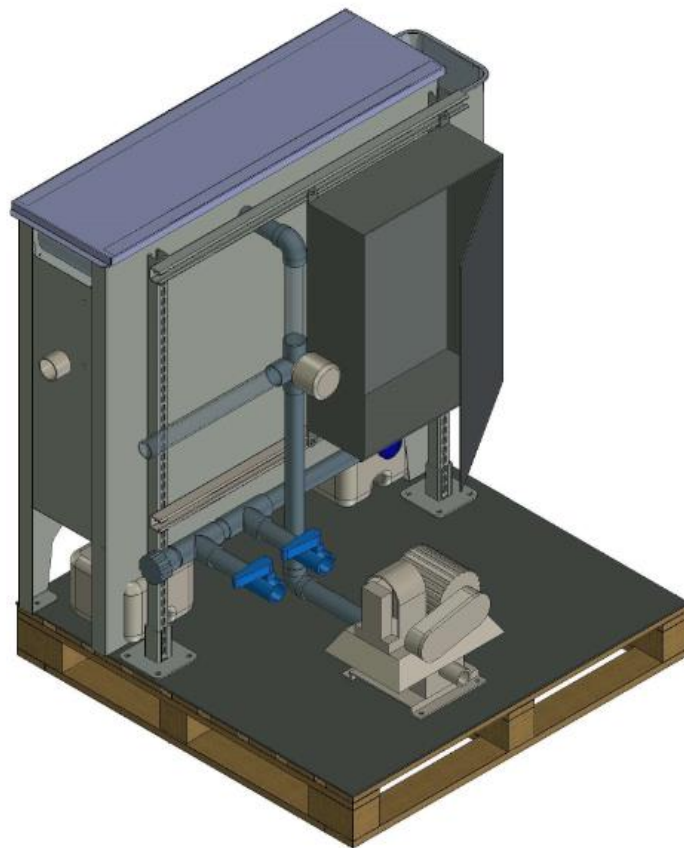


SIOSTM-030

Operating Manual

Rev2



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Emergency Contact Details

Office hours:
 8am to 4pm (EST) Monday – Friday
 Phone: +61 7 5535 9000
 PO Box 6664 GCMC, QLD

After hours:
 Chemical Related: Refer to MSDS
 Other Phone: +61 426 260 445



EC-W-001
2020 Limited Warranty

Date: 08/04/2020

Revision: 3



Warranty Information

Enviroconcepts International Pty Ltd – Limited Warranty (2020)

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law.

1. What does this warranty cover?

Enviroconcepts International Pty Ltd warrants that its products are free from defects. This is subject to normal use, correct installation, reasonable maintenance and the exclusions set out in this warranty.

2. How long does this warranty last?

This warranty begins at the date of shipment.

The Warranty for any Structural Components including washpads, gutters, gantries, walkways, patios, roofs, skids, walls, ramps, tracked wear plates, gutter lids and specialised product stands (containers & pipes for example) is valid for 5 years.

The Warranty for Parts & Components including pipes, pumps, hoses, motors, chains, tanks, filters, electrical components and floats is valid for 1 year.

Consumables are generally not included in the warranty.

3. What will Enviroconcepts International do if there is a defect?

You must notify us immediately if there is a defect of any kind.

In time critical situations, you may be required to carry out the repairs at your cost, then allow us to inspect the defective product to determine warranty.

Subject to the exclusions set out below, Enviroconcepts International will cover the cost of repairs (by any means at its sole discretion), replace or re-install any defective part or portion of the product which it deems is covered under this warranty.

4. What is required of me to maintain a Valid Warranty?

Subject to these terms and conditions you are required to maintain the following to ensure a Valid Warranty;

Normal maintenance servicing by authorised repairers including (but not limited to): Media changes, motor and pump services, general system and filter cleaning, regular clearing of settled solids and debris from all gutters and catchment areas.

Proof of these services may be requested.

5. What is not covered by this Warranty?

5.1: Enviroconcepts International's liability under this warranty is limited to the cost of repairing, replacing or re-installing any defective part or portion of its product. Enviroconcepts International will not provide any other form of compensation or be liable to pay any other costs associated with any ancillary damage.

5.2: Enviroconcepts International is not liable for, and this warranty does not cover (subject to the provisions of the Australian Consumer Law);

5.2.1: Failure caused by, contributed in whole or in part by, or resulting from any of:

- a) Abuse, such as, without limitation, vandalism;
- b) The introduction of any chemical that would not be permitted in household sewer and not previously approved by Enviroconcepts International
- c) Temperatures greater than the domestic hot water standard both during operation and storage;
- d) Natural disasters or causes, such as flooding, storm, lightning, cyclone or earthquakes;
- e) Attachments to or modifications of the product not authorised in writing by Enviroconcepts International;
- f) External causes, where external, physical or chemical qualities produce damage to the product, its parts or portions such as, without limitation to, unsuitable or hostile environment including the use of a flame or torch or excessive maltreatment including damage or deformation to plastic parts due to extended exposure to direct sunlight; and/or;
- g) Another cause beyond Enviroconcepts International's control including other stresses placed on the product or its contents that are not considered normal to the original intended use or function of the product.

5.2.2: Any economic loss or damage for any consequential or indirect economic loss or damage caused directly or indirectly by our products.

5.2.3 Any injury, loss or damage to persons, property arising out of or in any way as a consequence of the installed product, including any incidental loss or damage to persons or property, loss of use, inconvenience or other incidental or consequential costs.

5.2.4 Any expense not authorised in writing by Enviroconcepts International prior to incurring said expense.

5.2.5 Damage attributed to any of the following:

- a) During shipment, transportation or delivery of the product.
- b) Normal wear and tear of any items including (but not limited to) oil and fuel filters, nozzles, guns, wands, quick connects, O-rings, seals, packing, valve or valve assemblies, water filters, laterals, cartridges, belts, brushes, discharge hoses oil skimming belts, blades, filter media, ozone bulbs etc.
- c) Inadequate electricity, water, venting or fuel supplies.

6. Exclusions of other representations.

Enviroconcepts International excludes all other representations, warranties, conditions and promises in relation to the quality, fitness or suitability of the product except those which are set out in this warranty and/or by virtue of law, cannot be excluded.

7. What Enviroconcepts International must do to honour this Warranty.

If you make a claim, Enviroconcepts International will assist you wherever possible to get the problem rectified. We will then verify and promptly inspect your claim and advise you whether this warranty applies to your claim.

Assuming the claim falls within this Warranty, Enviroconcepts International will notify you on how it intends or proposes to fix the defect(s) and carry out those works promptly.

In the case of a Pass-through Warranty as may apply to certain items, Enviroconcepts International will happily aid you in replacement of the faulty product at your cost. Upon return of the faulty product to the manufacturer and successful warranty claim, Enviroconcepts International will credit your account accordingly.

If the issue is highly technical, we may choose to put you in touch with the manufacturer for diagnosis or to assist in the warranty claim.

8. What you must do and how to claim.

To make a claim you must contact Enviroconcepts International in writing using the details stated in the letterhead above.

You must provide Enviroconcepts International with the following information and any other additional information that may be requested within 7 days of the defect becoming evident.

- Address where the product was installed;
- Date of the installation;
- Details about the nature and extent of defect(s) ;
- How you came to diagnose and confirm
- Events leading up to the issue.
- Detailed and specific photos and/or video.
- Diagnosis report from a local technician relevant to the fault/part i.e: Plumber or Electrician.

To entitle you to claim, you must give Enviroconcepts International the opportunity to investigate your claim prior to engaging any other person to investigate or carry out works on the Product. A failure to do so may void this warranty.

If a replacement part is required, a new part must be purchased through Enviroconcepts International and will be sent upon receipt of payment under your standard account terms, as soon as the part becomes available.

The faulty part must be sent back to Enviroconcepts International within 30 days of the Warranty Claim being lodged. Upon evaluation, your account will be credited if the warranty claimed is accepted.

Items must be sent at your cost via traceable parcel and the tracking number must be provided to Enviroconcepts International on the day of dispatch.

Items sent outside of the abovementioned timeframe without a tracking number provided are not guaranteed to be covered by any warranty. If you have special requirements and require more time before being able to send the parts for evaluation, you must notify Enviroconcepts International immediately.

9. Can I transfer this product Warranty?

No, this product warranty is not transferable.

