Automatic Grease Removal Unit

INSTALLATION
OPERATION MAINTENANCE

Models

- GGX7S/230VAC
- GGX15/230VAC
- GGX25/230VAC
- GGX7C/230VAC
- GGX15C/230VAC
- GGX35/230VAC
- GGX7C/110VAC
- GGX15C/110VAC
- GGX25/110VAC
- GGX15/110VAC
- GGX20/110VAC
- GGX35/110VAC

EDITION: JAN 2019, CONTROLLER PROGRAM: DX2

MANUFACTURED BY FM ENVIRONMENTAL

www.greaseguardian.com

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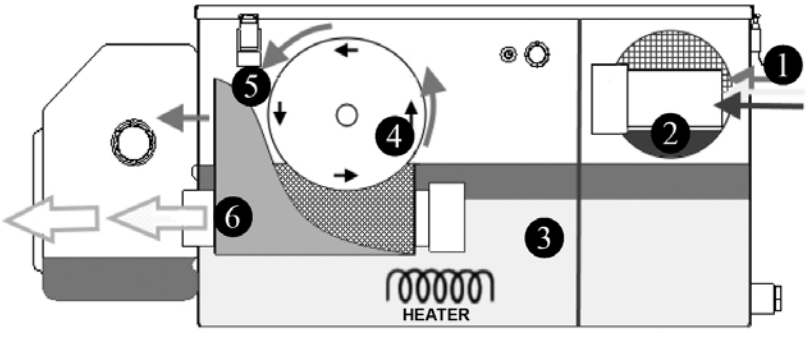
GREASE GUARDIAN X SERIES

The FM Environmental Grease Guardian X series automatic grease removal unit (GRU) 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.

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HOW IT WORKS

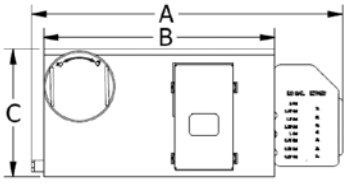


Rear view cutaway

1. Grease, solids and wastewater from the kitchen enters the Grease Guardian.
2. Solid food waste is caught in a removable cylindrical strainer.
3. A skimming cycle is set. The grease passes into the middle chamber through slots in the baffle wall where it remains trapped. With the assistance of a heater the grease rises to the surface forming a separated layer.
4. The liquefied grease adheres to the rotating skimming drum.
5. The grease passes down a scraper blade into a collection container where it can be removed and disposed hygienically.
6. The treated water exits under a baffle wall and through the outlet to drain.

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PRODUCT DIMENSIONS & SPECIFICATIONS (230VAC)

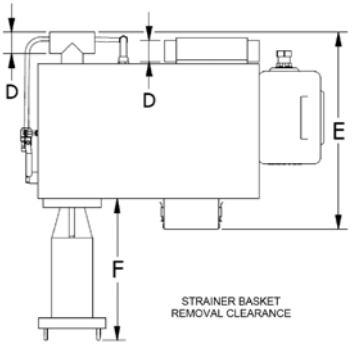


Front view

G & H are heights to pipe base

Model *(mm)*

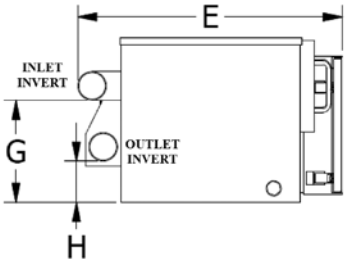
	A	B	C	D	E	F	G	H
X7S	662	443	444	48	516	405	321	251
X7C	662	443	390	48	539	405	221	151
X15/15C	842	623	346	60	557	405	215	87
X25	870	657	423	60	570	405	298	170
X35	1092	873	422	89	577	405	281	170



Top view

Model

	X7S	X7C	X15 X15C	X25	X35
Hydraulic Flow *l/second*	0.5	0.5	1	1.58	2.21
Skim Rate *l/hr*	5	5	5	5	5
Strainer Basket vol, *kg*	2.99	2.99	2.99	2.99	2.99
Grease Collector vol, litres	7	7	7	7	7

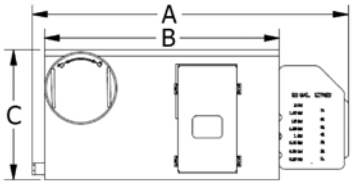


Side view outlet end

Motor (all units)	25 Watt, 230VAC, 50 Hz
Heater X7 - X15	600 Watt, 230VAC, Thermal cut-out inc.
Heater x25 - x35	1000 Watt, 230VAC, Thermal cut-out inc.
Controller (all units)	Logic Controller: Backlit display Inputs 230VAC Outputs 230VAC Battery back up

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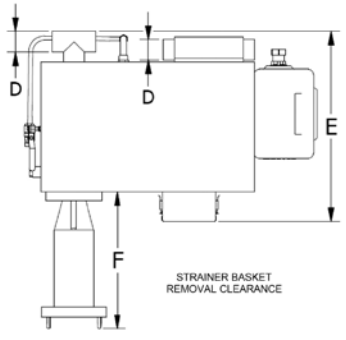
PRODUCT DIMENSIONS & SPECIFICATIONS (110VAC)



Front view

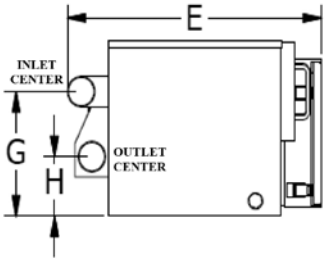
G & H are heights to pipe centers

Model	A	B	C	D	E	F	G	H
							(inches)	
X7C	26	17½	15¼	2	21	16	9¾	7
X15/15C	33	24½	13½	2	21¾	16	9½	4½
X20	34½	25¾	15	2	21¼	16	11	6
X25	34¼	25¾	16½	2	22½	16	13	7¾
X35	43	34¼	16½	3	22½	16	12¾	8½



Top view

Model	X7C	X15C	X20	X25	X35
		X15			
Hydraulic Flow, *USG/min*	7	15	20	25	35
Skimming Rate, *USG/hr*	1.3	1.3	1.3	1.3	1.3
Strainer Basket vol, *lbs*	6.6	6.6	6.6	6.6	6.6
Grease Collector vol, *USG*	1.85	1.85	1.85	1.85	1.85



Side view inlet end

Motor (all units)	25 Watt, 110VAC, 60 Hz
Heater (all units)	600 Watt, 110VAC, Thermal cut-out inc.
Controller (all units)	Logic Controller: Backlit display Inputs 110VAC Outputs 110VAC Battery back up

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PLUMBING AND MECHANICAL INSTALLATION

Lifting/Handling:

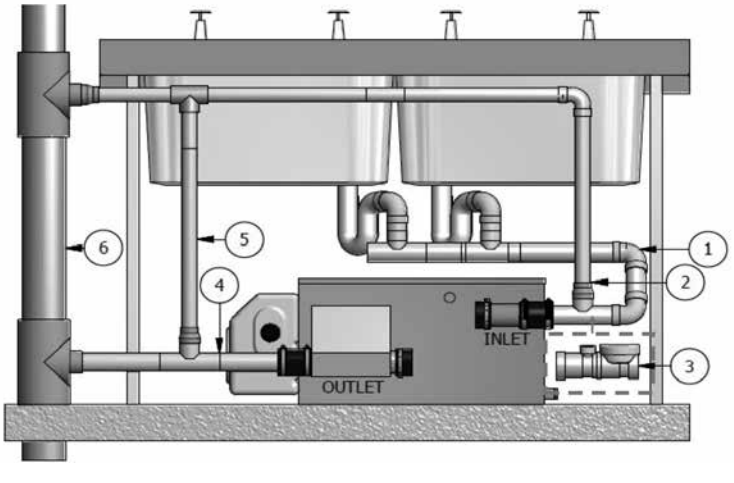
This product is classed as a heavy item that should not be handled alone. There is a requirement for 2 people to manually lift all models described in this manual. Steel tipped toe capped shoes and handling gloves should also be worn.



Install these product models only at ambient room temperature, either under or adjacent to the fixtures being served. Do not repurpose the system or add to the num ber of fixtures specified for connection at time of sale.

Undersink Example

REAR VIEW



Check all required clearances in reference to the "Product Dimensions and Specification" page in this manual.

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Plumbing Sequence

1. Inlet pipe-work. Install 2 inch (50mm) diametre wide pipes. Ensure a slight fall is provided in all pipe-work entering unit. The Grease Guardian includes quick connect rubber couplings and blanking caps. Note that the fixtures pipe can enter the Grease Guardian inlet from left or right. (above rear view shows from right) If multiple pipes are being plumbed from opposite directions, under normal plumbing codes these must all combine to enter via one pipe via one direction only and should not be plumbed from both directions.

2. Ventilation Tee and branch pipe. (Recommended) to prevent odours escaping from the Grease Guardian into kitchen area. Ventilation should be terminated at the building's stack vent. If ventilation is not provided at inlet, the pump/clean out frequency of the system may have to be increased to reduce potential waste odours.

3. **USA. Flow Control with Air Intake.** For those installations requiring Plumbing Drainage Institute of America compliance, a certified flow control (with air intake) must replace the inlet ventilation Tee. The relevant control required from www.canplas.com is listed:
   - GGX7, part reference: Canplas 3922107A
   - GGX15, part reference: Canplas 3922115A
   - GGX20, part reference: Canplas 3922120A
   - GGX25, part reference: Canplas 3922125A
   - GGX35, part reference: Canplas 3933135A

   (The air intake riser of the flow control is to be connected to the inlet side ventilation pipe as described in point (2))

4. Wastewater pipework. WARNING To avoid reduced flow or backflows issues, the site outlet pipework must be connected as detailed below for all GGX systems.
   - pipe diameter must be minimally of 2 inch diametre (50mm)
   - pipe must be installed at a gravity fall of 1:10 minimally, but preferably 1:40.
   - pipe must contain no more than 2 x 90 degree pipe bends between Grease Guardian outlet and final waste point in floor.

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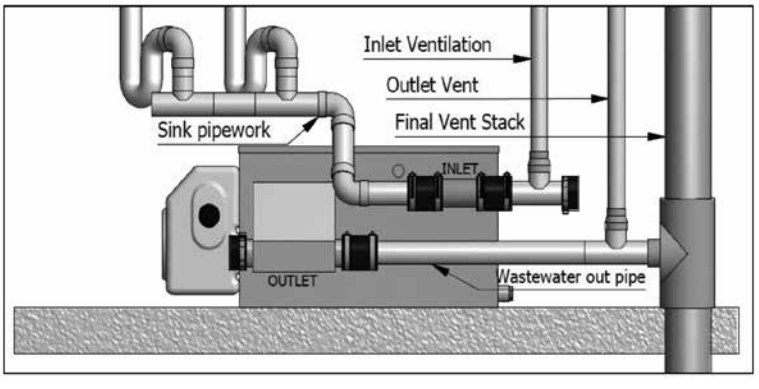
5 Outlet vent pipe. Required to:
a. prevent sewer back odours entering Grease Guardian
b. to prevent any siphonage of the system under peak flows. The pipework should be terminated at final stack vent.

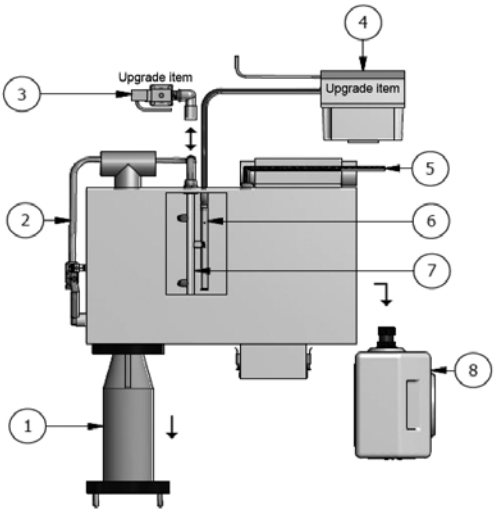
6 Final vent stack to atmosphere. Failure to connect ventilation points of Grease Guardian to the final stack can result in odour issues internally.

PLUMBING EXAMPLE 2

REAR VIEW

Demonstrates further routing examples for installing Grease Guardian "X"





Grease Guardian "X"
Exterior Fittings

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1. **Solids Strainer basket.** Ensure there is adequate clearance to access and remove the strainer as shown in the "Dimensions and specifications" page

2. **Manual spray bar valve and hose assembly 230VAC models only.** (Also see Assembly Diagram on page 29).
Note that the manual spray bar system is supplied, unfitted, as a standard accessory for models 230VAC models X15, X25, X35; it can be fitted later to the tank where the scum dispersal is required AND where regulations permit fitting.

   To attach the manual spray bar kit the valve and valve bracket are to be mounted on the left side of the GGX unit. Remove the blanking bolt from the side of the GGX tank in order to mount the valve brackets supplied. The steel hose is then to be passed to the rear of the GGX tank to spray bar inlet. Please also refer to water supply requirements detailed overleaf.

   Note: The manual spray bar is not supplied with 110VAC GGX models. 110VAC models are available with the automatic spray bar system only.

3. **Automatic wash valve assembly.** (Assembly Diagram on page 29)
The automatic wash valve is supplied as standard on combi oven models X7C and X15C (instead of the manual valve and hose assembly). The solenoid power cable is routed to Grease Guardian controller, pre-fitted at the factory. For models X15, X20, X25, X35 110V/230VAC the automatic wash system is only available as an upgrade at time of order.

