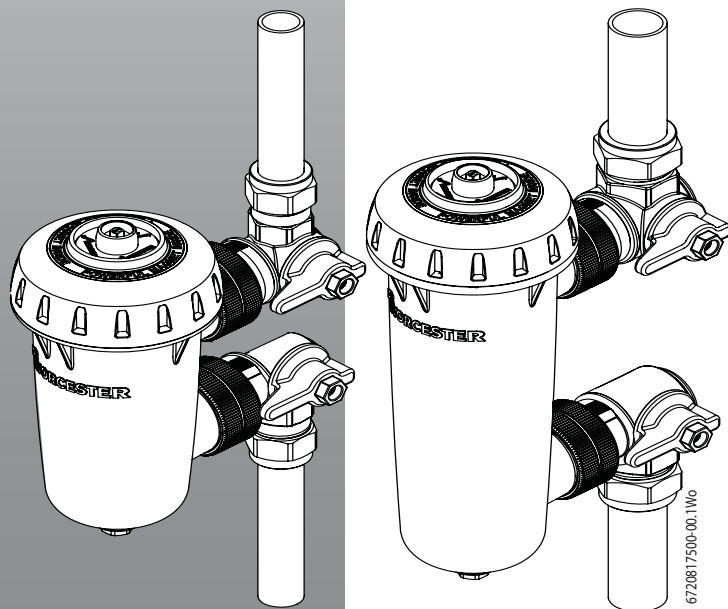


Installation and Servicing Instructions

Greenstar System Filter

For sealed and open vented central heating systems with 22 or 28mm central heating pipes



UK/IE

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1 Symbols and safety precautions

1.1 Explanation of symbols

Warning symbol



Safety instructions in this document are framed and identified by a warning triangle which is printed on a grey background.

Signal words indicate the seriousness of the hazard in terms of the consequences of not following the safety instructions.

- **NOTICE:** indicates possible damage to property or equipment, but where there is no risk of personal injury.
- **CAUTION:** indicates possible personal injury.
- **WARNING:** indicates possible severe personal injury.
- **DANGER:** indicates possible risk to life.

Important information



Notes contain important information in cases where there is no risk of personal injury or material losses and are identified by the symbol shown on the left. They are bordered by horizontal lines above and below the text.

1.2 Safety precautions

Fitting and modification

The unit must not be fitted in any way other than described in the Installation Instructions and any misuse or unauthorised modifications to the unit or associated components and systems could invalidate the guarantee. The manufacturer accepts no liability arising from any such actions. This does not affect your statutory rights.

Health and safety

The appliance contains no substances that contravene the COSHH Regulations (Control of Substances Hazardous to Health regulations 1988).



CAUTION:

The system filter contains a strong magnet.

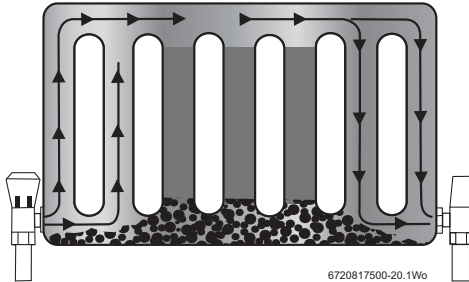
2 Central heating system water

2.1 Protecting your heating system

Unnecessary breakdowns

Contaminated central heating system water can cause pumps, heat exchangers and valves to block.

The contamination can also cause radiator cold spots that will reduce the effectivity of that radiator and even cause the radiator to corrode from the inside, resulting in leaks.



Greater fuel usage and increased bills

Dirty water also creates a build up of sludge that coats the inside of the radiator and the boiler heat exchanger.

This sludge creates a barrier inside the radiator and effectively reduces heat from that radiator into the room.

This results in your heating system working harder to overcome the layers of dirt in the system to achieve your desired room temperature.

The heating system will use more fuel in an effort to reach your desired room temperature, leading to higher heating bills.

Your options

Every system is different and advice should be taken from your reputable heating engineer to comply with BS 7593 (Code of practice for treatment of water in central heating systems).

Best practice would be to have your system drained, refilled with water and a flushing chemical.

