



# Automatic Grease Removal Unit

## OPERATIONS MANUAL



MANUFACTURED BY FM ENVIRONMENTAL

[www.greaseguardian.com](http://www.greaseguardian.com)





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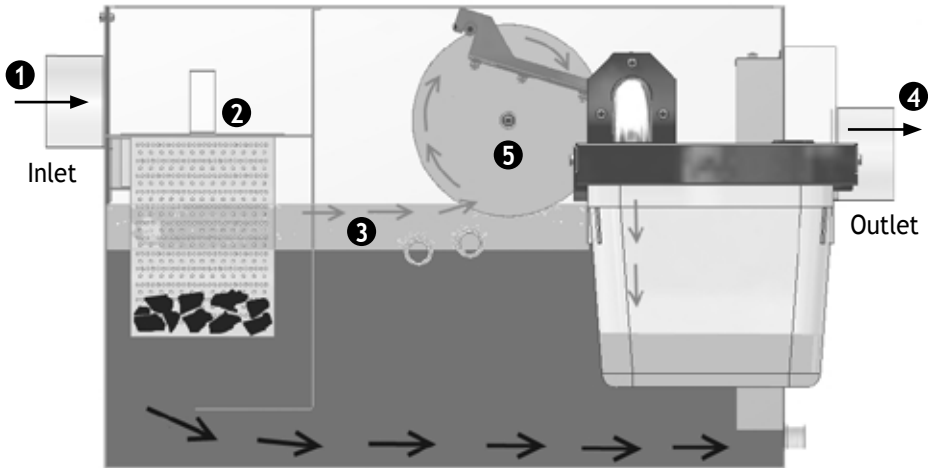
# The Grease Guardian (Models D1-D5)

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The FM Environmental Grease Guardian automatic grease and oils removal system is a totally engineered system for separating free floating grease and oils from drain water flows. The separated grease and oils are trapped within the stainless steel tank and are automatically recovered by the system. Only the “cleaned” water is allowed to pass through the system into the drain lines. Each unit also separates solid food waste into a removable basket. The Grease Guardian can be used in a wide variety of applications from restaurants and food processing operations to many types of industrial operations.

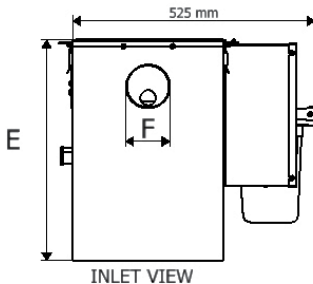
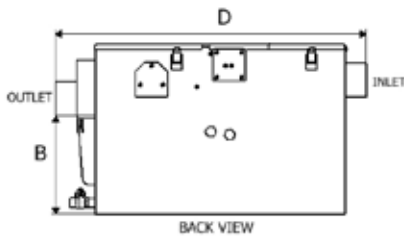
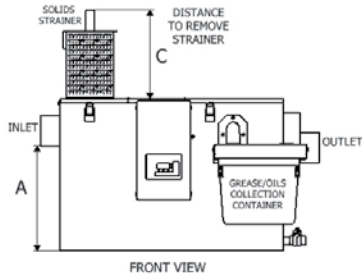
Use of the Grease Guardian assures that costly sewer surcharges and fines are minimised or eliminated through efficient separation and removal of the grease and oil. In addition, rapidly escalating pumping and disposal costs, which are associated with conventional grease traps or interceptors are also reduced or eliminated. The recovered grease and oils are virtually water free so they can be collected by a local rendering company or recycler.

# How it Works



- ❶ Waste from the kitchen enters the Grease Guardian
- ❷ Solid food waste is caught in a removable basket
- ❸ Grease and oils separate from the cleaner water and rise to the surface where they are trapped
- ❹ The treated water exits under a baffle wall and through the outlet
- ❺ The grease and oil waste is skimmed during a preset cycle normally lasting two hours. The waste is heated and the grease is skimmed into an external container.

