

Product Guide
2012/13



Oil-fired and solar thermal

heating and hot water solutions

Everything you need to know about the complete Worcester Greenstar oil-fired product range

Our market-leading Greenstar condensing oil-fired boilers are part of the total system solutions package we offer. With a state-of-the-art training facility and award winning technical support, we offer everything required to meet your heating and hot water needs.

In this easy-to-use pocket guide, you will find essential information on every oil-fired heating and hot water appliance currently available from the Worcester range, as well as information about our solar thermal solutions. This includes, technical data such as dimensions, outputs, flue options, accessories, product codes and much more – all laid out clearly and concisely with the aid of diagrams, tabulated text and a comprehensive contents page.



Compatible with solar



Energy Saving product recommended by the Energy Saving Trust.

Seasonal efficiency is given as the SEDBUK number. The value is used in the UK Government's Standard Assessment Procedure (SAP) for energy rating of dwellings. The test data from which it has been calculated has been certified by a notified body as indicated.

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Worcester and you. Making a difference.

Working together for many years, heating professionals and Worcester have been making a real difference in hundreds of thousands of homes. We are recognised as a market leader in high efficiency, condensing boiler technology and are also committed to providing renewable energy solutions.

As part of the Bosch Group, our products are designed and manufactured to provide the high levels of quality and reliability which are synonymous with the Bosch name throughout the world.

We're a leading British company, employing approximately 1,800 people at our headquarters and manufacturing plants in Worcester and at Clay Cross in Derbyshire, including a nationwide network of over 300 Service Engineers and over 80 technically-trained Field Sales Managers.



The reception and main entrance
at our Worcester headquarters

As part of Europe's largest supplier
of heating products, Worcester,
Bosch Group has the resources
and support capability to offer you
the value-added solutions we feel you deserve.

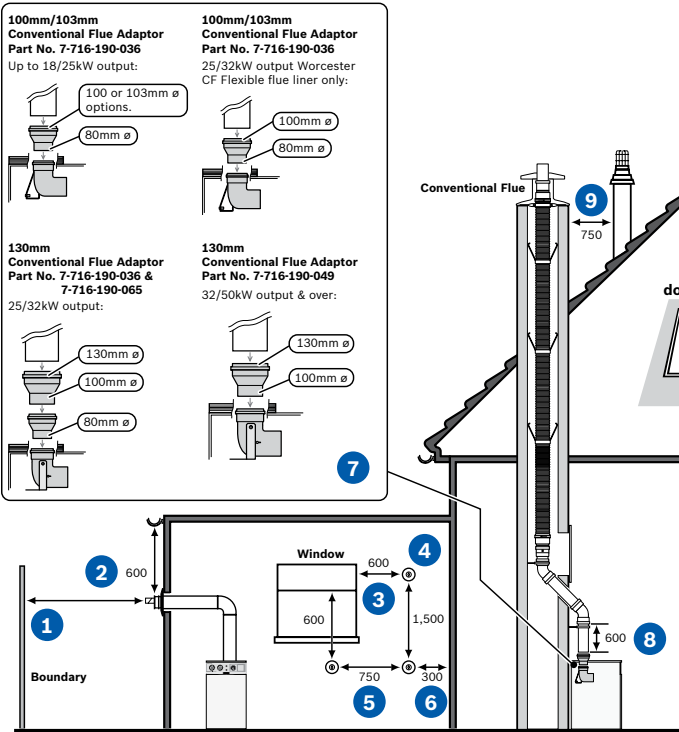


BOSCH
Invented for life

“At Worcester, we remain keen to embrace new market opportunities where possible as we move towards the wider installation of renewable technologies in UK homes. In doing so, we will continue to deliver on our core values of reliability, quality, efficiency and value for money to ensure you have all you require in order to deliver only the best solutions to your customers' requirements.”

Carl Arntzen,
Managing Director, Bosch Thermotechnology Ltd.

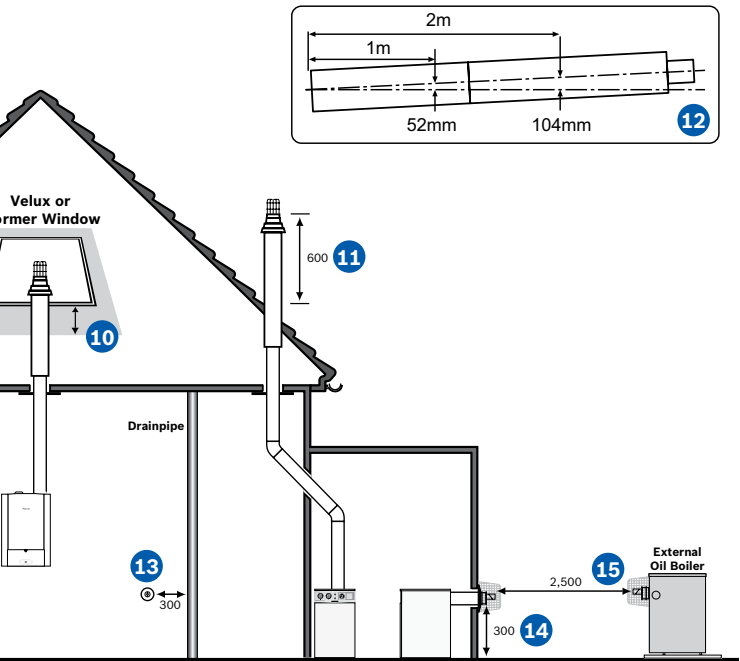
All measurements in millimetres



Key to illustration

- 600mm distance to a boundary, unless it will cause a nuisance. BS 5410: Part 1 recommends that care is taken when siting terminals in relation boundaries.
- 600mm below eaves, balconies, this can be reduced to 75mm, as long as the flue terminal is extended to clear any overhang.
- 600mm horizontally or vertically to an opening, air brick or opening window.
- 1,500mm vertically from a terminal on the same wall.
- 750mm horizontally from a flue on the same wall.
- 300mm to an internal or external corner.
- Details of conventional flue adaptors.
- Minimum 600mm straight flue before any bend on a conventional flue.
- 750mm between a vertical structure and a flue terminal.
- 1,000mm below a Velux or dormer window, 300mm above or to either side of the Velux or dormer window or any open on a sloping roof.
- 600mm above the highest point of an intersection with a roof.
- Any flue must fall back towards the boiler by 3° or 52mm for every metre of flue so that the condensate drains back to the boiler for disposal.

Flue terminal positioning

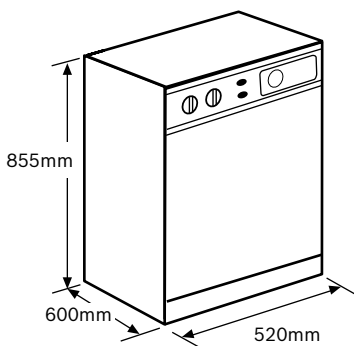


13. 300mm to any vertical sanitary pipe work or drain pipe.
14. Flue clearance must be at least 300mm above ground or balcony level. Terminal guards must be fitted if the flue is less than 2 metres from the ground or if a person could come into contact with flue terminal.
15. 2,500 mm between terminals facing each other.

All measurements are the minimum clearances required. Terminals must be positioned so to avoid combustion products entering the building. In spite of the dimensions given here, the terminal must not be closer than 300mm to combustible material, in the case of a thatched roof double this dimension. Terminals must be positioned so to avoid products of combustion accumulating in stagnant pockets around the building or entering the building. Terminals must be at least 1.8 metres from an oil storage tank unless a wall with of at least 30 minutes fire resistance and extending 300mm wider and higher than the tank, between the tank and terminal.

Floor standing condensing combi boilers

Greenstar Heatslave series



Clearances

Above: 300mm*

Left: 5mm

Right: 5mm

Front: 600mm

*Note: Although clearance above the Heatslave range is stated to be 300mm, a removable worktop may be placed directly above the boiler, allowing 10mm clearance.

Boiler output (kW)	Flow rate** (l/min)	Lift weight	Seasonal efficiency	Oil burner	Part no.
Greenstar Heatslave 12/18					
12 to 18	15†	177kg	90.2%	Riello RDB 1*	7 716 100 097
Greenstar Heatslave 18/25					
18 to 25	18	177kg	90.1%	Riello RDB 2.2*	7 716 100 098
Greenstar Heatslave 25/32					
25 to 32	22	179kg	90.3%	Riello RDB 2.2*	7 716 100 099

*Suitable for kerosene (28 sec oil) only

**Maximum flow rate to produce a 40°C temperature rise over a 90l draw off

†Restricted DHW flow rate

Control options

Part no.	Description
7 716 192 033	Twin Channel Digital

Maximum flue lengths

Orientation	Diameter	12/18	18/25	25/32
High Level Horizontal	125mm	2,000mm	5,000mm	2,000mm
Rear Exit Horizontal	125mm	4,000mm	6,000mm	4,000mm
Side Exit Horizontal	125mm	3,000mm	5,000mm	3,000mm
Vertical	125mm	6,000mm	12,000mm	6,000mm
Plume Management	80mm	5,000mm	5,000mm	5,000mm













Note: For every 90° flue bend deduct 1,000mm and 500mm for every 45° flue bend.

