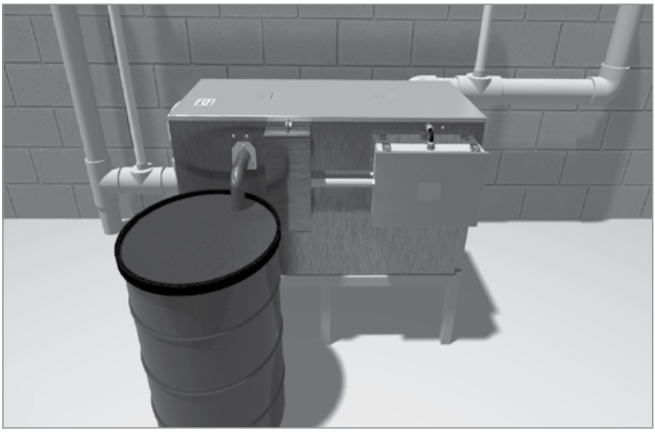
Grease Guardian®

Frontline Engineering

Automatic Grease Removal Unit

MODELS GGX75 & GGX125 ISW
SYSTEM MANUAL 110/230 VAC



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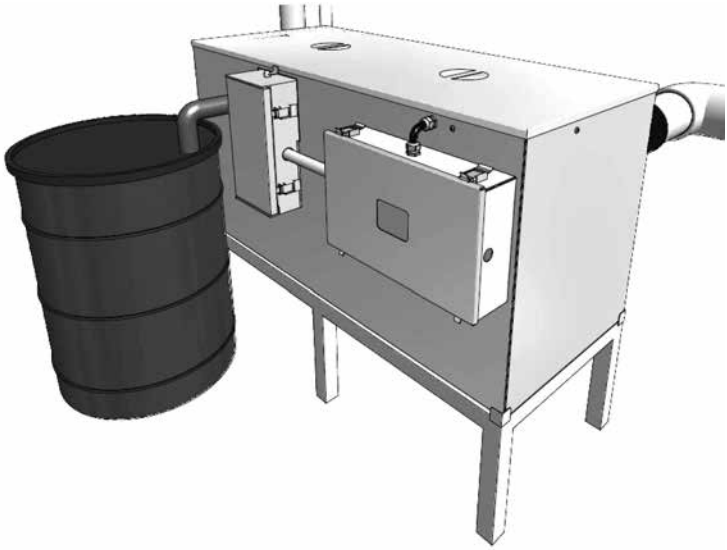
GREASE GUARDIAN X 75/125 ISW OVERVIEW

Thank you for choosing the FM Environmental Grease Guardian X ISW series. The ISW series (Internal Strainer with Wash system) is a totally engineered system for separating freefloating 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's skimming mechanism. Only the "cleaned" water is allowed to pass through the system into the drainlines.

The ISW series is equipped with a removable strainer system to a remove solid food waste. The system is also fitted with an automatic wash system for cleaning of key grease handling components.



The Grease Guardian 75/125 ISW can be used in a wide variety of applications from restaurants and food processing operations to many types of industrial operations. Uniquely the models within the this series are designed to serve entire kitchen lines from a single central location, thus guaranteeing 100% treatment of all source of fats, oils and greases.

In order to reduce staff maintenance the 75/125 series systems are designed to work in conjunction with bulk oil containers to reduce frequency of container replacement. The systems are also supplied with a Building Management Connection as standard and can be further upgraded on request to include a motion sensor system to monitor frequency of maintenance and/or a high level oil container alarm system.

IMPORTANT CUSTOMER NOTICE

Prepare for commissioning by your market representative:

On completion of installation as described in this manual please ensure the following steps are taken before arranging system commissioning:

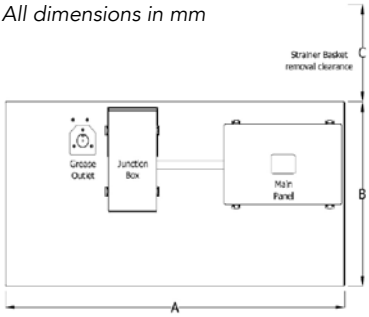
1. Ensure the unit is filled with water un3l the level is seen to stabilise at the skimming drum/outlet level.
2. Check for any pipe leaks during the filling process. Ensure the plumber seals up any leaks.
3. Ensure the power supply is installed and ready to be switched on by your representaive upon arrival..
4. Never power up the unit without the Grease Guardian representative present to check water level and settings.
5. Ensure an in-house senior staff member is appointed for system training during the representative's visit. Such a person should either be a maintenance manager, or catering manager/chef. System training will advise of:

a) daily and weekly maintenance tasks required for this system. Knowledge acquired by the senior member will in turn allow delegation of system tasks to other staff members during the system's lifespan.
b) Weekly waste oils handling and service requirements for the system.

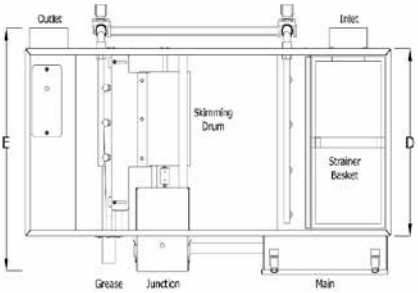
PRODUCT DIMENSIONS & SPECIFICATIONS - ISW, 230 VAC

ISW Model	A	B	C	D	E	F	G	Inlet pipe	Outlet pipe
GGX75	1100	545	257	457	595	420	315	110	110
GGX125	1500	620	275	457	595	500	385	110	110