# Product Design & Specification



MODEL	(mm)					
	A	B	C	D	E	F
D1	150	150	170	640	330	60
D2	225	215	210	720	410	60
D3	310	260	255	840	450	90
D4	300	220	270	890	450	115

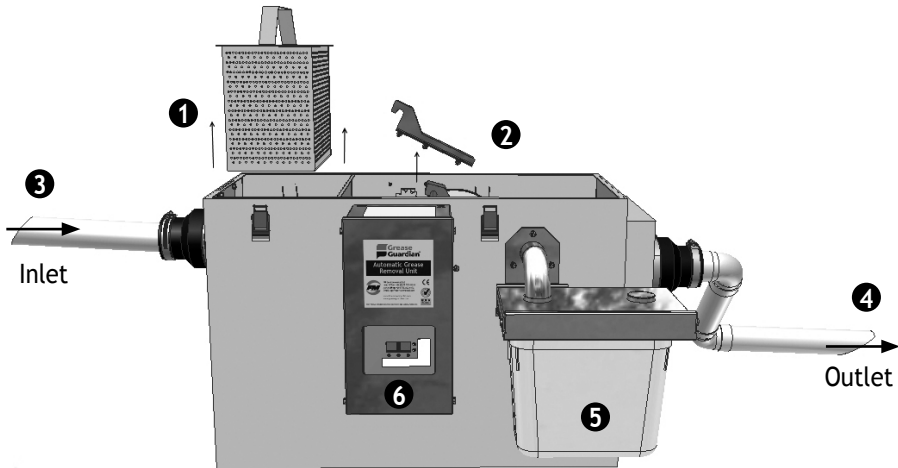
MODEL	D1	D2	D3
Basket Capacity Ltrs	2.5	4.4	8.0
Nominal Hydraulic Flow (Litres/Sec)	0.75	1.25	1.75

Casing Material: 16 Gauge;  
304 stainless steel;  
bright finish

230v VERSION	Motor	25 Watt, 230V, 50Hz, thermally protected 1.3 $\mu$ F capacitor
	Heater	1000 Watt, 230V, 50Hz, thermostatically controlled
110v VERSION	Motor	25 Watt, 110V, 60 Hz, thermally protected 1.3 $\mu$ F capacitor
	Heater	600 Watt, 110V, 60Hz, thermostatically controlled
	Timer	Electronic, 24 hour operation
	Skimming	Each wheel is nominally capable of skimming 12 kg / hr of grease / oil

**All Units comply with the Health,  
Safety & Electrical requirements of  
the Machinery Directive 89/392/EEC,  
91/368/EEC and 93/44/EEC**

# Installation



- 1** Ensure basket can be easily removed
- 2** Allow access to internal parts
- 3** Ensure gravity flow into unit
- 4** Ensure gravity flow away from unit
- 5** Allow access to grease container
- 6** Allow access to control panel

Fill with water before switching on

# Getting Started

- ❶ Ensure unit is plumbed in correctly
- ❷ Ensure unit is filled with water
- ❸ Connect to a waterproof electrical supply
- ❹ Ensure power is on from socket outlet
- ❺ Set time and programme (see page 10, 11)  
Note all maintenance requirements

## ATTENTION:

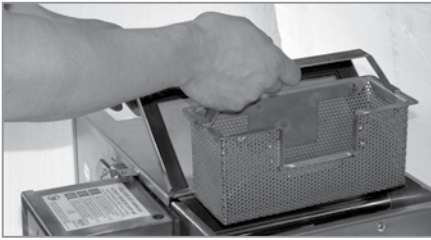
- Never turn on when empty, always ensure water level reaches wheels
- Unit requires daily housekeeping (see page 9)
- Yearly service by approved engineer recommended
- Unit will lose efficiency if not maintained
- The Grease Guardian is designed to trap and remove free floating grease oils and fats only
- The secondary solids basket provided protects the unit from solid foodwaste build up. To help ensure the highest efficiency reduce solid foodwaste by installing primary strainers or scraping waste into bins.
- Consult your supplier in the event of increased loadings to the Grease Guardian
- Do not use harmful detergents to clean Grease Guardian
- Do not install Grease Guardian externally unless a protection cover is used
- Do not connect a macerator or similar device upstream from the Grease Guardian
- Ensure unit is level and installed flat on the ground or in its frames
- Remove blockages and grease build up from drains before installing the Grease Guardian