For every 90° plume kit bend deduct 1,000mm and 500mm for every 45° plume kit bend.







Horizontal and vertical fluing options



Components	Part no.	Description
125mm diameter		
	7 716 190 064	Standard telescopic flue kit (460 - 670mm)
	7 716 190 062	Short telescopic flue kit (360 - 460mm)
	7 716 190 032	Vertical BF kit (1,080mm)
	7 716 190 033	1,000mm extension (960mm)
	7 716 190 097	600mm extension
	7 716 190 034	90° flue bend
	7 716 190 035	45° flue bend (pair)
	7 716 191 174	Support bracket kit
	7 716 190 074	Wall cover plate kit (100mm dia.)
	7 716 191 090	Flashing – flat roof
	7 716 191 091	Flashing – pitched roof
	7 716 190 050	Stainless steel flue terminal guard




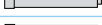
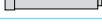



Plume management

	7 716 190 092	Plume management kit
	7 716 190 093	Plume management 1,000mm extension
	7 716 190 095	Plume management 90° bend
	7 716 190 094	Plume management 45° bend (pair)

Conventional flue

	7 716 190 036	Conventional flue adaptor kit
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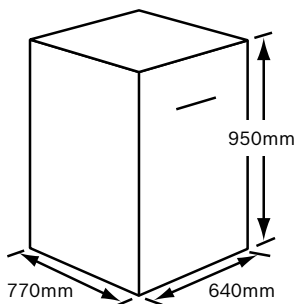
Oilfit flexible flue kit

	7 716 190 076	Oilfit flexi flue kit (8m)
	7 716 190 077	Oilfit flexi flue kit (12m)
	7 716 190 078	Oilfit flexi flue kit (15m)
	7 716 190 068*	Telescopic extension
	7 716 190 066*	1,000mm extension kit
	7 716 190 067*	500mm extension kit
	7 716 190 069*	45° bend
	7 716 190 074	Wall cover plate kit

Note: Horizontal left hand fluing within the cabinet height will require the internal expansion vessel to be re-sited externally.

*Stainless steel

Greenstar Heatslave External series



Clearances

Above	600mm
Front	600mm
RH/LH flue outlet on opposite side	10mm
RH flue outlet on rear	85mm
LH flue outlet on rear	10mm
Rear = flue outlet on side	150mm
Rear = rear flue outlet	2,500mm

It is strongly recommended that the flue terminal faces away from walls to reduce the possibility of wetting occurring.

Boiler output (kW)	Flow rate (l/min)	Lift weight	Seasonal efficiency	Oil burner	Part no.
Greenstar Heatslave External 12/18					
12 to 18	15 [†]	195kg	90.2%	Riello RDB 1*	7 716 100 117
Greenstar Heatslave External 18/25					
18 to 25	18	195kg	90.1%	Riello RDB 2.2*	7 716 100 118
Greenstar Heatslave External 25/32					
25 to 32	22	206kg	90.3%	Riello RDB 2.2*	7 716 100 119

**Suitable for kerosene (28 sec oil) only. **Maximum flow rate to produce a 40°C temperature rise over a 90.1 draw off. †Restricted DHW flow rate*

Maximum flue lengths

External kit	Exit	Diameter	12/18	18/25	25/32
Vertical terminal	Rear	125mm	6,000mm [†]	11,000mm [†]	6,000mm [†]
	Side	125mm	5,000mm [†]	10,000mm [†]	5,000mm [†]
Horizontal terminal	Rear	125mm	2,000mm [†]	5,000mm [†]	2,000mm [†]
Plume management kit ^{**}		80mm	5,000mm	5,000mm	5,000mm

[†]90° bend included in kit ignored when calculating length.

*^{**}Installed with low level flue kit.*











Note: For every 90° flue bend deduct 1,000mm and 500mm for every 45° flue bend.





For every 90° plume kit bend deduct 1,000mm and 500mm for every 45° plume kit bend.



Horizontal and vertical fluing options

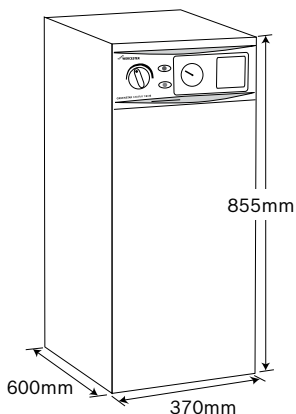


Components	Part no.	Description
125mm diameter		
	7 716 190 084	Low level horizontal standard flue kit
	7 716 190 057	Horizontal terminal external flue kit
	7 716 190 053	Vertical terminal external flue kit
	7 716 190 054	External flue extension (960mm)
	7 716 190 098	External flue extension (600mm)
	7 716 190 034	Internal 90° flue bend (used inside boiler when fluing to side)
	7 716 190 055	External 90° bend
	7 716 190 056	External 45° bend (pair)
	7 716 191 174	Support bracket kit
	7 716 190 050	Stainless steel flue terminal guard

Plume management		
	7 716 190 092	Plume management kit
	7 716 190 093	Plume management 1,000mm extension
	7 716 190 095	Plume management 90° bend
	7 716 190 094	Plume management 45° bend (pair)

Floor standing condensing system boilers

Greenstar Camray (kitchen) System series



Clearances

Above: 10mm
(annual service)

Above: 300mm
(maintenance & repair)

Left: 5mm

Right: 5mm

Front: 600mm

The appliance is suitable for an under worktop installation providing that the worktop above the boiler (min. 10mm clearance) is removable for maintenance and repair.

Boiler output (kW)	Seasonal efficiency	Oil burner	Lift weight	Part no.
Greenstar Camray (kitchen) System 12/18				
12 to 18	93.1%	Riello RDB 1*	108kg	7 716 100 121
Greenstar Camray (kitchen) System 18/25				
18 to 25	93.2%	Riello RDB 2.2*	110kg	7 716 100 122
Greenstar Camray (kitchen) System 25/32				
25 to 30	94.2%	Riello RDB 2.2*	117kg	7 716 100 123

*Suitable for kerosene (28 sec oil) only

Control options

Part no.	Description
7 716 192 033	Twin Channel Digital

Maximum flue lengths

Orientation	Diameter	12/18	18/25	25/32
High Level Horizontal	125mm	2,000mm	5,000mm [†]	2,000mm
Rear Exit Horizontal	125mm	4,000mm	6,000mm [†]	4,000mm
Side Exit Horizontal	125mm	3,000mm	5,000mm [†]	3,000mm
Vertical	125mm	8,000mm	8,000mm	–
	150mm	–	10,000mm [†]	8,000mm
Plume Management	80mm	5,000mm	5,000mm	5,000mm

[†]Flue damper (7 716 190 101) required when flue length exceeds: 2m Top Horizontal, 4m Rear Horizontal, 3m Side Horizontal Side and on all lengths with vertical 100/150mm flue.

Note: For every 90° flue bend deduct 1,000mm and 500mm for every 45° flue bend.

For every 90° plume kit bend deduct 1,000mm and 500mm for every 45° plume kit bend.



Horizontal and vertical fluing options



Components	Part no.	Description
125mm diameter		
	7 716 190 064	Standard telescopic flue kit (460 - 670mm)
	7 716 190 062	Short telescopic flue kit (360 - 460mm)
	7 716 190 032	Vertical BF kit (1,080mm)
	7 716 190 033	1,000mm extension (960mm)
	7 716 190 097	600mm extension
	7 716 190 034	90° flue bend
	7 716 190 035	45° flue bend (pair)
	7 716 191 174	Support bracket kit
	7 716 191 090	Flashing – flat roof
	7 716 191 091	Flashing – pitched roof
	7 716 190 050	Stainless steel flue terminal guard

Plume management		
	7 716 190 092	Plume management kit
	7 716 190 093	Plume management 1,000mm extension
	7 716 190 095	Plume management 90° bend
	7 716 190 094	Plume management 45° bend (pair)

150mm diameter		
	7 716 190 059	Vertical RS flue kit (1,080mm)
	7 716 190 045	1,000mm extension (960mm)
	7 716 190 046	90° flue bend
	7 716 190 047	45° flue bend (pair)

Conventional flue		
	7 716 190 036	Conventional flue adaptor kit
	7 716 190 065**	Conventional flue adaptor (100/130mm)

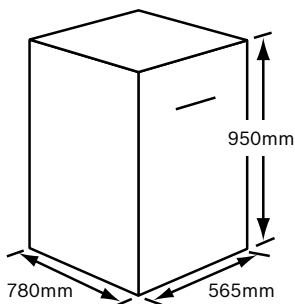
**For Greenstar Camray 25/32 models use CF adaptor kit 7 716 190 036 & CF adaptor (100/130mm) 7 716 190 065

Oilfit flexible flue kit		
	7 716 190 076	Oilfit flexi flue kit (8m)
	7 716 190 077	Oilfit flexi flue kit (12m)
	7 716 190 078	Oilfit flexi flue kit (15m)
	7 716 190 068*	Telescopic extension
	7 716 190 066*	1,000mm extension kit
	7 716 190 067*	500mm extension kit
	7 716 190 069*	45° bend
	7 716 190 074	Wall cover plate kit

*Stainless steel

Floor standing condensing external system boilers

Greenstar Camray External System series



Clearances

Flue orientation from front (mm)			
Key	Right	Left	Rear
Left	10	2,500*	85
Right	2,500	10	45
Rear	50**	50**	2,500*
Above	600	600	600
Front	600	600	600

*From end of flue terminal allow 2,500mm clearance.