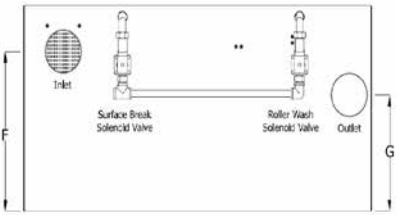
All dimensions in mm



Front view



Top view

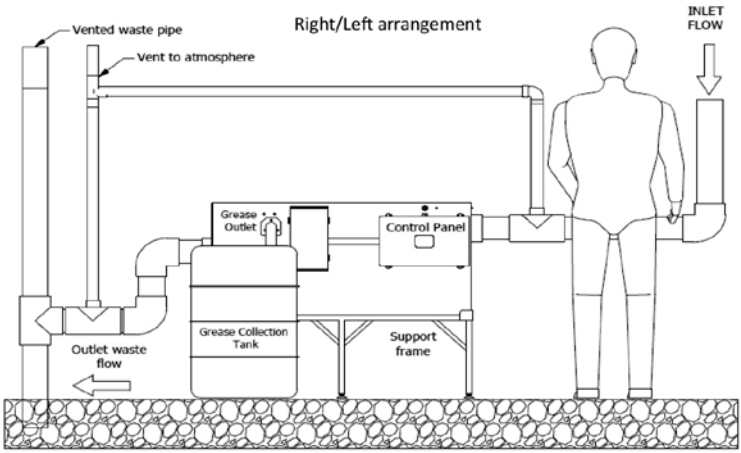


Rear view

ISW Model	GGX75	GGX125
Hydraulic Flow 1/sec	4.75	7.9
Grease Retention Capacity litres	80	138
Net system weight (kg)	95	117
System Weight full (in operation) kg	272	411
Electrical load (max)	4.8A	9.1A

Casing Material	16 Gauge for GGX75. 14 Guage for GGX125. AISI 304 Stainless Steel; Bright finish
Time Control	Progrmmable Logic Controller with programmable 4hr cycles and 7 day timer
Skimming	10 litres per hour
Solids transfer pump rate (flow/head max)	n/a
Hot wash water system operation requirements	Minimum 0.75 litres/s @ 3-6 bar (temp 40-60 degrees C)
Power supply	230V, 50Hz, 1 phase

INSTALLATION



Locate Internally

Do not install this system externally unless a weather proof shelter is used. Ensure the ambient temperature is maintained within a range of 10 to 35 degrees C (32 - 95 F). This is to ensure both electrical safety and to prevent cooling of skimmed grease on the grease outlet channel. Warranty is void unless these conditions are met.

Replacing an older grease trap?

It is imperative to clean drain lines of blockages from build up before installing this system, particularly when replacing older grease traps.

Unit Positioning

To plan a suitable position for the GGX first refer to "Product Dimensions and Specification" page in this manual to check available clearances. Position the unit as close as possible to the fixtures it is serving to minimize grease build-up in the piping. If the system is to be mounted on a frame ensure the additional height of frame is added to the standard table specification height.

If the unit's position is directly floor mounted, ensure that the floor is pre-lacquered and that the unit base is sealed to the floor around its perimeter by using an approved silicone sealant. Lacquering of the floor generally also ensure that any oils spills are easily cleaned later in the maintenance period. Consider installing floor gullies in the location to receive spillages.

Excluded Kitchen Fixtures

Do not connect the system to food grinders, potato peelers or waste disposal units. Such installations will void Grease Guardian's Warranty.

Inlet piping

Drain piping from the sinks/oven should be 2 inch Ø (50mm) minimum. Ensure that a fall of 1/3" inches per foot (1:40) is used and keep the inlet pipe as short as possible to avoid grease build-up before it reaches the unit. If the unit is serving more than one fixture ensure that the respective drain pipes and joined in a T-piece before they enter the unit piping. Install "P" or "U" Traps before inlet on sinks as normal. A Rubber Couplings with screw clasp are included.

Outlet piping

Keep the outlet piping as straight as possible, only use"sweep"connections and minimize the number of bends used. Do not reduce the size of the pipe used in the outlet, keep the outlet piping as short as possible and do not install any "P" or "U" traps (the units has an in-built internal gas trap). If the unit overflows during operation the problem normally lies with the size and layout of the outlet piping which is not fit to take the full flow freely.

Flow controller

If your plumbing code requires a vertical type flow regulator, and for high head height applications (over 6 ft, such as when installing units in basements) and to comply with certain requirements, a proper flow control device with air intake must be fitted on the inlet piping. Suitable air intake pipework should be routed to the top of this component and connected to a vented waste stack within the building. Note that if the Grease Guardian is serving multiple fixtures, some plumbing codes ask that each fixture is equipped with its own flow control device.

Flow Control X75: Endura XL 4044275A

Flow Control X125: not yet available

Inlet and Outlet piping connections

Rubber Couplings with screw clasps are included.

Automatic spray wash

Each Grease Guardian ISW unit comes complete with two automatic wash spray bars, located in the main grease collection chamber. A hot water supply is to be plumbed to the water inlet connection on the manifold at

the back of the unit. The hot water supply should preferably be filtered to avoid any particles from entering the solenoid valves provided. The plumber has to ensure that any plumbing of the tap water supply to the manifold conforms with the local plumbing codes in particular to the provision of any backflow prevention devices, assemblies and methods to be used.

Single Phase Connection

The power cord of the unit is to be hardwired directly to a dedicated mains outlet rated to handle electrical loads as described in the specifications table of this manual. Hardwired outlet must be fitted with a double pole switch. CAUTION: to provide continued protection against risk of electric shock, connect to properly grounded outlets only. All electrical work must be carried out by a qualified electrician.