Important: Water supply (for manual and automatic spray bars)

Wash water supply required: ½ inch BSP, 0.75l/sec (0.2 USG/sec) @ 3-6 bar. Temp 40-60°C (104-140°F). Plumbing of water supplies are to be carried out only by qualified personnel and all local plumbing codes adhered to where the Grease Guardian is being installed. To ensure proper solenoid valve performance and guarantee full warranty cover, the water supply preceding the solenoid valve must be fitted with a/a suitably sized water hammer arrestor and b/an in-line "WYE" type brass strainer.

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Important: Additional backflow prevention regulations for water supplies

The use of mains water spray bars may be subject to regulations on backflow prevention measures. Please check your local code before installing any spray bar systems, as codes will vary from country to country. FM Environmental Ltd does not take responsibility for providing backflow prevention devices or measures, unless explicitly contracted to do so for the application concerned at time of the Grease Guardian product sale.

4 **Air blower Assembly.** Non standard Item. Upgrade for models X15 to 35. Supplied with a wall mount bracket. Blower must be wall mounted above lid level of Grease Guardian unit. This system is supplied with air hose and push fit attachment for connection to air bar (item 8). The power cord plug must be plugged to a wall electrical outlet separate to the Grease Guardian supply. Instructions for setting the blower timer are provided separately with the upgrade kit.

5 **Mains Power Cord for Grease Guardian system.** Supplied with electrical plug attachment. The cord is supplied already routed to Grease Guardian controller through the rear of the machine. The Grease Guardian System should only be powered up after filling tank with water ensuring water level reaches internal skimming drum.

6 **Blower Air Bar.** Supplied only if a blower system is included. Comprised of a two piece "L "shaped steel bar. The lower section is submerged inside tank. This section is to be screwed into the upper section which is mounted at side of tank and includes a push fit connection for connection to air blower hose.

7 **Spray bar for manual or automatic spraying system** (See Note 2). The spraybar is supplied with spray nozzles in place. Ensure the nozzles are directed diagonally down towards the water surface below in an inverted "V" position

8 **Grease Guardian oil container.** Ensure there is adequate clearance to access and remove the container as shown. Refer to specification sheet if required.

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ELECTRICAL INSTALLATION

IMPORTANT: Grease Guardian Electrical Installation

1. Any engineer installing this product or its electrical supply circuit, must have the requisite qualification to do so according to the country of installation regulatory requirements, and must work to the appropriate Electrical codes of practice for that country. (ie, for the UK, the latest edition of BS7671. For the Republic of Ireland, the latest edition of the ETCI regulations and be Safe Electric approved. For all other countries the latest Electrical Regulations for that country)

2. This product must have its own dedicated circuit. This product must not be wired into a circuit supplying any other appliances. This circuit must have an overcurrent protection device in series with either a/ 30mA RCD (Residual-Current Device) or b/ a 30mA RCBO (Residual-Current Circuit Breaker with Over Current Protection) or c/ for USA installations: 30mA ground fault circuit breaker interrupter (GFCI)) . All devices here listed a,b or c, must be fitted with a TEST button and must be tested 4 times yearly to ensure the device trips out under test conditions.

3. The circuit Fuse/MCB or RCBO is to be suitably rated/sized for the load current drawn by the specific model being fitted in accordance with the model specification sheet.

4. A waterproof socket outlet must be provided next to the installation position by the installer, suitable for the 3 pin cord-plug, or 2 pin Euro plug with earthing socket as pre-fitted by FM Environmental. The waterproof socket must have a minimum Ingress Protection rating of IPX5, to protect against possible water jets, spillages and moisture which occur in and around this product's normal location.

5. This product contains an immersed heater and must not be switched on at the socket until the main tank is filled with water to a level whereby the water level settles just above the underside of the internal skimming wheel/drum. Consult your market representative if in doubt.

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Starting Up

Unless otherwise agreed, start up should normally be carried out by your market representative as part of formal Product Support Visit.

1. Check system waste water flow. With the main tank cover removed, fill and release all sinks or other drainage appliance connected from full, into the GGX system. During release of sinks observe that there are no level rises of more than 1 inch (25mm) inside the GGX tank. Consult representative if in doubt. Also check for any pipe leaks during this process.

2. Set the GGX controller for site conditions in accordance with timer setting instructions detailed in this manual

3. Instruct kitchen personnel on maintenance requirements as detailed in this manual.

4. Log the installation date for tracking warranty terms.

IMPORTANT: Safety points to observe in use (user)

- Operation of the unit must be performed by trained personnel only.

- Unit requires daily housekeeping AND assisted servicing including pump out and heater inspection every 3 months. Neglect of this maintenance can lead to malfunction of system and compromise site safety.

- Unit requires ventilation. Ensure to follow all installation instructions previously described for ventilation, especially in confined locations. Otherwise tank pump outs must increase from once every 3 months to a minimum of every 1-3 months.

- Use dedicated rubber gloves for grease trap maintenance tasks to minimise cross contamination

- Do not touch the skimming wheel, skimming drum directly if accessing inside the tank to clean etc. Do not touch any submerged elements inside the tank.

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- Other than accessing the front panel timer key buttons, never attempt to access inside the control panel behind the timer plate, unless electrically qualified.

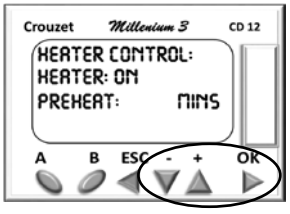
- If the mains supply cord is damaged it must be replaced to avoid a hazard, by the manufacturer or authorised distributor or service agent

Best practices to maximise performance (user)

- Remove any blockages from drains before installing the Grease Guardian
- Unit will lose efficiency if not maintained daily as described
- Avoid connecting a dishwasher machine to the Grease Guardian in order to ensure tested efficiencies. The dishwasher should be bypassed to drain. (Then in practice, scrape dish/plate waste into bins before pre-rinsing these in the sinks served by the Grease Guardian. After thorough pre-rinsing, the dish/plates can be machine washed)
- Never connect a macerator or similar food waste device upstream from the Grease Guardian
- Do not use highly acidic or highly alkaline detergents in ovens connected to Grease Guardian.
- Do not flush or clean the Grease Guardian tank with bleach or any aggressive cleaners while the unit is in place. (The unit must be disconnected from the sinks before cleaning with these detergents. All wetted components should be removed before doing so to avoid chemical corrosion. Rinse out the unit with clean water before refitting components and re-installation.)
- The unit is designed to trap and remove free floating grease oils and fats only. The unit will not remove emulsions such as salad cream, mayonnaise, relish, sauces, soup waste, or any finer wastes or emulsions that pass into the main skimming chamber
- The internal solids strainer provides limited protection from solid food waste build up. To help ensure the highest efficiency, solid food waste can be further reduced by installing additional strainers upstream of Grease Guardian.

