

# INSTALLATION & OPERATING MANUAL

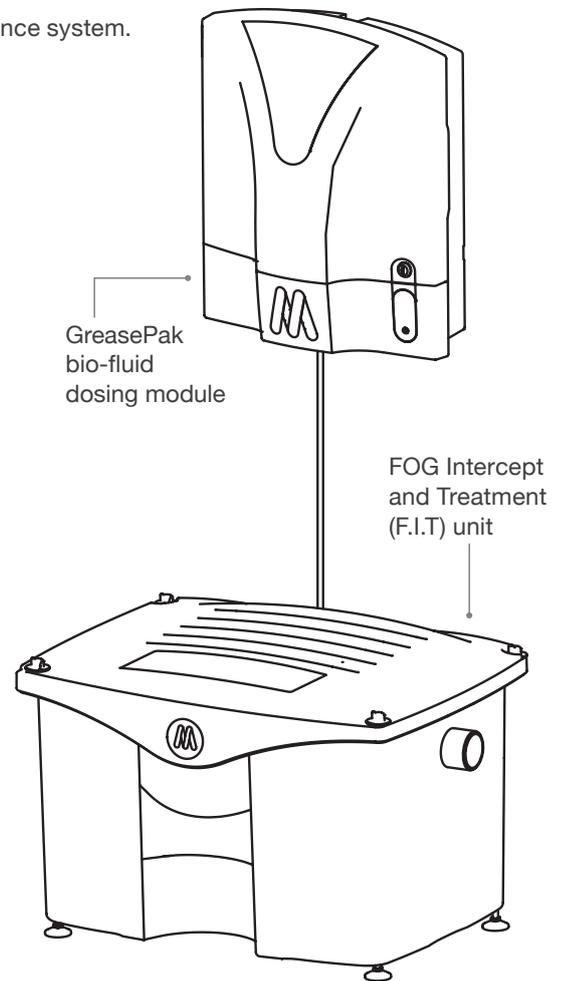
# BIOCEPTOR

manufactured by **MECHLINE**

Thank you for purchasing Mechline's BioCeptor biological drain maintenance system.

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## Chapter 1. INTRODUCTION

The Mechline BioCeptor is a combined system designed to retain and breakdown Fats, Oils and Grease (FOGs) to prevent them from entering the drainage system.

The BioCeptor FOG Intercept and Treatment (F.I.T) unit works in conjunction with the GreasePak bio-fluid dosing module, which doses highly effective microorganisms into the F.I.T unit once a day. The GreasePak bio-fluid formula breaks down the FOGs into irreversible compounds that can easily pass through drainage and, most importantly, do not reform down the line (more on how the bio-fluid works in Section 6.2.2).

The F.I.T unit will need to be maintained and cleaned professionally periodically, so that any organic loads can be removed, but the frequency of servicing is greatly reduced as long as the dosing module is properly and correctly maintained. It is also highly recommended that a food waste strainer is installed upstream of the BioCeptor to minimise the amount of food waste particles entering the F.I.T unit.



The GreasePak bio-fluid dosing module is the only product of its kind in the UK to be **approved by the British Board of Agrément (BBA)** as a recognised form of effective grease removal.



ASME A112.14.3 / PDI G101

The BioCeptor system is Certified **ASME A112.14.3** and the F.I.T unit is additionally Certified **PDI G-101**.

LEAVE THIS MANUAL WITH THE OPERATOR AFTER INSTALLATION

Chapter 2. RATINGS and SPECIFICATIONS

	<b>GreasePak Dosing Module</b>	<b>BioCeptor F.I.T Unit</b>
<b>Region</b>	UK/EU/US	UK/EU/US
<b>2.1 BATTERY SPECIFICATIONS</b>		
	Mechline's <b>GreasePak Dosing Module</b> is powered by a specialised (non-standard) battery pack.	
<b>Type</b>	Non-rechargeable, Alkaline	N/A
<b>Voltage</b>	6 V	N/A
<b>2.2 ELECTRICAL SPECIFICATIONS</b>		
<b>Voltage</b>	N/A	N/A
<b>Frequency</b>	N/A	N/A
<b>Input supply requirements</b>	N/A	N/A
<b>Cordset</b>	N/A	N/A
<b>Input protection</b>	N/A	N/A
<b>2.3 DIMENSIONS &amp; WEIGHTS</b>		
<b>Dimensions</b>	Length (side to side): 410mm / 16 <sup>9</sup> / <sub>64</sub> inches  Depth (back to front): 186mm / 7 <sup>21</sup> / <sub>64</sub> inches  Height (not including dosing tube): 499mm / 19 <sup>5</sup> / <sub>8</sub> inches	Length (side to side): 678mm / 26 <sup>11</sup> / <sub>16</sub> inches  Depth (back to front): 483mm / 19 inches  Height: 428mm / 16 <sup>7</sup> / <sub>8</sub> inches
<b>Weight</b>	Without fluid box fitted: 3.4 Kg / 7.5lbs  With fluid box fitted: 8.9 Kg / 19.6lbs	Empty: 7.5 Kg / 16.5lbs  Full: 60 Kg / 132.3lbs
<b>2.4 PRODUCT CONFORMITY</b>		
Mechline's BioCeptor system conforms to the essential safety requirements of the Low Voltage Directive (LVD) 2014/35/EU, and Electromagnetic Compatibility Directive (EMC) 2014/30/EU and is manufactured in accordance with the harmonised standards EN 61000-6-3 Generic Emissions and EN 6100-6-1 Generic Immunity.		

## Chapter 3. PRODUCT SAFETY

BIO-FLUID MSGD5 - SAFETY DATA SHEET Prepared in accordance with Commission Regulation (EU) No 2015/830

### 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

- 1.1 Product identifier**  
**Product name:** GreasePak MSGD5 (Part No.: GP-MSGD5)
- 1.2 Relevant identified uses of the substance or mixture and uses advised against**  
**Use of substance / mixture:** Highly specialised biological preparation for odour control and breaking down organic matter in waste systems.
- 1.3 Distributor details:** Mechline Developments Ltd, ONE Brudenell Drive, Brinklow, Milton Keynes, England MK10 0DE T: +44 (0)1908 261 511 F: +44 (0)1908 261 522 E: info@mechline.com
- 1.4 Emergency telephone:** T: +44 (0) 1908 261 511 (9am-5:30pm GMT)

### 2. HAZARDS IDENTIFICATION

- 2.1 Classification of the substance or mixture**  
**Classification under CLP:** This product has no classification under CLP.
- 2.2 Label Elements**  
**Precautionary statements:**  
P264: Wash hands thoroughly after handling.  
P402+404: Store in a dry place. Store in a closed container.
- 2.3 Other hazards**  
**PBT:** This product is not identified as a PBT/vPvB substance.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

- 3.1 Mixtures**  
**Hazardous ingredients:** PROPAN-2-OL

EINECS	CAS	PBT / WEL	CLP Classification	Percent
200-661-7	67-63-0	-	Flam. Liq. 2: H225; Eye Irrit. 2: H319; STOT SE 3: H336	1-5%

### 4. FIRST AID MEASURES

- 4.1 Description of first aid measures**  
**Skin contact:** Wash immediately with plenty of soap and water.  
**Eye contact:** Bathe eye with running water for 15-mins.  
**Ingestion:** Wash out mouth with water.  
**Inhalation:** Remove victim to fresh air and seek medical attention if symptoms occur.
- 4.2 Most important symptoms and effects, both acute and delayed**  
**Skin contact:** There may be mild irritation at the site of contact.  
**Eye contact:** There may be irritation and redness.  
**Ingestion:** There may be irritation of the throat.  
**Inhalation:** No symptoms.
- 4.3 Indication of any immediate medical attention and special treatment needed:** Not applicable.

### 5. FIRE FIGHTING MEASURES

- 5.1 Extinguishing media:** Suitable extinguishing media for the surrounding fire should be used. Use water spray to cool containers.
- 5.2 Special hazards arising from the substance or mixture**  
**Exposure hazards:** Not applicable.
- 5.3 Advice for fire-fighters:** Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

### 6. ACCIDENTAL RELEASE MEASURES

- 6.1 Personal precautions, protective equipment and emergency procedures:** Refer to section 8 for personal protection details.
- 6.2 Environmental precautions:** No special environmental concerns.
- 6.3 Methods and materials for containment and cleaning up**  
**Clean-up procedures:** Absorb into dry earth or sand. Transfer to a closable, labelled salvage container for disposal by an appropriate method.
- 6.4 Reference to other sections:** Refer to section 8.