Venting

For the inlet piping, a pipe vent (or code approved air admitance valve) which is at least 1/2 the inlet pipe diameter should be connected. An additional pipe vent (or code approved air admitance valve) which is at least 1/2 the outlet pipe diameter should be connected to the outlet pipe of the system and located as close as possible to the Grease Guardian outlet connection. It is always preferable to have vent pipes used for each Grease Guardian system connected to one common vent pipe and venting directly to atmosphere rather than combining these with other waste pipe vents. This method eliminates the possibility that odors from other other fixtures making their way back into the Grease Guardian unit.

Room ventilation

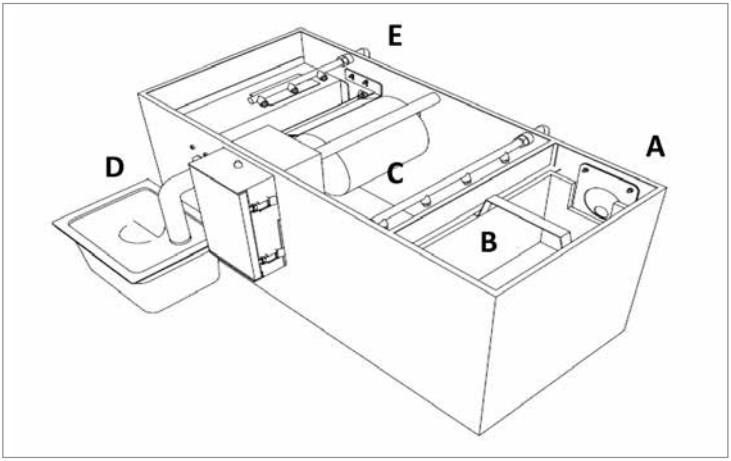
Odors will be minimised via the correct venting method above. However air extraction fan systems should be installed in more confined locations of less than $4m^3$. Such a system should also be installed in ANY location where personnel are working close to the System location.

Operating Temperature

Official room temperature range for safe electrical operation of this system as required under the appropriate UL standard is between 0 and 35 degrees C (32 - 95 F). However for optimal grease removal the room temperature should be maintained at 10 and 35 degrees (50 - 95 F). This will reduce the risk of grease solidifying on the skimming mechanisms.

All instructions and drawings provided in this booklet are for reference only. The unit provided is tobe installed in compliance with the local legislation, regulation and codes. Installation by a qualified plumber knowledgeable with the local plumbing code is necessary.

DESCRIPTION OF OPERATION



In normal operation, the unit will require minimal operator input. The system has a number of automaic functions as described below, with the main manual task being limited to the removal of the collected grease from the colletion tank.

A Flow from the kitchen enters the inlet side of the unit.

B Solids accumulate inside the manual strainer within the first compartment.

C Lighter free floating grease is allowed to pass through the strainer mesh and into the grease collection compartment.

D The grease that passes to the grease collection chamber is periodically skimmed out of the unit by a rotating skimming drum The skimmed grease passes to a receiving waste container.

E The first automatic spray bar activates for short bursts during the skimming cycle to aid movement of the grease towards the skimming drum. An additional automatic spray bar located nearer the skimming drum washes the skimming blade and collection channel after the skimming cycle has completed. Finally the clarified portion of water exits together via the final outlet at the rear of the unit.

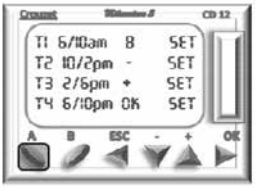
ENSURING OPTIMAL SYSTEM EFFICIENCY

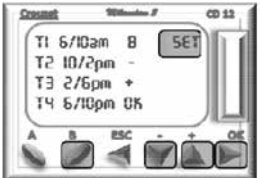
- The unit requires both weekly user maintenance and also Quarterly service by approved engineer to avoid performance issues.
- Do not use Hazardous detergents to clean unit, and do not pour detergents or chemicals directly into the unit.
- The unit is designed to trap and remove **free floating** grease oils and fats only.
- To help ensuring the highest grease removal efficiency, reduce solid food waste by installing primary strainers or scraping waste into bins
- The unit is provided with an automatic solids transfer system to provide protection from solid food waste build up in the unit when properly maintained.
- Consult your supplier in the event of increased loadings to the Grease Guardian.
- Do not connect food grinders, potato peelers and/or waste disposal units or similar devices upstream of the Grease Guardian.

CONTROLLER SETTINGS - SETTING MAIN CYCLE

HOME SCREEN/START SCREEN
The Home Screen is shown onLeft.
The following notifications are permanently displayed in the Home Screen.

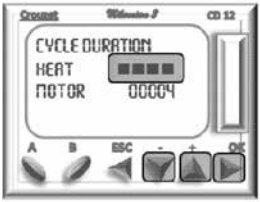
a. PLC program version on top leS
b. Time of Day on the top right.





CYCLE ON ZONES SCREEN
Press "A" from the Home screen. The 4 main ON zone periods are displayed (T-zones). Should an alternative menu appear then re-press "A" until the correct screen is called up.

Each zone is of a fixed 4 hour duration. To set any zone to active press the corresponding keys indicated: "B", "-" , "+", "OK". The word "SET" displays for any active zone. To deactivate a zone simply re-press the corresponding key.