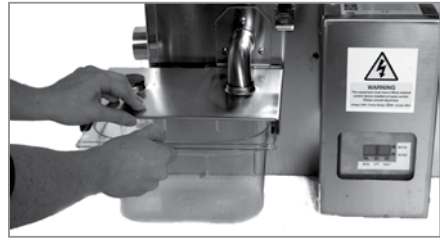
# General Housekeeping

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## Daily Remove Waste



Remove lid and empty strainer basket into bin. Replace basket and secure lid.

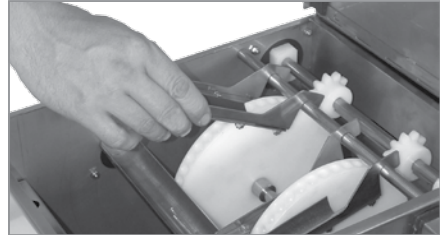


Empty collection container into barrel. This can then be taken away by a local rendering company for recycling.

## Daily Clean Unit



Use a bottle brush to clear grease deposits from the trough and inside of pipe



Open lid and remove, clean and replace wiper blades



Fill sinks with clean water and empty to flush through unit. This keeps fresh water in tank. Always ensure water level is reaching wheels.

# Overview of Timer Setting

## About Cycle Times

- The normal display on the screen is the time of the day
- Enter programme settings by pressing Mode, for 5 seconds
- If no programming is carried out the unit has a default factory set cycle, programmed to operate between 02:00 - 03.30 (minimum recommendation) in OP1 and 4:00 - 06:00 and 16:00 - 18:00 in OP2
- During a cycle, a heater will warm the wastewater and a skimmer will remove the grease
- Up to four cycles can be set in one day, (PR01 - PR04) in flexible mode
- You can turn the cycles off on days where the kitchen is not in use
- Our universal recommendation is for two settings of 90 to 120 minutes daily.



- Set cycles at quieter times; for example 1st early morning and 2nd late afternoon
- All settings should be entered with lid closed
- To scroll through current saved settings press and release (Mode + B)
- If in doubt switch Grease Guardian off and on, reset all (Mode + A) and reprogramme

## Setting the Time & Day Display

1. To set the **hour**, keep **A** button pressed and release once correct hour is set.
2. To set the **minutes**, keep **B** button pressed and release once minutes are set.

Settings are saved automatically.

**RESET:** When the unit is switched off and then back on the display shown will be the time of day. To clear saved timer (and cycle programme) settings press mode & A simultaneously. The clock will read 00:01 and programmed cycles will return to default settings. Advanced menu settings will not be affected.

**IN THE EVENT OF POWER FAILURE, TIMER SETTING WILL NOT BE LOST**

## ADVANCED MENU SETTINGS

“To enter advanced setting menu from time-of-day display press and hold down A & B for 5 seconds until display changes, then press MODE (whilst continuing to hold A and B) and release to enter menu”

### Menu Options

To scroll through the Menu press A

DATE	Select to view or set current date
STRT	Select to view or log start /installation date
SER	Select to view or log most recent service date
OP1/OP2	Select to switch between cycle programming modes
BUZZ	Select to turn buzzer audio on or off
7DAY	Select to set programmes to on or off for individual days
SD00	Select to set service reminder and service date intervals
I---I	Select to activate wireless monitor (if installed)
RET	Select to exit advanced menu and return to time of day

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**NB: Menu will time out after 30 seconds, saving settings and returning to time-of-day display.**

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#### DATE (Set current date)

Scroll to “DATE” and select by pressing B. Scroll through day/month/year” display by pressing A Press MODE to change day, month or year. Return to MENU by scrolling (A) Note: To be set at commissioning by engineer or installer. Must be set before start and service dates can be recorded. Date saves automatically.