**200mm if using a high level terminal exiting through the rear panel.

Boiler output (kW)	Seasonal efficiency	Oil burner	Lift weight	Part no.
Greenstar Camray External System 12/18				
12 to 18	93.1%	Riello RDB 1 [†]	133kg	7 716 100 126
Greenstar Camray External System 18/25				
18 to 25	93.2%	Riello RDB 2.2 [†]	134kg	7 716 100 127
Greenstar Camray External System 25/32				
25 to 30	94.2%	Riello RDB 2.2 [†]	152kg	7 716 100 128

[†]Suitable for kerosene (28 sec oil) only

Maximum flue lengths

Kit	Exit	Diameter	12/18	18/25	25/32
Vertical terminal	Rear	125mm	7,000mm [†]	7,000mm [†]	–
		150mm	–	9,000mm [†]	7,000mm [†]
	Side	125mm	6,000mm [†]	6,000mm [†]	–
		150mm	–	8,000mm [†]	6,000mm [†]
Horizontal terminal	Rear	125mm	2,000mm [†]	5,000mm [†]	2,000mm
Plume management kit ^{**}		80mm	–	5,000mm	5,000mm

[†]90° bend included in kit ignored when calculating length.

^{**}Installed with low level flue kit.

Note: For every 90° flue bend deduct 1,000mm and 500mm for every 45° flue bend.

For every 90° plume kit bend deduct 1,000mm and 500mm for every 45° plume kit bend.



Horizontal and vertical fluing options



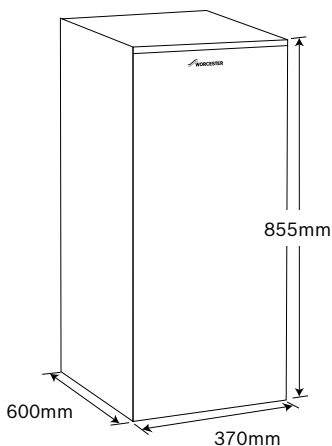
Components	Part no.	Description
125mm diameter		
	7 716 190 084	Low level horizontal standard flue kit
	7 716 190 057	Horizontal terminal external flue kit
	7 716 190 053	Vertical terminal external flue kit
	7 716 190 054	External flue extension (960mm)
	7 716 190 098	External flue extension (600mm)
	7 716 190 034	Internal 90° flue bend (used inside boiler when fluing to side)
	7 716 190 055	External 90° bend
	7 716 190 056	External 45° bend (pair)
	7 716 191 174	Support bracket kit
	7 716 190 050	Stainless steel flue terminal guard

Plume management		
	7 716 190 092 [†]	Plume management kit
	7 716 190 093 [†]	Plume management 1,000mm extension
	7 716 190 095 [†]	Plume management 90° bend
	7 716 190 094 [†]	Plume management 45° bend (pair)

[†]Unsuitable for Camray External System 12/18

150mm diameter – Camray 25/32 only		
	7 716 190 058	Vertical external flue kit
	7 716 190 060	External flue extension (960mm)
	7 716 190 096	External flue 90° bend
	7 716 190 061	External flue 45° bend (pair)

Greenstar Camray Utility System series



Clearances

Above: 10mm
(annual service)

Above: 300mm
(maintenance & repair)

Left: 5mm

Right: 5mm

Front: 600mm

The appliance is suitable for an under worktop installation providing that the worktop above the boiler (min. 10mm clearance) is removable for maintenance and repair.

Boiler output (kW)	Seasonal efficiency	Oil burner	Lift weight	Part no.
Greenstar Camray Utility System 12/18				
12 to 18	93.1%	Riello RDB 1 [†]	109kg	7 716 100 111
Greenstar Camray Utility System 18/25				
18 to 25	93.2%	Riello RDB 2.2 [†]	111kg	7 716 100 112
Greenstar Camray Utility System 25/32				
25 to 30	94.2%	Riello RDB 2.2 [†]	118kg	7 716 100 113

[†]Suitable for kerosene (28 sec oil) only

Maximum flue lengths

Orientation	Diameter	12/18	18/25	25/32
High Level Horizontal	125mm	2,000mm	5,000mm [†]	2,000mm
Rear Exit Horizontal	125mm	4,000mm	6,000mm [†]	4,000mm
Side Exit Horizontal	125mm	3,000mm	5,000mm [†]	3,000mm
Vertical	125mm	8,000mm	8,000mm	–
	150mm	–	10,000mm [†]	8,000mm
Plume Management	80mm	5,000mm	5,000mm	5,000mm

[†]Flue damper (7 716 190 101) required when flue length exceeds: 2m Top Horizontal, 4m Rear Horizontal, 3m Side Horizontal Side and on all lengths with vertical 100/150mm flue.

Note: For every 90° flue bend deduct 1,000mm and 500mm for every 45° flue bend.

For every 90° plume kit bend deduct 1,000mm and 500mm for every 45° plume kit bend.



Horizontal and vertical fluing options



Components	Part no.	Description
125mm diameter		
	7 716 190 064	Standard telescopic flue kit (460 - 670mm)
	7 716 190 062	Short telescopic flue kit (360 - 460mm)
	7 716 190 032	Vertical BF kit (1,080mm)
	7 716 190 033	1,000mm extension (960mm)
	7 716 190 097	600mm extension
	7 716 190 034	90° flue bend
	7 716 190 035	45° flue bend (pair)
	7 716 191 174	Support bracket kit
	7 716 191 090	Flashing – flat roof
	7 716 191 091	Flashing – pitched roof
	7 716 190 050	Stainless steel flue terminal guard

Plume management		
	7 716 190 092	Plume management kit
	7 716 190 093	Plume management 1,000mm extension
	7 716 190 095	Plume management 90° bend
	7 716 190 094	Plume management 45° bend (pair)

150mm diameter		
	7 716 190 059	Vertical RS flue kit (1,080mm)
	7 716 190 045	1,000mm extension (960mm)
	7 716 190 046	90° flue bend
	7 716 190 047	45° flue bend (pair)

Conventional flue		
	7 716 190 036	Conventional flue adaptor kit
	7 716 190 065**	Conventional flue adaptor (100/130mm)

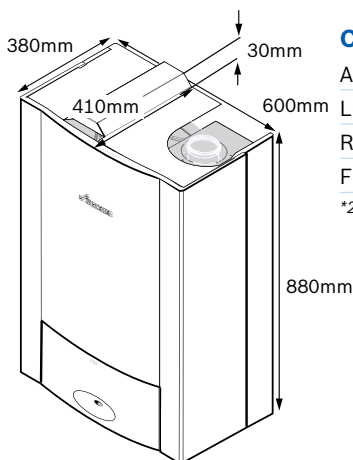
**For Greenstar Camray 25/32 models use CF adaptor kit 7 716 190 036 & CF adaptor (100/130mm) 7 716 190 065

Oilfit flexible flue kit		
	7 716 190 076	Oilfit flexi flue kit (8m)
	7 716 190 077	Oilfit flexi flue kit (12m)
	7 716 190 078	Oilfit flexi flue kit (15m)
	7 716 190 068*	Telescopic extension
	7 716 190 066*	1,000mm extension kit
	7 716 190 067*	500mm extension kit
	7 716 190 069*	45° bend
	7 716 190 074	Wall cover plate kit

*Stainless steel

Wall mounted condensing regular boilers

Greenstar Danesmoor wall mounted series



Clearances

Above:	300mm
Left:	10mm
Right:	10mm
Front:	600mm*

*20mm to a removable door

Boiler output (kW)	Seasonal efficiency	Oil burner	Lift weight	Part no.
Greenstar Danesmoor WM 12/18				
12 to 18	92.6%	Riello RDB 1 [†]	72kg	7 716 100 124
Greenstar Danesmoor WM 18/25				
18 to 25	92.8%	Riello RDB 2.2 [†]	72kg	7 716 100 125

[†]Suitable for kerosene (28 sec oil) only

Control options

Part no.	Description
7 716 192 033	Twin Channel Digital

Maximum flue lengths



Fluing	Direction	Diameter	12/18	18/25
Internal	Horizontal	125mm	4,000mm	4,000mm
	Vertical	125mm	6,000mm	6,000mm
Plume Management	–	80mm	5,000mm	4,000mm

Note: For every 90° flue bend deduct 1,000mm and 500mm for every 45° flue bend.