CYCLE DURATION SCREEN
Pressing "A" again will call up the "CYCLE DURATION" display. This display sets separate ON time durations for the heater and skim motor components within any T1-T4 zone. A single value comprises of 15 minutes time duration, 10 minutes ON/5minutes pause. Note that the "Heater" values must be >= "motor" values or the controller will display the "INVALID PROGRAM" Alert. (see User Alerts page)

To adjust the value displayed use "-" or "+" to navigate to the HEAT value. Then press "OK" to lock on to the value. Next use "-" or "+" to increase or decrease the value. Confirm the setting by pressing "OK" again. Next move the cursor using "-" or "+" to the Motor Step value and repeat the setting procedure, confirming setting with "OK"

ADVANCED SKIMMER DURATION SCREEN

(keep as factory default in most applications)

Pressing "A" again will next call up the "SKIM DURATION" display. This display further optimises the ON/OFF duration for the skim motor component. The default is 600 secs ON (10 mins) and 300 seconds OFF (5 mins). To adjust: use keys "-" or "+" to navigate to the ON value. Then press "OK" to lock on to the value. Next use "-" or "+" again to increase or decrease the value.

BLOWER SETTING SCREEN

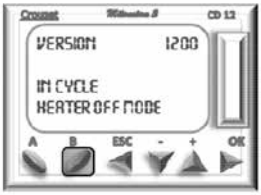
Pressing "A" again will call up the"BLOWER SETTINGS" display. For systems fitted with a blower system, this display sets time limits for air flow to the submerged aeration bar. To adjust: use keys "-" or "+" to navigate to the ON value. Then press "OK" to lock on to the value. Next use "-" or "+" again to increase or decrease the value. Confirm the setting by pressing "OK" again. Next move the cursor using "-" or "+" to the OFF value and repeat the setting procedure, confirming settings with "OK".

SURFACE WASH SETTING SCREEN

Pressing "A" again will call up the "SURFACE WASH SETTINGS" display. Surface wash is a standard feature in all ISW and AST units required to separate floating sediment form surface grease. The display sets time limits for water flowing to the spray bar. To adjust: use keys "-" or "+" to navigate to the ON value. Then press "OK" to lock on to the value. Next use "-" or "+" again to increase or decrease the value. Confirm the setting by pressing "OK" again. Next move the cursor using "-" or"+" to the OFF value and repeat the setting procedure, confirming settings with "OK".

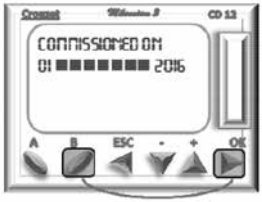
DRUM WASH SETTING SCREEN

Pressing "A" again will call up the "DRUM WASH SETTINGS" display. This is a standard feature in all ISW and AST units. This feature cleans the skim drum of any debris and is automatically activated x 1 time only, at the end of an active T zone. The display controls the duration of water flow to the spray bar. To adjust: press "OK" to lock on to the duration value. Next use "-" or "+" again to increase or decrease the seconds value. Confirm the setting by pressing "OK" again.



HEATER OFF MODE

In locations where water temperature from drainage appliances is sufficiently hot there is less of a requirement to use the Grease Guardian heater. To preserve the heater element and reduce energy costs, the heater can be disengaged. This is achieved by pressing and holding key "B" for 10 seconds when in the Home screen. The heater is shut off for any future cycles. This setting is maintained even after a PLC power down/restart. To reengage the heater at any time re-press and hold "B" for for 10 seconds when in the Home screen.

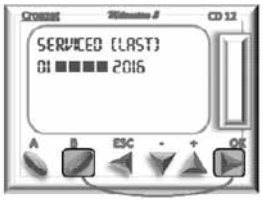


COMMISSIONED ON (DATE) SCREEN

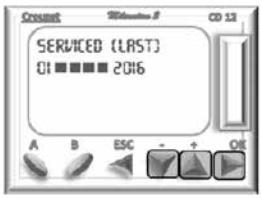
Press "OK" and "B" together from the Home screen. The COMMISSIONED ON display should show. If an alternative menu shows, then re-press key "B" only until the screen left is called up.

The "COMMISSIONED ON" display simply logs the commissioning date for the Grease Guardian for general reference. To set this at commissioning, use "-" or "+" to navigate to the day, month, or year value as required. Then press "OK" to lock on to the value. Next use "-" or "+" again to increase or decrease the value. Confirm the setting by pressing "OK" again in each case, before moving to the next value. Confirm se;ngs with "OK" before returning to Home Screen by pressing "ESC"

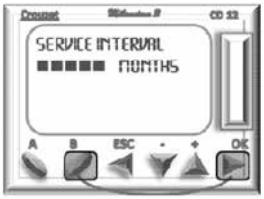
CONTROLLER SETTINGS - EVENT LOGGING



LAST SERVICED ON (DATE) SCREEN
Press "OK" and "B" together from the Home screen. Re-press key "B" only until the screen left is called up.



The "SERVICED LAST" display simply logs the last service of the Grease Guardian for future reference. To adjust, use "-" or "+" to navigate to the day, month, or year value as required. Then press "OK" to lock on to the value. Next use "-" or "+" again to increase or decrease the value. Confirm the setting by pressing "OK" again in each case, before moving to the next value. Confirm settings with "OK" before returning to Home Screen by pressing "ESC"

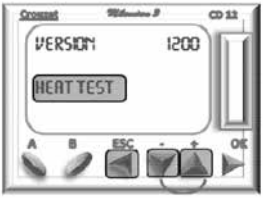


SERVICE INTERVAL REMINDER SCREEN
The "SERVICE INTERVAL" display is a control menu that sets the interval in months for the "service due" reminder. For full safety compliance the recommended setting is 3 months

To access press "OK" and "B" together from the Home screen. Re-press key "B" only until the screen left is called up.