#### STRT (Log start date)

Scroll to “STRT” and select by pressing B. To set date scroll past day/month/year (A) until REC is displayed. Press MODE and B and current day date is recorded automatically and display

indicates “RECD” before returning to time of day. To be set at commissioning by engineer or installer.

#### SERV (Log most recent service date)

Scroll to “SERV” and select by pressing B. To log date scroll past last service day/month/year (A) until REC is displayed. Press MODE and B and today’s date is recorded automatically and display indicates “RECD” before returning to time of day. Set at servicing by engineer

#### OP1/OP2 (Toggle between basic and advanced programme options)

Scroll to “OP1 or OP2” Press MODE to

toggle between the “advanced” settings OP1 (See page 14) or “basic” programme OP2 (to set see page 13) settings. Settings are automatically saved

#### **BUZZ (Set audio buzzer to on or off)**

Scroll to “BUZZ”. Press MODE to toggle between on and off. The “ALERT” and “IN-CYCLE” indicators will light when buzzer is activated. The indicators will be off when the buzzer is de-activated. Settings are automatically saved

#### **7DAY (see page 11)**

#### **SD00 (Set service reminder and service date intervals)**

The option of setting a service reminder alert is available by toggling through

the SD00 options. Press MODE to toggle through options. SD00 (no service reminder), SD01 (Monthly service reminder), SD03 (Every 3 months), SD06 (Every 6 months), SD12 (once a year). Once the correct setting is displayed scroll to next menu option to save. Press A to scroll to next option.

#### **I---I (Turn wireless on or off)**

Scroll to “I---I”. Press MODE to toggle between on and off. When activated “ALERT” and “IN-CYCLE” indicators will be on. The indicators will be off when the buzzer is de-activated. Settings are automatically saved. Remote monitor sold separately.

#### **RET (Return to time of day)**

Press B to select and save before display returns to time of day.

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## **Setting Cycle Programmes:**

Though the Grease Guardian traps grease continuously, the grease removal process (which involves heating and skimming) must be programmed. Cycles can be set to come on once in the morning and once in the evening in the basic programming mode (OP2) or at any time of day in the advanced mode (OP1). To check and scroll through current programme settings press Mode and B simultaneously.

### **CYCLE/PROGRAMME OPTIONS**

The Grease Guardian comes with two methods of programming:

**Option 1 (OP1):** 4 Cycle “Anytime”/Flexible Programming (Page 13)

**Option 2 (OP2):** Basic Programming/Morning & Evening (See below)

**NB:** Enter the Advanced Menu (Page 9) to choose programming option

**BASIC SETTINGS (OP2)**

*(Ensure that OP2 is selected in advanced menu before programming, see page 11 )  
In the basic setting option the start times are fixed at 04:00 (morning) and 16:00 (evening) and each cycle is factory set to last two hours. The cycle times can be increased in increments of 30 minutes to a maximum cycle time of four hours and thirty minutes. The programme can be similarly reduced or cancelled. To add, reduce or cancel the morning or evening programme timings, follow these simple instructions.*

- Hold down the **MODE** button until programme options (A200) are displayed (5 seconds)
  - Scroll through morning, evening and RET displays by pressing **A**
  - A200 = AM (Morning) default cycle time of 2 hours (Press B to change#)
  - P200 = PM (Evening) default cycle time of 2 hours (Press B to change##)
  - RET = Return to time of day (press B when displayed)\*
  - Once times have been changed scroll to RET and press B to SET and return to time of day\*\*
- # A200 (AM default), A230, A300, A330, A400 , A430, A000 (to cancel cycle), A030 , A100, A130, A200 or
- ## P200 (PM default) P230, P300, P330, P400, P430, A000 (to cancel cycle), P030, P100, P130, P200
- \* The display will return to time of day automatically after 3 flashes
- \*\* If nothing is pressed the display will automatically return to time of day after 30 seconds

TO DISPLAY PROGRAMME SETTINGS PRESS **MODE** AND **B** WHILE TIME OF DAY IS DISPLAYED.