10. Do I have to pay the cost of making a claim?

Enviroconcepts International will not charge you for processing your claim on the Warranty. If this Warranty responds to your claim, Enviroconcepts International will be responsible for Product repair or replacements costs only. You are responsible for the following costs:

- Those incurred by you in making a claim;
- Any costs incurred prior to Enviroconcepts International being made aware of your claim;
- Freight and delivery of any diagnostic or replacement parts;
- All service and/or labour costs associated with the works completed under this warranty; and
- All investigation costs of your claim if the investigation reveals the claim is not covered by this warranty. In which case Enviroconcepts International will issue you an invoice to be paid without delay.

11. Warranty in addition to rights under law.

The benefits to you under this Warranty are in addition to the other rights and remedies you have under a law in relation to the goods and services to which the warranty relates.

Warranty Executed by;



Alexander Winter

Director

Enviroconcepts International Pty Ltd

info@enviroconcept.com.au

1300 661 130



SIOSTM-030 Operating Manual



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1 INTRODUCTION

Thank you for purchasing your Enviroconcepts SIOSTM 30 treatment unit. These come with a variety of options including optional Rain Diversion Remote Monitoring. This manual has been prepared to help you to understand, setup, operate and troubleshoot your system. This package has been designed so that minimal maintenance will be needed to keep it operating efficiently.

Before operating the user should be thoroughly familiar with equipment operation, limitations and hazards. Thoroughly read, understand and observe all safety and operating instructions. Please note – System components may vary with your system please disregard / ignore system component instructions that are not relevant to your system. If you are unsure, please contact Enviroconcepts.

1.1 Initial Handling and Inspection

By following the instructions, you will have opened the equipment and found it to be in good condition or damaged.


If the equipment was delivered to you by a common carrier and damage is found, even hidden damage, IMMEDIATELY file a claim with your carrier. Their representatives must inspect and verify the damage. It is your responsibility, not Enviroconcepts, or your distributors to file the freight damage claim.


Check the enclosed packing list to verify that all items have been received. Contact your distributor or Enviroconcepts if assistance is needed with common carriers, identification of parts or installation process.


1.2 Important Notice

The following information is necessary for installation, parts, service and warranty consideration.

Serial Number _____ Model Number: _____

 **IMPORTANT:** Any electrical work must be undertaken by a qualified electrician; this unit will come as a package and will be installed by our technicians.

 **IMPORTANT:** Always follow the MSDS, SWMS and any JSAs specific to your site prior to undertaking any system changes that cause any harmful effects.

 **WARNING:** Observe and do not remove any warning and safety labels on the system.

 **WARNING:** All guards, shields and covers must be in place to prevent accidental contact with hazardous parts.

 **WARNING:** Never stand in water when cleaning, contacting or working with electrically powered equipment.

 **WARNING:** Verify the correctness of all electrical connections, especially check for proper electrical ground before servicing or operating this equipment.

2 Transportation & Storage

2.1 Receiving and Inspection of the Equipment

Depending on the product, the equipment may be delivered fully assembled or in flat-pack form for local assembly. Upon delivery, immediately inspect the goods and report any visible damage. Notify Enviroconcepts of any defect or damage and include photographic evidence.

2.2 Typical Loading/Unloading of the equipment

Before doing any work, an appropriate lift study needs to be undertaken by a qualified person before commencing the lift. The lifting procedures specified in this manual are only generic guidelines and should be reviewed for suitability depending on actual site conditions.

Check the empty equipment weight and select appropriate rated and sized lifting equipment. If unsure, contact Enviroconcepts for advice.

2.3 Typical Transportation of the equipment.

When transporting equipment, the following procedure must be followed;

1. Strap securely over the top in two directions minimum.
2. Wherever possible, the loads should be tarped to reduce damage to equipment during transport.

3 Operator Safety

When in doubt, contact Enviroconcepts on 1300 661 130.

Remember that the equipment may operate automatically and can start at any time. Isolate any equipment before working on it or asking others to work on it.

3.1 Make it safe first.

Always make the unit safe by flushing out any residual liquids from the pumps and pipelines and isolating the equipment.

Always electrically isolate the equipment and switch off the local isolator before you dismantle any electrical equipment. Remember that equipment can be turned on automatically.

Do not undertake any works unless the consequences are carefully thought through. Many pipelines contain chemicals or effluent under pressure even when the equipment has been shut down for some time.

All warranties and guarantees with respect to the function and durability of the system shall be void should the operator fail to adhere to these safety instructions or any other instructions within this Guide.

The associated risks due to failure to adhere to these safety instructions include but are not limited to:

1. Endangering people due to electrical, mechanical, and/or chemical/biochemical hazards.
2. Endangering the environment due to leakage of hazardous material (where chemicals are involved).
3. Failure of important equipment and process functions leading to inferior performance.

3.2 Before operating.

The user should be thoroughly familiar with equipment operation, limitations, and hazards. Thoroughly read, understand, and observe all safety and operating instructions Please note – System components may vary with your system please disregard/ignore system component instructions that are not relevant to your system. If you are unsure, please contact Enviroconcepts on 1300 661 130.

The control panel with OPTIONAL built in Rain Diverter is a combination of the Plumbing Manifold, Electrical flow sensors, Automated actuator valve or Solenoid valves (Depending on model) and a control panel that controls the rain diversion process.

The SIOSTM 30 is a combination of the Plumbing Manifold, Electrical flow sensors, Automated actuator valve or Solenoid valves (Depending on model) and a control panel that controls the rain diversion process.

4 SIOSTM 30 Specific Components

4.1 Diaphragm Pump

The influent pump will draw the waste water from the point of catchment i.e. a settling tank, drainage pit or other waste water catchment pit.

A float switch or other form of level indicator will trigger the pump to turn on when the water level reaches a set point.

The pump will draw the waste water from the pit and send to the unit for treatment. No priming is needed due to the use of Diaphragm Pumps.

For more information and diagrams on this pump, please refer to the Diaphragm Pump Manual and Data Sheet.

4.2 Continuous Media System (CMS)

The CMS30 filtering system is engineered to provide continuous filtration, helping removing solids down to acceptable levels for discharge or for reuse in a recycling system. The CMS may be used as an individual filtering system or be combined with other filters to provide more specialised filtration. Many safety features have been integrated into its design to help protect the operator, however, there are potential hazards involved with its use.

For more information on the Continuous Media System, please refer to the CMS Manual and diagrams.

4.3 Oil Water Separator (OWS)

Like all gravity separators, the ECOWS-30 depends on Stokes' Law for its performance prediction. Stokes' Law is the physical law governing the settling / rise rate of a particle / oil droplet in a fluid stream and along with various design parameters, determines the size and type of OWS unit.

For more information on the Oil Water Separator, please refer to the OWS Manual and diagrams.

4.4 Rain Diverter (Optional)

In many applications for the SIOSTM 30, the system can be open to water ingress by rain. In this case, we include some hardware and programming to avoid clean rain water being mixed with wastewater, and vice versa to stop wastewater going to stormwater.

For more information on the Rain Diverter please refer to the Rain Diverter Operating Manual.

4.5 Remote Monitoring (Optional)

Remote monitoring is usually chosen for cases when local operators cannot be available for regular maintenance. It allows for someone to log in and run diagnostic checks. Or it allows for out of range alarms (pH, oil levels, temperature for instance) to be emailed to a technician.

For more information on the Remote Monitoring System please refer to the Remote Monitoring Operating Manual.

5 TROUBLESHOOTING

For troubleshooting on each component, please refer to the individual component manuals.

Alternatively, please give us a call on 1300 661 130 to speak with a technician.



Specific Equipment



Diaphragm Pump Manual



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1. INSTALLATION INSTRUCTIONS

In the rare occurrence where the diaphragm pump is required to be installed on site by either yourselves or your plumber, please see the below instructions

1.1 General

Install the pump on a level and secure surface using holes in the base plate.

Remove vent plug from gear reducer oil filler cap.

Check oil is visible in the sight glass. Use high quality 460 grade gear oil. ASM Diaphragm pumps do not require priming and can run dry without damage. For startup ensure all valves are fully open before running the pump. With the pump delivering liquid check the motor current draw is below the full load current on the motor nameplate.

1.2 Rotation

Correct motor rotation is clockwise – viewed from the fan end of the pump.