For every 90° plume kit bend deduct 1,000mm and 500mm for every 45° plume kit bend.



Horizontal and vertical fluing options



Components	Part no.	Description
125mm diameter		
	7 716 190 064**	Standard telescopic flue kit (460 - 670mm)
	7 716 190 062**	Short telescopic flue kit (360 - 460mm)
	7 716 190 032	Vertical BF kit (1,080mm)
	7 716 190 033	1,000mm extension (960mm)
	7 716 190 097	600mm extension
	7 716 190 034	90° flue bend
	7 716 190 035	45° flue bend (pair)
	7 716 191 174	Support bracket kit
	7 716 191 090	Flashing – flat roof
	7 716 191 091	Flashing – pitched roof
	7 716 190 050	Stainless steel flue terminal guard

***For horizontal fluing a 90° elbow must be ordered*

Plume management		
	7 716 190 092	Plume management kit
	7 716 190 093	Plume management 1,000mm extension
	7 716 190 095	Plume management 90° bend
	7 716 190 094	Plume management 45° bend (pair)

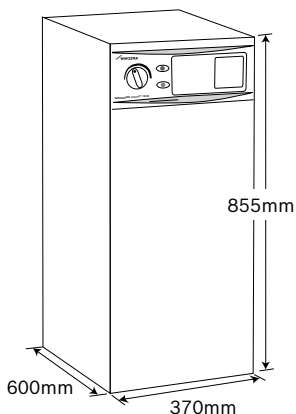
Conventional flue		
	7 716 190 036	Conventional flue adaptor kit

Oilfit flexible flue kit		
	7 716 190 076	Oilfit flexi flue kit (8m)
	7 716 190 077	Oilfit flexi flue kit (12m)
	7 716 190 078	Oilfit flexi flue kit (15m)
	7 716 190 068*	Telescopic extension
	7 716 190 066*	1,000mm extension kit
	7 716 190 067*	500mm extension kit
	7 716 190 069*	45° bend
	7 716 190 074	Wall cover plate kit

**Stainless steel*

Floor standing condensing regular boilers

Greenstar Camray (kitchen) series



Clearances

Above: 10mm
(annual service)

Above: 300mm
(maintenance & repair)

Left: 5mm

Right: 5mm

Front: 600mm

The appliance is suitable for an under worktop installation providing that the worktop above the boiler (min. 10mm clearance) is removable for maintenance and repair.

Boiler output (kW)	Seasonal efficiency	Oil burner	Lift weight	Part no.
Greenstar Camray Kitchen 12/18				
12 to 18	93.1%	Riello RDB 1*	101kg	7 716 100 105
Greenstar Camray Kitchen 18/25				
18 to 25	93.2%	Riello RDB 2.2*	102kg	7 716 100 106
Greenstar Camray Kitchen 25/32				
25 to 30	94.2%	Riello RDB 2.2*	109kg	7 716 100 107

*Suitable for kerosene (28 sec oil) only

Control options

Part no.	Description
7 716 192 033	Twin Channel Digital

Maximum flue lengths

Orientation	Diameter	12/18	18/25	25/32
High Level Horizontal	125mm	2,000mm	5,000mm [†]	2,000mm
Rear Exit Horizontal	125mm	4,000mm	6,000mm [†]	4,000mm
Side Exit Horizontal	125mm	3,000mm	5,000mm [†]	3,000mm
Vertical	125mm	8,000mm	8,000mm	–
	150mm	–	10,000mm [†]	8,000mm
Plume Management	80mm	5,000mm	5,000mm	5,000mm

[†]Flue damper (7 716 190 101) required when flue length exceeds: 2m Top Horizontal, 4m Rear Horizontal, 3m Side Horizontal Side and on all lengths with vertical 100/150mm flue.

Note: For every 90° flue bend deduct 1,000mm and 500mm for every 45° flue bend.

For every 90° plume kit bend deduct 1,000mm and 500mm for every 45° plume kit bend.



Horizontal and vertical fluing options

Components	Part no.	Description
125mm diameter		
	7 716 190 064	Standard telescopic flue kit (460 - 670mm)
	7 716 190 062	Short telescopic flue kit (360 - 460mm)
	7 716 190 032	Vertical BF kit (1,080mm)
	7 716 190 033	1,000mm extension (960mm)
	7 716 190 097	600mm extension
	7 716 190 034	90° flue bend
	7 716 190 035	45° flue bend (pair)
	7 716 191 174	Support bracket kit
	7 716 191 090	Flashing - flat roof
	7 716 191 091	Flashing - pitched roof
	7 716 190 050	Stainless steel flue terminal guard

Plume management		
	7 716 190 092	Plume management kit
	7 716 190 093	Plume management 1,000mm extension
	7 716 190 095	Plume management 90° bend
	7 716 190 094	Plume management 45° bend (pair)

150mm diameter		
	7 716 190 059	Vertical RS flue kit (1,080mm)
	7 716 190 045	1,000mm extension (960mm)
	7 716 190 046	90° flue bend
	7 716 190 047	45° flue bend (pair)

Conventional flue		
	7 716 190 036	Conventional flue adaptor kit
	7 716 190 065**	Conventional flue adaptor (100/130mm)

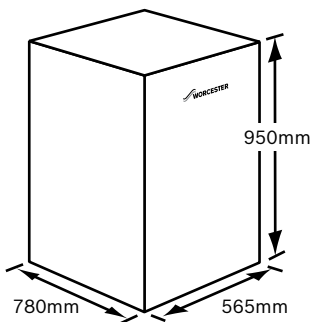
**For Greenstar Camray 25/32 models use CF adaptor kit 7 716 190 036 & CF adaptor (100/130mm) 7 716 190 065

Oilfit flexible flue kit		
	7 716 190 076	Oilfit flexi flue kit (8m)
	7 716 190 077	Oilfit flexi flue kit (12m)
	7 716 190 078	Oilfit flexi flue kit (15m)
	7 716 190 068*	Telescopic extension
	7 716 190 066*	1,000mm extension kit
	7 716 190 067*	500mm extension kit
	7 716 190 069*	45° bend
	7 716 190 074	Wall cover plate kit

*Stainless steel

Floor standing condensing external regular boilers

Greenstar Camray External series



Clearances

Flue orientation from front (mm)			
Key	Right	Left	Rear
Left	10	2,500*	85
Right	2,500	10	45
Rear	50**	50**	2,500*
Above	600	600	600
Front	600	600	600

*From end of flue terminal allow 2,500mm clearance.

**200mm if using a high level terminal exiting through the rear panel.

Boiler output (kW)	Seasonal efficiency	Oil burner	Lift weight	Part no.
Greenstar Camray External 12/18				
12 to 18	93.1%	Riello RDB 1 [†]	114kg	7 716 100 114
Greenstar Camray External 18/25				
18 to 25	93.2%	Riello RDB 2.2 [†]	115kg	7 716 100 115
Greenstar Camray External 25/32				
25 to 30	94.2%	Riello RDB 2.2 [†]	122kg	7 716 100 116

[†]Suitable for kerosene (28 sec oil) only

Maximum flue lengths

External kit	Exit	Diameter	12/18	18/25	25/32
Vertical terminal	Rear	125mm	7,000mm [†]	7,000mm [†]	–
		150mm	–	9,000mm [†]	7,000mm [†]
	Side	125mm	6,000mm [†]	6,000mm [†]	–
		150mm	–	8,000mm [†]	6,000mm [†]
Horizontal terminal	Rear	125mm	2,000mm [†]	5,000mm [†]	2,000mm
Plume management kit ^{**}		80mm	–	5,000mm	5,000mm

[†]90° bend included in kit ignored when calculating length.

^{**}Installed with low level flue kit.

Note: For every 90° flue bend deduct 1,000mm and 500mm for every 45° flue bend.

For every 90° plume kit bend deduct 1,000mm and 500mm for every 45° plume kit bend.



Horizontal and vertical fluing options

Components	Part no.	Description
125mm diameter		
	7 716 190 084	Low level horizontal standard flue kit
	7 716 190 057	Horizontal terminal external flue kit
	7 716 190 053	Vertical terminal external flue kit
	7 716 190 054	External flue extension (960mm)
	7 716 190 098	External flue extension (600mm)
	7 716 190 034	Internal 90° flue bend (used inside boiler when fluing to side)
	7 716 190 055	External 90° bend
	7 716 190 056	External 45° bend (pair)
	7 716 191 174	Support bracket kit
	7 716 190 050	Stainless steel flue terminal guard

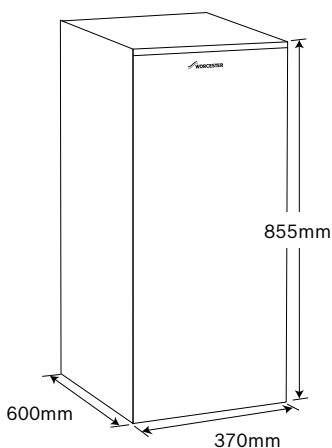
Plume management		
	7 716 190 092*	Plume management kit
	7 716 190 093*	Plume management 1,000mm extension
	7 716 190 095*	Plume management 90° bend
	7 716 190 094*	Plume management 45° bend (pair)

*Unsuitable for Camray External 12/18

150mm diameter – Camray 25/32 only		
	7 716 190 058	Vertical external flue kit
	7 716 190 060	External flue extension (960mm)
	7 716 190 096	External flue 90° bend
	7 716 190 061	External flue 45° bend (pair)

Floor standing condensing regular utility boilers

Greenstar Camray Utility series



Clearances

Above: 10mm
(annual service)

Above: 300mm
(maintenance & repair)

Left: 5mm

Right: 5mm

Front: 600mm

The appliance is suitable for an under worktop installation providing that the worktop above the boiler (min. 10mm clearance) is removable for maintenance and repair.