This would then be drained and flushed with clean water until the water runs completely clear.

Where the filter is installed on an existing system that shows signs of magnetite contamination a chemical gravity flush of the system is required or for best practice a power flush or alternatively a MagnaCleanse® flush is undertaken prior to installation

To ensure that dirt does not build up again, a system filter should be fitted and a chemical inhibitor added. The system filter should be cleaned each year during the annual boiler service.

System filter function

The system filter is bi-directional, this means that the central heating water can flow either way through the filter, from top to bottom or from bottom to top.

The central heating system water is circulated through the filter to remove the black iron oxide sludge and other non-magnetic debris.

The system water is slowed down as it circulates around the filter where a powerful magnet captures the potentially damaging iron oxide sludge, preventing it from being circulated within the system thereby protecting the heat exchanger, pump and valves,

The other non-magnetic debris is captured within the traps at the top and bottom of the filter.

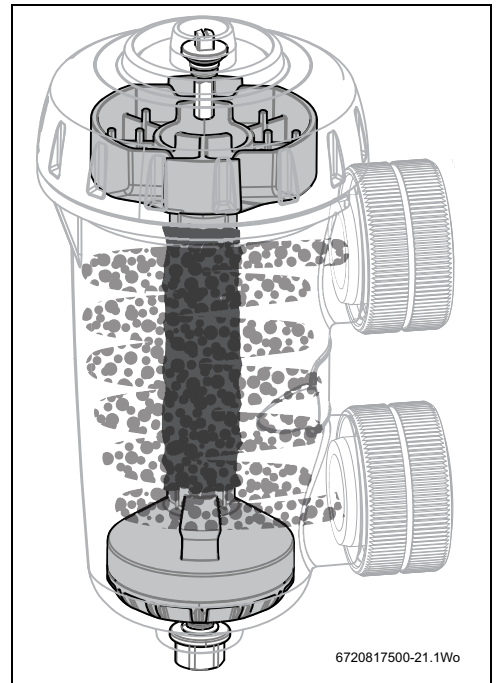


Fig. 1 System filter

3 Standard package

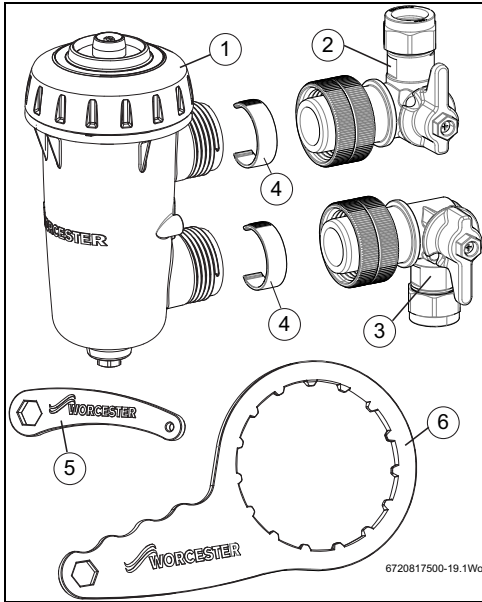


Fig. 2 Standard package

- [1] Greenstar System Filter
- [2] Isolating valve - A (22 or 28mm)
- [3] Isolating valve - B (22 or 28mm)
- [4] Valve "C" clips
- [5] Valve tool
- [6] Lid tool
- [-] Pipe cutting template
- [-] Installation and Servicing Instructions
- [-] Guarantee card
- [-] Label "System filter fitted"

General information

The Worcester Greenstar System Filter incorporates a powerful internal magnet with a cyclonic trap that removes both magnetic and non-magnetic particles.

The system filter can be installed on heating systems with either a 22 or 28mm diameter return pipe providing there is sufficient residual pump head to overcome the hydraulic resistance at higher flow rates (see graph in figure 3).

The system should be flushed and a suitable inhibitor added in accordance with BS7593 before installing the Greenstar System Filter. Failure to comply with the guidance will limit the effectiveness of the Greenstar System Filter in protecting your boiler and central heating system.