**FLEXIBLE SETTINGS (OP1)**

*(Ensure that OP1 is selected in advanced menu before programming, see page 9)  
Advance settings allows the user to set up to four programmes with varying start and finish times once selected from menu.*

### Setting start and finish times in the flexible programme

- From the time-of-day screen hold **MODE** (for 5 secs) to enter Programme options Pr-1 to Pr-4.
- Select one of the four programme options (Pr-1 to Pr-4) by pressing **B**
- First set the “Start Time” by altering the hours (**A**) and the minutes (**B**). The word “**SET**” should appear when **MODE** is pressed before the display changes to the End Time.
- You can now set “OFF TIME” by pressing **A** for the hours and **B** for the minutes once again.
- Finish by pressing **MODE** again. “**DONE**” will display before returning to “time of day”.
- To select a second, third or fourth cycle repeat the above steps

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Default settings for Programmes (PR01-PR04) are as follows. To restore default press Mode and A. Time-of-day will be reset as well but all other functions will remain saved.

PR01	02:00 TO 03:30
PR02	00:00 TO 00:01
PR03	00:00 TO 00:01
PR04	00:00 TO 00:01

To display programme settings press **MODE** and **B** while time-of-day is displayed.

**POINTS TO NOTE WHEN SETTING CYCLES**

- The normal display on the screen when unit is in operation should be the time of day
- Enter flexible programme settings by pressing Mode
- If no programming is carried out the unit has a default factory set cycle, programmed to operate between 02.00 and 03.30 (minimum recommendation) in OP1.
- During a cycle, a heater will warm the wastewater and a skimmer will remove the grease at varying intervals
- Up to four cycles can be set in one day, (PR01 - PR04) in Flexible Mode
- Cycles can be turned off on days when the kitchen is not in use
- Our universal recommendation is for two settings of 90 to 120 minutes daily.
- Set cycles at quieter times; for example 1st early morning and 2nd late afternoon
- All settings should be entered with lid closed
- To scroll through current settings press and release Mode & B
- If in doubt switch Grease Guardian off and on, reset all (Mode + A) and reprogramme.

# 7-Day Timer Setting

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## SETTING 7-DAY ON/OFF OPTIONS FOR CYCLES

- The cycle programmes can be turned off on different days of the week by using the 7day timer option from the advanced menu.
- The correct day of the week must be stored first
- Then the cycles can be turned on and off on selected days

## SETTING THE CORRECT DAY

1. Enter advanced menu (see page 11)
2. Press A to scroll through MENU until “7day” is displayed
3. Enter “7day” option by pressing B, Days of the week will be displayed as numbers; eg day1 day2 day3 etc
4. Scroll through each day by pressing A until “tDay” (Today) is reached
5. Press B to access “tDay” options (Day-1, Day-2)
6. Scroll through tDay options by pressing MODE
7. If today is TUESDAY scroll to Day 2 (Monday, being Day 1 etc)
8. Once you are at the corresponding day select B to record. “SET” will appear on the display before it returns to the time of day.

## TURN ON/OFF CYCLE PROGRAMMES FOR SELECTED DAYS

Enter advanced menu (see page 9)

Press A to scroll through MENU until “7day” is displayed

Enter “7day” option by pressing B,

Scroll through each day by pressing A.

You can tell the cycle programme is set to on if both lights are lit.

To cancel a cycle programme for a particular day press MODE (lights will go off)

To set the programme to ON press MODE again (lights on). See example.

To return to time of day scroll to “RET” (found after tDAY) press B. “SET” is displayed before returning to time-of-day.

Example: If Monday is set as day 1, to turn Saturday and Sunday off, scroll to Day 6 and Day 7 and press MODE each time. Lights will go off to indicate cycle has been turned off for that day.

**NOTE:** The factory default for the 7 Day timer has programmes set to “ON” for all seven days.



# Alarms & Alerts

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## Alert 1 - 24 Hour

The Grease Guardian is equipped with daily maintenance buzzers. Each alarm is accompanied by the flashing of the ALERT light. An alarm sounds every 24 hours to ensure basket and grease removal equipment are inspected.