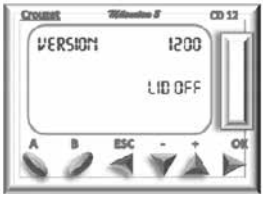
All settings above are battery backed up in event of disconnection or a power outage

CONTROLLER SETTINGS - USER ALERTS

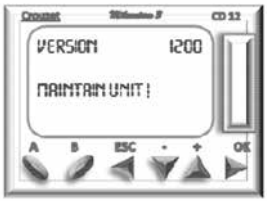


AUTOMATIC TEST OF COMPONENTS
On power up, the controller will run the automatic TEST sequence and the Home screen displays each component in sequence for an "ON" duration of 4 seconds. **FOR ISW** series units, the TEST sequence is: **HEAT TEST > SKIMMER TEST > SURFACE WASH > DRUM WASH > SCREEN WASH > BLOWER > END.**

Later the TEST can be reactivated by pressing "-" or "+" together. Any TEST can be cancelled mid-test by pressing "ESC". Note that the internal pump is not tested via this controller, but via a separate panel mounted TEST button

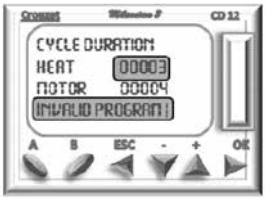


LID OFF ALERT
The display flashes a LID OFF alert if the main Grease Guardian tank lid is removed. Additionally if the unit is in a cycle, the heater and motor components are shut down to allow safe access inside the tank if required.



PIR REMOTE SENSOR (Where Supplied)

ISW and AST series units.
This device registers inactivity near the unit exceeds 7 days. It then flashes a maintenance reminder. The feature is also linked to the BMS output on the controller. The message is re-set for a further 7 days when activity is detected again. Note this sensor version does not interrupt any cycle operations and is for information only.



INVALID PROGRAM ALERT

This message will flash within the Cycle Duration Menu if there is an attempt to set the skim motor values to greater than the heater values. Any cycle is prevented as a result, as there is a risk of insufficient grease liquefaction in the pre-warming period and also an increase chance of water being skimmed. To correct this issue the Heater value must be set either to the same value as the motor or higher value. The values are normally advised by your representative at commissioning.

IN CYCLE ALERT

This message flashes at all stages of an active heater/motor cycle including the pause periods within a cycle. The message terminates after any skimming cycle completes

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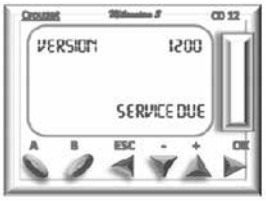
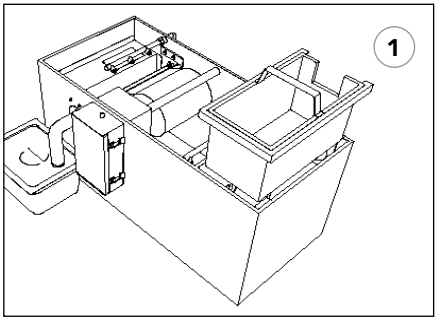


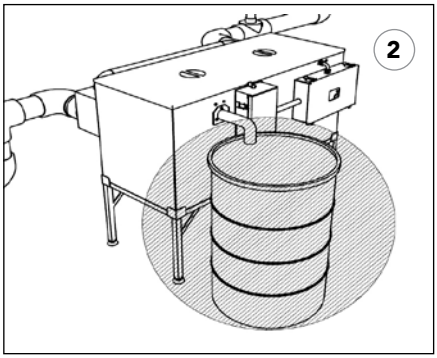
SERVICE DUE ALERT

If a general service visit is not carried out on the date due this message will flash to indicate that a service is required. While the unit's operation is unaffected this alert it does require cancellation after the service. This is done usually by an engineer. If the unit has been recently serviced and the message still shows, it can be cancelled by entering the "SERVICE INTERVAL" display from Home screen, ("OK" & "B" then find menu using "B") Press and hold the "A" key for 5 seconds to cancel, before pressing ESC to return to thr home screen

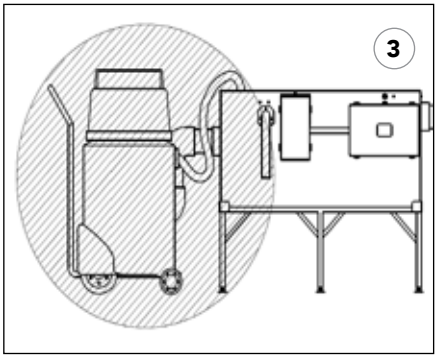
MAINTENANCE MAIN TASKS



DAILY
Check and remove the solids strainer and dispose of contents to food waste bin



WEEKLY
Remove the grease from the grease cotainer (or barrel if supplied) and dispose of in correct manner accordance with local oil waste codes



Outsourced Servicing
Quarterly Inspec"on and Pump Out carried out by a licensed waste collection company with prior training on the GGX product. Also the unit timer control and components are to be inspected and tested during each service visit. Any wear and tear parts are to be replaced if necessary.

SEE OVERLEAF FOR FULL OVERVIEW OF CHECKS

MAINTENANCE IN DETAIL

1. In House Maintenance Of Your System

Minimal Maintenance

- Check the Internal Solids Strainer daily. Remove and dispose of contents to foodwaste bin.
- Check the grease collection vessel daily - standard container, or weekly if supplied with barrel tomonitor remaining capacity. This should be carried out particularly in early stages of system use.
- Check that there are no obstructions on the grease channel and exit hose **weekly.**

Additional spot checks in cases of under-performance/low skimming:

- Check that the spray wash cycles in the skimming chamber activate regularly and that the bar nozzles are not obstructed
- Perform a PLC program test to confirm that all the components are func3oning properly. This can be carried out by switching off at mains and repowering up. The test starts automatically on power up. (All settings battery backed up)

2. OUTSOURCED SERVICING QUARTERLY (90 DAYS.)

Quarterly Inspection and Pump Out

To guarantee maximum efficiency the unit should be inspected mechanically and pumped out quarterly throughout the year. This is to be carried out by a **licensed waste collection company with prior training on the GGX product.** During such a service the main lid is removed and the internal chamber walls are power/ steam cleaned. To allow transfer of water from the grease chamber to the pump chamber a flap needs to be opened by pulling the divider vertically upwards. Both chambers are then pumped out completely with a wet vacuum. The unit is refilled using the water flow from the sink. The unit timer control and components are to be inspected and tested during each service visit. Any wear and tear parts are to be replaced if necessary.