WARNING: Incorrect rotation will damage the pump and void warranty.

1.3 Pipe Work

Correct pipe size is a critical factor affecting pump performance and service life. Refer to pipe selection chart below. Pipework should be airtight, adequately supported and as short and direct as possible. Use flexible connectors between pump and rigid pipe work. Fit an ASM Pulsation Dampener if rigid pipework exceeds 3m in length. For flexible installations use reinforced suction hose for suction and discharge.



WARNING: Never restrict or dead head the pump discharge, damage will occur. Use of incorrect pipe sizes will void warranty.

1.4 Electrical

Have the electrical connection installed by a qualified electrician. Connect motor as per the motor manufacturers instructions and fit a motor overload protection device. Ensure there is unobstructed airflow to the motor cooling fan and the motor is protected from the weather and water. The correct motor rotation is clockwise viewed from the fan end.

1.5 Gear Reducer

Check oil is visible in sight glass before start up. Recommended Oil – Shell Omala 320 or Castrol Alpha SP320.



WARNING: Remove vent from oil filler cap.

1.6 Engine Drives

Refer to manufacturer's instructions for commissioning

1.7 Start Up

Diaphragm pumps do not require priming and can run dry without damage. Open valves and run the pump. With the pump delivering liquid check motor current draw is below the full load current on the motor nameplate.

1.8 Important information for installers – Internal Pipe Size for Diaphragm Pumps

For Clean liquids with the same viscosity as water.

Pump Size		Suction Pipe Length 0-5m	Suction Pipe Length 5-10m	Discharge Pipe Length 0-5m	Discharge Pipe Length 5-10m	Discharge Pipe Length 10-20m
D25	Suction Pipe ID	25mm	32mm	32mm	40mm	40mm
D32		32	40	40	50	50
D38		40	50	50	65	65
D50		50	65	65	80	80
D76		80	80	80	100	100



WARNING: Use of pipes smaller than recommended will void warranty

1.9 Maintenance

After 10 Hours operation check the oil level in the gear reducer and re-tension fasteners if required. After 100 Hours drain reducer, flush thoroughly with a light oil and replace with 460 grade gear oil. Replace gear reducer oil every 2500 Hours thereafter. The operator should not need to carry out further maintenance, rather inspect the pump on a regular basis and be aware of changes to the pump's normal operation. Diaphragm and valve assemblies are consumable items and will require replacement.

1.10 Diaphragm Installation Instructions

- Jog pump to take the diaphragm, Item 3 to the bottom of the stroke.
- Disconnect power supply. Remove the four clamping bolts holding the drive support housing, Item 12 to the bowl casing, Item 1 and lift the drive support and diaphragm assembly clear.
- Remove stainless bolt Item 9 for D25 and D32 or nut for D38, D50 and D76. Remove the washer set set Item 10 and diaphragm plate Item 2.
- Clean and inspect both diaphragm plates and replace washer set. Replace diaphragm. The correct orientation is with the writing up. See Fig.1
- The top outer lip of the diaphragm should be 0 - 2mm from the drive support housing clamp face. See Fig.2 below.
- The diaphragm position will generally not require adjustment. If required, loosen and adjust the connecting rod nut/s.
- Mount the drive support and diaphragm assembly onto the bowl casing ensuring the diaphragm is central and located in the groove of the bowl and fit the four clamp bolts.

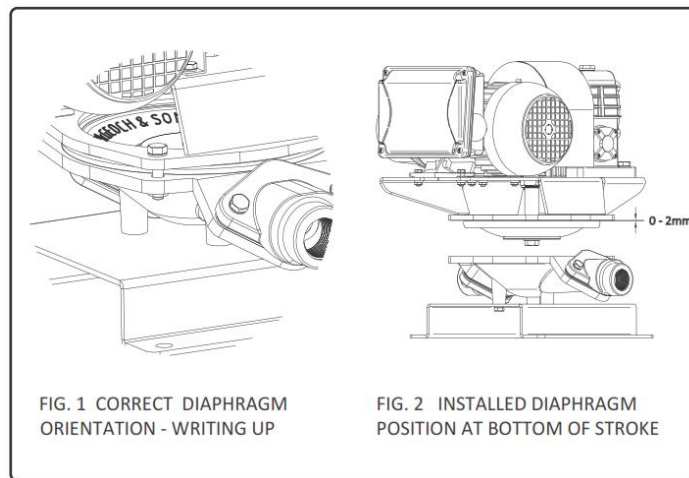
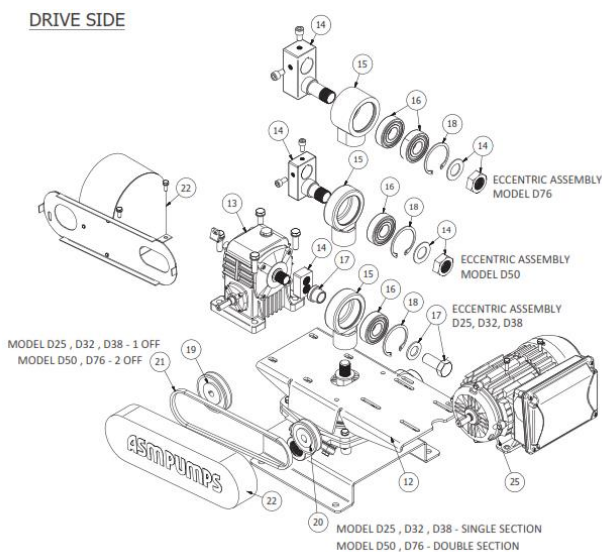


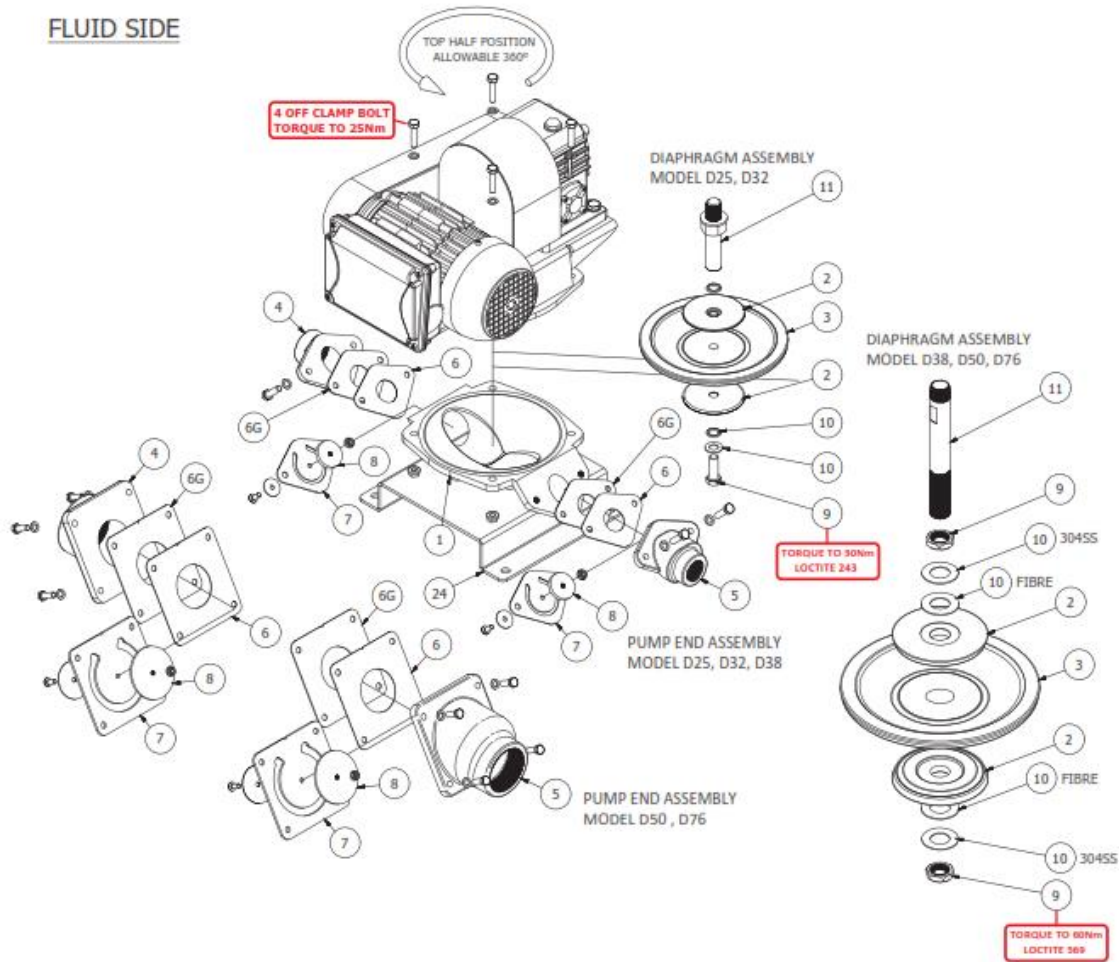
FIG. 1 CORRECT DIAPHRAGM ORIENTATION - WRITING UP