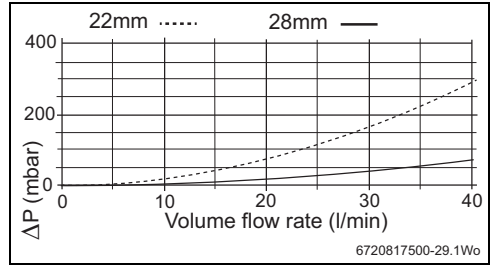


Fig. 3 Pressure drop graph

3.1 Installation location within system pipework

The filter can be installed anywhere in a heating system, except between the boiler and the feed and expansion pipes on an open vent system. To maximise the effectiveness it should be placed on the primary heating return before the boiler and after the last radiator on a vertical run of pipework. In determining a suitable location for installation, it is important to ensure you allow adequate access for servicing.

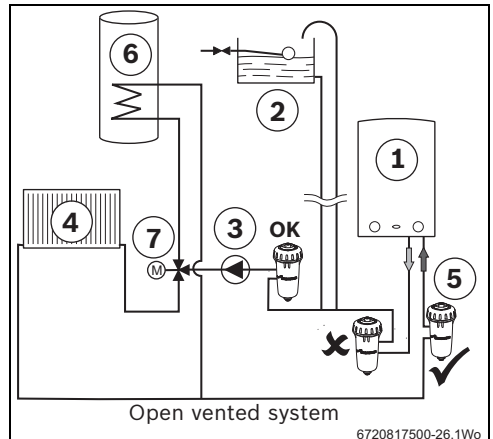


Fig. 4 Open vented system

- [1] Boiler
- [2] Open vent tank
- [3] Pump
- [4] Radiator
- [5] System filter
- [6] Cylinder
- [7] Diverter valve
- [✓] Optimum location
- [OK] Suitable location
- [X] Unsuitable location

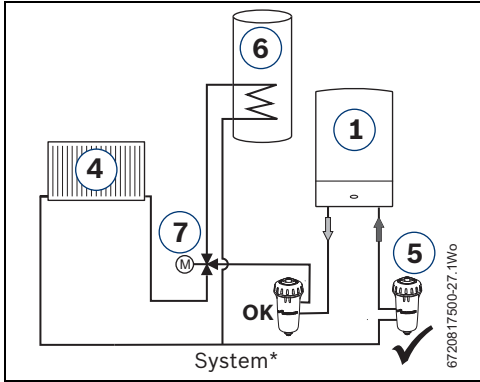


Fig. 5 Sealed system

[*] When a System boiler has a diverter valve fitted, the System filter should be on the heating return not the cylinder return

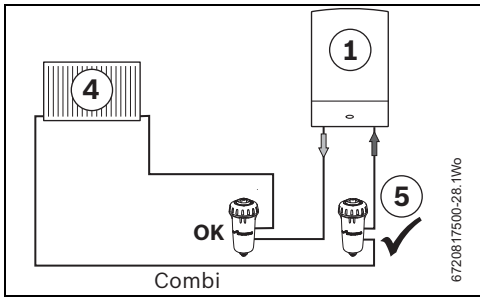


Fig. 6 Combi - sealed system

The following instructions are designed to assist engineers in the safe and effective installation and servicing of the Greenstar System Filter and should be followed at all times. Any queries arising from either the installation or servicing should be directed to Worcester, Bosch Group Technical Support.



The Greenstar system filter should only be installed by a competent person. If in any doubt, consult a qualified heating engineer.