24 hour maintenance buzzer:

1. The audio device is set by closing the lid or switching unit on.
2. The alarm will sound 24 hours from the time the lid is closed
3. The alarm is deactivated by lifting the lid
4. The lid must remain open for the duration of the maintenance, otherwise alarm will continue sounding when closed.

## Alert 2 - Lid Open

An alarm will sound after 90 minutes if the main lid is not closed.

Lid open alarm:

1. Ensure lid is on and fastened
2. If the lid is incorrectly positioned the alarm will sound

## Alert 3 - Magnet

An alarm will sound if the lid magnet is damaged or removed

Lid magnet damaged:

1. Ensure lid magnet is secured above magnetic switch on the control panel
2. The distance between the magnet and switch should be no more than 3-5mm

## Alert 4 - SER: Service due

## Alert 5 - COLD: Unit not heating sufficiently

# Yearly Maintenance



Inspect rubber wiper blade every 6 months and replace if required



Every 6 months inspect flow restrictor gasket hole (found in the inlet). Replace if required



Remove sediment from bottom of unit and any grease build up on internal walls and components



A "wet vac" can be used to empty and desludge the Grease Guardian at least every six months.



Regularly ensure timer settings are correct



We recommend contacting an approved Grease Guardian engineer to carry out a full service once or twice a year.

# Troubleshooting

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## ► PROBLEM: Not skimming

### Is the power on?

Check to be sure the power is on and the time control is set correctly. Check mains connection. If power is being supplied and there is still no display check fuses or contact your supplier.

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### Are removable parts cleaned?

Remove the lid and clean away any build-up that may be present in the wiper blades, collection through or outlet hose. Assure that the wiper blades are clipped properly in place on the skimmer wheels. Replace wiper blades when worn.

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### Check the skimming and heating cycles

The Grease Guardian heating and skimming cycles should be set to remove grease that is trapped. Make sure the cycles have been correctly set as per instructions.

*(Heater)* the tank should heat (15mins approx). If the tank does not heat the heater may need inspecting. Contact your local service engineer to check.

*(Wheel)* after heating for 30 minutes, check to make sure that the noise of the skimmer wheel turning is heard. If the motor can be heard but the wheels are not turning then check the axles and drive couplings that link the motor to the wheel. If the skimmer motor does not come “on”, the motor or thermostats must be checked by qualified engineers for possible replacement.

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### Make sure wiper blade assembly is secure

Position wiper blade assembly over the wheel and secure to shaft.

If rubber blades corrode over time, replace.

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### Check the magnet & switch

A safety magnetic switch is found on the control panel whilst the magnet itself is attached to the main lid of the Grease Guardian. Make sure that the lid magnet has not been damaged. Ensure the distance between magnet and control panel is no more than 3-5 mms.

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### Check the lid

The unit will not operate when the lid is removed or incorrectly positioned.

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### Check the thermostat

A qualified engineer/electrician should check that the thermostat is set at 55 °c.

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## ► **PROBLEM: Excessive water is observed in the grease collection container**

### **Check Timer Cycle Settings**

Check the timer cycle settings for excessive “ON” time. The unit should not run extensively after the grease and oils have been skimmed.

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### **Check water flow**

Assure that the water flow to the unit does not exceed the rated flow and that there are no drain line blockages downstream from the unit

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### **Low level of oil waste**

If only a relatively small amount of oil is present in the wastewater, the amount of water that is collected in the oil bin can be more than that of the oil. Adjust the cycle timing so as to reduce the cycle duration.

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## ► **PROBLEM: Water overflows from the unit**

### **Has the strainer basket been maintained?**

If water overflows from the inlet chamber the basket may need emptying. Remove, clean and re-install.

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### **Does the inlet gasket need replacing?**

General overflowing can also result from a worn inlet gasket or a blocked outlet pipe. Replace gasket and clean all possible blockages downstream of the unit.

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### **Has sediment been allowed to build up over time?**

Over time, sludge could have built up at the bottom of the unit and is blocking the path of the flow underneath the outlet baffle. Clean as per maintenance instructions.

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## ► **PROBLEM: Odour Reported**

### **Has maintenance been carried out?**

Ensure all recommended maintenance is carried out.