### 7. HANDLING AND STORAGE

- 7.1 Precautions for safe handling:** Not applicable.
- 7.2 Conditions for safe storage, including any incompatibilities:** Store in a cool, well ventilated area. Keep container tightly closed.
- 7.3 Specific end use(s):** No data available.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- 8.1 Control parameters**  
**Hazardous ingredients:** PROPAN-2-OL  
**Workplace exposure limits:** **Respirable dust:**
- | State | 8 hour TWA | 15 min. STEL | 8 hour TWA | 15 min. STEL |
|-------|------------|--------------|------------|--------------|
| UK    | 999 mg/m3  | 1250 mg/m3   | -          | -            |
- DNEL/PNEC Values:** No data available.
- 8.2 Exposure controls**  
**Engineering measures:** Not applicable.  
**Respiratory protection:** Respiratory protection not required.  
**Hand protection:** Not required.  
**Eye protection:** Not required.  
**Skin protection:** Not required.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

- 9.1 Information on basic physical and chemical properties**  
**State:** Liquid  
**Colour:** Dark Green  
**Odour:** Slight fermentation odour  
**Evaporation rate:** No data available.  
**Oxidising:** No data available.  
**Solubility in water:** Soluble  
**Viscosity:** No data available.  
**Boiling point/range°C:** >100  
**Flammability limits %: lower:** No data available.  
**Flash point°C:** No data available.  
**Autoflammability°C:** No data available.  
**Relative density:** 1.02 g/cm3.  
**VOC g/l:** No data available.  
**Melting point/range°C:** >0  
**upper:** No data available.  
**Part.coeff. n-octanol/water:** No data available.  
**Vapour pressure:** No data available.  
**pH:** 4-5
- 9.2 Other information:** No data available.

### 10. STABILITY AND REACTIVITY

- 10.1 Reactivity:** Stable under recommended transport or storage conditions.
- 10.2 Chemical stability:** Stable under normal conditions.
- 10.3 Possibility of hazardous reactions:** Hazardous reactions will not occur under normal transport or storage conditions. Decomposition may occur on exposure to conditions or materials listed below.
- 10.4 Conditions to avoid:** Heat.
- 10.5 Incompatible materials to avoid:** Strong oxidising agents. Strong acids.
- 10.6 Hazardous decomposition products:** No data available.

### 11. TOXICOLOGICAL

#### 11.1 Information on toxicological effects

**Hazardous ingredients:** PROPAN-2-OL

IVN	RAT	LD50	1088	mg/kg
ORL	MUS	LD50	3600	mg/kg
ORL	RAT	LD50	5045	mg/kg
SCU	MUS	LDLO	6	gm/kg

**Toxicity values:** No data available.

- 11.2 Symptoms / routes of exposure:** Refer to section 4.2.

### 12. ECOLOGICAL INFORMATION

- 12.1 Toxicity**  
**Ecotoxicity values:** No data available.
- 12.2 Persistence and degradability:** Biodegradable.
- 12.3 Bioaccumulative potential:** No bioaccumulation potential.
- 12.4 Mobility in soil:** Readily absorbed into soil.
- 12.5 Results of PBT and vPvB assessment**  
**PBT identification:** Product is not identified as a PBT/vPvB substance.
- 12.6 Other adverse effects:** Negligible ecotoxicity.

### 13. DISPOSAL CONSIDERATIONS

- 13.1 Waste treatment methods**  
**Disposal operations:** Small amounts of unwanted product may be flushed with water to sewer.  
**Disposal of packaging:** Dispose of as normal industrial waste.  
**NB:** The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

### 14. TRANSPORT INFORMATION

**Transport class:** Product does not require a classification for transport.

### 15. REGULATORY INFORMATION

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**  
**Specific regulations:** Not applicable.
- 15.2 Chemical safety assessment:** Not applicable.

### 16. OTHER INFORMATION

This safety data sheet is prepared in accordance with Commission Regulation (EU) No 2015/830.

\* indicates text in the SDS which has changed since the last revision.

**Compilation date:** 13/04/2017

**Revision No:** 2

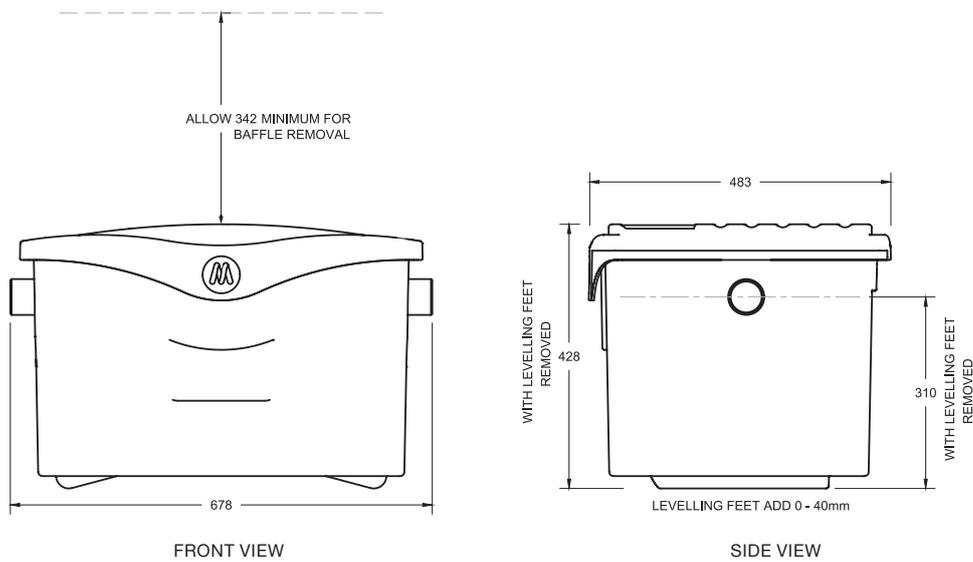
**Phrases used in s.2 and s.3:** H225: Highly flammable liquid and vapour.  
H319: Causes serious eye irritation.  
H336: May cause drowsiness or dizziness.

**Legal disclaimer:** The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.

Chapter 4. LOCATION ADVICE

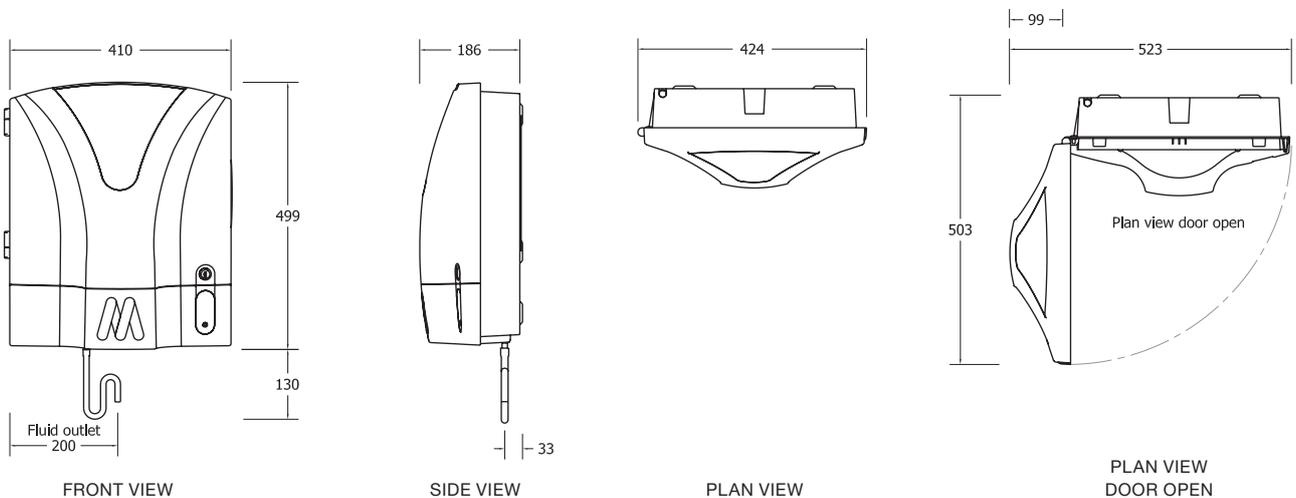
Failure to install the BioCeptor in accordance with these instructions could affect the performance of the product and could void the warranty.

- 4.1 The BioCeptor F.I.T unit is designed to be installed internally, on a level surface that is capable of accepting the F.I.T unit weight of approximately 60kg when full. The BioCeptor F.I.T unit can be installed in a lowered floor area or in an internal sump area, but space must be left to allow easy access and removal of the lid and internal baffles for cleaning. Ensure the F.I.T unit is located where it will not be subjected to damage from trolleys or other moving items.
- 4.2 The F.I.T unit is supplied with four adjustable levelling feet, which can help compensate for uneven floors and can help to create a flow fall through the F.I.T unit if required. The adjustable feet can be removed if required.
- 4.3 **FIGURE 1 - BioCeptor F.I.T Unit:**



- 4.4 Wall space must also be allowed for the GreasePak dosing module, which should be sited in a visible location above the F.I.T unit. The position of the dosing module should be at a sensible working height where it will be easy for the operator to change the bio-fluid box.