3.1.1 Dimensions 22mm System filter

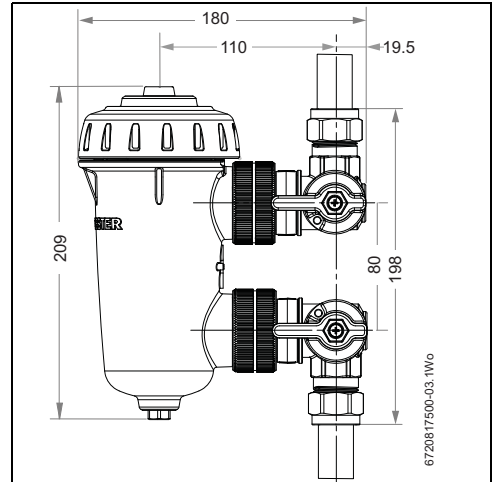


Fig. 7 Dimensions 22mm version

28mm System filter

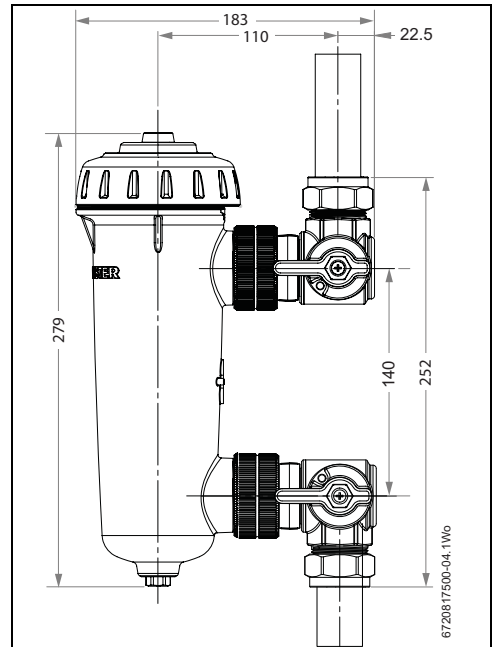


Fig. 8 Dimensions 28mm versions

4 Installation



NOTICE: Before commencing any work, turn off the electrical supply to the heating system.

- ▶ Drain the central heating
- ▶ Choose a suitable location on the return pipe to the boiler
- ▶ Use the template [1] to mark out a section of pipe, cut and remove that section:
 - A = 150mm for the 22mm system filter
 - A = 188mm for the 28mm system filter

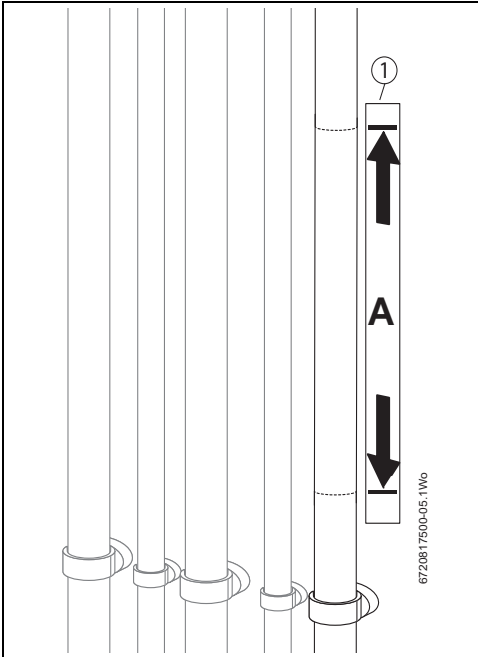


Fig. 9 Pipework preparation

- ▶ Deburr the cut ends of the pipe and fit the nuts and olives over the pipe ends

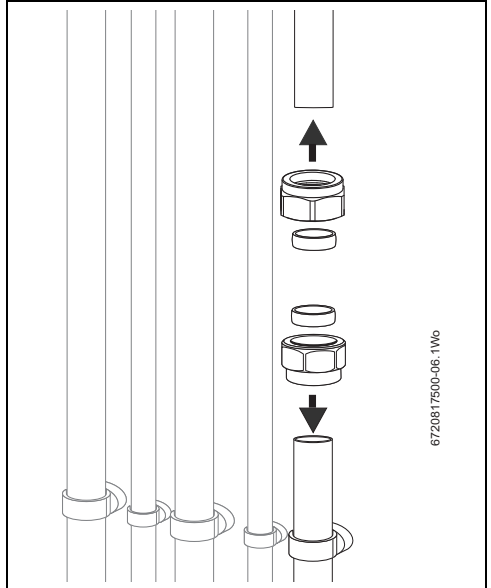


Fig. 10

- ▶ Fit the isolating valves and tighten the compression fittings firmly, but do not over tighten
- ▶ Secure the system filter connections by hand