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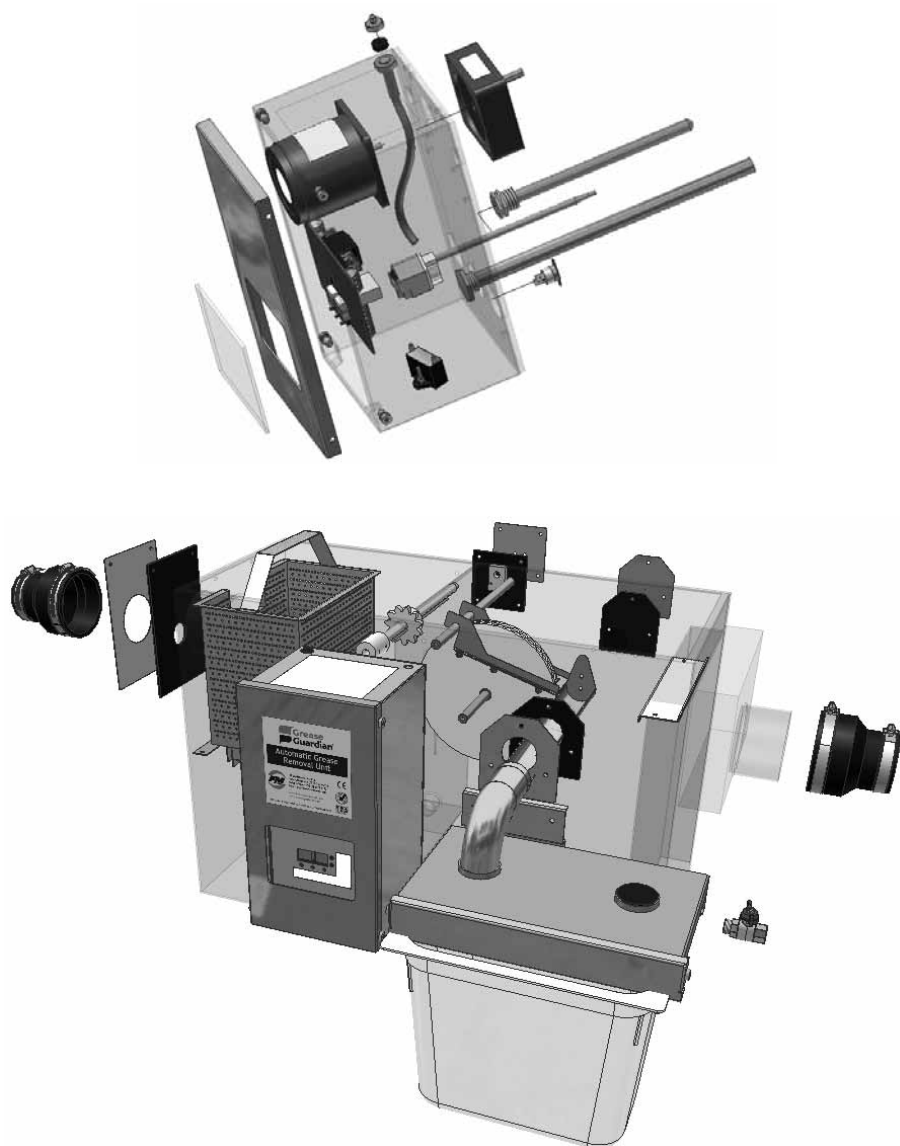
## ► **PROBLEM: Excessive steam comes out of the unit**

### **Siphoning**

This results in a reduced level in the unit caused by the effect of “siphoning”. This occurs in particular installations where the downstream piping of the unit is not properly installed. If this occurs, turn off the unit immediately and consult the plumber or the distributor for more advice.

# Parts

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Please refer to authorised dealer for spare parts and service

## Standard Warranty

FM Environmental warrants, to the original user, that those products supplied by it and used in the service and in the manner for which they are intended shall be free from defects in materials and workmanship for a period of 1 YEAR.