Boiler output (kW)	Seasonal efficiency	Oil burner	Lift weight	Part no.
Greenstar Camray Utility 12/18				
12 to 18	93.1%	Riello RDB 1*	101kg	7 716 100 108
Greenstar Camray Utility 18/25				
18 to 25	93.2%	Riello RDB 2.2*	103kg	7 716 100 109
Greenstar Camray Utility 25/32				
25 to 32	94.2%	Riello RDB 2.2*	110kg	7 716 100 110

*Suitable for kerosene (28 sec oil) only

Maximum flue lengths

Orientation	Diameter	12/18	18/25	25/32
High Level Horizontal	125mm	2,000mm	5,000mm [†]	2,000mm
Rear Exit Horizontal	125mm	4,000mm	6,000mm [†]	4,000mm
Side Exit Horizontal	125mm	3,000mm	5,000mm [†]	3,000mm
Vertical	125mm	8,000mm	8,000mm	–
	150mm	–	10,000mm [†]	8,000mm
Plume Management	80mm	5,000mm	5,000mm	5,000mm

[†]Flue damper (7 716 190 101) required when flue length exceeds:

2m Top Horizontal, 4m Rear Horizontal, 3m Side Horizontal Side and on all lengths with vertical 100/150mm flue.

Note: For every 90° flue bend deduct 1,000mm and 500mm for every 45° flue bend.

For every 90° plume kit bend deduct 1,000mm and 500mm for every 45° plume kit bend.



Horizontal and vertical fluing options



Components	Part no.	Description
125mm diameter		
	7 716 190 064	Standard telescopic flue kit (460 - 670mm)
	7 716 190 062	Short telescopic flue kit (360 - 460mm)
	7 716 190 032	Vertical BF kit (1,080mm)
	7 716 190 033	1,000mm extension (960mm)
	7 716 190 097	600mm extension
	7 716 190 034	90° flue bend
	7 716 190 035	45° flue bend (pair)
	7 716 191 174	Support bracket kit
	7 716 191 090	Flashing – flat roof
	7 716 191 091	Flashing – pitched roof
	7 716 190 050	Stainless steel flue terminal guard

Plume management		
	7 716 190 092	Plume management kit
	7 716 190 093	Plume management 1,000mm extension
	7 716 190 095	Plume management 90° bend
	7 716 190 094	Plume management 45° bend (pair)

150mm diameter		
	7 716 190 059	Vertical RS flue kit (1,080mm)
	7 716 190 045	1,000mm extension (960mm)
	7 716 190 046	90° flue bend
	7 716 190 047	45° flue bend (pair)

Conventional flue		
	7 716 190 036	Conventional flue adaptor kit
	7 716 190 065**	Conventional flue adaptor (100/130mm)

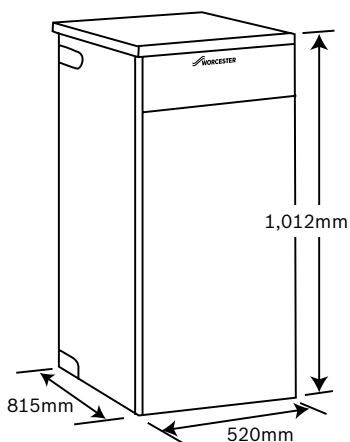
**For Greenstar Camray 25/32 models use CF adaptor kit 7 716 190 036 & CF adaptor (100/130mm) 7 716 190 065

Oilfit flexible flue kit		
	7 716 190 076	Oilfit flexi flue kit (8m)
	7 716 190 077	Oilfit flexi flue kit (12m)
	7 716 190 078	Oilfit flexi flue kit (15m)
	7 716 190 068*	Telescopic extension
	7 716 190 066*	1,000mm extension kit
	7 716 190 067*	500mm extension kit
	7 716 190 069*	45° bend
	7 716 190 074	Wall cover plate kit

*Stainless steel

Floor standing condensing regular utility boilers

Greenstar Utility series



Clearances

Above flue: 300mm*

Left: 10mm

Right: 10mm

Front: 600mm

**Note: Although clearance above the Greenstar Utility range is stated to be 300mm, a removable worktop may be placed directly above the boiler, allowing 10mm clearance.*

Boiler output (kW)	Seasonal efficiency	Oil burner	Lift weight (kg)	Part no.
Greenstar Utility 32/50				
32 to 50	93.0%	Riello RDB 3.2*	270	7 716 100 103
Greenstar Utility 50/70				
50 to 70	92.5%	Riello RDB 4.2*	280	7 716 100 104

**Suitable for kerosene (28 sec oil) only*

Maximum flue lengths

Orientation	Diameter	32/50	50/70
High Level Horizontal	150mm	2,000mm	2,000mm
Rear Exit Horizontal	150mm	3,000mm	3,000mm
Side Exit Horizontal	150mm	3,000mm	3,000mm
Vertical	150mm	6,000mm	6,000mm

Note: For every 90° flue bend deduct 1,000mm and 500mm for every 45° flue bend.



Horizontal and vertical fluing options



Components	Part no.	Description
150mm diameter		
	7 716 190 043	Standard horizontal flue kit (880mm)
	7 716 190 044	Vertical BF kit (1,290mm)
	7 716 190 045	Flue extension (960mm)
	7 716 190 046	90° flue bend
	7 716 190 047	45° flue bend (pair)
	7 716 190 051	Stainless steel flue terminal guard

External flues – 150mm diameter

	7 716 190 060	External flue extension
	7 716 190 096	External flue 90° bend
	7 716 190 061	External flue 45° bend (pair)

Conventional flue

	7 716 190 049	Conventional flue adaptor kit
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Oilfit flexible flue kit – 130mm diameter

	7 716 190 079	Oilfit flexi flue kit (8m)
	7 716 190 080	Oilfit flexi flue kit (12m)
	7 716 190 081	Oilfit flexi flue kit (15m)
	7 716 190 072*	Telescopic extension
	7 716 190 070*	1,000mm extension kit
	7 716 190 071*	500mm extension kit
	7 716 190 073*	45° bend
	7 716 190 075	Wall cover plate kit

*Stainless steel

Plume management





Plume management kits are available for 125mm horizontally terminated flues, for use on external and internal boilers (except Camray External 12/18 boilers).

The standard kit provides a 500mm extension to the flue, with a 90° bend and a plume kit terminal. 1m extensions and bends are also available separately.

For more information on Worcester's plume management options, including reduced flue terminal clearances, please read the plume kit installation manual.

Plume management parts



Components	Part no.	Description
	7 716 190 092	Plume management kit (125mm dia.)
	7 716 190 093	Plume management 1,000mm extension
	7 716 190 095	Plume management 90° bend
	7 716 190 094	Plume management 45° bend (pair)

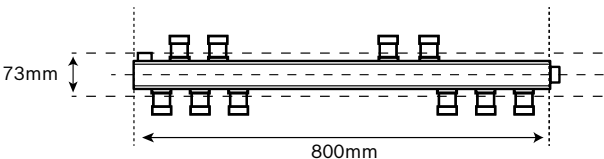
Greenstar low loss header

The Greenstar Low Loss Header is a ready-made solution for the connection of two Greenstar system or regular boilers on a sealed heating system with a combined output of up to 70kW.

Greater flexibility

Use of a low loss header allows domestic boilers to be connected in a modular or cascade system to meet the needs of larger properties. This means that domestic appliances can be used in projects needing higher heating capacity without the installer requiring a separate qualification. The headers are supplied complete with insulation to save both time and money.