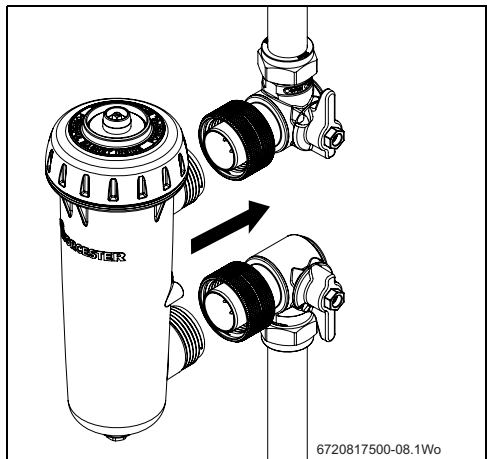


Fig. 11 Fit the system filter

- ▶ Fit “C” clips between the valve body and the knurled nuts to ensure the knurled nuts are tight

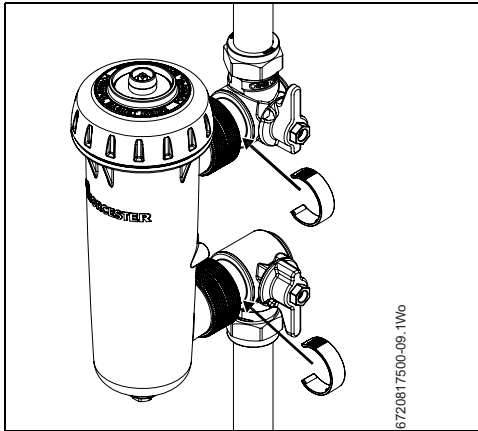


Fig. 12 C clips

- ▶ Loosen the lid assembly using lid tool provided and remove the assembly and sleeve

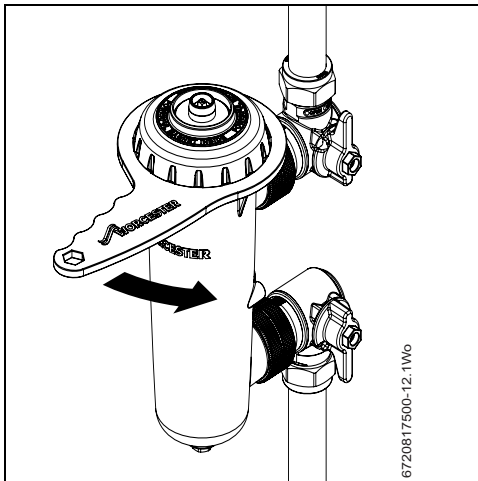


Fig. 13 Remove the lid

- ▶ Ensure that the valves are in the open position as indicated by the green marker on the valve
- ▶ Add a recommended system inhibitor
- ▶ Replace the lid assembly and sleeve and secure using the lid tool provided, do not overtighten

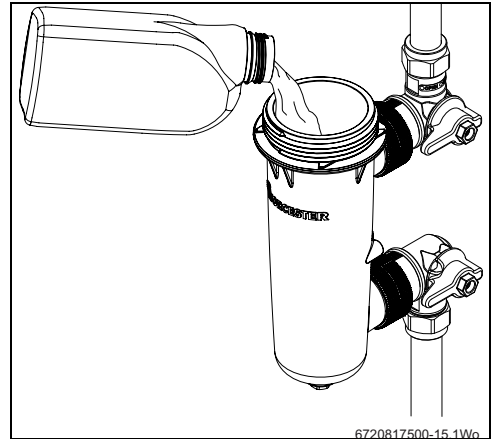


Fig. 14 Add inhibitor

1. Refill the system
 2. Using a radiator key, open the vent to allow the air in the system to escape
- ▶ Close the valve when water runs out

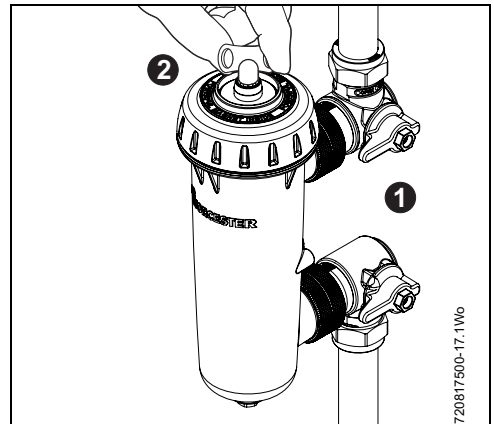


Fig. 15 Refill the system

Final actions:

- ▶ Run the central heating system and check for leaks on the System Filter
- ▶ Clean the System Filter case, ensure any leak detection fluid that may have been used to check for gas leaks on the boiler is removed from the filter and isolation valves
- ▶ Attach the self-adhesive label stating “Your boiler and system are protected by a Worcester Greenstar System Filter” that is supplied with the System Filter, to the boiler in a prominent position

5 Servicing



NOTICE: Before starting any servicing work, isolate the electrical supply to the heating system.

1. Turn both isolation valves to the OFF position as indicated by the red marker on the valve.



Worcester, Bosch Group recommends for best practice that where any O ring seals are disturbed that these O ring seals are replaced.

2. Use a radiator key to open the air vent
3. Using the valve tool, open and remove the drain plug; use a suitable container to collect any water and debris
4. Replace the drain plug and secure with the valve tool, do not overtighten

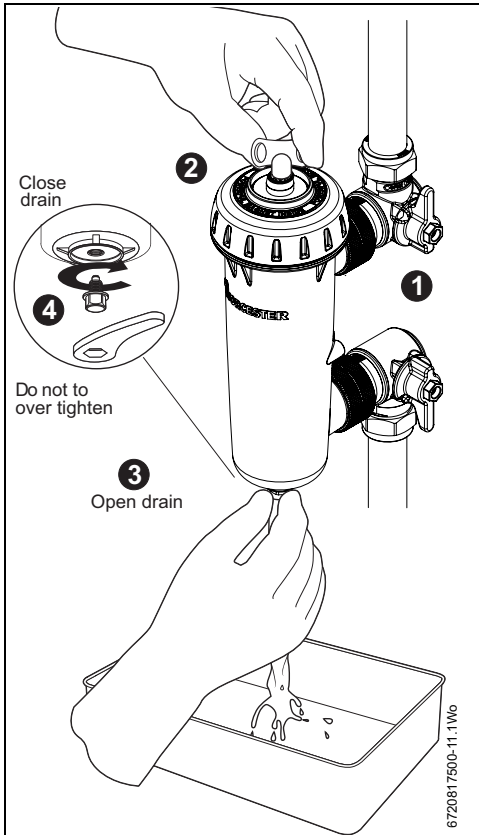


Fig. 16 Drain the filter

- Using the lid tool, loosen the lid assembly

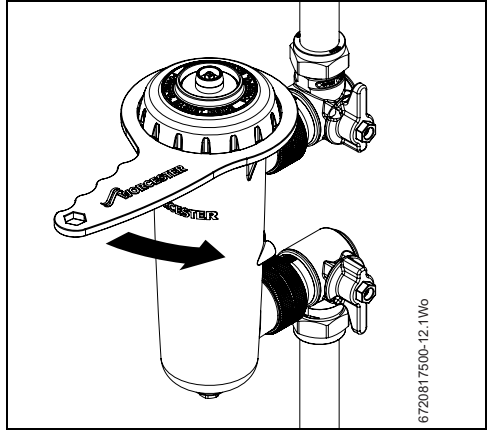


Fig. 17 Release the lid

- Remove the lid assembly and sleeve

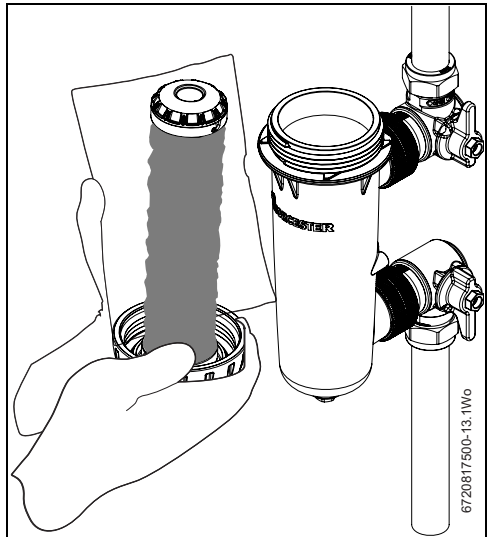


Fig. 18 Sludge removal



NOTICE: Sludge disposal