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.

Is wiper blade and wiper slot clean?
Open the main lid and clean any build-up present on the wiper blade assembly. Ensure the wiper blade is bolted in place and makes proper contact with skimming drum. Ensure that the automatic wash cycle of the wiper blade is functioning by simulating it's operation through the Test mode of the controller.

Check the cycle status
First check that "IN CYCLE" is displayed at the start of a cycle. Later in the cycle the skimming motor should be audible. Should there be no skimmed grease emerging during the cycle a further test can be conducted 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 motor is running during the TEST mode.

Inadequate Heating?
If the drum is turning but grease is not being removed it may not be dissolving or separating out. If the grease appears hard or crusted, the GGX heater may require inspection or replacement as the grease may not be dissolving. The unit might require emptying and cleaning from sludge.

Emulsified/starchy foods, or soaping problems in the waste flow?
If the surface grease layer is liquid or foam-like in appearance and grease is still not skimming out then it may contain high volumes of dairy waste such as mayonnaise, or starchy waste from rice or pasta. Ensure to reduce volumes of this waste entering the GGX unit. Ensure that the automatic rinse system is being activated. Also ensure to reduce the use of aggressive detergents and do not dispose any bleaching agents into the unit. Only neutral hand washable detergents should be used atthe sink. Heavy oven cleaning agents can adversely affect performance if ovens are connected to GGX.

Check the main Lid and Lid-switch
The unit will not operate with the lid removed. This is a safety feature. With the exception of some maintenance tasks the lid must be fastened in place correctly at all times so that the switch is making contact at all times. If this is not the case then the controller display will blink a LID OFF message.

If the message continues to show but the lid seems secure then there may be a fault with the lid switch or magnet.

PROBLEM: Standing water inside the grease collection container

Check Timer Settings
The unit will skim off water if there is little or no grease left in the main tank. Excessive water will typically settle below the grease layer in the collector. Check the timer settings for excessive ON times. The ON time should be scaled back to reduce water being skimmed into the collector.

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

Is either the outlet or the follow on pipework blocked?
In rare cases an obstructed exit from the unit may lead to level rises in the main tank which can spill into the grease collector suddenly and in turn onto the floor, if left unchecked. Ensure that there are no drain line blockages downstream from the unit. Ensure the unit is pumped out at least once quarterly so that sludge does not obstruct the passageways within the main tank.

Ensure the outlet pipe-work from the Grease Guardian is at a gravity fall of 1:40 minimum. Any restrictions in the outlet pipe due to a number of bends and T-pieces before it reaches the outlet end should be reduced. Ensure the outlet pipes from the unit are not smaller than the outlet pipe connection on the unit. Larger pipe sizes are more effective in prevent flow restrictions or obstructions.

Is the system flow rate properly matched against all fixtures connected?
Ensure that the water flow to the unit does not exceed its rated flow in gallons per minute.

Is the oil container filling with too much water?
Water entering the grease container could also result from a long wash cycle of the skimming drum. Reduce the time to minimise water flowing from this area to the container. With a hot water supply, the wash duration should be set at 4 seconds. Also ensure the oil container is emptied at the required frequency. The container needs to be checked at least once weekly for AST systems.

PROBLEM: Sink flow rate is suddenly reduced

Check for blockages in the inlet gasket located on the inlet side of the unit
Solids might accumulate on the inlet gasket of the system and require cleaning by accessing the inlet gasket from inside the pump compartment of the unit.

PROBLEM: Odor reported

Has maintenance been carried out?
Ensure the daily strainer maintenance is carried out. Ensure the tri-monthly pump out (every 90 days) is carried out so that any standing sludge is removed. Also seek to prevent any non-skimmable waste from entering the unit as already advised earlier.