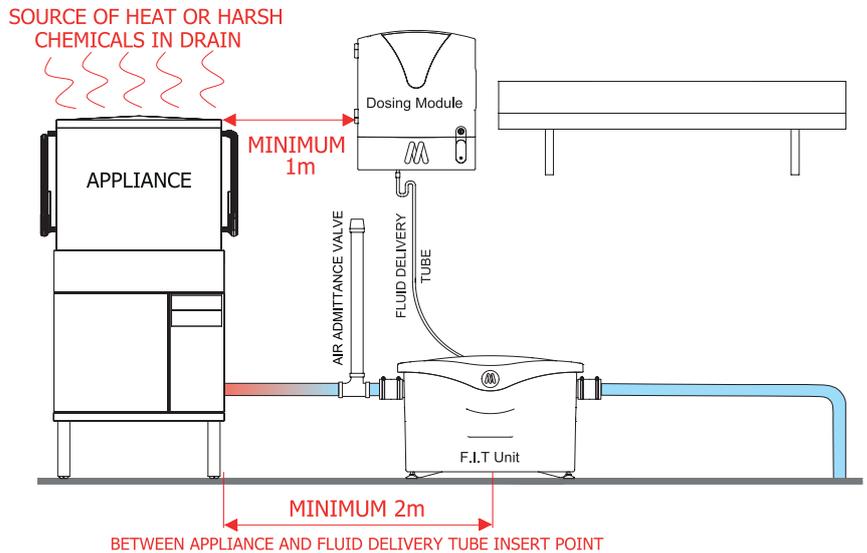
4.5 **FIGURE 2 - GreasePak Dosing Module:**



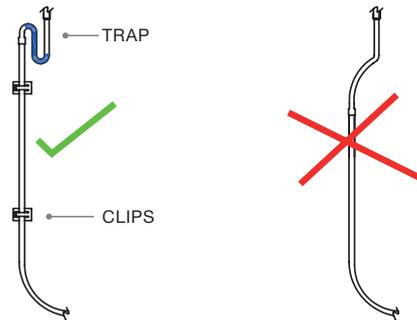
**Note:** Dimensions are in mm unless otherwise stated.

4.6 Install the GreasePak dosing module above the F.I.T unit. Between 1200-1500mm (4-5 feet) AFFL is recommended.

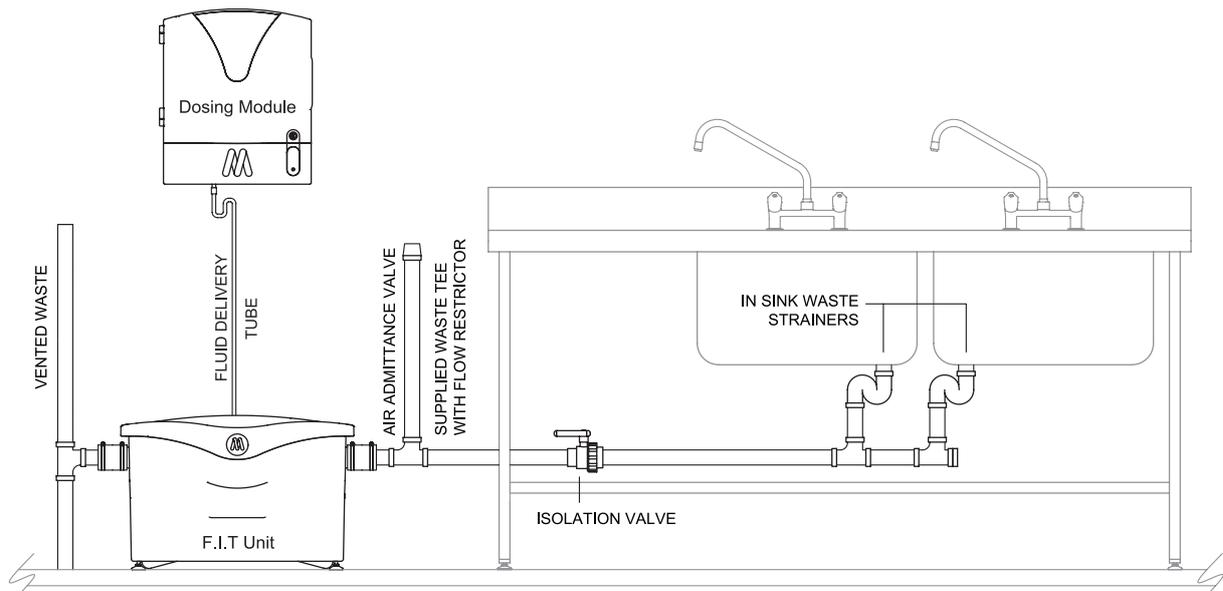
4.7 The dosing MODULE should be a minimum of 1 metre (3.25 ft) and the dosing POINT the rear of the F.I.T unit a minimum of 2 metres (6.5 ft) away from sources of excessive heat or harsh chemicals in the drain such as dishwashers, combination ovens or waste disposal units. If installed downstream from a water softener, ensure softener regeneration occurs prior to the module dosing time each night.



4.8 Be sure that the delivery tube trap is properly supported and not stretched. The tube should be a smooth run and clipped in place.



**4.9 INSTALLATION EXAMPLE:**



4.10 Some sites may be classed as HIGH FOG PRODUCING. For these sites it may be a recommendation that two BioCeptors are installed. See Chapter 7 for more information.

4.11 Appliances feeding into the F.I.T unit should be separately trapped in accordance with local authority requirements.

Chapter 5. INSTALLATION INSTRUCTIONS



Refer to Chapter 4 of this manual, relating to LOCATION ADVICE

5.1 INSTALLATION REQUIREMENTS

Mechline's BioCeptor biological drain maintenance system works by regularly dosing highly active bio-fluid into the F.I.T unit, it is not a drain unblocking system. Existing drains must be cleaned and pressure washed prior to installation. Failure to do this could result in dislodged fat and grease blocking the drains further downstream.

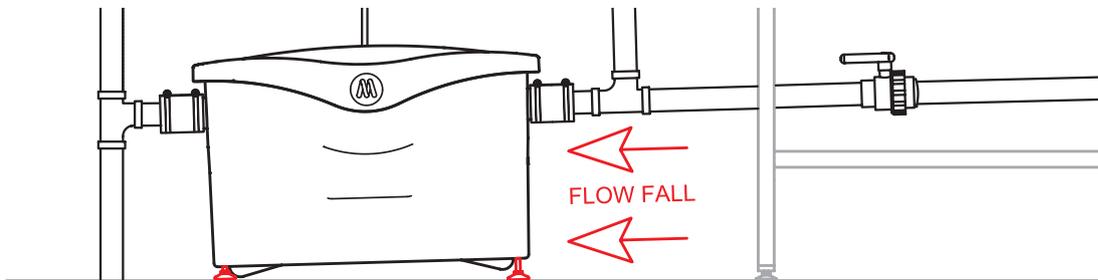
Installation must be carried out in accordance with local authority and water company requirements.

Some water companies / sewer management providers would advise that dishwashers are NOT connected to FOG trapping devices. However the BioCeptor is designed to accept the discharge from dishwashers if required. Food Waste Disposers (FWDs) should NOT be connected. See Chapter 7 for further advise.

5.2 INSTALLATION STEPS

5.2.1 Use the levelling feet to ensure the F.I.T unit is level before connecting any pipework.

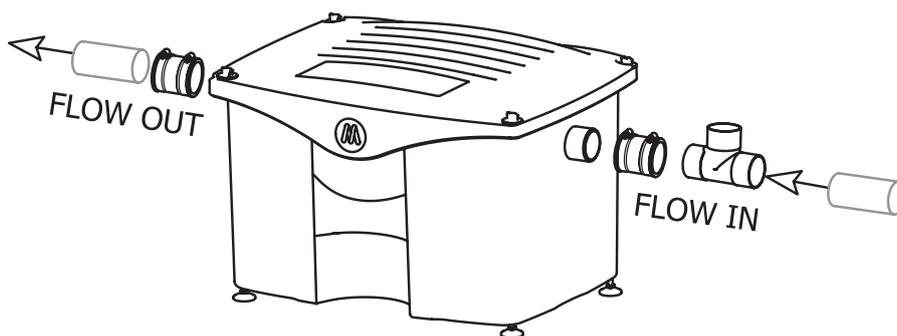
5.2.2 The feet can be used to create a flow fall in the drain fall direction if this required.