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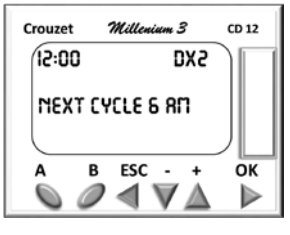
Cycle Programming



Intro. Note on adjusting Hr/Min/Sec values on PLC:

For PLC timer values that display a blinking ▮▮▮▮ icon, these can be adjusted by using the following button sequence:

1. Press "-" or "+" to move the bar from one value to the next.
2. Press "OK" to lock onto value to be changed.
3. Press "-" or "+" to adjust value up or down.
4. Press "OK" again to store the change and return to the blinking bar.



Power UP, TEST, and Screen 1 (Home)

On powering up, the unit will automatically run a TEST sequence of heater, motor and spray bar outputs. After the TEST completes the HOME Screen will appear with these default fields:

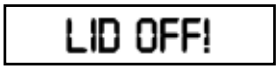
a. Time of Day on the top left.
b. The program name on the top right. In this case: "DX2"
c. Next Cycle due, in the middle of the screen

The TEST can be re-initiated at any time by pressing - & + together

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Home (Screen 1)

Additional Messages during general Use:



The Main Tank lid requires replacement to resume normal system operation



The "In cycle" message displays during a main cycle.



One of the 3 pre-selected skimming modes will display when the unit is in a cycle.



Flashes when heater is active during a cycle



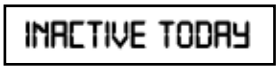
Flashes when motor is active during a cycle



“Cycle Finished” displays after cycle completes. At the same time the maintenance reminder also flashes to remind the user to check the wiper blade, strainer basket and oil container. These messages cancel when the main lid is removed to do the maintenance. Also self-cancels and resets after 10 minutes if lid is not removed.



Advanced notification will display for any weekday which is set to OFF.



Displays during the inactive weekday, if a weekday is set to OFF as described in the weekday display below.

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PUMP OUT 00014 DYS

This message will display in the Home screen when the main tank pump out service due reaches 14 days or less. If the unit is pumped out before the time out, the countdown can be cleared and re-set to start again by pressing the "-" button when inside screen 7 (see time control pages). If a pump out is not completed by zero days the countdown will clear and auto-reset.

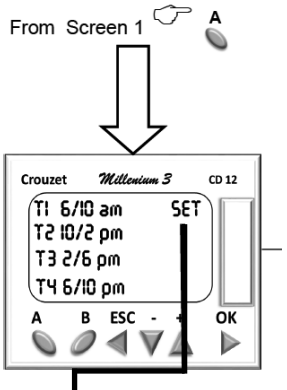
SKIMMING FORCED

Hold ▲ in Home Screen 10 seconds

Manual Forcing of Skimmer

If activated, the skimmer will be forced on constant to clear any surplus grease in the main tank. The tank lid must be in place for the skimmer to operate. Pressing "+" again in the Home Screen for 10 seconds will deactivate the same function. The feature also self-deactivates after 30 minutes of skimming to avoid over-skimming.

Setting a Cycle



Cycle Options daily (Screen 2)

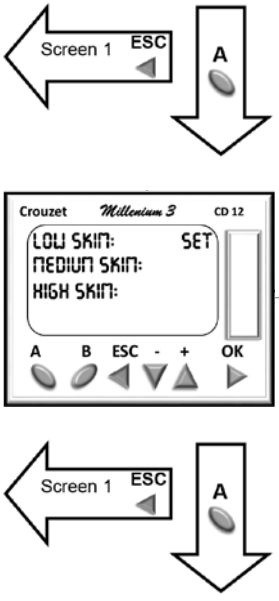
In Screen 2, one day is divided into 4 static cycle start/finish time options. T1,T2,T3,T4. In this menu set a T option by pressing and holding "B" for 1 second. The word "SET" will display against a time option. Repeated pressing of "B" will advance through eleven ON/OFF options as shown below.



	1	2	3	4	5	6	7	8	9	10	11
T1	SET	-	-	-	SET	-	SET	-	SET	SET	-
T2	-	SET	-	-	SET	-	-	SET	SET	SET	-
T3	-	-	SET	-	-	SET	SET	-	SET	SET	-
T4	-	-	-	SET	-	SET	-	SET	-	SET	-

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The example in the table above shows that option 1 from 11 has been set. This option is also the default setting. In this instance the unit is programmed for one cycle daily, commencing at 6am. Note that if option 11 is chosen there are no cycles set

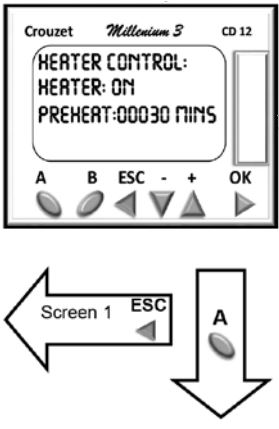


Choose a Skim Mode (Screen 3)
Screen 3 optimises the cycle duration

Low Skim DEFAULT	10 mins skimming/cycle
Medium Skim	20 mins skimming/cycle
High Skim	30 mins skimming/cycle

Select a mode by pressing B

- LOW SKIM: skims for 10 mins only. (1 skim)
- MEDIUM SKIM : skims 10 minutes then pauses for 5 mins before a further 10 minute skim repeat. (total 2 skims)
- HIGH MODE: skims 10 minutes then pauses for 5 mins, skims 10 minutes, pauses 5 then skims 10. (total 3 skims)



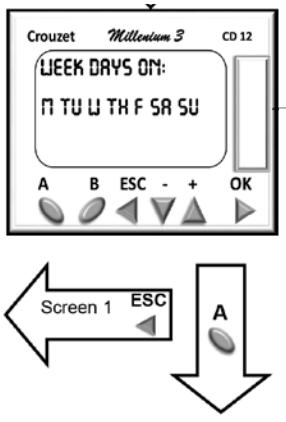
Heater Setting (Screen 4)

The default setting inside screen 4 is:
Heater set to ON, with a preheat of 30 mins.

The Heater can be switched off completely by toggling "B" B

When the heater is set to ON the full range for preheat is 5-60 minutes which is adjustable using the - + OK (see intro page on adjusting timer values)

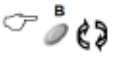
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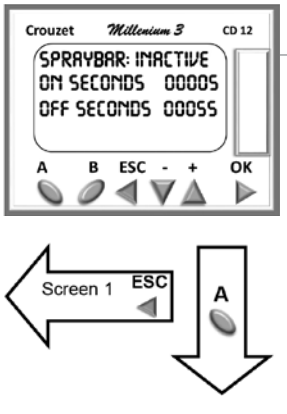


Weekday Settings (Screen 5)

In screen 5 there are 12 programable states for setting the daily cycles to ON /OFF for specific week days.