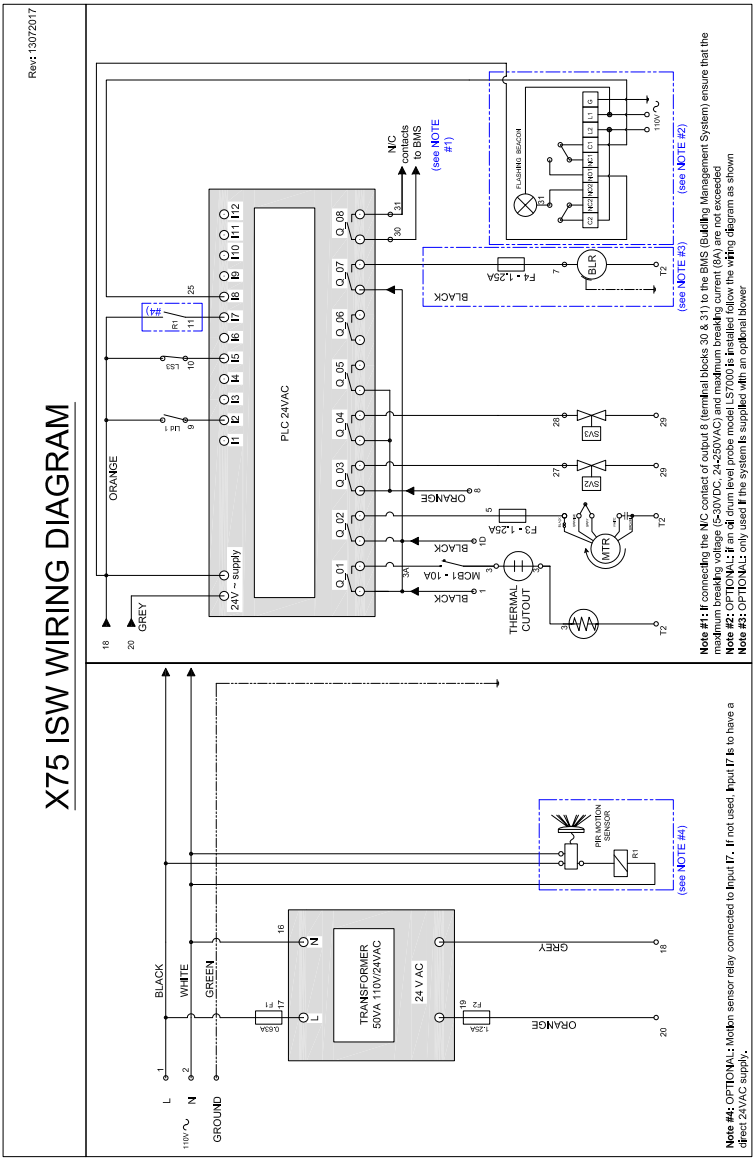
With grease removal devices it is always advisable to use best management practices to minimise solid food waste entering the unit, by for example plate scraping food to bins rather than washing this waste down the sink.

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 weekly to reduce stagnant water.

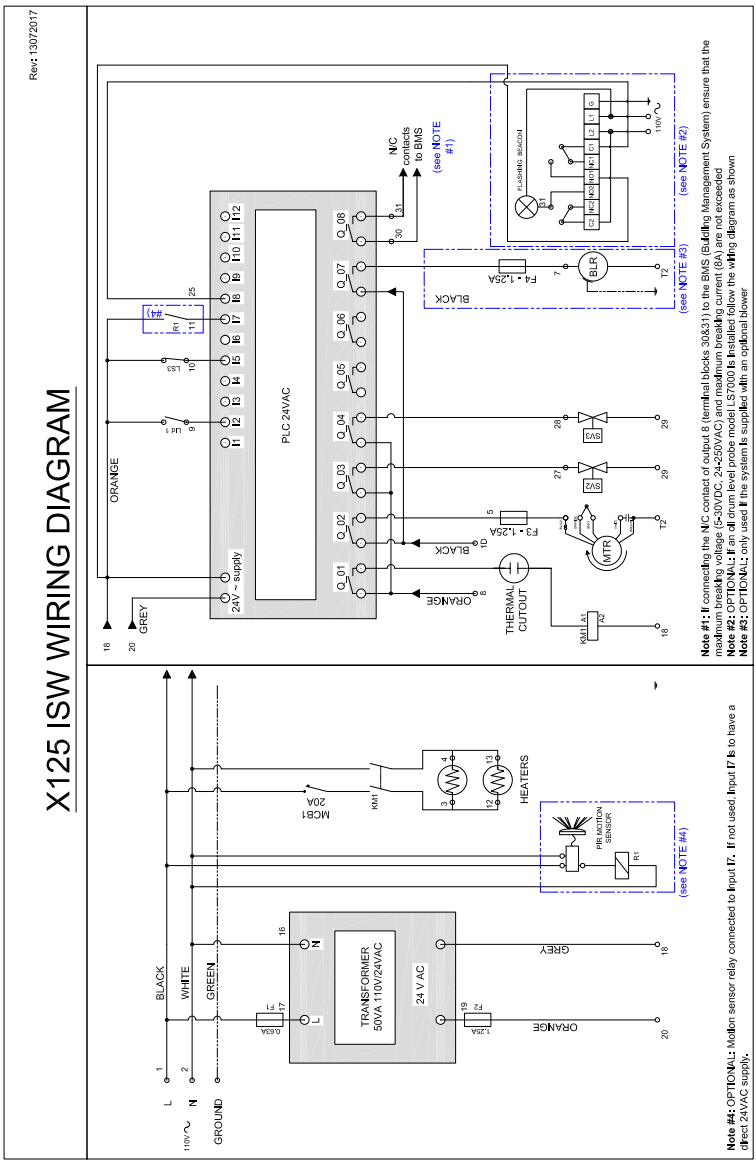
Venting
Ensure that the outlet of the unit is properly vented, so any odors are exhausted away. On rare occasions, if the vent pipe is directly connected to the sewer stack, odor from the sewer stack might return to the unit. Investigate if the odors are external to the unit.

WIRING DIAGRAMS ISW RANGE

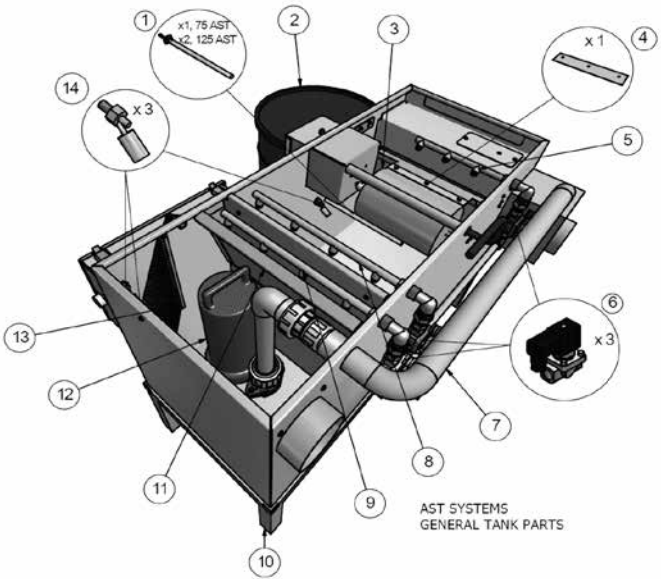
All systems are supplied with a UL approved power cord which must be connected to a double pole isolation switch. Mains supply should have a dedicated ground fault circuit breaker/interrupter (GFCI).