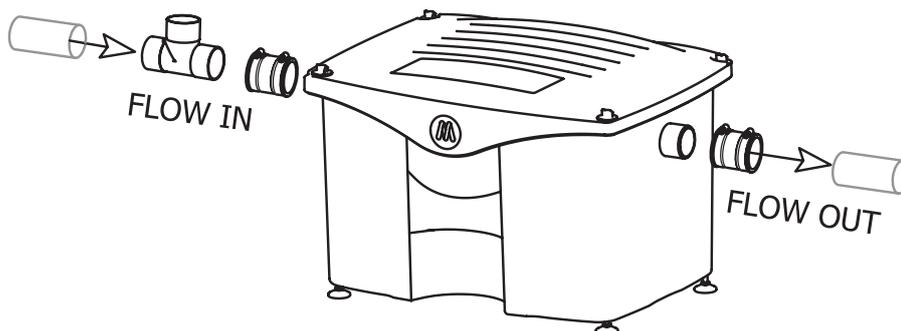
5.2.3 The BioCeptor should be installed as close to the FOG-producing fixtures as possible. This is to reduce the length of unprotected pipework between the fixture and the F.I.T unit. Waste water pipework should be securely clipped in place into and out of the trap and should be sloped at a minimum of 6mm per 300mm pipe length to maintain flow. The BioCeptor can be installed with flow in either direction (see fig. 3 and 4 below).

5.2.4 Use the rubber connectors supplied to connect to the inlet and outlet ports - 40mm dia. (1 1/2 inch).

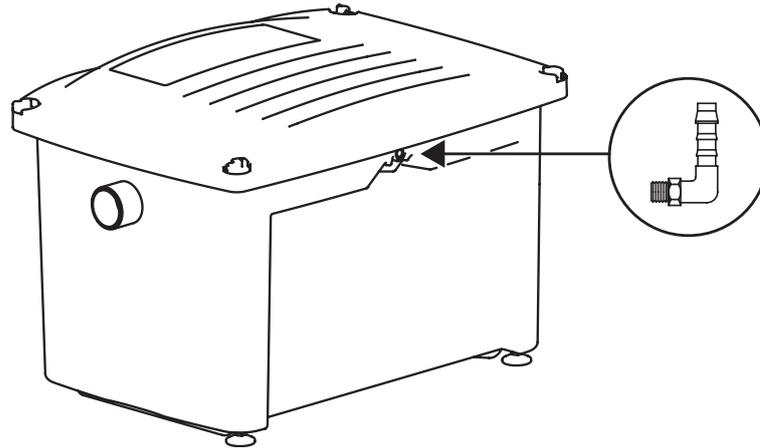
5.2.5 FIGURE 3 - RIGHT to LEFT hand flow:



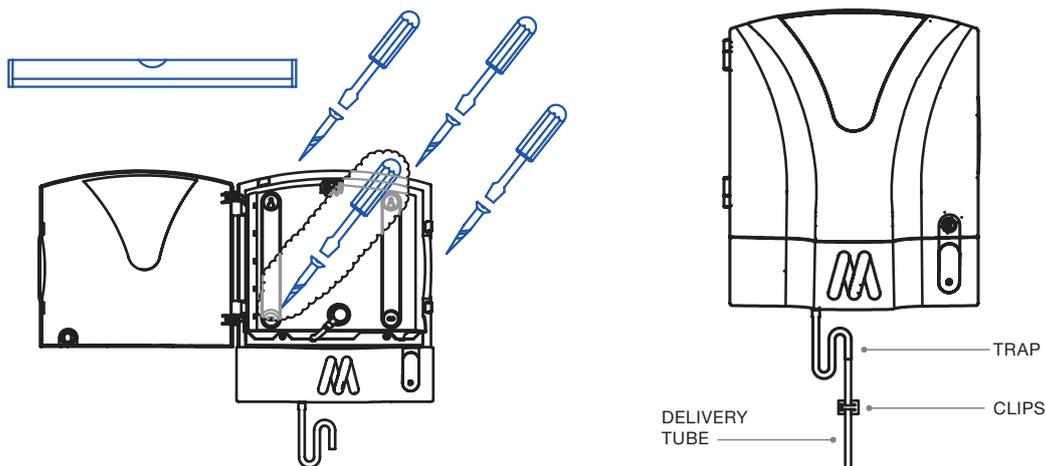
5.2.6 FIGURE 4 - LEFT to RIGHT hand flow:



- 5.2.7 An Air Admittance Valve (supplied) should be installed between the BioCeptor F.I.T unit and the last connected fixture using the tee fitting supplied. This is to eliminate the potential for a vacuum to be created in the pipework. Alternatively a vented connection can be made, but the supplied tee fitting must be used as it contains the inbuilt flow restrictor (see section 4.9 - installation example).
- 5.2.8 Installation of a full-bore ball valve upstream of the BioCeptor is recommended. This is to allow for isolation in the event that the F.I.T unit becomes blocked and requires cleaning and emptying (see section 4.9 - installation example). Installation of a food waste strainer upstream of the BioCeptor is recommended.
- 5.2.9 There is a dedicated connection point for the bio-fluid delivery tube at the rear of the BioCeptor F.I.T unit at the top (see fig. 5 below). Unscrew the plastic plug, remove the F.I.T unit lid and connect the blue elbow fitting supplied with the dosing module, so it is ready to receive the fluid delivery tube. Leave the blue elbow pointing horizontally in the direction required.



- 5.2.10 The GreasePak dosing module now needs to be fixed securely to the wall in the chosen location above the BioCeptor F.I.T unit. **NOTE:** An installation example is shown on page 5 (section 4.9).
- 5.2.11 Remove the bio-fluid box from the module and set aside in a safe place ready to be connected later.
- 5.2.12 Level and securely fix the dosing module using 4 x fixings. Install at a sensible working height, between 1200-1500mm (4-5 feet) AFFL is recommended. **NOTE:** See Chapter 4 for important location advice.

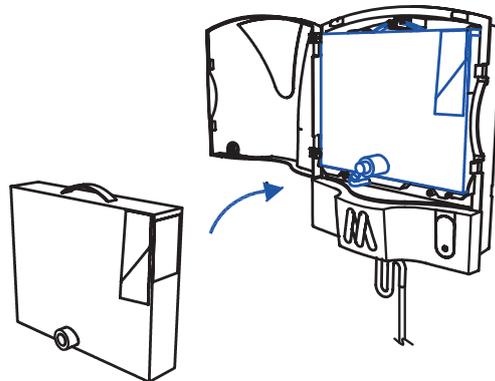


- 5.2.13 Determine the smooth run for the fluid delivery tube, cut to length and connect the ends between the elbow fitting at the rear of the F.I.T unit (as stated in 5.2.9 above) and the trap on the dosing module. **NOTE:** To help tube fit over the elbow, dip tube end in warm water.
- 5.2.14 Use the self-adhesive clips supplied to secure the fluid delivery tube to the wall. DO NOT crush the tube or allow it to hang down in a loop or coil.

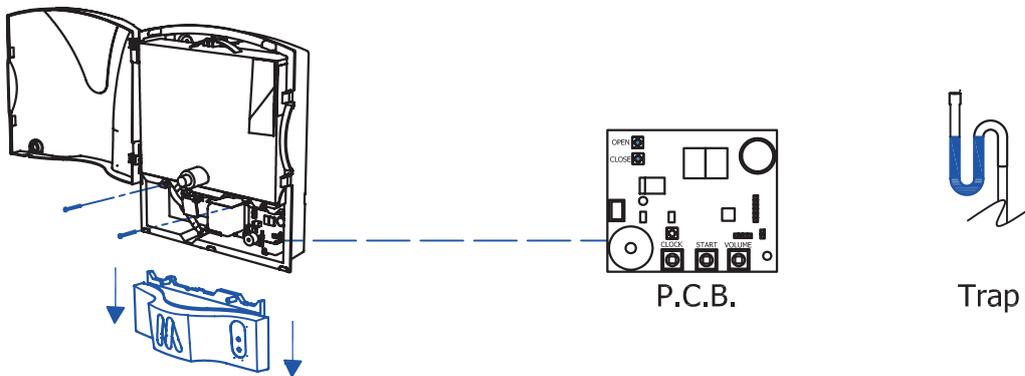
Chapter 5. INSTALLATION INSTRUCTIONS *continued...*

5.2.15 Hang a 5L (1.3 US gallons) box of bio-fluid in the dispenser.  **Follow the box instructions to connect.**

5.2.16 **Check if you have more bio-fluid in stock.**  
 If not, please contact Mechline or your dealer.  
 Bio-fluid is sold in master boxes of 3x 5-Litre (part number GP-MSGD5).  
 Please have the serial number of your dosing module ready when you call.



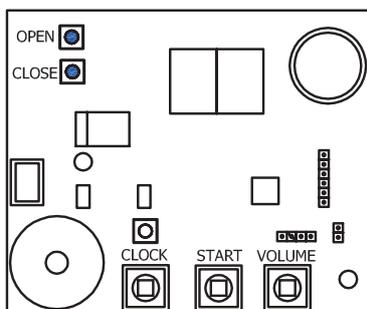
5.2.17 Remove the 2 set screws as shown and pull the front cover downwards to remove.