FIG. 2 INSTALLED DIAPHRAGM POSITION AT BOTTOM OF STROKE



D SERIES PUMP PARTS LIST		
ITEM	DESCRIPTION	QTY.
1	Bowl Casing	1
2	Diaphragm Plate	2
3 *	Diaphragm	1
4	Suction Valve Body	1
5	Discharge Valve Body	1
6 * #	Valve Seat - Stainless	2
6G * #	Valve Seat Gasket - Rubber	2
7 * #	Flap Valve	2
8 * #	Flap Valve Weight Set	2
9	SS Bolt / Nut	1 / 2
10 *	Washer Set	1
11	Connecting Rod	1
12	Drive Support Housing	1
13	Gear Reducer	1
14	Eccentric Block Assembly	1
15	Eccentric Housing	1
16	Eccentric Bearing	1 OR 2
17	Eccentric Bolt & Spacer	1
18	Circlip	1
19	Gear Reducer Pulley	1
20	Motor Pulley	1
21 *	V-Belt	1 OR 2
22	Gaurd Assembly	1
23	Carry Frame	OPT.
24	Base Plate	1
25	Motor	1
VA	Valve Assembly	2
K1	Service Kit	1
* Part Included in K1 Service Kit		
# Part Included in VA Valve Assembly		
For ordering Part No. = Model - Item No.		

FLUID SIDE



PD1 & PD2 PULSATION DAMPENER PARTS LIST	
ITEM	DESCRIPTION
1	Top Half
2	Bottom Half
3	Diaphragm

DIAPHRAGM ORIENTATION
Discharge - Concave (as shown)
Suction - Convex



Continuous Media System Operating Manual



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1 INTRODUCTION

Thank you for purchasing your Enviroconcepts Continuous Media System. This manual has been prepared to help you to understand, set up, operate and troubleshoot your system. This package has been designed so that minimal maintenance will be needed to keep it operating efficiently.

Before operating the user should be thoroughly familiar with equipment operation, limitations and hazards. Thoroughly read, understand and observe all safety and operating instructions. Please note – system components may vary with your particular system; please disregard/ignore system component instructions that are not relevant to your system. If you are unsure, please contact Enviroconcepts.

1.1 Initial Handling and Inspection

By following the instructions, you will have opened the equipment and found it to be in good condition or damaged.

If the equipment was delivered to you by a common carrier and damage is found, even hidden damage, IMMEDIATELY file a claim with your carrier. Their representatives must inspect and verify the damage. It is your responsibility, not Enviroconcepts, or your distributors to file the freight damage claim.


Check the enclosed packing list to verify that all items have been received. Contact your distributor or Enviroconcepts if assistance is needed with common carriers, identification of parts or installation process.


1.2 Important Notice


The following information is necessary for installation, parts, service and warranty consideration.


This information is specific to your equipment.

Serial Number _____ Model Number: _____

 **IMPORTANT:** Any electrical work must be undertaken by a qualified electrician; this unit will come as a package and will be installed by our technicians.

 **IMPORTANT:** Always follow the MSDS, SWMS and any JSAs specific to your site prior to undertaking any system changes that cause any harmful effects.

 **WARNING:** Observe and do not remove any warning and safety labels on the system.

 **WARNING:** All guards, shields and covers must be in place to prevent accidental contact with hazardous parts.

 **WARNING:** Never stand in water when cleaning, contacting or working with electrically powered equipment.

 **WARNING:** Verify the correctness of all electrical connections, especially check for proper electrical ground before servicing or operating this equipment.

 **WARNING:** Please do not attempt to service your ECCU as hazardous voltages are contained within.

2 TRANSPORTATION & STORAGE

2.1 Receiving and Inspection of the Equipment

Depending on the product, the equipment may be delivered fully assembled or in flat pack form for local assembly.

2.2 Typical Loading and Unloading of the Equipment

Before doing any work, an appropriate lift study needs to be undertaken by a qualified person before commencing the lift. The lifting procedures specified in this manual are only generic guidelines and should be received for suitability depending on actual site conditions.

2.3 Typical Transportation of the Equipment

When transporting the equipment, the following procedure must be followed.


1. Strap securely over the top in two directions minimum.
2. Wherever possible, the loads should be tarped to reduce damage to equipment due to wind shedding.

3 OPERATOR SAFETY

Do not operate the equipment without the proper instructions as given inside this manual. When in doubt ask! Remember that the equipment may operate automatically and can start at any time, isolate any equipment before working on it or asking others to work on it.

The CMS liquid filtering system is engineered to provide continuous filtration, helping removing solids down to acceptable levels for discharge for reuse in a closed loop system. The CMS may be used as an individual filtering system or combined with other Enviroconcepts components to provide more specialised filtration. Many safety features have been integrated into its design to help protect the operator, however there are potential hazards involved with its use. Please read these safety instructions carefully.

The CMS liquid filtering system is engineered to provide continuous filtration, using filter media with nominal pore size of 1 to 50 microns. Applications include filtration of wastewater which results from washing vehicles, ground support equipment, aircraft, reclaiming coolant/lubricants used in machining and grinding operations, dewatering of waste sludge etc.

 **WARNING:** Water discharged from this system is not designated, nor should it be used, for human consumption! Reusable discharged water may be utilised by pressure washers or other like equipment

The user is expected to maintain an operational record of this filtration system. This record should include all maintenance performed and should list component parts of the system which are replaced. This record should also include the replacement of filters and filter media.

3.1 Chemical Safety

Many commonly used chemicals react violently when exposed to water or mixed with other chemicals and may create heat and/or explosive or noxious vapor hazards. Such material must be isolated from the process area or be contained in waterproof containers.

 **WARNING: YOUR WARRANTY MAY BE VOIDED IF CHEMICALS NOT APPROVED ARE USED IN YOUR SYSTEM. CERTAIN CHEMICALS MAY HAVE ADVERSE EFFECTS ON YOUR EQUIPMENT OR BE DANGEROUS TO USE.**

 **THIS SYSTEM IS NOT DESIGNED TO BE USED WITH SOLVENTS, FLAMMABLE OR NONFLAMMABLE.**

Be careful not to inhale or ingest effluent liquids or vapor. Be aware of proper application procedures, required safety equipment, and recommended disposal procedures for the chemicals being introduced to the system.

Maintain an understanding of first aid techniques related to exposure. Make sure that Safety Data Sheets (SDS) are readily available on all products associated with this process.

3.2 Make it safe first.

Always make the unit safe by flushing out any chemical residues from the pumps and pipelines and isolating the equipment.

Always electrically isolate the equipment and switch off the local isolator **before** you dismantle any electrical equipment. Remember that equipment can be turned on by accident.

Do not undertake any works unless the consequences are carefully thought through. Many pipelines contain chemicals or effluent under pressure even when the equipment has been shut down for some time.

The personnel responsible for the installation, operation and maintenance of the equipment must be appropriately qualified for relevant activities which may include; electricals, plumbing, working at heights, working in confined spaces, etc.

All warranties and guarantees with respect to the function and durability of the equipment shall be void should the operator fail to adhere to these safety instructions or any other instructions within this guide.

The associated risks due to failure to adhere to these safety instructions include but are not limited to:

1. Endangering people due to electrical, mechanical, and/or chemical/biochemical hazards.
2. Endangering the environment due to leakage of hazardous material (where chemicals are involved).
3. Failure of important equipment and process functions leading to inferior performance.
4. Biological hazard protocols should be followed as per type of wastewater being treated and standard industry guidelines.