Magnetite sludge can stain certain types of sinks or basins

- ▶ Rinse the magnetite sludge into a stainless steel or plastic container

1. Under running water slide the sleeve off the magnet
 2. Rinse the magnetite sludge off the sleeve
 3. Rinse the end of the sleeve to remove any non-magnetic debris
 4. Remove the end cap and rinse any non-magnetic debris from inside the trap
- ▶ Replace and secure the end cap
 - ▶ Slide the sleeve back over the magnet

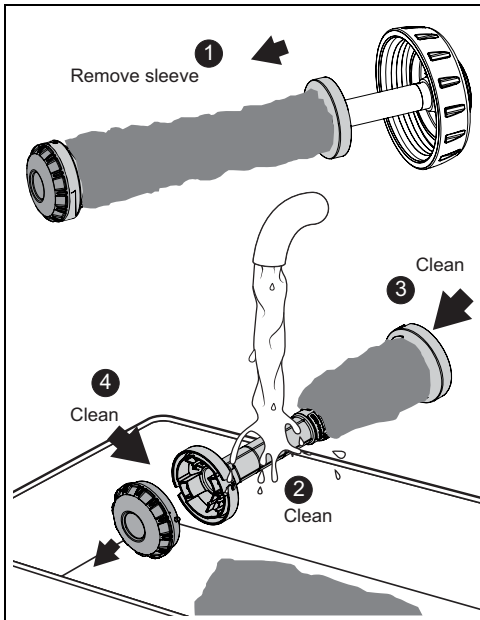


Fig. 19 Clean the sheath

- ▶ Top up the system with a recommended Inhibitor
- ▶ Replace the sleeve and lid assembly and tighten by hand
- ▶ Secure the lid firmly, do not over tighten, using the lid tool

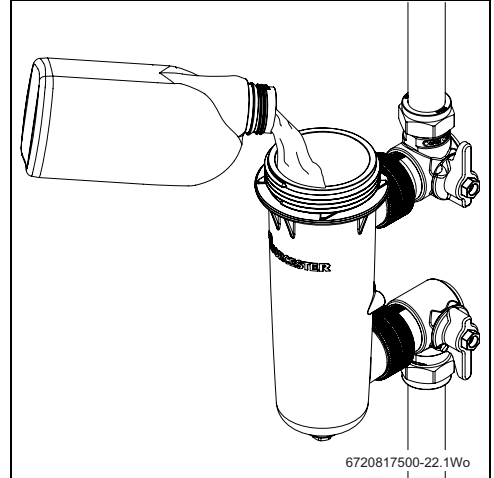


Fig. 20 Top up

1. Turn both valves to the open position, as indicated by the green marker on the valve
2. Use a radiator key to open the air vent to release any trapped air; when water flows out, close the vent

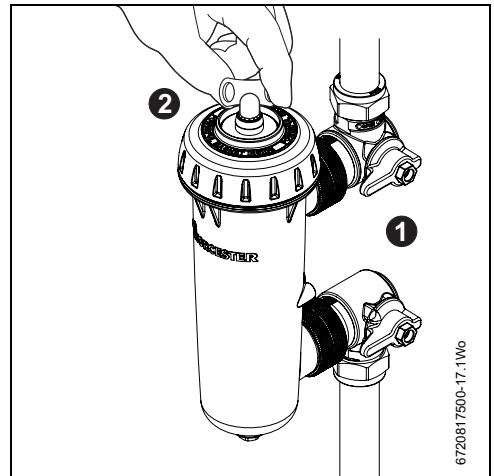


Fig. 21 Vent the system

5.1 Spare parts

22mm System filter

Part number	Item
8716117923	Lid tool
8716117924	Valve tool
8716117925	Air vent assembly
8716117926	O ring pack
8716117927	Sleeve assembly 22mm
8716117928	Valve assembly A 22mm
8716117929	Valve assembly B 22mm
8716117933	Valve C clip
8716117934	Drain plug assembly