5.2.18 Press OPEN then CLOSE on the PCB. Fluid will flow then stop. You should be able to hear a CLICK sound as the valve opens and shuts. If you cannot hear a CLICK, try gently tapping the side of the valve while at the same time pushing the OPEN button and then the CLOSE button. This step is only required for the first fluid box.

5.2.19 Refit the front cover and close the door. Pass all documents & keys supplied with this dosing module to a responsible kitchen manager.

5.2.20 This module is factory set to deliver a measured dose of bio-fluid into the BioCeptor F.I.T unit at 1:00am, when there is little or no water flow, allowing the bacteria time to do their work. Delivery time and volume can be easily adjusted, however it is recommended to keep the delivery volume at the factory setting (number 2) as this is the measured dose for the size of the F.I.T unit. If settings changes are required, refer to instructions below **or** inside the front cover. With standard factory settings, 1x 5L (1.3 US gallons) bio-fluid box will last approximately 30 days.



5.2.21 **To adjust the clock:** Press the CLOCK (left) button. The display will show the hour (24hr clock). Hold for 5 seconds and until the current hour is displayed. You will hear a ticking sound as the display advances.

**To show/adjust the delivery start time:** Press the START (middle) button. The display will show the delivery start time. Hold for 5 seconds and until the desired start time is displayed. You will hear a ticking sound as the display advances.

**To show/adjust the delivery volume:** Press the VOLUME (right) button. The display will show the delivery setting (1–4). Hold for 5 seconds and until the desired setting is displayed (2 is the factory setting). You will hear a ticking sound as the display advances.

## Chapter 6. OPERATING INSTRUCTIONS

### 6.1 GREASEPAK DOSING MODULE - GENERAL ADVICE

The following advice is a general guideline for the operator. If any questions arise, please do not hesitate to contact Mechline [gpservice@mechline.com](mailto:gpservice@mechline.com) or your dealer.

- 6.1.1 Be sure the dosing module is left on once it has been put into operation. There is no on/off switch to operate.
- 6.1.2 Ensure the dosing module is installed, operated and maintained by trained and authorised personnel.
- 6.1.3 Children should not be allowed to play with the module.
- 6.1.4 The module should be used as provided and not be tampered with or altered.
- 6.1.5 To help the effectiveness of the system, and significantly help to maintain free flowing water both within the drains of the premises and in the sewerage system, **remember the following basic DOs and DON'Ts:**
  - *DO wipe and scrape plates, pans and utensils before washing.*
  - *DO collect waste oil in a suitable secure container.*
  - *DO arrange for oil to be collected by a licensed waste contractor.*
  - *DO use strainers in sink plug holes.*
  - *DO maintain Grease Traps and Enzyme Dosing equipment regularly.*
  - *DO NOT put cooking oil, fat or grease down the sink or into floor drains.*
  - *DO NOT put food scrapings into the sink.*
  - *DO NOT sweep food waste into the floor drains.*
  - *DO NOT pour boiling hot water down the sink to try to dissolve fat and grease. It does not work!*
  - *DO NOT pour bleach or harsh chemicals down the sink or into the drainage system.*

### 6.2 GREASEPAK DOSING MODULE - FREQUENTLY ASKED QUESTIONS

#### 6.2.1 Is the bio-fluid safe for my kitchen?

Yes. The bio-fluid (GP-MSGD5) contains a blend of aerobic and facultatively anaerobic bacteria which have been specially selected to break down the organic material that is found in commercial kitchen waste. Armed with a powerful battery of grease-degrading enzymes, they are all classified by the Advisory Committee on Dangerous Pathogens (ACDP) as category 1, i.e. they are of extremely low or no hazard. Mechline's GreasePak bio-fluid dosing module is the only bioremediation system to receive BBA approval, meaning the system has been independently tested and found to be compliant with building and legislative requirements.

#### 6.2.2 How does the bio-fluid work?

For commercial kitchens to meet current legislation, they are obliged to have a system in place to manage their grease disposal. UK Building Regulations 2002 Edition incorporating 2010/13 amendments, state that:

*H1 FOUL WATER DRAINAGE: 2.21 Drainage serving kitchens in hot food premises should be fitted with a grease separator complying with BS EN 1825-1:2004 and designed in accordance with BS EN 1825-2:2002 or other effective means of grease removal.*

Mechline's bio-fluid is an 'effective means of grease removal' as required by the Building Regulations. It uses a blend of specially selected microorganisms that have been chosen for their ability to degrade fats, oils and grease (FOGs) in low oxygen conditions and varying pHs.

These bacteria produce a series of extra-cellular enzymes that break down organic matter, including lipase, which can very quickly transform fats (triglycerides) into glycerol and free fatty acids. Glycerol is very soluble in water and being a small molecule, can pass easily into the bacterial cells, where it is used either to build new cellular structures, or as a fuel to produce energy for growth.

The free fatty acids present more of a problem, as they are large insoluble molecules. The action of the lipase has only converted one type of large insoluble molecule (the triglycerides) into other large insoluble molecules (free fatty acids). Visually, in a drainage situation, the scale of the problem may have diminished or the characteristics of the fatty material may have changed at this point, but the problem will not yet have been fully resolved.

The specially selected bacteria in the bio-fluid are able to degrade these free fatty acids by a process known as  $\beta$ -oxidation, in which chunks are broken off the end of the fatty acid molecule. These chunks can again be used as a building block to produce new structures, or more usually, energy. The breakdown of fatty acids is not an instantaneous process, as the physical form of the fatty acids, being large and insoluble, means that it takes some time (commonly called "residence time") for the bacteria to "get to grips" with them. This is why the bio-fluid is dosed at 1:00am, when there is little or no water flow, allowing the bacteria time to do their work.

Once the fats are broken up by the lipase they cannot chemically reform back into triglycerides. The subsequent breakdown of the fatty acids through  $\beta$ -oxidation ensures the "grease," which may actually consist of a variety of insoluble materials, can pass through drainage systems without causing any problems traditionally associated with fats, oils and grease (FOGs).

Mechline's biological drain maintenance system effects the "removal of grease" from drainage systems—keeping drains clear and odour-free and meeting the requirements of the Building Regulations, using an environmentally friendly and non-hazardous fluid.

#### 6.2.3 Where can I install the dosing module in my kitchen?

Please refer to Chapter 4 Location Advice.

#### 6.2.4 I have lost the keys for my dosing module, can I get replacements?

Yes. The keys for all dosing modules are interchangeable. Please contact Mechline or your dealer for a replacement set.

## Chapter 6. OPERATING INSTRUCTIONS *continued...*

### 6.2.5 **Are there special storage or handling requirements for the bio-fluid? Does it have a shelf life?**

Mechline's bio-fluid is a perfectly safe class 1 fluid, and there are no special handling requirements. It should be stored in a cool, dry place away from direct sunlight and ideally at a temperature between 10°C and 30°C so the effective performance of the product is not compromised. The bio-fluid's shelf life is a minimum of 18-months, as long as it is stored as above.

### 6.2.6 **How will I know when the bio-fluid needs replacing? And where can I get replacement bio-fluid boxes?**

The dosing module will sound an alarm buzzer once every 15 minutes when the fluid box inside your dosing module needs replacing. It will only sound during daylight hours in order to preserve battery power.

For more bio-fluid please contact Mechline or your dealer. Sold in master boxes of 3x 5-Litre (part number GP-MSGD5). Please have the serial number of your dosing module ready when you call. Always keep a spare box of bio-fluid in stock to avoid running out.

### 6.2.7 **How long should a 5L (1.3 US gallons) bio-fluid box last?**

On the factory setting (number 2), a 5L (1.3 US gallons) box of bio-fluid should last approximately 30 days. If the dosing module is adjusted to deliver a higher dose (number 3 or 4), the fluid will not last as long. It is recommended to keep the delivery volume at the factory setting as this delivers the correct dose for the size of the BioCeptor F.I.T unit.

### 6.2.8 **I notice residual fluid in my bio-fluid box. Is it using up all the fluid? Have I changed the fluid too early?**

Only change the bio-fluid box when the buzzer sounds. This ensures the most efficient use of the full 5 litres per box. The design of the bag and valve is engineered to provide good flow, using gravity, to match the dosing level set by the module. It is very difficult to completely drain any bag of all its fluid, therefore, we slightly overfill each bag to compensate and make sure that every customer gets the full 5 litres from each bag. Drainage wedges are also fitted to the inside of each box to ensure that a 'V' shape is formed under the bag whilst the bag empties to assist draining.