3.3 Before Operating

The user should be thoroughly familiar with equipment operation, limitations, and hazards. Thoroughly read, understand, and observe all safety and operating instructions. Please note – system components may vary with your system please disregard/ignore system component instructions that are not relevant to your system. If you are unsure, please contact Enviroconcepts.

4 INSTALLATION

4.1 Location

NOTE: Observe all local codes during installation.

Systems are designed for use in dry, clean locations with access to adequate ventilation, protected from wind, rain, snow and extreme temperatures. Install the unit with consideration to the location of the water supply, electrical source and access for maintenance.

When installed, there should be adequate free space on all sides of the unit to provide access so that maintenance can be performed without moving the unit.

If multiple filtration units are to be used, understand the proper flow of effluent between each unit prior to the positioning of the units.

4.2 CMS Options

The CMS may be purchased with three available options. These options are listed below along with a brief description of each.

Auto-discharge Option: This option enables the CMS to automatically pump the filtered fluid from the unit. The option includes a float switch operated sump pump, and various fittings to retain the pump in the provided location and connect the line to the output device. Longer lengths of pipe may be specified at the time of order. The pump is installed in the lower filter basin and secured into place. Power to the sump pump must be supplied by a switched outlet on the filtration system that the CMS will be connected to, or by a constant 240V outlet if the discharge is directed to drain or tank that doesn't require control of the inlet supply.

If the pump will be powered by a switched circuit on a supplied system, refer to the wiring diagram of this system to determine connection points for the pump.

Media Catch Container:

(Ref; Image at page 9.0)

The CMS media catch container includes a stainless scrapper and heavy-duty tray that guarantees the media is removed from the belt and retained to the container when the soiled media is advanced by the system. This optional container is easily installed with the provided hanger and can be removed when the media is disposed of.

Container Lid:

(Ref; Image at page 9.0)

To stop wind & rain from entering & disperse.

4.3 Filter Preparation

Make a visual check of the CMS to verify that all the components are properly located and joined. Make certain that all pipe connections are tight, and that all valves are adjusted properly. Once all components have been plugged in, the system power cord may be connected to its power source. Turn the system switch "on" if applicable and actuate the float switch (located midway above the conveyor belt) to test the operation of the drive components.

Do a final check of the unit to verify the following:

- Hoses and cords are not kinked or damaged and are protected from vehicle traffic and sharp objects.
 - All float switches are operational, clean, and move freely.
 - Drain ball valve is closed.
1. Insert the paper roll and locate to the fixed guide bush, then insert the removable guide bush from another end and locate to the roll. Make sure the paper will unroll from the bottom of the roll and up onto the belt.
 2. Unroll filter paper and guide it in between the guide rails on both sides of the tank just above the conveyor belt.
 3. Use your hand to help guide the paper between the conveyor belting and the side seals, advance the media by lifting the float assembly located above the belt until the filter paper exits from the other end.
 4. Advance the filter paper several centimeters and check for proper operation (i.e. paper feeding properly between conveyor belt and the side seals, float operation). Straighten the paper if necessary. Adjust your float switch so that it comes on when your water level is about 6-8cm above the belt and it turns off when the water level is about 4-6cm above the belt.
 5. Fill the CMS basin with water and check the operation of the lower float switch. This float switch should be set to turn on when the water level is about 15cm from the pump base and turn off when the water level is about 2-3cm from the base of the tank.

NOTE: If the CMS is operating as a pre-filter for another filter system, refer to the manual included with the secondary filter system for inflow port location and to determine if the CMS will be plugged into a switched outlet

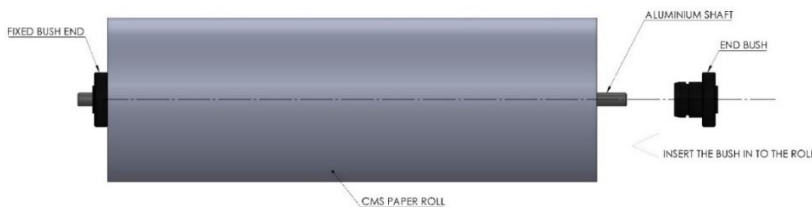
on the secondary filter or connected to terminal supply points. Supplied filters always provide switched power supplies to control inlet flow and avoid overflow conditions.

- The CMS filtering unit should now be operational.

NOTE: The maximum vertical lift of the sump pumps supplied with the options on this unit is about 4 metres. Higher discharge pressures may be provided. If required, please contact Enviroconcepts International Pty Ltd.

4.4 Removing or Replacing the filter paper roll.

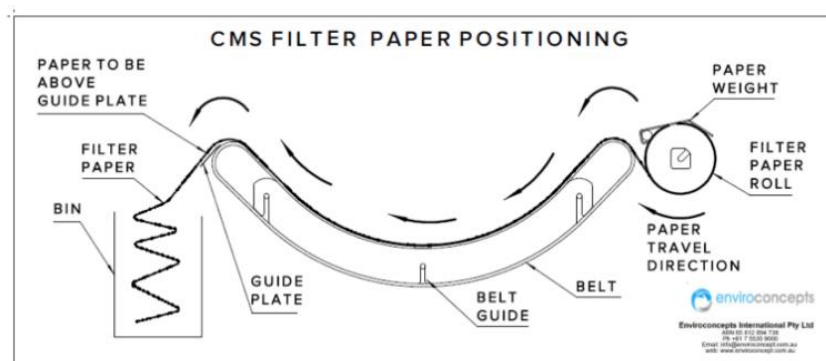
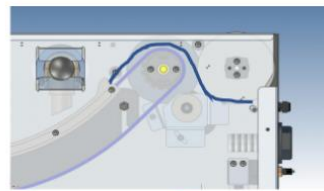
- Lift the paper roll unit from one side and slide out.



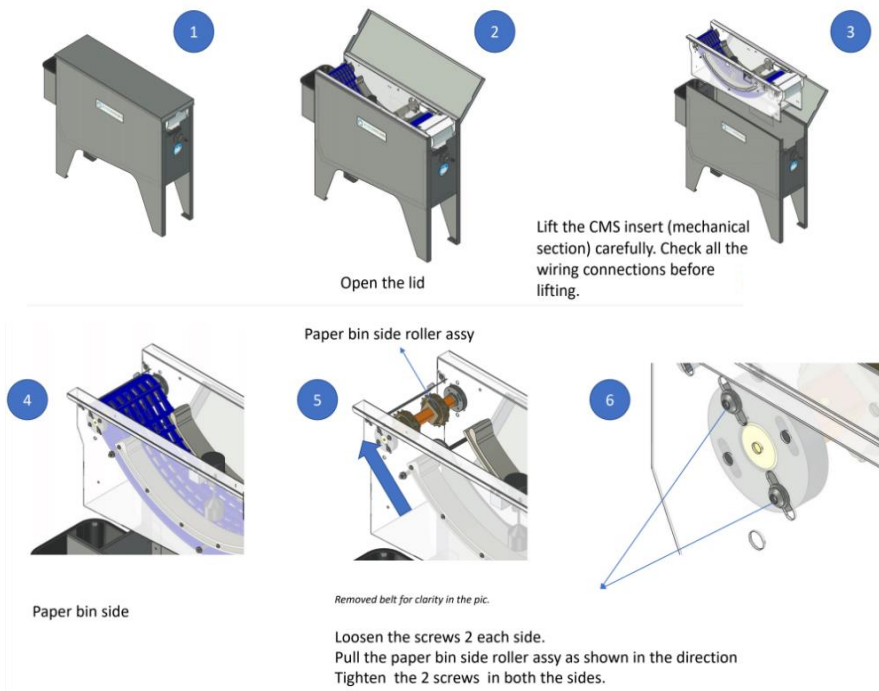
- Remove the end bush from the used roll and re-insert them into the new filter media supply roll.
- Re-install the supply roll unit. Insert the rod end into the shaft holder hole and drop the other end in to the slot. Note: Install the paper so it unwinds from the bottom.
- Finish by advancing the paper across the conveyor – Place the paper on top of the conveyor, lift the conveyor float with one hand while using the other hand to help feed the paper between the conveyor and media guide bar. Make sure the paper is still unwinding from the bottom.
- Continue feeding the paper across the conveyor. HINT: wetting the paper may help during advancing.
- Run the conveyor until the paper extends to the catch container.