	M	T	W	T	F	S	S
1	M	T	W	T	F	S	S
2	M	T	W	T	F	-	-
3	M	-	W	-	F	-	-
4	M	T	W	T	F	S	-
5	-	-	-	-	-	S	S
6	M	-	-	-	-	-	-
7	-	T	-	-	-	-	-
8	-	-	W	-	-	-	-
9	-	-	-	T	-	-	-
10	-	-	-	-	F	-	-
11	-	-	-	-	-	S	-
12	-	-	-	-	-	-	S

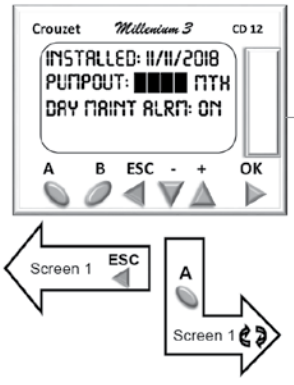
Simply advance through 12 options by pressing: 



Spray Bar (Screen 6)

The spray-bar is set to "ACTIVE" by default. It can be switched OFF ("INACTIVE") by toggling the "B" button. The spray bar only runs during the grease skimming phase .
Default Time: 5 sec on/55 secs off.
Range ON: 5 to 60 seconds
Range OFF: 20 to 300 seconds
The ON and OFF times can be adjusted using the sequence  (See Intro note on adjusting time values)
If an automatic spraybar is not supplied, it is best practice to switch this control to INACTIVE

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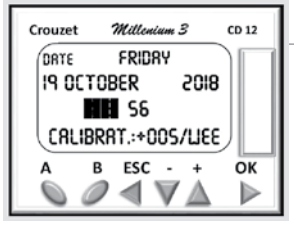


Installation Date/Pump Interval Reminder/ Maintenance (Screen 7)

Firstly this screen displays the installed date for the unit, which is automatically logged when a mains power signal on site is present for more than 48 hrs.

Also in this screen the pump out interval reminder can be changed via the - + OK sequence (See Intro note on adjusting values) **Default is 3 months.**

Also in this screen the user's daily maintenance reminder can be switched off for applications where it is not required. This is done by toggling button "B" **Default: ON**



Additional Screen: Setting Time of Day

To change the time of day, or date, access the clock menu by following sequence:

1. First press OK ▶ AND esc ◀ when in Home Screen
2. Then - + OK ▶ to select "MISCELLANEOUS"
3. Then - + OK ▶ to select "CLOCK"
4. Then - + OK ▶ to select "DATE/HR SETUP" to reach the display as shown here in the picture (left)
5. Then - + OK ▶ to change the hr, minute as required.
6. esc ◀ Press X 4 times to return Home (Screen 1)

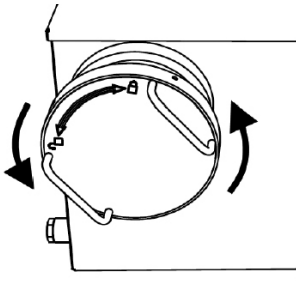
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USER MAINTENANCE

Daily Maintenance, 1-2 times daily

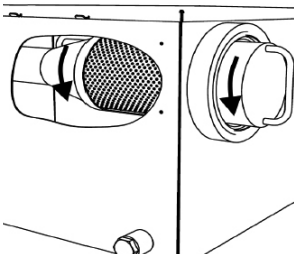
Attention: Ensure sinks are emptied before accessing strainer basket!

1



Remove the strainer cap by rotating it 1/4 turn counter clockwise, using the hand grips

2



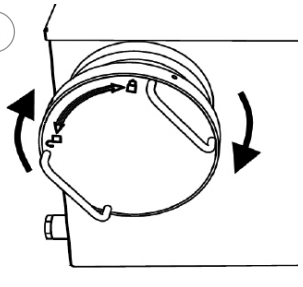
Before removing the strainer shake off excess water by twisting it while it is still inside the tank.

3



Dispose the contents into a food waste bin. Note: Before replacing strainer rinse the basket mesh under a hot Tap.

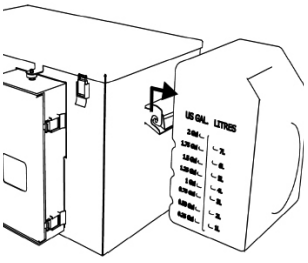
4



Replace the strainer inside the tank and rotate the screw cap 1/4 turn clockwise back into its locked position.

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5



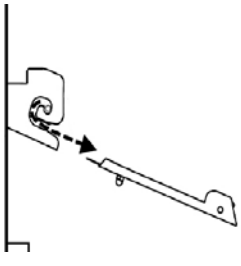
Unclip oil container by lifting it up from the bracket notches and then move it away from side of tank.

6



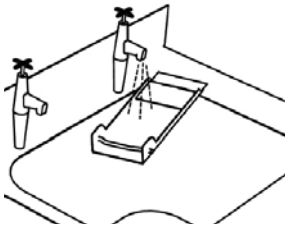
Unscrew oil container cap and pour skimmed oil contents into a dedicated waste oil drum.

7



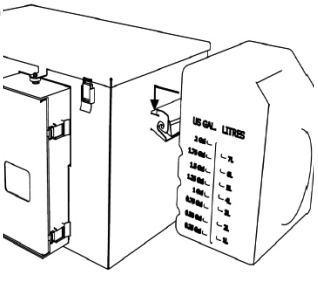
Next remove wiper blade by lifting front of blade and moving it back along the curved slots as shown above.

8



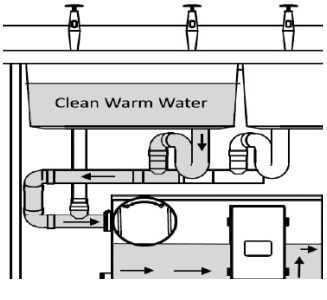
Wipe and/or rinse any debris from wiper blade component. Replace blade by sliding it back into the tank.

9



After replacing blade, replace oil container onto the bracket notches.

10

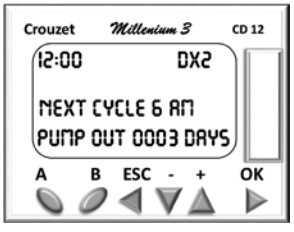


At end of day fill a sink with warm water and release to flush through Grease Guardian, to remove silt and prevent odors.

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Quarterly Pump Out Requirement (every 3 months)

The Home Screen displays the days remaining to the pump out due, from "14" days due. Failure to ensure timely pump out/vacuum may impair performance and cause odor/odour issues.



Pump outs ensure long-term performance and comply with our warranty terms. Pump outs must be carried out by a licenced catering waste collector. After first disconnecting the Grease Guardian mains plug, tasks should include the following:



Essential:

- Tank pump out - all waste and liquid contents
- Wipe clean of any debris from heater element.