### 6.2.9 **What procedures should be taken if the product leaks and/or comes into contact with skin, eyes, etc?**

Mechline's bio-fluid is a perfectly safe class 1 non-hazardous fluid. No harm will come from touching it or coming into contact with the fabric of the building - merely wash off the fluid with cool, clean water.

Avoid ingestion of liquid and avoid contact with eyes. In case of contact with skin or eyes, rinse thoroughly with clean cool water. Should eye irritation continue, seek medical advice. In case of ingestion, DO NOT induce vomiting. Seek medical advice. Refer to the safety data sheet on page 3.

### 6.2.10 **Can I change the time when the dosing module doses the bio-fluid into the BioCeptor F.I.T unit?**

The dosing module is factory set to dose at 1:00am, when there is little or no water flow, allowing the bacteria time to do their work. However this can be changed by removing the front cover under the module door and following the instructions on the label inside. Unscrew and pull the front cover downwards to remove. See section 5.2.21.

### 6.2.11 **Can I change the fluid dosing level on my dosing module?**

Yes, but the factory setting (number 2) delivers the correct dose for the size of the BioCeptor F.I.T unit. See section 5.2.21.

### 6.2.12 **How long does the battery in the dosing module last?**

The battery should last around 2 years. When the battery needs replacing the 'Low Battery' warning light will begin to flash. It will only flash between the hours of 07:00 - 20:00 when someone is likely to be around to see it, in order to preserve power. Contact Mechline or your dealer for a replacement battery pack (part number GP-BP) as soon as you see the 'Low Battery' light flashing.

### 6.2.13 **My building drains are not connected to mains sewage. Can I use the dosing module with a remote aerobic or anaerobic (Septic) sewage system?**

Generally, Mechline's bio-fluid is helpful to these systems, and some information is provided below. For more advice, contact Mechline

#### AEROBIC SYSTEMS:

These tend to have three sections, a primary tank, an aerobic zone and a tertiary tank. The primary tank is where larger solids settle out, whereas the aerobic zone is where aerobic bacteria break down any organic solids. Aerobic conditions are maintained by the introduction of forced air or by the rotation of disks within the effluent. The tertiary tank allows for any final settlement before water is discharged.

If grease enters this system untreated it will quickly cause major overload to the primary tank, as it tends to float rather than settle out. Left unchecked this grease can then foul the aerobic zone either by coating the filter disks or blocking air gaps in the filter medium. This can result in severe system failure and all that implies.

The introduction of Mechline's bio-fluid into the effluent stream quickly breaks up the complex grease molecules into much smaller molecules and soluble compounds. This greatly reduces the problems described above and the chances of system failure.

#### ANAEROBIC (SEPTIC) SYSTEMS:

These systems rely upon the action of bacteria that do not require oxygen to break down organic solids, and are less complicated as they do not require the maintenance associated with the aeration of aerobic systems. However, the down-side is that they are slower in action and are not suited to larger sites.

The introduction of grease into a septic system would cause many problems, not least the fact that the crust on the top of a tank must be permeable to allow the passage of the gases created by the action of the bacteria. The presence of large quantities of grease would reduce crust mobility and therefore the effectiveness of the tank.

As with the aerobic system, the bacteria contained in bio-fluid break down the fats and grease found in commercial waste, thus greatly reducing the chances of grease-related compounds. In addition, the facultatively anaerobic bio-fluid bacteria added to the mix reduce sludge build-up and therefore tank emptying frequency.

### 6.3 BIOCEPTOR F.I.T UNIT - GENERAL SERVICING AND CLEANING ADVICE

**The BioCeptor F.I.T unit will require periodic maintenance and cleaning. This should be carried out by an approved contractor. Gloves and appropriate personal safety equipment should be worn at all times when servicing or working on this product.**



The frequency of maintenance required will depend on the volumes of FOGs discharged into the drainage system. In order to determine the frequency of maintenance, the F.I.T unit lid should be removed every few days and the contents inspected. Once the contents of the F.I.T unit are approaching 25% FOG and not organics (75% water, 25% FOG) it is time for the F.I.T unit to be emptied and cleaned. Once the frequency of maintenance has been determined, the BioCeptor should always be cleaned following this schedule. It is very important to restrict organic food waste from entering the F.I.T unit as this will reduce its effectiveness and may cause blockages. It is recommended that an isolation valve is installed upstream of the BioCeptor, and this should be turned to the off position before the cleaning starts.

### 6.4 BIOCEPTOR F.I.T UNIT - CLEANOUT LOCATIONS

The BioCeptor F.I.T unit can be cleaned and maintained by removing the lid and baffles as shown below. Additional cleanout access is via the rubber inlet and outlet connectors, which can be removed if required by using a screwdriver.

The lid is held in place using easy-to-remove thumbscrews, and the internal baffles are easily removable for cleaning. Additional cleanout can be achieved by temporarily removing the two rubber connectors at either side of the F.I.T unit.

- 6.4.1 Turn the upstream isolation valve (recommended) to the 'off' position.
- 6.4.2 Remove all 4 lid thumbscrews and carefully remove the lid.
- 6.4.3 Use a wet vacuum device to empty the F.I.T unit.
- 6.4.4 Use clean water and a hose to rinse out the F.I.T unit internally.
- 6.4.5 Remove both baffles and use the wet vacuum to remove any FOGs trapped inside the baffles.
- 6.4.6 Inspect the lid seal to ensure it is undamaged and in good condition.
- 6.4.7 Replace all parts in reverse order and re-tighten the lid in place.
- 6.4.8 Turn the isolation valve to the 'open' position.
- 6.4.9 Run clean water through the F.I.T unit and check for leaks.
- 6.4.10 The BioCeptor F.I.T unit is now ready for use.

Mechline advise that a certified and qualified service company undertake this work. You must ensure your waste contractor is an Environment Agency licensed waste carrier and that they give you a copy of the waste transfer note.

Waste from the BioCeptor F.I.T unit is classified as a controlled waste. The Environment Agency or an Environmental Health Officer is required to see evidence that regular cleaning has been performed and any waste that has been removed is disposed of by a registered waste carrier. Waste transfer notes should be kept for two years and made available for inspection under Section 34 of the Environmental Protection Act 1990.

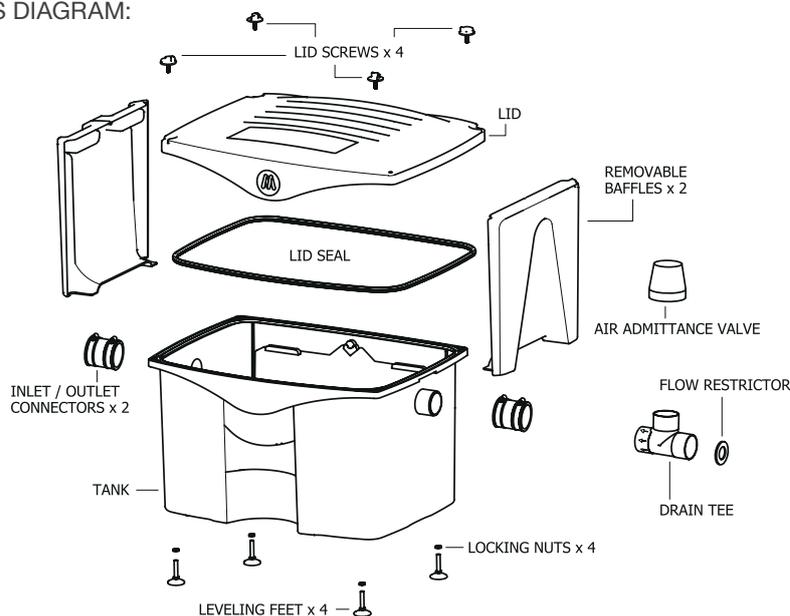
### 6.5 BIOCEPTOR F.I.T UNIT - TROUBLE SHOOTING GUIDE

If you experience slow drainage flow from the appliance(s) connected to your BioCeptor, the F.I.T unit could need servicing and cleaning as detailed above.

If you experience any leakage or odours from your BioCeptor F.I.T unit, check the tightness of the 4 x lid screws.

If you experience repeated frequent blockages with the F.I.T unit, check that the upstream food waste strainer is functioning correctly. Report any damaged parts for immediate replacement.

### 6.6 EXPLODED PARTS DIAGRAM:



## Chapter 7. BIOCEPTOR F.I.T UNIT SIZING GUIDE

**The BioCeptor F.I.T unit has been independently tested by NSF and meets and exceeds the performance requirements of ASME A112.14.3-2000.**

**To be certified to ASME A112.14.3-2000 interceptors (grease traps) are required to have a minimum average grease removal efficiency of 90% in order to gain certification. BioCeptor performs well above what is required with an average efficiency of 95.6%.**

Correct installation of the BioCeptor is essential to its performance in retaining and removing fats, oils and grease and protecting from the drainage system. Failure to install the BioCeptor correctly, or connecting too many appliances to a BioCeptor could result in fats, oils and grease escaping into the drainage system. It could also result in the need for more frequent maintenance and cleaning of the BioCeptor. This guide is intended to provide outline advice on correct installation, however, every operation and every application is different, so if you are in any doubt, please contact Mechline for advice.