4.5 CMS Paper Folding Issue

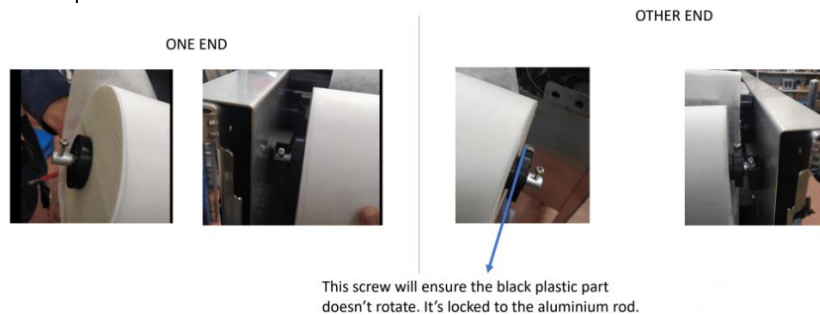
- The unit should be completely cleaned at least once per month. Do this thoroughly before commencing.
- Check filter paper feed direction to feed under the filter roll to the belt not over the filter roll.



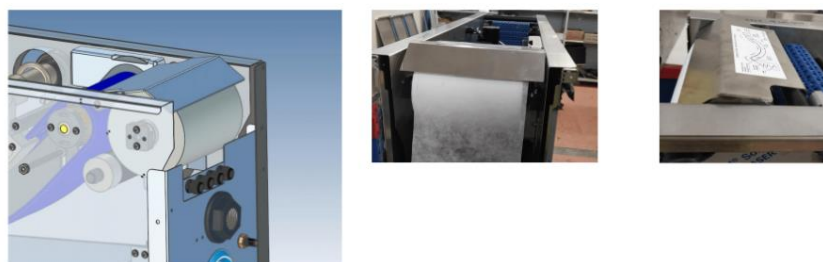
3. Check the conveyor belt is slack (or not stiff)
4. If slack, tighten as per instruction below



5. Ensure screws are as per below



6. Ensure the unit has paper roll holder in place in the correct direction



5 OPERATION

1. Make certain all valves are positioned for proper flow.
2. Fluid to be filtered will automatically begin flowing into the unit to be processed.

6 SHUT DOWN

1. Turn off the system switch.
2. If the system is to be in long term storage, drain the system of all water, disconnect from electrical supply and clean.

The system will operate best at temperatures above freezing. It is not recommended for operation in cold conditions. If shipping or storing in freezing conditions, make certain all fluid is drained from the system.

7 MAINTENANCE & SERVICE

WARNING: Turn the system off and disconnect from power to assure that the unit is not inadvertently started during servicing.

7.1 Cleaning

This unit requires periodic cleaning to maintain proper operation. Fine materials that pass through the filter media can attach to the conveyor belt and build a layer of sediment on the bottom of the basin.

The CMS may be cleaned using a wet or damp cloth. The stainless-steel tank may be polished using any stainless-steel cleaner or window cleaner.

Water from a hose can be used to clean out the base

7.2 Electrical Cords

Replace any cords if they are frayed or if the insulation is broken, if a cord or cord connection becomes worn during operation, a device is not operating properly or a poor connection is indicated. Repair or replace as necessary.

7.3 Liquid Level Control Sensors

Two level sensors (float switches) are installed on the unit. One switch monitors the fluid level above the filter media and activates the drive system to advance the media when the media becomes blocked with solids. The other monitors the fluid level in the main housing or basin and controls power to the switched outlet that powers the sump pump. The supply pump or valve powered by the switched outlet is turned off when the housing is full of fluid.

The basin level sensor requires an initial low-level adjustment to ensure that it works properly with the discharge sump pump, its upper limit position is set.

Maintenance consists of inspecting to see that the level sensors move freely and are not coated with any substance that would change their weight, or their ability to move freely. When necessary, clean the vertical shaft and the float to allow free movement.

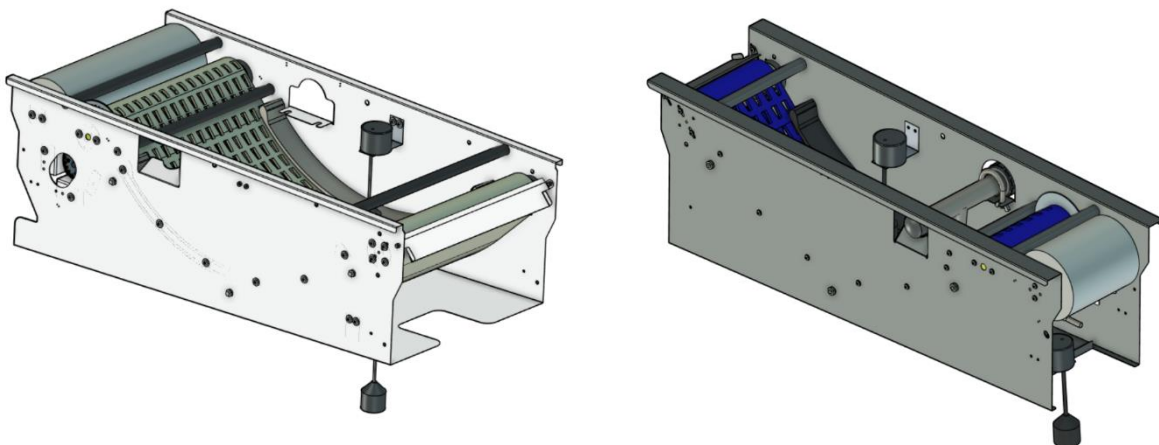
7.4 Pumps

Check for cracks, blisters, cuts, leaks and chafing. Replace as necessary.

7.5 Drive Components (lift out belt drive unit)

The driving system on the CMS consists of the electrical motor, sprockets, and the conveyor belt.

All the drive components are fitted to a detachable unit. The unit can be taken out from the shell by lifting out vertically for maintenance and for replacing the parts. The electrical gland plate is fitted on to the tank wall, this can be pulled out before the unit is removed from the main body.



Gear Motor (always used a licensed electrician to check electrical components)

Check for dirt accumulation, unusual noise or vibration, overheating, high current, poor wiring, and loose or overheating connections. Clean, repair and replace as necessary.

If the motor will not operate (nothing happens when the power is on and the level switch above the filter paper is actuated) check for:

- Power supplied at the wall outlet.
- If power is supplied to the level switch and it doesn't pass when it is actuated, replace the switch.
- If it is noted that the gear motor is receiving power, but is not rotating, ensure that the motor shaft is positioned correctly within the gear. The keyway should be aligned to transmit the motion of the motor to the sprocket. Correct if necessary.

Sprockets

The drive system gears should mesh correctly to transmit the motion from the motor to the CMS conveyor belt. The large sprocket should sit between the side plates of the pinion gear.

If the teeth of the large gear are making contact with the pinion side plates, adjust the motor mounting bracket to ensure the gears are aligned parallel.

NOTE: Ensure that the guard plate on the large gear is always in position while the CMS is in operation. This prevents objects from becoming caught in the drive system.

Conveyor Belt

It is important to provide proper conveyor belt tension. If the belt is too tight, the resistance applied to the drive system becomes excessive and the sprockets may become unmeshed. If the belt is too loose, fluid will flow between the media and the side seals bypassing the filter media entirely. In extreme conditions, the belt may jump off its drive sprockets and fail to advance.

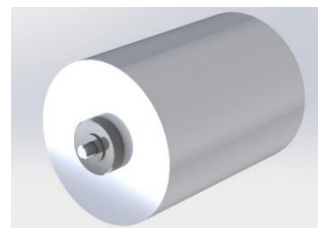
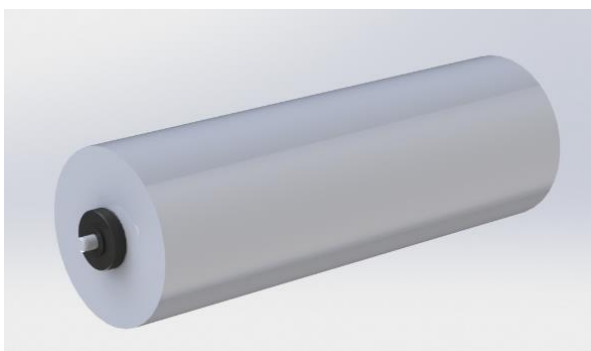
The conveyor belt advances when the level of fluid on the filter media is deep enough to activate the liquid level sensor. The weight of the liquid keeps the media against the conveyor belt.