Mounting details

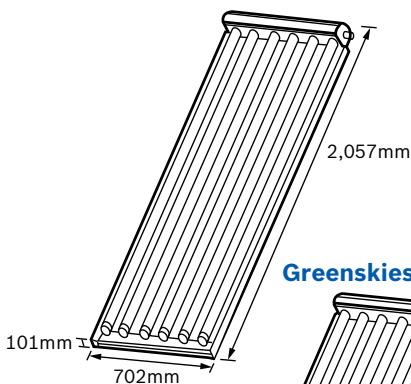


Part no.	Description
7 716 192 614	Greenstar Low Loss Header

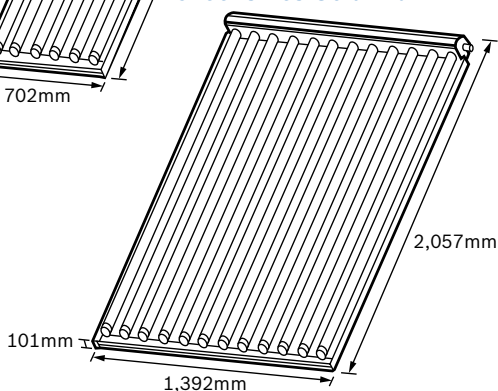
Solar thermal panels

Greenskies Solar-Lux

Greenskies Solar-Lux 6



Greenskies Solar-Lux 12
















Gross area (m ²)	Aperture area (m ²)	η_0 (%)	a1 (W/m ² k)	a2 (W/m ² k ²)	Part no.
Greenskies Solar-Lux 6					
1.44	1.28	64	0.749	0.005	8 718 530 558
Greenskies Solar-Lux 12					
2.86	2.57	64	0.749	0.005	8 718 530 559

Control options

Part no.	Description
7 747 004 420	TDS100 standard controller
7 747 004 427	TDS300 advanced controller
Intelligent controls	
7 716 192 068*	ISM1 intelligent solar module


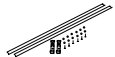
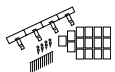


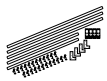
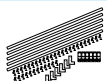
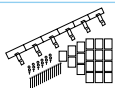




*Greenstar 30CDi System boiler, or i System boilers fitted with optional diverter valve only and FR110 or FW100.

Main plumb kit accessories – Solar-Lux

Components	Part no.	Description
	7 747 009 456	AGS5e single line pump station
	7 747 009 442	AGS5 twin line pump station
	7 747 009 427	AGS10e single line pump station
	7 747 009 420	AGS10 twin line pump station
	7 747 008 776	AGS5 twin line pump station/ TDS100 controller integrated
	7 739 300 100	18L expansion vessel
	7 739 300 119	25L expansion vessel
	7 739 300 120	35L expansion vessel
	7 739 300 331	Expansion vessel connector
	7 747 010 472	5L pre-cooling vessel
	7 747 010 473	12L pre-cooling vessel
	8 718 660 946	Solar fluid glycol 'LS' 10L
	8 718 660 947	Solar fluid glycol 'LS' 20L

Solar thermal panels



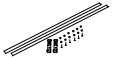
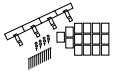

Main roof kit accessories – Solar-Lux

Components	Part no.	Description
	8 718 530 584	Connection set on-roof Solar-Lux 6/12
	8 718 530 851	On-roof set VT6/12
	8 718 530 856	Roof connection tile, 4 pcs VT
	8 718 530 857	Roof connection corrugated roof, 4 pcs VT
	8 718 530 858	Roof connection shingles, 4 pcs VT
	8 718 530 848	On-roof set 2 VT6
	8 718 530 850	On-roof set 3 VT6
	8 718 530 907	Roof connection tile, 6 pcs VT
	8 718 530 908	Roof connection corrugated roof, 6 pcs VT
	8 718 530 909	Roof connection shingles, 6 pcs VT
	8 718 530 872	Connection cover Solar-Lux
	7 747 009 880	Additional collector sensor

Greenskies solar thermal panel kits



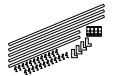
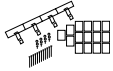


Solar-Lux kit 150: 1 x SL6 roof kit

Part number: 7 716 150 162

Components	Part no.	Quantity	Description
	8 718 530 558	1	Collector Solar-Lux 6
	8 718 530 584	1	Connection set on-roof Solar-Lux 6/12
	8 718 530 851	1	On-roof set VT6/12
	8 718 530 856	1	Roof connection tile, 4 pcs VT
	7 747 009 880	1	Collector sensor

Solar-Lux kit 200 easy lift: 2 x SL6 roof kit



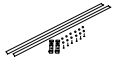
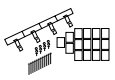

Part number: 7 716 150 161

Components	Part no.	Quantity	Description
	8 718 530 558	2	Collector Solar-Lux 6
	8 718 530 584	1	Connection set on-roof Solar-Lux 6/12
	8 718 530 848	1	On-roof set 2 VT6
	8 718 530 856	1	Roof connection tile, 4 pcs VT
	8 718 530 872	1	Connection cover Solar-Lux
	7 747 009 880	1	Collector sensor

Solar thermal panels



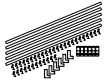
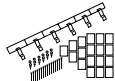


Solar-Lux kit 200: 1 x SL12 roof kit

Part number: 7 716 150 160

Components	Part no.	Quantity	Description
	8 718 530 559	1	Collector Solar-Lux 12
	8 718 530 584	1	Connection set on-roof Solar-Lux 6/12
	8 718 530 851	1	On-roof set VT6/12
	8 718 530 856	1	Roof connection tile, 4 pcs VT
	7 747 009 880	1	Collector sensor




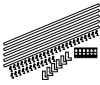
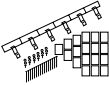


Solar-Lux kit 300 easy lift: 3 x SL6 roof kit

Part number: 7 716 150 159

Components	Part no.	Quantity	Description
	8 718 530 558	3	Collector Solar-Lux 6
	8 718 530 584	1	Connection set on-roof Solar-Lux 6/12
	8 718 530 850	1	On-roof set 3 VT6
	8 718 530 907	1	Roof connection tile, 6 pcs VT
	8 718 530 872	1	Connection cover Solar-Lux
	7 747 009 880	1	Collector sensor

Solar-Lux kit 300 Combo: SL6 & SL12 roof kit







Part number: 7 716 150 158

Components	Part no.	Quantity	Description
	8 718 530 558	1	Collector Solar-Lux 6
	8 718 530 559	1	Collector Solar-Lux 12
	8 718 530 584	1	Connection set on-roof Solar-Lux 6/12
	8 718 530 850	1	On-roof set 3 VT6
	8 718 530 907	1	Roof connection tile, 6 pcs VT
	8 718 530 872	1	Connection cover Solar-Lux
	7 747 009 880	1	Collector sensor

Greenskies solar thermal plumb kits

Solar-Lux plumb kit

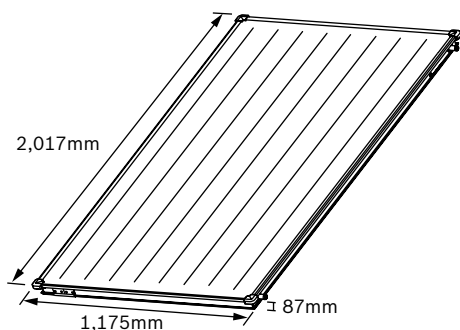
Part number: 7 716 150 163

Components	Part no.	Description
	8 718 660 947	Solar fluid LS 20
	7 747 009 442	AGS5 pump station
	7 747 004 420	TDS100 controller
	7 739 300 119	25L expansion vessel
	7 739 300 331	Expansion vessel connector
	7 747 010 472	5L pre-cooling vessel

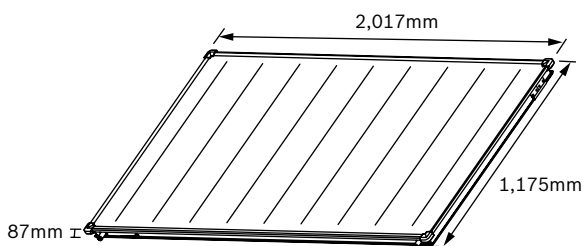
Solar thermal panels

Greenskies Solar-Lifestyle

Greenskies Solar-Lifestyle Portrait



Greenskies Solar-Lifestyle Landscape
















Gross area (m ²)	Aperture area (m ²)	η_0 (%)	a1 (W/m ² k)	a2 (W/m ² k ²)	Part no.
Greenskies Solar-Lifestyle Portrait					
2.37	2.25	77	3.327	0.015	8 718 530 950
Greenskies Solar-Lifestyle Landscape					
2.37	2.25	77	3.87	0.012	8 718 530 951

Control options

Part no.	Description
7 747 004 420	TDS100 standard controller
7 747 004 427	TDS300 advanced controller
Intelligent controls	
7 716 192 068*	ISM1 intelligent solar module





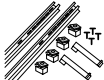







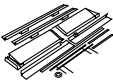

*Greenstar 30CDi System boiler, or i System boilers fitted with optional diverter valve only and FR110 or FW100.

