7	7 719 002 349
100mm	90° Elbow	2	7 719 002 348
125mm	Vertical Flue Kit	1	7 719 002 431
125mm	Extension Flue Kit	up to 16	7 719 001 892
125mm	90° Elbow	2	7 719 001 899

System filling and make-up

To comply with the Water Authority requirements, the system should be filled via a temporary hose connection to the mains cold water supply, with a double check valve assembly and test point fitted to the mains water side of a temporary circuit. Alternatively, for the Greenstar CDi boilers, the plug in filling loop option (part number 7 716 192 281, see page 22 for photograph), simply connects between the cold main connection and the heating return circuit on the wall mounting jig.

Valves and joints

It is very important that all valves and joints are able to sustain a working pressure of up to 3bar (45psi). Particular care should be exercised when fitting radiator valves and only those of high quality to BS 2767:10 should be used. All other valves and fittings should comply with BS 1010.

Loss of water pressure from a sealed system will require continuous recharging with fresh water and consequential introduction of air. Air is highly corrosive and will considerably reduce life expectancy of radiators, pumps etc.

30CDi System diverter valve kit

The 30CDi System boiler can be adapted to house an in-built diverting valve. The optional valve motor kit allows the user to control the supply of heat to the hot water cylinder from the boiler.

Plastic pipe work

The use of plastic pipe work is acceptable. However, some plastics are permeable to oxygen and must be avoided. Only pipe work with a polymeric barrier should be used. Please note that the first 600mm of pipe work connected to the boiler must be of copper or steel.

Installation requirements continued

Open vented primary systems

The Greenstar CDi Conventional* series is designed for connection to an open vented fully pumped heating and hot water system.

The following points are for guidance only. The system installation should be carried out in accordance with BS 5449:Part1.

The feed and expansion pipes must rise continuously from the appliance and must be of the minimum diameter shown below.

The cistern must be arranged to provide a minimum static head of 0.25 metres above the top of the highest point in the heating circuit.

Air in the appliance is expelled through the vent pipe or dissipated into the system. Manual air vents should be fitted at any high points in the system.

*30CDi System not suitable for open vent





Air supply

Worcester Greenstar CDi boilers are room sealed appliances; the room in which it is installed does not therefore require a purpose provided combustion air vent.

Natural gas supply

The appliances when on a full output demand will require up to $3.2m^3/hr$ (30kW) or $4.4m^3/hr$ (40kW) of gas. The gas meter and supply pipes must be capable of supplying this quantity of gas in addition to the demand from any other appliance being served. It is important that a gas supply pipe of at least 22mm diameter is used. Under no circumstances should the size of the gas supply pipe be less than that of the appliance inlet connection. The meter outlet governor should be capable of ensuring a dynamic pressure of 20mbar (8in wg) at the appliance. Particular consideration should be given to the resistance to gas flow created by elbows, bends, etc. Pipe work should be sized to overcome this resistance and details of this are given in the table below.

	Total length	Pipe Diamatar		
	3	6	9	(mm)
harge 3/h	2.9	-	-	15
Disc ate m	8.7	5.8	4.6	22
Gas Ri	18.0	12.0	9.4	28

Approximate Additional Length to be Allowed (Natural Gas)

Elbows or Tees	90° B	ends
Metres Feet	Metres	Feet
0.5 2	0.3	1

Propane gas supply

The Greenstar CDi series is available in a propane gas version. The appliance when on a hot water or full output demand will require up to 2.4kg/h (30kW) or 3.3kg/h (40kW) of gas. The gas tank or bottles must be capable of supplying this quantity of gas at a nominal pressure of 37mbar (14.8in wg) at the appliance. The table below shows the propane gas discharge through varying lengths of pipe and the resistance to flow created by elbows, bends, etc. Pipe work should be sized to overcome this resistance.

Total length of Gas Supply Pipe (metres)							Pipe
3			6		9		(mm)
Gas Discharge Rate m ³ /h	1.5		1.01		-		15
	8.0		5.2		4.2		22
	15.9		8.9		8.3		28

Approximate Additional Length to be Allowed (LPG)

Elbows or Tees		90° Bends	
Metres	Feet	Metres	Feet
0.6	2	0.3	1

Electricity supply

A 3amp fused three pin plug and unswitched shuttered socket outlet (both complying with BS 1362) or preferably a double pole isolator with a contact separation of 3mm in all poles supplying the appliance should be used.

The appliance electrical circuits are also protected by an internal 2amp fuse. The appliance must be earthed.



Worcester Greenstar CDi appliances are offered with a full 2 year guarantee^{*} on parts and labour. Ongoing service may be arranged through the Worcester Customer Service Department.

*Subject to conditions.

The Greenstar CDi series accessories



A Complete After-sales Service

As part of the worldwide Bosch Group, Worcester strives to maintain the highest possible standards of after-sales care.

In addition to the no-nonsense parts and labour warranty applicable to all Worcester boilers, you and your customers have the assurance that every Worcester boiler is manufactured to both the appropriate British and European standards.

Worcester Contact Centre

Should you require support, our fully trained Contact Centre staff, based at our head office in Worcester, are ready to take your calls. Whatever your guery our contact centre operators along with our nationwide team of engineers are ready to help you.

Boiler Protection Options

To protect and maintain your boiler it is recommended that you invest in a comprehensive maintenance contract. For more information please discuss with your CORGI/OFTEC registered installer or alternatively contact Worcester Service Contracts Team on 01905 754 624.