The conveyor belt normally does not require any adjustments; however, slots are provided at each end to allow for repositioning of the shafts.

7.6 Filter Media

The filter media provided with the CMS has a nominal 15 +/- micron rating.

Pictured below is the filter media for the CMS 100 and the CMS 30.



8 MAINTENANCE CHECKLISTS

8.1 Daily

1. Check supply of media roll and replace media paper when necessary.
2. Check for any visible tears in the filter media paper. If any tears are found, advance the filter media paper past the tears by lifting the float ball on the float valve located above the filter media paper.
3. Empty filter media paper catch container as necessary.
4. Clean scraper blade that is attached to the filter paper media catch container.
5. Visually inspect equipment for leaks.

8.2 Weekly

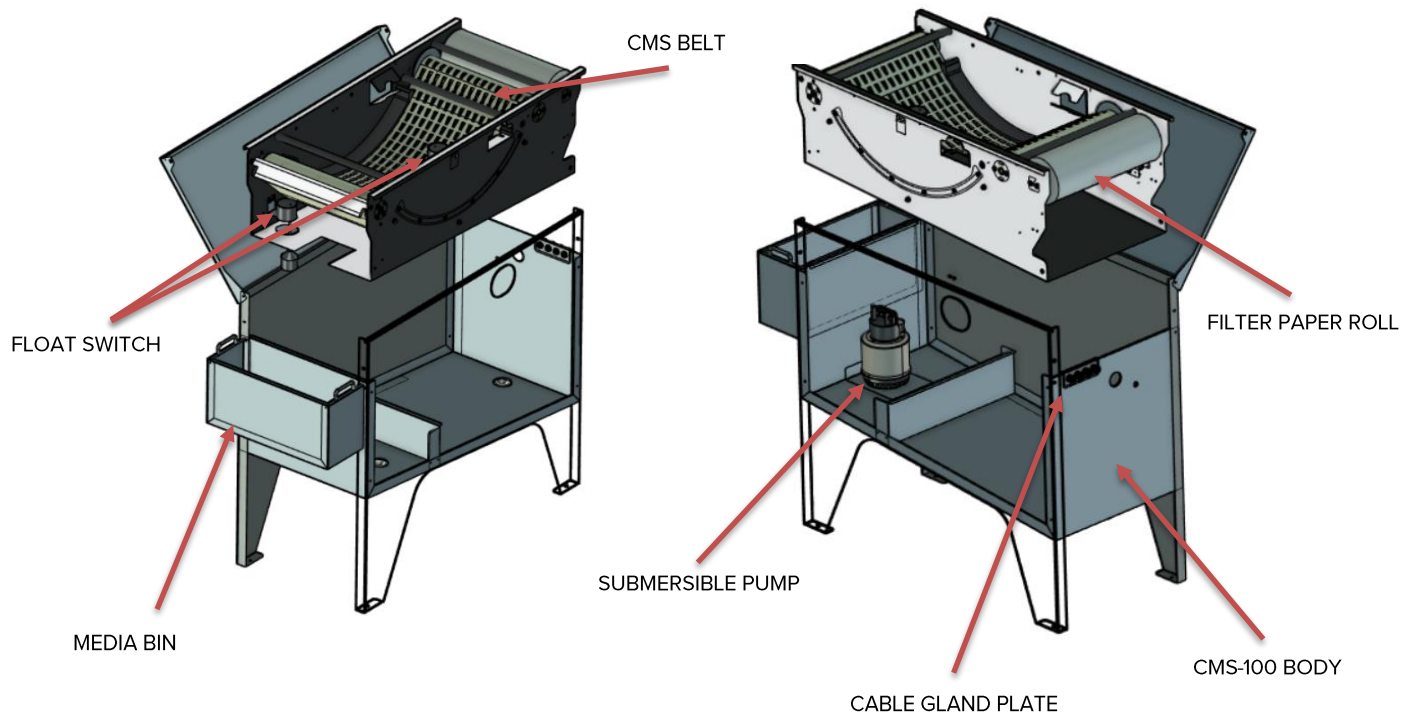
1. Flush or vacuum solids from the container. Open ball valve drain valve on rear of CMS for 1 minute, to allow accumulated solids to flow into the drain line.
2. Check floats and pumps for proper operation.

8.3 Suggested Maintenance Stock Items

The following list represents the suggested stock items that may be required in maintaining the CMS Filtration system.

PAPER MEDIA

Unit	Part No.	Description
50 metres	MEDIAPAPER	Filter, Media, 15Mic x 50m





Oil Water Separator Operating Manual

Rev 2 18/09/2018



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1 INTRODUCTION

Thank you for purchasing your Enviroconcepts, OWS. This manual has been prepared to help you to understand, setup, operate and troubleshoot your system. This package has been designed so that minimal maintenance will be needed to keep it operating efficiently.

Before operating the user should be thoroughly familiar with equipment operation, limitations and hazards. Thoroughly read, understand and observe all safety and operating instructions. Please note – System components may vary with your system please disregard / ignore system component instructions that are not relevant to your system. If you are unsure, please contact Enviroconcepts.

1.1 Initial Handling and Inspection

By following the instructions, you will have opened the equipment and found it to be in good condition or damaged.

If the equipment was delivered to you by a common carrier and damage is found, even hidden damage, IMMEDIATELY file a claim with your carrier. Their representatives must inspect and verify the damage. It is your responsibility, not Enviroconcepts, or your distributors to file the freight damage claim.

Check the enclosed packing list to verify that all items have been received. Contact your distributor or Enviroconcepts if assistance is needed with common carriers, identification of parts or installation process.

1.2 Important Notice

The following information is necessary for installation, parts, service and warranty consideration.






Serial Number _____ Model Number: _____

1.3 Your legislative requirements.

Customers purchasing these products will be subject to trade waste charges. These charges may vary between different water or sewer service providers in each circumstance.

You will need to ensure you have trade waste approval prior to installation.

Contact your local sewerage network provider for proper instruction and advice.

-  **IMPORTANT:** Any electrical work must be undertaken by a qualified electrician.
-  **IMPORTANT:** Always follow the MSDS, SWMS and any JSAs specific to your site prior to undertaking any system changes that cause any harmful effects.
-  **WARNING:** Observe and do not remove any warning and safety labels on the system.
-  **WARNING:** All guards, shields and covers must be in place to prevent accidental contact with hazardous parts.
-  **WARNING:** Never stand in water when cleaning, contacting or working with electrically powered equipment.

2 Transportation & Storage

2.1 Receiving and Inspection of the Equipment

Depending on the product, the equipment may be delivered fully assembled or in flat-pack form for local assembly. Upon delivery, immediately inspect the goods and report any visible damage. Notify Enviroconcepts of any defect or damage and include photographic evidence.

2.2 Typical Loading/Unloading of the equipment

Before doing any work, an appropriate lift study needs to be undertaken by a qualified person before commencing the lift. The lifting procedures specified in this manual are only generic guidelines and should be reviewed for suitability depending on actual site conditions.

Planning, selection and operation of crane must be done in accordance with AS/NZS 2550.1-2011. Check the empty equipment weight and select appropriate rated and sized lifting equipment.

3 Operator Safety

When in doubt, contact Enviroconcepts on 1300 661 130.

Remember that the equipment may operate automatically and can start at any time. Isolate any equipment before working on it or asking others to work on it.

3.1 Make it safe first.

Always make the unit safe by flushing out any chemical residues from the pumps and pipelines and isolating the equipment.

Always electrically isolate the equipment and switch off the local isolator **before** you dismantle any electrical equipment. Remember that equipment can be turned on by accident.

Do not undertake any works unless the consequences are carefully thought through. Many pipelines contain chemicals or effluent under pressure even when the equipment has been shut down for some time.

All warranties and guarantees with respect to the function and durability of the system shall be void should the operator fail to adhere to these safety instructions or any other instructions within this Guide.

The associated risks due to failure to adhere to these safety instructions include but are not limited to:

1. Endangering people due to electrical, mechanical, and/or chemical/biochemical hazards.
2. Endangering the environment due to leakage of hazardous material (where chemicals are involved).
3. Failure of important equipment and process functions leading to inferior performance.