All electrical wiring connections must be performed by a qualified electrician and the local electrical standards for connecting up the system are to be followed at all times. Ensure that the system is filled with water prior initial power up by your market representative.

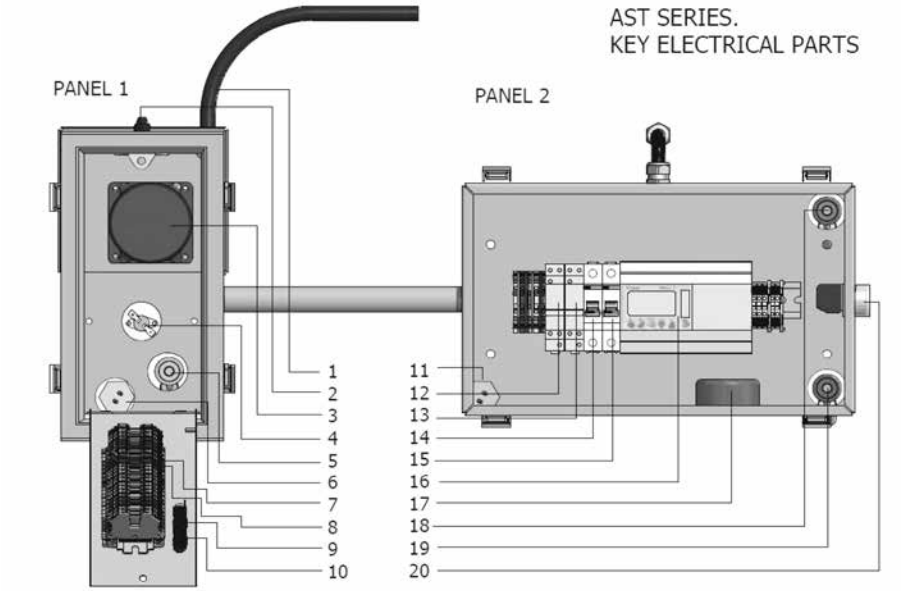


COMPONENTS -TANK MOUNTED PARTS



No.	Item	75 ISW	125 ISW
1	600W Heater. GGH110V/600W - 1000 W Heater. GGH240V/1000W	**x1**	**x2**
2	Oil Container 55gal. On Request (O.R)	O.R	O.R
3	Skimming Drum c/w coupling & axle GGXASTDR	**x1**	**x1**
4	Wiper Blade. GGX50-75 ISW/ASTWBPE	**x1**	**x1**
5	Wiper spray Bar complete GGSB3NZ	**x1**	**x1**
6	24 VAC Solenoid Valves. GGSV1/2	**x2**	**x2**
7	Solids transfer pipe. Not supplied as spare part	n/a	n/a
8	Surface Wash Spray bar.	**x1**	**x1**
9	Mesh screen Spray bar.	n/a	n/a
10	Optional Support frame. 300mm high x75=GGX75STAND. X125=GGX125STAND	O.R	O.R
11	Solids Mesh Screen. Code	n/a	n/a
12	AST Pump	n/a	n/a
13	Level Sensor Guard. Not supplied as spare part.		
14	Level Sensor. GGDFLSW	**x1**	**x1**

COMPONENTS -CONTROL PANELS PARTS



No.	Item and Part Code	75 ISW	125 ISW
1	Mains Cable GGDCBL3C1.5	x1	x1
2	Lid Switch & boot GGXJS & GGXJSR	x1	x1
3	Motor GGDM110V GGDM 240V/ Gearbox GGXGB	x1	x1
4	Thermal cut out. GGBIM45	x1	x1
5	Level Sensor (Heater).GGDFLSW	x1	x1
6	Heater 1.600WGGH110/600W Heater 1.1000WGGH240/1000W	x1	x1
7	Fuse 1.25 (for motor) GGF1A EURO	x1	x1
8	Fuse 1.25A, blower. GGF1A EURO (only for system upgrades)	x1	x1
9	Fuse 1.25 A & Fuse Holder Level Sensors, Lid Switch & Pushbutton. GGF1A & GGFS	x1	x1
10	Fuse 630mA & Fuse Holder, Transformer Input	x1	x1

No.	Item and Part Code	75 ISW	125 ISW
11	Heater 2.600WGGH110/600W Heater 2.1000WGGH240/1000W	n/a	x1
12	Contactor KM, Heaters. GGMODCON	n/a	x1
13	Contactor KM, Pump. GGMODCON	n/a	n/a
14	MCB 1 Heaters.GGMCB20A	n/a	x1
15	MCB 2 Pump.GGMCB10A	n/a	n/a
16	24 VAC PLC. GGPLCM3CD20	x1	x1
17	Solenoids Transformer GGTRN50VA	x1	x1
18	High Level Sensor (pump)	n/a	n/a
19	Low Level Sensor position (pump)	n/a	n/a
20	Push button pump & clear cover	n/a	n/a

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 tri-monthly (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 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 eletrical 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 - PERFORATION WARRANTY ON 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 on the box:

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

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. Detergents are not to be poured directly into the tank.

Venting not provided on the 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, 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

Grease Guardian®

X Range

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