Also recommended, via service partner agreement:

- Electrical checks
- Replace rubbers seals/gaskets
- Staff retraining and timer optimisation
- Resetting of service reminder

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TROUBLESHOOTING

PROBLEM: Unit not removing grease

Is the power on?
Check that the power is on and that the time control is set correctly. If the power is being supplied and there is no display check fuses or contact your supplier or service partner.

Is wiper blade and wiper slot clean?
Clean any build-up present on the wiper blade. (see user maintenance). Ensure the wiper blade is replaced correctly and makes proper contact with skimming drum. Remove the main lid to check this if necessary.

Check the cycle status
First check that "HEATING" or "SKIMMING" is displayed at the start of a cycle. During the "skimming" phase the skimming motor should be audible. Should there be no skimmed grease emerging during the cycle, carry out a further test by entering TEST mode as described earlier in this manual. With the main lid removed and **with hands kept clear of the skimming drum** use this feature to check that the skimming drum rotates for 10 seconds in Test Mode.

Inadequate Heating?
If the skimming drum is turning but grease is not being removed it may not be dissolving or separating out. If the grease appears hard or crusted, firstly try increasing the heater's pre-heat time as advised in the controller pages section of this manual. Should this have no effect the Grease Guardian heater may require inspection by service engineer and possible replacement.

Emulsified, congealed, or foam-like surface waste not skimming out?
If the surface grease layer is foam-like in appearance or grease is still not skimming out then it may contain high volumes of dairy waste such

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as mayonnaise, or starchy waste from rice or pasta. Ensure to reduce volumes of this waste entering the Grease Guardian. Also restrict any use of aggressive detergents and do not dispose any bleaching agents into the unit. If a dishwasher is connected its wash process can prevent grease separating inside adequately the Grease Guardian. Disconnect and bypass dishwasher appliance. Only use neutral hand-washable detergents at the sink. Heavy oven cleaning agents can also adversely affect performance if ovens are connected to Grease Guardian.

Check the main Lid is correctly positioned and check the Lid-switch
To ensure safety the Grease Guardian will not operate with the tank lid removed.

In operation, the lid must be fastened in place correctly so that the lid disk magnet is at the front side, above the control panel surface—but no more than 5 mm (1/5 inch) above the top of this surface. If this is not the case then the controller display will flash a LID OFF message and the internal components will not operate. Consult with service partner on correct lid magnet positioning if required.
If the LID OFF message continues to display but the lid seems secure then there may be a fault with the lid switch which is concealed and housed inside the control panel. Seek service assistance.

PROBLEM: Small amounts of water inside the plastic grease container

Check Timer Settings
The unit will skim water if there is no remaining grease in the main tank. Excess water skimmed will typically settle below the grease layer in the plastic grease collector. Check the timer settings for excessive ON times. The ON time should be scaled back to reduce water being skimmed into the collector. The HIGH or MEDIUM skim Modes can be toggled back to LOW Skim mode for example as described earlier in this manual

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PROBLEM: Surge Water in grease collector and/or spillages onto floor

An obstructed pipe after the unit may result in level rises in the main tank which in some cases can flow into the grease collector suddenly and in turn onto the floor, if left unchecked.

Ensure the outlet pipe-work from the Grease Guardian is installed as specified earlier in this manual, specifically: that pipes are at a gravity fall and with no more than 2 x 90 degree bends in the above floor pipe work before the floor termination. Ensure in all cases that the pipes from the unit are minimally 2 inch diameter. Lesser diameters will cause flow issues.

Ensure that the water flow from the appliance(s) connected to the Grease Guardian does not exceed the Grease Guardian's rated flow in gallons per minute (USA) or litres per second (non USA).

Also ensure that there are no drain line blockages downstream from the unit. Ensure the unit is pumped out at least once quarterly (every 3 months) so that sludge does not obstruct the passageways within the main tank.

Do not remove the strainer basket when there is any sink flow entering the unit. Ensure the Strainer is in the correct locked position after the daily maintenance is completed.

PROBLEM: Sink flow rate is suddenly reduced

Check Strainer Basket
The strainer basket is designed to restrict food waste transferring to the grease separation chamber. Excess build-up in the strainer basket can obstruct the sink flow. Ensure that the strainer basket is emptied 1-2 times daily and the mesh cleaned. This maintenance frequency should be increased if solids disposal to the Grease Guardian is excessive.

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PROBLEM: Odor/Odour reported

Is adequate vent/ventilation pipework installed as described in this manual?

Inlet pipe ventilation: Ventilation Tee and branch pipe. To prevent odors/odours escaping from the Grease Guardian into kitchen area the ventilation pipe should be terminated at the building's stack vent with the outlet ventilation as below. If ventilating is not possible then alternatively the pump out frequency will need to be increased to control and reduce waste odors/odours.

Outlet pipe ventilation. Required a. to prevent sewer odours entering Grease Guardian and b. in the absence of a pre-fitted air admittance valve/dip-pipe—will also prevent any siphonage of the system under peak flows. The pipework should be terminated at final stack vent.

Has maintenance been carried out?

Ensure the daily strainer maintenance is carried out. Ensure the pump outs occur every 3 months so that any standing sludge is removed. Also seek to prevent any non-skimmable waste from entering the unit as already advised earlier.

Scrape visible plate waste to bin rather than rinsing this waste into the Grease Guardian.

Stagnant Water

For applications where a connected sink or oven has a very low flow ensure to flush the Grease Guardian unit with fresh water regularly to reduce stagnant water.

PROBLEM: No power or no time control display

If the unit trips out or loses power suddenly during use, disconnect the power supply to the system at the plug outlet immediately and seek service assistance.

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Incorrect installation/start up?
Has the unit been installed fully in accordance with the electrical instructions described earlier. Has the start up procedure also been followed?

Inadequate maintenance and servicing not carried out?
Power outages may occur if the correct pump-out or other agreed service regime is not followed, whereby excessive amounts of waste have gathered inside the unit and have affected the performance of the electrical components. Waste that enters the machine from sinks or appliances (other than pot sinks, dish pe-rinse sinks, combi ovens, wok cookers) can adversely affect electrical performance or shorten normal operational lifespan. For example the heater can trip out if it is immersed in waste other than fats, oils or grease. Or if the heater has not been checked and cleaned every 3 months.

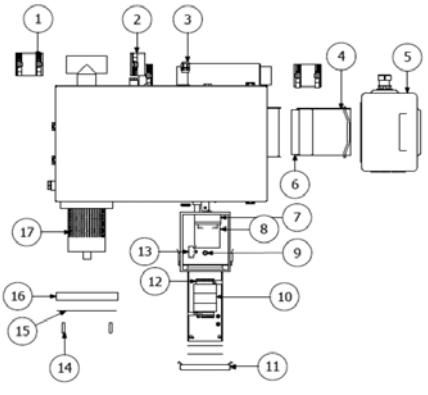
Water ingress?
If any external covers have been damaged or misplaced, or seals or fasteners have been damaged, or pressure washers are used to clean the external surfaces, moisture may enter the control panel and can cause electrical faults. The Grease Guardian is Ingress Protection level IPx4 rated and should not be pressure washed. The unit's external surfaces should normally be cleaned by damp hand cloth when required. Kitchen surface hand cleaners/polishes are permissible.