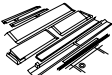
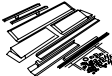



Main plumb kit accessories – Solar-Lifestyle

Components	Part no.	Description
	7 747 009 456	AGS5e single line pump station
	7 747 009 442	AGS5 twin line pump station
	7 747 009 427	AGS10e single line pump station
	7 747 009 420	AGS10 twin line pump station
	7 747 008 776	AGS5 twin line pump station/ TDS100 controller integrated
	7 739 300 100	18L expansion vessel
	7 739 300 119	25L expansion vessel
	7 739 300 120	35L expansion vessel
	7 739 300 331	Expansion vessel connector
	7 747 010 472	5L pre-cooling vessel
	7 747 010 473	12L pre-cooling vessel
	8 718 660 880	Solar fluid glycol 'L' 10L
	8 718 660 881	Solar fluid glycol 'L' 20L

Solar thermal panels

Main roof kit accessories – Solar-Lifestyle


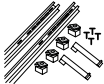
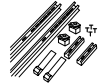
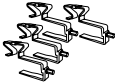


Components	Part no.	Description
	8 718 531 445	Connection set on-roof Solar-Lifestyle
	8 718 531 447	Connection set flat roof Solar-Lifestyle
	8 718 531 446	Connection set in-roof Solar-Lifestyle
	7 739 300 434	Solar-Lifestyle series connection
	8 718 531 017	ICD on-roof portrait rail 1st panel
	8 718 531 018	ICD on-roof portrait rail additional panel
	8 718 531 019	ICD on-roof landscape rail 1st panel
	8 718 531 022	ICD on-roof portrait rail additional panel
	8 718 531 023	ICD plain tile roof hook set
	8 718 531 024	ICD slate/crown tile roof hook set
	8 718 531 025	ICD roof mount for corrugated/tin roof set
	8 718 530 980	ICD portrait 1 panel in-roof flashing std tile
	8 718 530 981	ICD portrait 2 panel in-roof flashing std tile
	8 718 530 982	ICD portrait 1 panel extension in-roof flashing std tile

Components	Part no.	Description
	8 718 530 986	ICD landscape 1 panel in-roof flashing std tile
	8 718 530 987	ICD landscape 2 panel in-roof flashing std tile
	8 718 530 988	ICD landscape 1 panel extension in-roof flashing std tile
	7 747 009 880	Additional collector sensor
	7 739 300 432	Air vent set

Greenskies solar thermal panel kits







Solar-Lifestyle roof kit: 2 x on-roof portrait

Part number: 7 716 150 164

Components	Part no.	Quantity	Description
	8 718 530 950	2	Solar-Lifestyle collector portrait
	8 718 531 017	1	ICD on-roof portrait rail 1st panel
	8 718 531 018	1	ICD on-roof portrait rail additional panel
	8 718 531 023	2	ICD plain tile roof hook set
	8 718 531 445	1	Connection-set on-roof Solar-Lifestyle
	7 747 009 880	1	Collector sensor


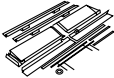


Solar-Lifestyle roof kit: 2 x on-roof landscape

Part number: 7 716 150 166

Components	Part no.	Quantity	Description
	8 718 530 951	2	Solar-Lifestyle collector landscape
	8 718 531 019	1	ICD on-roof landscape rail 1st panel
	8 718 531 022	1	ICD on-roof landscape rail additional panel
	8 718 531 023	2	ICD plain tile roof hook set
	8 718 531 445	1	Connection-set on-roof Solar-Lifestyle
	7 747 009 880	1	Collector sensor


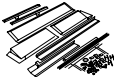


Solar-Lifestyle roof kit: 2 x in-roof portrait

Part number: 7 716 150 165

Components	Part no.	Quantity	Description
	8 718 530 950	2	Solar-Lifestyle collector portrait
	8 718 530 981	1	ICD portrait 2 panel in-roof flashing std tile
	8 718 531 446	1	Connection-set in-roof Solar-Lifestyle
	7 747 009 880	1	Collector sensor

Solar-Lifestyle roof kit: 2 x in-roof landscape

Part number: 7 716 150 167






Components	Part no.	Quantity	Description
	8 718 530 951	2	Solar-Lifestyle collector landscape
	8 718 530 987	1	ICD landscape 2 panel in-roof flashing std tile
	8 718 531 446	1	Connection-set in-roof Solar-Lifestyle
	7 747 009 880	1	Collector sensor

Solar thermal panels

Greenskies solar thermal plumb kits






Flat plate plumb kit: standard single

Part number: 7 716 150 174

Components	Part no.	Quantity	Description
	8 718 660 881	1	Solar fluid glycol 'L' 20L
	7 747 009 456	1	AGS5e pump station
	7 747 004 420	1	TDS100 controller
	7 739 300 100	1	18L expansion vessel
	7 739 300 331	1	Expansion vessel connector






Flat plate plumb kit: standard twin

Part number: 7 716 150 175

Components	Part no.	Quantity	Description
	8 718 660 881	1	Solar fluid glycol 'L' 20L
	7 747 009 442	1	AGS5 pump station
	7 747 004 420	1	TDS100 controller
	7 739 300 119	1	25L expansion vessel
	7 739 300 331	1	Expansion vessel connector

Flat plate plumb kit: advanced single

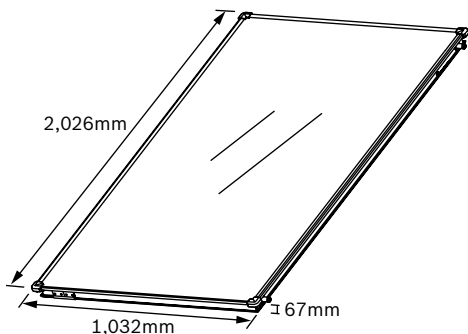
Part number: 7 716 150 173

Components	Part no.	Quantity	Description
	8 718 660 881	1	Solar fluid glycol 'L' 20L
	7 747 009 456	1	AGS5e pump station
	7 747 004 427	1	TDS300 controller
	7 739 300 100	1	18L expansion vessel
	7 739 300 331	1	Expansion vessel connector

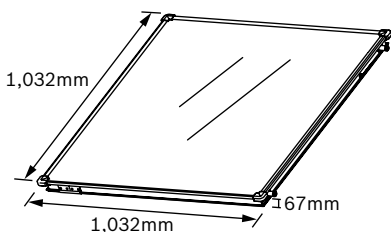
Solar thermal panels

Greenskies Solar-Lito & Solar-Lito Mini

Greenskies Solar-Lito



Greenskies Solar-Lito Mini
















Gross area (m ²)	Aperture area (m ²)	η_0 (%)	a1 (W/m ² k)	a2 (W/m ² k ²)	Part no.
Greenskies Solar-Lito					
2.09	1.94	76	4.052	0.0138	8 718 531 946
Greenskies Solar-Lito Mini					
1.06	0.96	74	4.424	0.013	8 718 531 947

Control options

Part no.	Description
7 747 004 420	TDS100 standard controller
7 747 004 427	TDS300 advanced controller
Intelligent controls	
7 716 192 068*	ISM1 intelligent solar module











*Greenstar 30CDi System boiler, or i System boilers fitted with optional diverter valve only and FR110 or FW100.

Main plumb kit accessories – Solar-Lito

Components	Part no.	Description
	7 747 009 456	AGS5e single line pump station
	7 747 009 442	AGS5 twin line pump station
	7 747 009 427	AGS10e single line pump station
	7 747 009 420	AGS10 twin line pump station
	7 747 008 776	AGS5 twin line pump station/ TDS100 controller integrated
	7 739 300 100	18L expansion vessel
	7 739 300 119	25L expansion vessel
	7 739 300 120	35L expansion vessel
	7 739 300 331	Expansion vessel connector
	7 747 010 472	5L pre-cooling vessel
	7 747 010 473	12L pre-cooling vessel
	8 718 660 880	Solar fluid glycol 'L' 10L
	8 718 660 881	Solar fluid glycol 'L' 20L

Solar thermal panels






Main roof kit accessories – Solar-Lito

Components	Part no.	Description
	8 718 531 941	Connection set Solar-Lito on roof
	8 718 531 942	Connection set Solar-Lito flat roof
	8 718 531 940	Series connection set Solar-Lito
	7 709 600 087	Solar-Lito rail 1st panel
	7 709 600 088	Solar-Lito rail additional panel
	7 739 300 436	Standard roof hook plain tile
	7 739 300 281	Standard slate/crown tile hook
	7 739 300 439	Standard roof studs corrugated/ tin roof
	7 747 009 880	Additional collector sensor
	7 739 300 432	Air vent set

Greenskies solar thermal panel kits







Solar-Lito roof kit: 1 panel

Part number: 7 716 150 168

Components	Part no.	Quantity	Description
	8 718 531 946	1	Solar-Lito collector
	7 709 600 087	1	Solar-Lito rail 1st panel
	7 739 300 436	1	Standard roof hook plain tile
	8 718 531 941	1	Solar-Lito connection set on-roof
	7 747 009 880	1	Collector sensor

Solar-Lito roof kit: 2 panels

Part number: 7 716 150 169







Components	Part no.	Quantity	Description
	8 718 531 946	2	Solar-Lito collector
	7 709 600 087	1	Solar-Lito rail 1st panel
	7 709 600 088	1	Solar-Lito rail additional panel
	7 739 300 436	2	Standard roof hook plain tile FKA3
	8 718 531 941	1	Solar-Lito connection set on-roof
	7 747 009 880	1	Collector sensor