28mm System filter

Part number	Item
8716117923	Lid tool
8716117924	Valve tool
8716117925	Air vent assembly
8716117926	O ring pack
8716117952	Sleeve assembly 28mm
8716117953	Valve assembly A 28mm
8716117954	Valve assembly B 28mm
8716117933	Valve C clip
8716117934	Drain plug assembly

Water treatment products

Suitable water treatment products can be obtained from the following manufacturers:

- ADEY - Tel: 01242 546700
or www.adey.com
- FERNOX - Tel: 0870 601 5000
or www.fernox.com
- SENTINEL - Tel: 0800 389 4670
or www.sentinel.net

6 Guarantee

Guarantee Terms and Conditions

This appliance is guaranteed against faulty materials or workmanship for a period of 24 calendar months from the date of installation subject to the following conditions and exceptions; (i) that during the period of this guarantee any components of the unit which are proved to be faulty or defective in manufacture will be exchanged or repaired free of material charges and free of labour charges if repaired directly by Bosch Thermotechnology Ltd,

(ii) invoices for attendance and repair of this appliance by third parties will not be accepted for payment by Bosch Thermotechnology Ltd,

(iii) that the householder may be asked to prove the date of installation and that the appliance was correctly commissioned,

(iv) the guarantee must be registered within 30 days of installation.

(v) that any product or part thereof returned for servicing under the guarantee must be accompanied by a claim stating the Model, Serial Number, Date of Installation,

(vi) that Bosch Thermotechnology Ltd will not accept responsibility for damage caused by faulty installation, neglect, misuse or accidental damage or the non-observance of the instructions contained in the Installation and Users Instructions leaflets,

(vii) that the appliance has been used only for normal domestic purposes for which it was designed,

(viii) that this guarantee applies only to equipment purchased and used in mainland Great Britain.

*For full terms and conditions, please visit: worcester-bosch.co.uk/terms-and-conditions.

Guarantee registration

Your Greenstar appliance carries a guarantee against faulty material or manufacture subject to Terms and Conditions. Guarantee Registration can be completed:

- Via the Worcester, Bosch Group guarantee app:
 - By scanning the System Filter label bar code, all the filter information is populated in the app, so you just need to fill out the property and installer details
- On-line:
 - You can register on our website:
www.worcester-bosch.co.uk/guarantee
- By post:
 - Fill out the guarantee card and return it to Worcester, Bosch Group



The guarantee app can be downloaded to your smart device from Apple iTunes, Google Play or via the Worcester, Bosch Group website

7 Service record

It is recommended that your system filter is serviced annually at the same time as the main appliance service and that this Service Interval Record is completed as proof of the service.

Service Provider

Before completing the appropriate Service Record Below, please ensure you have carried out the service as described in the servicing section of the manual. Always use Worcester approved spare parts.

Service 1	Date:
Engineer Name:	
Company Name:	
Telephone No.	
Comments:	
Signature:	

Service 2	Date:
Engineer Name:	
Company Name:	
Telephone No.	
Comments:	
Signature:	

Service 3	Date:
Engineer Name:	
Company Name:	
Telephone No.	
Comments:	
Signature:	

Service 4	Date:
Engineer Name:	
Company Name:	
Telephone No.	
Comments:	
Signature:	

Service 5	Date:
Engineer Name:	
Company Name:	
Telephone No.	
Comments:	
Signature:	

Service 6	Date:
Engineer Name:	
Company Name:	
Telephone No.	
Comments:	
Signature:	

Service 7	Date:
Engineer Name:	
Company Name:	
Telephone No.	
Comments:	
Signature:	

Service 8	Date:
Engineer Name:	
Company Name:	
Telephone No.	
Comments:	
Signature:	

Service 9	Date:
Engineer Name:	
Company Name:	
Telephone No.	
Comments:	
Signature:	

Service 10	Date:
Engineer Name:	
Company Name:	
Telephone No.	
Comments:	
Signature:	

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Worcester, Bosch Group is a brand name of
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