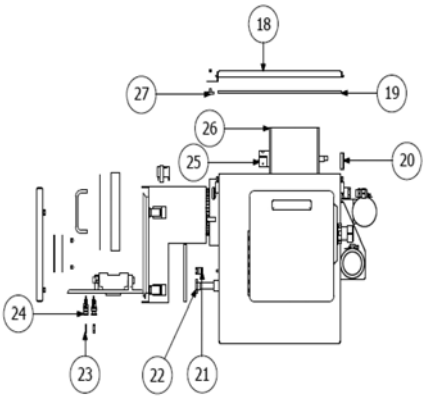
Correct weather proofed/internal location?
The unit should never be installed in outside locations which are exposed to temperatures or weather conditions inconsistent with normal room temperature. Note that sheltering from rain alone is not adequate, as additionally, condensation inside the control panel can arise if the unit is exposed to lower external temperatures. Sustained condensation can actually prove more destructive to the internal electrical components than occasional water splashes or spillages.

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PARTS EXPLOSION X7 TO X35

BASIC PARTS





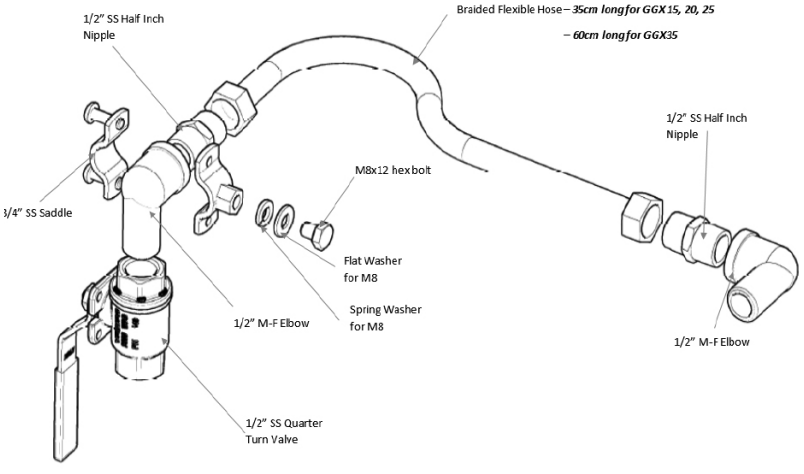
1. Rubber Tank Coupler
2. Blanking rubber Cap
3. Cable gland
4. Wiper blade Assembly
5. Oil/Grease Container
6. Plastic Wiper blade
7. Gearbox
8. Drive Motor
9. Lid Switch
10. PLC controller
11. Control Panel Front Cover
12. Pushfit Connector Blocks
13. Motor Capacitor
14. Strainer Cap Grip
15. Strainer Cap Plate
16. Strainer Cap
17. Solids Strainer
18. Main Tank Lid
19. Neoprene Lid seal
20. Roller Bearing Block
21. Thermal Cutout
22. Heating Element
23. Live/Neutral Fuses x 2
24. Fuse holders x 2
25. Roller Coupling, 2 part
26. Skimming Roller
27. Lid switch Magnet

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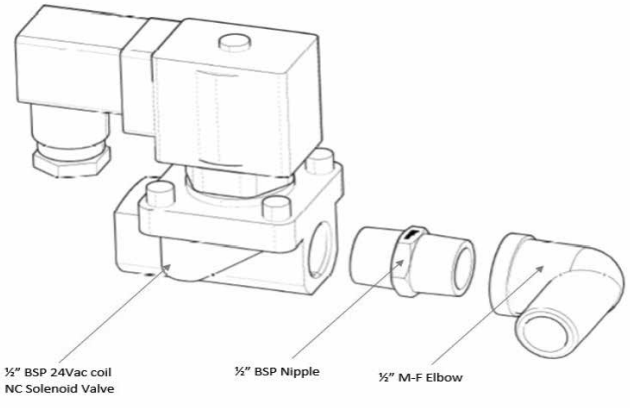
PARTS EXPLOSION

WASH SYSTEMS - EXTERNAL FITTINGS

GGX15 – 35 SMWK Manual Washing Kit

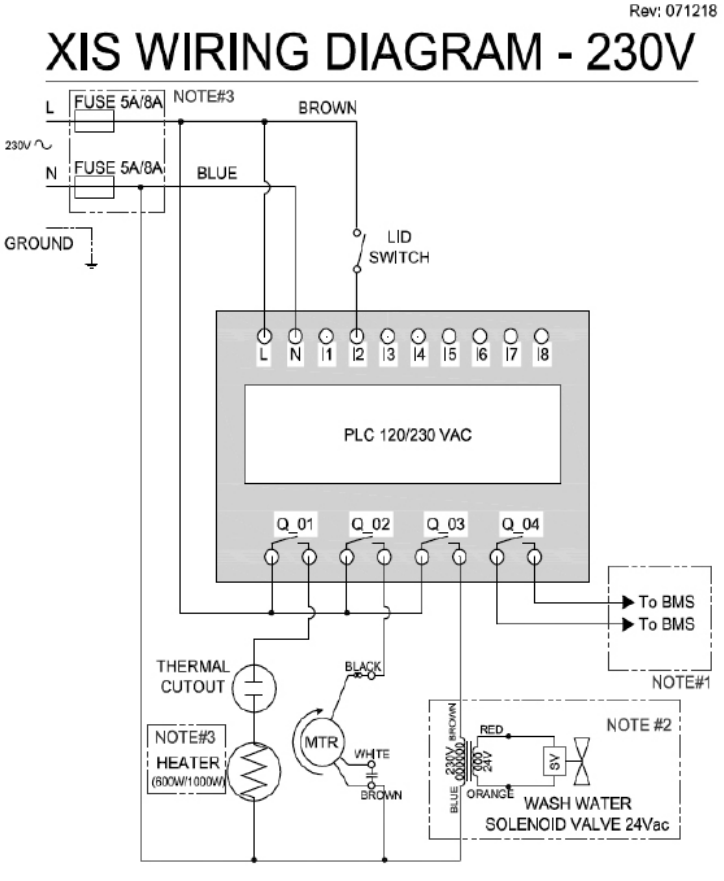


Automatic Washing Kit



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Appendix 1: Wiring Diagram 230VAC