- a) The warranty period commences from the date goods are dispatched to original user or from the date unit is commissioned provided that commissioning form or other receipt is supplied with claim and that commissioning is carried out within three months of equipment being dispatched.
- b) All warranty claims must be processed through the Dealer from whom the equipment was purchased. The Dealer will co-operate with the purchaser throughout the warranty claims procedure and will arrange any necessary repairs using genuine Grease Guardian parts.
- c) If the original Dealer is no longer able to fulfill their obligations please contact FM Environmental Limited with full details of the claim and proof of purchase or commissioning so that this may be processed without delay.
- d) Any warranty claim can only relate to a specific part that is proven to be at fault and for which a replacement will be supplied but cannot be extended to constitute a claim against the complete appliance.
- e) FM Environmental Ltd will supply the Dealer with any warranty parts required subject to the claim being validated after return of the faulty items.
- f) All replacement parts have a 60 day replacement warranty. Clean defective parts shall be returned, within the warranty period, with proof of purchase, to FM Environmental, transportation charges prepaid, for warranty evaluation. At FM Environmental option, based on the determination of the warranty evaluation, FM Environmental may repair or supply a replacement part from its factory. Any and all items which may be returned shall include the serial number of the unit from which the item was removed, and a return goods authorization number issued by FM Environmental.
- g) This warranty is void if the product has been damaged by its customer prior to acceptance or as a result of unreasonable use, neglect, flooding, alteration, improper installation, improper service, maintenance neglect, improper electrical service, installation and/or operation without timer controls, or other causes not arising out of defects in material or workmanship. Equipment must be installed according to manufacturer's guidelines. This warranty is void if equipment is used in excess of rated flow. FM Environmental products are intended to remove only free floating oils and grease. FM Environmental products do not remove emulsified fats and oils. FM Environmental shall not be responsible for damage to equipment which results from vault flooding, sewer line back-up, pumping or lift station failure, ambient water flow or other sources of water damage. This warranty is void if the serial number on the product has been altered or defaced. FM Environmental will not replace electrical parts which have been installed in under-ground vaults. This warranty is

void should use, installation and application be contrary to a written agreement between FM Environmental and the user,

- h) FM Environmental does not make any other representations or warranties, express or implied, including, but not limited to, any implied warranty or merchantability and any implied warranty of fitness or performance for a particular purpose.
- i) The sole and exclusive remedy with respect to the above limited warranty or with respect to any other claim relating to defects or any other condition or use of the product supplied by FM Environmental, however caused, and whether such claim is based upon warranty, contract, negligence, strict liability or any other theory, is LIMITED to the repair or replacement of the part or product, excluding labour or any other cost to remove or install said part or product or, at FM Environmental option, to repayment of the purchase price. Notice of any such claim must be given in writing to FM Environmental within 15 months after the fault installation and / or use of the product
- j) In no event shall FM Environmental be liable for special, direct, indirect, incidental, personal, property or consequential damages, including but not limited to, loss of use or profits or to interruption of business activity. FM Environmental neither assumes nor authorizes any representative or any other person to assume any liability in connection with the sale of its products. FM Environmental makes no warranties, express or implied, with respect to parts, accessories, components or other goods not in FM Environmental scope of supply. Alteration and/or substitution of FM Environmental parts, assemblies, accessories including electrical and/or mechanical components voids FM Environmental warranty.

#### **10 YEAR ANTI-PERFORMANCE WARRANTY ON GREASE GUARDIAN STAINLESS STEEL TANK**

FM Environmental warrants, to the original user, that The Grease Guardian main tank (location in which grease is trapped) supplied and used in the service and in the manner for which it is intended shall be free from defects in materials and workmanship for a period of 10 YEARS

This Warranty is void should the product be damaged by its customer prior to acceptance or as a result of unreasonable use neglect, alteration, improper installation, improper service, maintenance neglect, installation or other causes not arising out of defects in material or workmanship. The warranty will also be void should the stainless steel tank be found to be in direct contact with copper, brass, or corrosive chemicals (acidic or alkaline), saline water (PPM > 1000) for excessive periods.

## Notes

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