Solar thermal panels

Greenskies solar thermal panel kits







Solar-Lito Mini roof kit: 150L row

Part number: 7 716 150 170

Components	Part no.	Quantity	Description
	8 718 531 947	3	Solar-Lito Mini collector
	7 709 600 087	1	Solar-Lito rail 1st panel
	7 709 600 088	2	Solar-Lito rail additional panel
	7 739 300 436	3	Standard roof hook plain tile
	8 718 531 941	1	Solar-Lito connection set on-roof
	7 747 009 880	1	Collector sensor







Solar-Lito Mini roof kit: 200L row

Part number: 7 716 150 171

Components	Part no.	Quantity	Description
	8 718 531 947	4	Solar-Lito Mini collector
	7 709 600 087	1	Solar-Lito rail 1st panel
	7 709 600 088	3	Solar-Lito rail additional panel
	7 739 300 436	4	Standard roof hook plain tile
	8 718 531 941	1	Solar-Lito connection set on-roof
	7 747 009 880	1	Collector sensor

Solar-Lito Mini roof kit: 250L row

Part number: 7 716 150 172






Components	Part no.	Quantity	Description
	8 718 531 947	5	Solar-Lito Mini collector
	7 709 600 087	1	Solar-Lito rail 1st panel
	7 709 600 088	4	Solar-Lito rail additional panel
	7 739 300 436	5	Standard roof hook plain tile
	8 718 531 941	1	Solar-Lito connection set on-roof
	7 747 009 880	1	Collector sensor

Solar thermal panels

Greenskies solar thermal plumb kits






Flat plate plumb kit: standard single

Part number: 7 716 150 174

Components	Part no.	Quantity	Description
	8 718 660 881	1	Solar fluid glycol 'L' 20L
	7 747 009 456	1	AGS5e pump station
	7 747 004 420	1	TDS100 controller
	7 739 300 100	1	18L expansion vessel
	7 739 300 331	1	Expansion vessel connector






Flat plate plumb kit: standard twin

Part number: 7 716 150 175

Components	Part no.	Quantity	Description
	8 718 660 881	1	Solar fluid glycol 'L' 20L
	7 747 009 442	1	AGS5 pump station
	7 747 004 420	1	TDS100 controller
	7 739 300 119	1	25L expansion vessel
	7 739 300 331	1	Expansion vessel connector

Flat plate plumb kit: advanced single

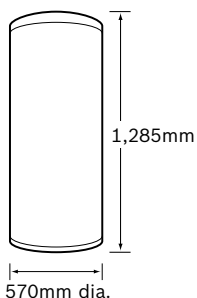
Part number: 7 716 150 173

Components	Part no.	Quantity	Description
	8 718 660 881	1	Solar fluid glycol 'L' 20L
	7 747 009 456	1	AGS5e pump station
	7 747 004 427	1	TDS300 controller
	7 739 300 100	1	18L expansion vessel
	7 739 300 331	1	Expansion vessel connector

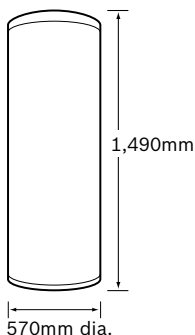
Unvented stainless steel twin coil cylinders

Greenstore TC Cylinder series

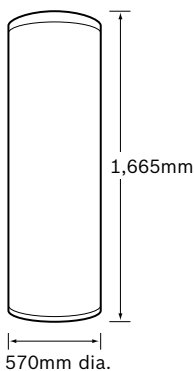
Greenstore TC-150 Cylinder



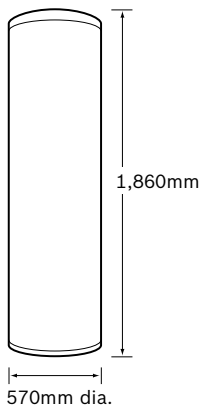
Greenstore TC-180 Cylinder



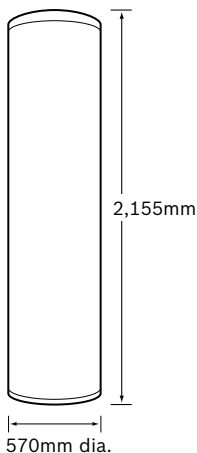
Greenstore TC-210 Cylinder



Greenstore TC-250 Cylinder



Greenstore TC-300 Cylinder



Volume domestic hot water (litres)	Dedicated solar volume (litres)	Standing heat loss performance (kWh/24hrs)	Weight dry (kg)	Part no.
Greenstore TC-150 Cylinder				
158	65	1.27	36	7 716 800 542
Greenstore TC-180 Cylinder				
187	65	1.31	38	7 716 800 543
Greenstore TC-210 Cylinder				
211	110	1.42	45	7 716 800 544
Greenstore TC-250 Cylinder				
241	115	1.52	49	7 716 800 545
Greenstore TC-300 Cylinder				
287	115	1.93	53	7 716 800 546

- Manufactured within Bosch Thermotechnology Ltd
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Metric & imperial measures

Imperial to metric units

1 inch	= 25.4 mm	= 2.54 cm
1 foot	= 304.8 mm	= 0.3048 m
1 yard	= 914.4 mm	= 0.9144 m
1 mile	= 1609 m	= 1.609 km
1 square inch	= 645.2 mm ²	= 6.452 cm ²
1 square foot	= 929.0 cm ²	
1 square yard	= 0.8361 m ²	
1 acre	= 4047 m ²	= 0.4047 ha
1 cubic inch	= 16387 mm ³	= 0.016 39 dm ³
1 cubic foot	= 0.02832 m ³	= 28.3 dm ³
1 cubic yard	= 0.764555 m ³	
1 pint	= 0.5683 litre	= 568.3 ml
1 gallon	= 4.546 litre	= 4.546 kg water
1000 gallons	= 4.546 m ³	
1 grain	= 0.06480 g	
1 ounce	= 28.35 g	
1 pound	= 453.6 g	= 0.4536 kg
1 ton	= 1016 kg	= 1.016 tonne
0.1 inches water gauge	= 0.25 mbar	
1.0 inch water gauge	= 2.5 mbar	
1 atmosphere	= 1.01325 bar	
1 British thermal unit	= 1055 J	
1 therm	= 105.5 MJ	
1000 Btu/h	= 0.2931 kW	= 1.055 MJ/h
1 horsepower	= 745.7 W	= 2.685 MJ/h
1 Btu/sft ³	= 0.03796 MJ/m ³ (st)	
1 Btu/sft ³ (dry)	= 0.03723 MJ/m ³ (st)	
1 Btu/lb	= 2326 J/kg	

Metric to imperial units

1 millimetre	= 0.03937 in		
1 metre	= 39.37 in	= 3.281 ft	= 1.094 yd
1 kilometre	= 0.6214 mile	= 1094 yd	
1 square millimetre	= 0.001550 in ²		
1 square metre	= 1.196 yd ²		
1 acre	= 119.6 yd ²	= 0.0247 hectare	
1 hectare	= 11960 yd ²	= 2.471 acre	
1 cubic millimetre	= 0.000061 in ³		
1 cubic decimetre	= 61.02 in ³	= 0.035 31 ft ³	
1 cubic metre	= 35.31 ft ³	= 1.308 yd ³	= 220.0 gal
1 millilitre	= 0.001760 pint		
1 litre	= 1.760 pint	= 0.2200 gal	= 0.035 ft ³
1 gram	= 0.03527 oz	= 15.43 grains	
1 kilogram	= 2.205 lb		
1 kilowatt	= 3412 Btu/h		

Consumer and technical literature, CDs and DVDs

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Gas	Worcester Part No.
Consumer	
Sales brochure, Greenstar Gas Products	8-716-109-642-0
Promotional brochure, Handy Hints	8-716-104-727-0
Heating professional	
Product guide, Gas-fired and Solar Thermal Heating Solutions	8-716-116-255-0
Tech & Spec, Greenstar Gas-fired System Range	8-716-115-775-0
Tech & Spec, Greenstar Gas-fired Regular Range	8-716-115-774-0
Tech & Spec, Greenstar Gas-fired Combi Range	8-716-115-773-0
Tech & Spec, Greenstar FS CDi Regular	8-716-115-422-0
Tech & Spec, Greenstar Highflow 440/550CDi	8-716-106-250-0
Tech & Spec, Worcester GB162 Gas-fired Commercial Boiler Range	8-716-111-872-0

Oil	Worcester Part No.
Consumer	
Sales Brochure, Greenstar Oil-fired Products	8-716-110-393-0
Heating professional	
Product guide, Oil-fired and Solar Thermal Heating Solutions	8-716-116-256-0
Tech & Spec, Greenstar Danesmoor/Utility	8-716-110-391-0
Tech & Spec, Greenstar Heatslave	8-716-110-392-0
Tech & Spec, Greenstar Camray	8-716-113-356-0

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Renewables Brochure	8-716-115-755-0
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Tech & Spec, Greenskies Solar	8-716-110-080-0
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Training Brochure - Information on Courses	8-716-116-110-0
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Spares Catalogue	8-716-106-466-0
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