### 7.1 POT WASH SINKS, PRE WASH / RINSE DISHWASH TABLING

In many kitchen operations, the pot wash sink can be responsible for discharging high level of fats, oils & grease (FOGs) into the drainage system. It is therefore essential that the drainage pipework from the pot wash sink is protected by the BioCeptor. Similarly, dishwash pre-rinse tabling and bowls, should be connected to a BioCeptor. In both cases, we highly recommend the fitting of a food waste strainer upstream of the BioCeptor. Failure to fit a food waste strainer, could cause the BioCeptor to reduce efficiency and even block.

### 7.2 DISHWASHERS

Some water companies / sewer management providers would advise that dishwashers should not be connected to FOG trapping devices. However the BioCeptor is designed to accept the discharge from dishwashers if required. Therefore always check with the relevant local water / sewer management company and the dishwasher machine manufacturer before connecting the drainage pipework from a dishwasher to the BioCeptor. Do not fit a food waste strainer prior to the BioCeptor with discharge from a dishwasher machine.

### 7.3 FOOD WASTE DISPOSERS

Food Waste Disposers should not be connected to the BioCeptor under any circumstances, as the sludge they discharge could cause blockages.

### 7.4 OTHER APPLIANCES

Appliances such as pasta cookers, combination ovens, and certain food preparation appliances often produce FOGs or starches in their drainage effluent. These can be connected to the BioCeptor subject to the discharge water temperature not exceeding 55°C at the point where it enters the F.I.T unit. Allowing continuous volumes of water at over 55°C to enter the F.I.T unit can reduce the effectiveness of the GreasePak micro-organisms in breaking down the FOGs. For advice on the specific application, please contact Mechline.

Water / sewer management companies and / or the appliance manufacturer, may require that the appliance be indirectly connected to the BioCeptor F.I.T unit via a trapped tundish, to remove risk of contamination in the event of backflow. This is the recommended installation requirement.

Some preparation sinks, may also require the fitting of FOG management systems, such as BioCeptor or GreasePak biological dosing system. Heavy preparation of raw fish and meats may well introduce FOG's to the drainage systems. Additionally, pastry sinks may also require a system fitting, depending on the operations and management.

Please refer to the British Water FOG Code of Practice: [www.greasepak.com/index.php/information](http://www.greasepak.com/index.php/information)  
[www.britishwater.co.uk/code-of-practice-food-service-industry-fats-oils-and-grease.aspx](http://www.britishwater.co.uk/code-of-practice-food-service-industry-fats-oils-and-grease.aspx)

### 7.5 GENERAL SIZING

The BioCeptor F.I.T unit has a capacity of 1.6 Litres Per Second (25 Gallons Per Minute) with a reservoir of 53 Litres. Generally, this means that a BioCeptor can be fitted to a single bowl or double bowl sink and possibly other additional appliances, depending on LOW or HIGH FOG discharge.

**Guidance only:** Sizing and location of the bioceptor system should be undertaken by a qualified and professional service provider of FOG and drain management systems in accordance with the British Water FOG code of practice and other local/national legislation codes. If you are in doubt please contact mechline for further assistance as required.

A double bowl sink, could have 2 bowls of 60cm x 45cm x 30cm. These have the approximate drainage load capacity of 60 litres each, 120 litres in total. With a regulated flow capacity of 1.6LPS, the drainage time for both bowls simultaneously discharged would be approximately 75 seconds through the BioCeptor.

The number of appliances that can be connected to the BioCeptor will vary according to whether the kitchen can be considered as a HIGH FOG PRODUCING SITE, or a LOW FOG PRODUCING SITE. The following factors, which will affect the volumes of FOGs discharged into the drainage pipework and the rough scoring guide can be used to help determine this.

#### 7.5.1 Menu items:

If the menu regularly includes foods that could be considered as having high oil, starch or fat content, then it follows that a degree of the FOGs will find their way into the drainage system from the ware-washing operations and from any FOG producing appliances.

The menu items **regularly** include high oil, starch or fat content 5 points  
The menu items **rarely** include high oil, starch or fat content 2 points

#### 7.5.2 Number of covers per day:

The operation produces **more** than 75 covers per day 4 points  
The operation produces **fewer** than 75 covers per day 3 points

**7.5.3 Discipline of the staff in ensuring FOGs do not enter the drainage system:**

This can be the biggest factor, because if the staff are disciplined in using disposable wipes to wipe down plates, pots & pans and utensils before the items are sent for ware-washing, and in capturing used cooking oil from pots and pans, a huge volume of FOG is prevented from entering the drainage system.

- The staff are not **really** disciplined in FOG management procedures 6 points
- The staff are **regularly** trained in FOG removal and are provided with the equipment to carry it out 2 points

If the total score for the operation is 11 points or lower, it can be considered as a LOW FOG PRODUCING SITE.

If the total score for the operation is 12 points or higher, it can be considered as a HIGH FOG PRODUCING SITE.

**7.6 EXAMPLES**

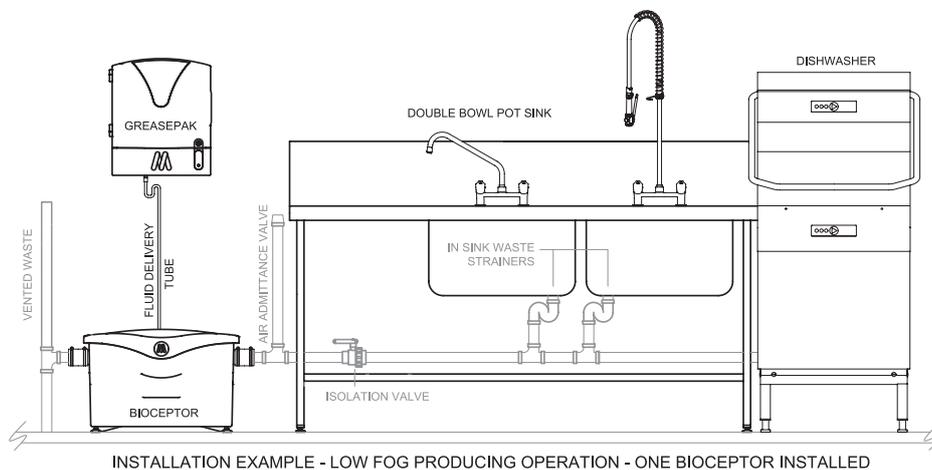
A site may produce over 100 covers per day of high FOG content food, but the staff are disciplined in ensuring the FOGs do not enter the drainage system.  $5 + 4 + 2 = 11 =$  LOW FOG PRODUCING SITE because most of the FOGs do not make it to the drainage system.

On the other hand, a smaller site producing fewer than 75 covers per day of high FOG content food where the staff are not trained in FOG removal would score  $5 + 3 + 6 = 14$ , which would be treated as a HIGH FOG PRODUCING SITE.

A busy site producing a low FOG containing menu, where the staff are not trained in FOG removal would score  $2 + 4 + 6 = 12 =$  HIGH FOG PRODUCING SITE because of the high number of covers.

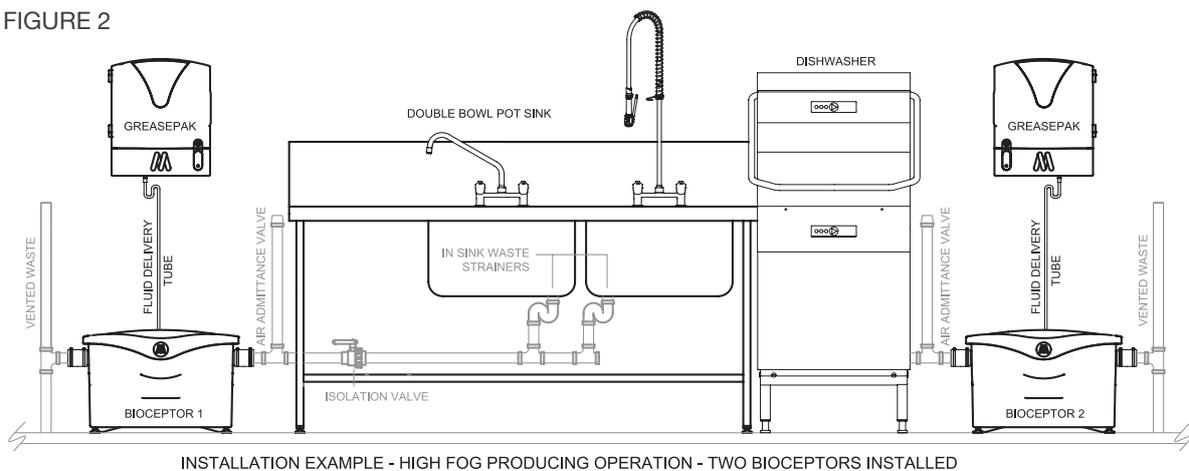
A smaller site producing a low FOG containing menu, where the staff are not trained in FOG removal would score  $2 + 3 + 6 = 11 =$  LOW FOG PRODUCING SITE because of the low number of covers, and the low FOG content of the food.