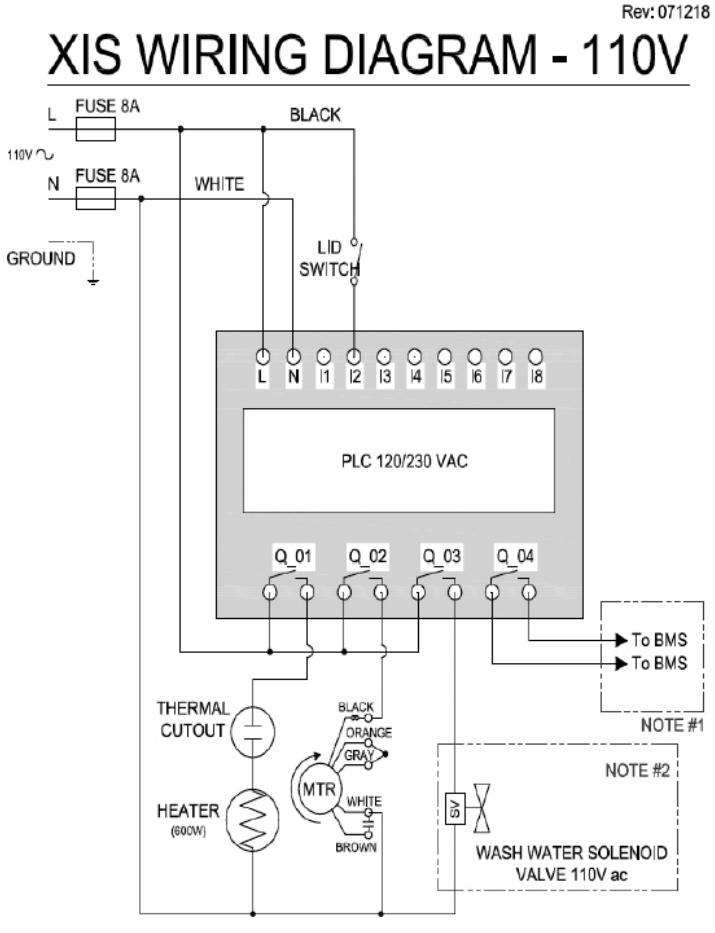
NOTE #1: OPTIONAL - If connecting Output 4 (normally open contact) to the BMS (Building Management System) ensure that the maximum breaking voltage (5-30VDC, 24-250VAC) and maximum breaking current (8A) are not exceeded

NOTE #2: The washwater valve is standard on GGX7C and GGX15C models only

NOTE #3: For X7, X15 and X20 models, fuse sizes are 5A and heater size is 600W. For X25, X35 and X50 models, fuse size is 8A and heater size is 1000W.

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Appendix 2: Wiring Diagram 110VAC



NOTE #1: OPTIONAL - If connecting Output 4 (normally open contact) to the BMS (Building Management System) ensure that the maximum breaking voltage (5-30VDC, 24-250VAC) and maximum breaking current (8A) are not exceeded

NOTE #2: The washwater valve is standard on GGX7C and GGX15C models only

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STANDARD WARRANTY

FM Environmental Ltd warrants, to the original user, via the original dealer, 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 1YEAR.

a) The warranty period commences from the invoice date of the Grease Guardian product sale.

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. The use of non-genuine Grease Guardian parts will void the warranty.

c) If the original Dealer is no longer able to fulfil their obligations please contact FM Environmental Ltd with full details of the claim including unit serial number, by way of the warranty claims form.

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 Ltd, transportation charges prepaid, for warranty evaluation. At FM Environmental Ltd's option, based on the determination of the warranty evaluation, FM Environmental Ltd 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 Ltd.

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 quarterly (4 times yearly) 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 Ltd products are intended to remove only free floating oils and grease. FM Environmental Ltd products do not remove emulsified fats and oils. FM Environmental Ltd 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 Ltd will not replace electrical parts which have been installed in damp or weather exposed vaults or external locations. This warranty is void should use, installation and application be contrary to a written agreement between FM Environmental Ltd and the user,

h) FM Environmental Ltd 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 Ltd, 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 Ltd option, to repayment of the purchase price. Notice of any such claim must be given in writing to FM Environmental Ltd within 15 months after purchase of the product and within 12 months of installation.

j) In no event shall FM Environmental Ltd 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 Ltd neither assumes nor authorizes any representative or any other person to assume any liability in connection with the sale of its products. FM Environmental Ltd makes no warranties, express or implied, with respect to parts, accessories, components or other goods not in FM Environmental Ltd's scope of supply. Alteration and/or substitution of FM Environmental Ltd parts, assemblies, accessories including electrical and/or mechanical components voids FM Environmental Ltd warranty.

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k) Any damage caused during transportation, either to the packaging or on the Grease Guardian product itself, should be noted with the delivery driver on reception and reported back to the original Dealer, with unit serial number and photographic evidence, within one week of goods received date. In no event shall FM Environmental Ltd be liable for damaged goods either transported by companies other than those appointed by FM Environmental Ltd or for goods opened and repackaged by others, which are then transported by ANY company.

l) Marks or scratches on any part of the product that do not directly affect system operation will be judged on a case by case basis in terms of severity. These must only be reported within 1 week of opening the original packaging, and be in the form of a written report clearly stating the issue concerned, enclosed with unit serial number and photographic evidence, to the Dealer.

10 YEAR ANTI - PERFORATION WARRANTY ON THE GREASE GUARDIAN STAINLESS STEEL TANK

FM Environmental Ltd warrants, to the original user, that the Grease Guardian main tank 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 the 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 is also void should any of the following conditions exist at any time prior to the defect becoming apparent in or around the main tank:

- Salinity level exceeding 1000 ppm
- Chloride level exceeding 250ppm
- pH lower than 6 or greater than 9
- Chlorine levels (from the use of bleach detergents or similar) exceeding 2ppm are not to be poured directly into the tank.

The warranty is also void in following instances:

- Detergents poured directly into the tank or in high concentrations. The use of bleach (chlorine) and aggressive chemicals when poured in sinks and fixtures discharging into the Grease Guardian is to be limited, and the tank is to be flushed with running tap water for a minimum duration of 5 minutes after these are used in the sinks so to dilute their effect.
- Venting not provided on the inlet and outlet pipe as per the instructions given, thus inhibiting the venting out of any corrosive gases
- Sludge emptying, if not happening on a regular basis will allow for the accumulation of heavy deposits at the bottom of the tank and these will create corrosion problems. The tank should be emptied, cleaned from sludge and refilled with clean water every 3 months
- Water softeners and reverse osmosis system reject effluent, if allowed to enter the tank will increase the salinity levels of the water and induce corrosion. Reject waters of water softeners and reverse osmosis units have to by-pass the unit and discharge in the discharge pipe after the outlet
- Daily normal water discharge into the unit should not be inhibited, where regular discharge of water from sinks/fixtures should happen for a minimum of 5 minutes daily so as to avoid static water conditions which in themselves might induce corrosion.

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GREASE GUARDIAN

ASME A112.14.3
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