All the Technical Advice You Need



Note: For information on the Condensfit II Telescopic Flue System and Plume

Management Kit, please see dedicated flue Technical and Specification leaflet.

*30CDi System only



Contact Centre Tel: 08457 256 206 Fax: 01905 754 701

Opening Times Monday - Friday: 7.00am - 8.00pm Saturday: 8.00am - 5.00pm Sunday: 9.00am - 12 noon

Spares

Genuine replacement parts for all Worcester boilers are readily available from stock, on a next day delivery basis. For more information please call your local stockist.

Customer Technical Support

The Worcester Technical Helpline is a dedicated phone line committed to providing a comprehensive service to complement the brand name and quality of our boiler products. Our experienced team of technical experts provide the answers to gueries of a technical nature across the entire Worcester range.

Worcester also has a pre-sales department, which provides assistance in selecting a boiler system to suit a particular application, along with full guidance on installation. As well as this we will also assist in finding a recommended installer. For more information please contact the Technical Hotline or alternatively visit our website where literature can be downloaded www.worcester-bosch.co.uk

Technical

Tel: 08705 266 241 Fax: 01905 752 741

Opening Times

Monday - Friday: 8.00am - 6.00pm Saturday: 8.30am - 1.00pm

The very best training programmes from Worcester

Worcester has always placed great emphasis on technical support and training for installers and service engineers. Today this need is greater than ever. The differences between a combi, conventional and condensing boiler are substantial, and the technology of each continues to advance at a rapid pace.

To ensure the highest levels of competence and expertise in the installation of all Worcester products, the company runs intensive training courses for installers, commissioning engineers and engineers involved with servicing and fault finding.

Courses available

Our training facilities offer a number of courses suitable for the installer and commissioning engineers, and a more in-depth course for the servicing and fault finding engineers.



Training Centres throughout the UK

Worcester's network of regional training centres are strategically located across the country to help put you within convenient travelling distance of the courses you wish to attend.

In addition to the outstanding facilities at the company's headquarters in Worcester, there are centres at Clay Cross in Derbyshire, Rochester in Kent, West Thurrock in Essex and Bangor, Northern Ireland. A new centre is also due to open* in north west England. There are also additional training opportunities available throughout the UK. Please phone 01905 752526 for more information about a course near you. Each course is run by specialist trainers and is superbly equipped to deliver a combination of classroom theory and practical hands-on experience that's second to none.

New Product Advance Training

Exclusive to Business Initiative members, these invaluable courses give you an introduction and insight into new Worcester products as soon as they are released on to the market.

College-linked learning

A number of the UK's leading proactive technical colleges are equipped with Worcester products and offer excellent practical tuition on a more local level.

Distance Learning

Worcester has produced a selection of Distance Learning CD ROMs/DVDs which are packed with information. Call 01905 752556 for your copies.

Get on course for a more profitable future now

Call now for more information





www.worcester-bosch.co.uk

Worcester Trainin

Greenstar CDi, condensing cor	Highflow 440 and HE Plus gas-fired nbi boilers
Models covered	Greenstar 25/30/35/40CDi
	Greenstar Highflow 440
	Greenstar 30/35/40 HE Plus
Duration	1 day
Greenstar i Jun	ior and Si gas-fired condensing
combi boilers	
Models covered	Greenstar 24/28i Junior
Duration	Greenstar 25/30Si
	, and require nee fined
condensing boi	ilers
Models covered	Greenstar 12/15/18/24Ri
	Greenstar 30/40CDi Conventional
	Greenstar 30CDi System
Duration	Greenstar 12/24i System
Chandand officia	
i/Si/CDi (non c	condensing)
Models covered	24/28i Junior
	24/28Si II
Duration	1 day
One can all fi	
Greenstar oll-fi	red condensing bollers
Models covered	Greenstar Heatslave Greenstar Danasmoor
	Greenstar Utility
Duration	1 day
Danesmoor and	d Heatslave oil-fired boilers
Models covered	Danesmoor
Duration	Heatslave
	i uay
OFTEC Training]
OFTEC 101	
Covering	Domestic/Light Commercial Pressure
Duration	3 day course (2 days training plus
	1 days assessment)
OFTEC 105e	
Covering	Domestic/Light Commercial Pressure
Duration	Jet Boiler installation
Coverina	Domestic/Light Commercial Pressure Jet Installation.
0	Commissioning and Servicing
Duration	3 day course (2 days training plus 1 days
05750 000	assessment comprising 2 theory and 1 practical)
OFTEC 600a	Oil Table Installation and Associated Controls
Duration	1 day assessment course
OFTEC 101/10	5e/600e
Covering	Domestic/Light Commercial Pressure Jet Boiler
	Installation, Commissioning, Servicing and Oil Tank
Duration	Installation and Associated Controls
Duration	(2 days training and 2 days assessment)



Camray oil-fi	red combi, regular and system boilers		
Models covered	External Utility System Combi		
Duration	1 day		
Certificate in	Energy Efficiency for Domestic		
Heating Cou	rse		
Covering	Key elements of energy-efficient heating and hot water systems and products, compliance with the latest Building Regulations, how condensing boilers work and how they differ to non condensing products.		
Duration	1 day		
Unvented Cy	linder Course		
Covering	All G3 Regulations for the Installation, Servicing and Commissioning of Unvented Cylinders. The course includes recognised accreditation by Logic Certification.		
Duration	1 day		
Greenskies S	Solar System		
Covering	Installation, Commissioning and Servicing		
Duration	1 day		





Notes

Notes