**7.7 FIGURE 1**



Above is an example of a BioCeptor installed in a LOW FOG PRODUCING SITE. The double pot wash sink and dishwasher are connected to a single BioCeptor. Always check with the relevant local water / sewer management company and the dishwash machine manufacturer whether dishwashers can be connected to FOG trapping devices.

**7.8 FIGURE 2**



Above is an example of two BioCeptors installed in a HIGH FOG PRODUCING SITE. The double pot wash sink is connected to one BioCeptor, and the dishwasher is connected to a separate BioCeptor. Always check with the relevant local water / sewer management company and the dishwash machine manufacturer whether dishwashers can be connected to FOG trapping devices.

If the dishwasher is not to be connected to the BioCeptor, it is recommended to connect a Mechline GreasePak biological dosing system. Contact Mechline for advice.

Chapter 8. BBA APPROVED

Mechline's GreasePak bio-fluid dosing module has been through rigorous testing, providing customers with the utmost confidence in its effectiveness and quality. We are proud to say that it is the only product of its kind in the UK to be approved by the **British Board of Agrément (BBA)** as a recognised form of effective grease removal. If you have any questions, please do not hesitate to contact Mechline [gpservice@mechline.com](mailto:gpservice@mechline.com) or your dealer.

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Agrément Certificate  
**11/4827**  
 Product Sheet 1

**MECHLINE CATERING EQUIPMENT**

**GREASEPAK BIOLOGICAL GREASE DEGRADATION SYSTEM**

**PRODUCT SCOPE AND SUMMARY OF CERTIFICATE**



This Certificate relates to the GreasePak Biological Grease Degradation System, for use in drainage systems to convert fats, oils and grease into more soluble products and to minimise the risk of blockage.

**AGRÉMENT CERTIFICATION INCLUDES:**

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.

**KEY FACTORS ASSESSED**

**Effectiveness** — the system is an effective means of removal of fats, oils and grease from waste water discharged from commercial kitchens and similar establishments (see section 5).

**Environmental information** — the system will have a positive environmental impact by reducing the discharge of fats, oils and grease into the sewer system (see section 6).

**Flow characteristics** — the system will not impair the flow characteristics of an existing drainage system and over a period of time should improve them (see section 9).

The BBA has awarded this Agrément Certificate to the company named above for the system described herein. This system has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément	<i>B Chamberlain</i>	<i>Greg Cooper</i>
Date of First issue: 7 April 2011	Brian Chamberlain Head of Approvals — Materials	Greg Cooper Chief Executive

Certificate amended on 21 May 2015 to include change of images and page 4, 2.1.

The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at [www.bbacerts.co.uk](http://www.bbacerts.co.uk)

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

**British Board of Agrément**  
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## Chapter 9. ON-GOING REQUIREMENTS

### 9.1 MAINTENANCE

On-going maintenance and cleaning is essential for the effective and efficient working of the BioCeptor. The site must have appointed a qualified contractor to undertake this work.



- **Mechline advise that a certified and qualified grease trap maintenance / drain service company undertake this work. Regularity of attending will be determined by the service company, analysing usage and operations.**
- **It is a requirement of the water companies that records be kept of the maintenance schedule.**
- **You must ensure your waste contractor is an Environment Agency licensed waste carrier and that they give you a copy of the waste transfer note.**

### 9.2 GENERAL CLEANING

The dosing module and the outer casing of the F.I.T unit is designed to be easy to clean, simply wipe over with a clean disposable cloth and fresh water after changing the bio-fluid box and as part of the general kitchen cleaning program.



- DO NOT use bleach, anti-bacterial agents or other harsh cleaning chemicals on or inside the machine.
- DO NOT try to jet or spray wash the inside or outside of the dosing module.
- NEVER pour floor washing or cleaning water into the drainage system and avoid using cleaning products containing biocide, limonene and terpenes in your day-to-day kitchen cleaning program.



Mechline's bio-fluid is a completely safe, Class 1 non-hazardous fluid. No harm will come from touching it, but if in doubt wear gloves when cleaning up any fluid spills.

### 9.3 OPERATIONAL TIPS

Certain fundamental tasks need to be performed by staff, on a regular basis:

- Replace the bio-fluid in the GreasePak dosing module as soon as you hear the alarm buzzer, approximately every month. Always keep a spare box of bio-fluid in stock to avoid running out. Failure to replace bio-fluid could put your drains at risk and violate local building regulations.
- Replace the battery pack in the GreasePak dosing module as soon as you see the 'Low Battery' light flashing.

## Chapter 10. AFTER SALES and SERVICE SUPPORT

### 10.1 TECHNICAL ASSISTANCE

For technical assistance, please contact Mechline [gpservice@mechline.com](mailto:gpservice@mechline.com) or your maintenance & service company. Please have the serial number to hand. The serial number for the GreasePak dosing module can be found on the inside of the unit door. The serial number for the F.I.T unit can be found on the side of the tank.

### 10.2 WARRANTY

The Mechline BioCeptor biological drain maintenance system carries a parts only warranty of twelve (12) months apart from the F.I.T unit tank and lid which carry a ten (10) year extended parts only warranty. Warranty excludes labour and/or site attendance and no reimbursement of costs can be made relating to site attendance by the customer or their representatives. The Warranty excludes improper use, misuse and inappropriate product selection for the application.

**NOTE:** *Bio-fluid and battery packs are basic 'consumable' goods and not subject to warranty.*

Each Mechline BioCeptor is carefully inspected for manufacturing defects prior to despatch, however, it is not always possible to detect hidden defects. The BioCeptor is warranted to the extent that Mechline will replace without charge products proven to have manufacturing defects within the warranty period (from the date of invoice), and provided Mechline has been given the opportunity to inspect the product alleged to be defective, and to inspect the installation of the product. This is a parts only warranty, and no warranty is included against labour costs for removal, reinstallation or any other related costs.

#### **Mechline's 10 Year Extended Tank & Lid Warranty**

The BioCeptor F.I.T unit is engineered from advanced materials, and the tank & lid is warranted for ten (10) years from the date your online submission is received. **Details must be completed online at [www.mechline-environmental.com/warranty](http://www.mechline-environmental.com/warranty) and received by Mechline within thirty (30) days of installation in order for the extended tank & lid warranty to apply.**

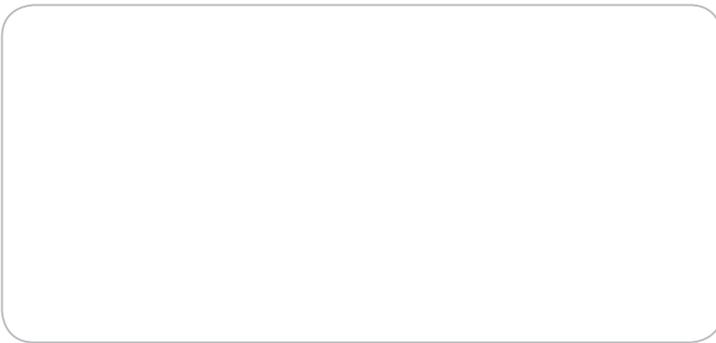
The ten (10) year warranty covers defects to the BioCeptor tank or lid, resulting from faulty manufacture of materials as well as perforation of the tank or lid based on normal operating and installation conditions. Mechline does not provide a warranty for perforation resulting from mechanical or chemical causes of abnormal use, including physical impact, the use of inappropriate cleaning materials, incorrect installation, or other causes deemed to be abnormal. The Mechline BioCeptor tank and lid is warranted only to the extent that Mechline will replace, without charge, products proven to have manufacturing defects or perforation (other than perforation resulting from mechanical or chemical causes) within the specified ten (10) year warranty period and provided Mechline has been given the opportunity to inspect the tank and/or lid which is alleged to be defective, and to inspect the installation of the product. This is a parts only warranty, and no warranty is included against labour costs for removal, reinstallation or any other related costs. For the avoidance of doubt, the extended warranty covers the BioCeptor tank and lid parts only, and does not cover other parts including seals, connectors, lid screws, adjustable feet, baffles, or GreasePak dosing module parts or tubing.

### 10.3 SPARE PARTS

For spare parts contact Mechline [gpservice@mechline.com](mailto:gpservice@mechline.com) or your dealer.

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ASME A112.14.3 / PDI G101