3.2 Before operating.

The user should be thoroughly familiar with equipment operation, limitations, and hazards. Thoroughly read, understand, and observe all safety and operating instructions. Please note – System components may vary with your system please disregard/ignore system component instructions that are not relevant to your system. If you are unsure, please contact Enviroconcepts on 1300 661 130.

4 APPLICATION DESCRIPTION

Wastewater will enter the above-ground ECOWS where free oils will coalesce and float to the surface and overflow the oil outlet pipes to a waste oil drum. Heavy suspended solids will settle and sink into the base hopper where they can be evacuated manually by ball valve, generally back to the pit the wastewater originated from. The pre-treated effluent will continue through to the outlet funnel where it will evacuate by gravity for discharge or further processing.

5 DESIGN CONDITIONS

ECOWS-030 - Maximum Inlet Flow Rate	1,800 L/hr
ECOWS-050 - Maximum Inlet Flow Rate	3,000 L/hr
ECOWS-100 - Maximum Inlet Flow Rate	6,000 L/hr

This range of units have the following design parameters:

Oil Types	Engine Oil, Gasoline, Diesel, Lubricant, etc.	
Typical Oil SG	0.85 @ 25 °C	(note: will vary depending on oil type and temperature)
Operating Temperature	25 °C	(note: temperature affects OWS performance)

See below typical performance,

Inlet Oil Concentration	100 ppm	
Outlet Oil Concentration	< 5 ppm (Inlet by Gravity Flow)	
	< 10 ppm	(Inlet Diaphragm Pump, less than 60 strokes per minute)
	< 15 ppm	(Inlet Progressive Cavity Pump, > 1,000 revs per minute)
	< 30 ppm	(Inlet by Centrifugal Pump, less than 1,800 revs per minute)
Inlet Oil Concentration	750 ppm	
Outlet Oil Concentration	< 25 ppm	(Inlet by Gravity Flow)
	< 50 ppm	(Inlet Diaphragm Pump, less than 60 strokes per minute)
	< 75 ppm	(Inlet Progressive Cavity Pump, > 1,000 revs per minute)
	< 150 ppm	(Inlet by Centrifugal Pump, less than 1,800 revs per minute)

Typical wash bay effluent will be in the 50-200 ppm range. Some industrial trade wastewater may be higher. No chemical emulsions, surfactants, detergents or water-soluble degreasers should be present.

If required, only Quick Break and Biodegradable Detergents and Degreasers may be used and only in minimal quantities.

The application and type of wastewater, including chemicals added in the process, will vary the expected output.

6 PRINCIPLES OF OPERATION

Like all gravity separators, the ECOWS range depends on Stokes' Law for its performance prediction. Stokes' Law is the physical law governing the settling or rise rate of a particle or oil droplet in a fluid stream and along with various design parameters, determines the size and type of OWS unit.

Contaminated water is introduced into the first section of the OWS via gravity flow. Heavy solids settle out immediately and fall into the hopper, whilst large oil particles rise to the surface.

The remaining oily water mixture flows through the closely spaced proprietary oleophilic coalescing plates with the smaller oil droplets and fine suspended solids being progressively separated. An oil dam prevents the collected (floating) oil from escaping into the outlet pipe. Adjustable Oil skimmers are provided for the removal of the accumulated oil.

Pre-Treated Effluent water passes underneath the base of the oil dam, over the outlet weir (funnel) and gravitates to the point of discharge

7 INSTALLATION INSTRUCTIONS

PLEASE REFER TO THE INSTALLATION GUIDELINES IN DIAGRAM ON PAGE 12.

The basic steps for installation of the OWS are as follows:

1. Select a sound, level foundation for locating the OWS.
2. Secure to the foundation with 10-12mm diameter corrosion resistant fasteners.
3. Connect the clean water outlet pipe to the outlet connection of the OWS.
4. Connect the oil outlets from the oil skimmers to the oil collection drum or tank. A normally open valve may be installed in the oil outlet line, if required for isolation purposes.
5. Install a ¼ turn valve on the solids outlet at the base of the hopper. If required install piping back to the dirty water collection tank or a sludge drying pit if available.
6. All pipe work is to be independently supported, not supported by the separator connection nozzles.
7. When installing a bund, its minimum capacity should be equal to the volume of your unit. (ECOWS-030 = 185 Litres, ECOWS-050 = 200 Litres, ECOWS-100 = 441 Litres) and drain back into the dirty water collection tank.

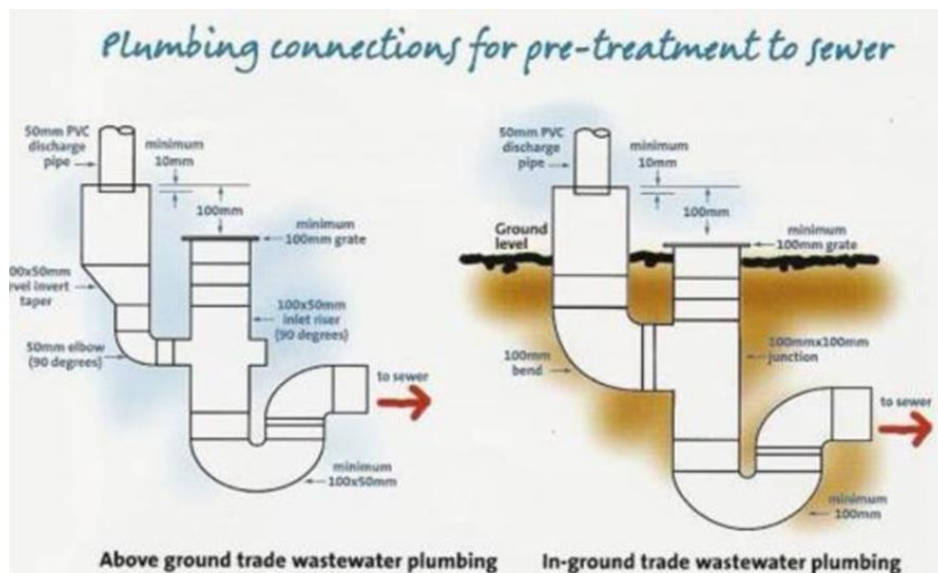
Fitting Sizes

ECOWS-030 and ECOWS-050

- The dirty water inlet and clean water outlet are in 40mm BSP threaded female connections.
- The solids outlet is 50mm BSP threaded female connections.
- The two oil skimmer outlets are 25mm BSP threaded male connections.

ECOWS-100

- The dirty water inlet and clean water outlet are in 50mm BSP threaded female connections.
- The solids outlet is 50mm BSP threaded female connections.
- The two oil skimmer outlets are 40mm BSP threaded male connections.



8 OPERATING INSTRUCTIONS

Initial Startup

This procedure is to be followed after installation or after the unit has been drained, cleaned and is ready to be brought back into operation.

1. Ensure that the waste water inlet is not allowed to flow by isolating the feed pump or gravity feed.
2. Set the oil skimmers high, approx. 35mm above the threaded oil skimmer pipe. Ensure that there are no obstructions in the oil or water outlet piping and remove any foreign matter if necessary.
3. Ensure Oil Waste drums are empty and in place
4. Ensure all fittings are tight and secure.
5. Fill the OWS with clean water until water starts to flow over the outlet weir (funnel).
6. Check for leaks or blockages at the outlet.
7. Now allow the inlet water to enter under typical conditions. If you typically use a pump, make sure you use the pump. This way you can set the oil outlet skimmers at the correct height under normal operating conditions.
8. Note there are two oil skimming outlets. One at the entry end, one at the outlet end. They will be set at different levels. After the pump has primed & then operated for several minutes, set the top of the inlet oil skimmer socket approximately 5mm above the high water level and the discharge end approximately 3mm above the maximum operating water level by screwing the sockets up or down. Secure the lock nuts on each skimmer socket to ensure no movement.
9. Skimmers can be adjusted if necessary but remember that it is always acceptable for an oil layer of approximately 5-10mm to be maintained on the surface.
10. Always adjust oil skimmers relating to the MAXIMUM water level (i.e. at full flow conditions). Note that diaphragm pumps pulse the water level. It is important you set the skimmers based on the highest water level.

9 MAINTENANCE

The solids should be drained fortnightly by opening the valve on the solids hopper until solid free water is flowing (i.e. all the accumulated solids have been removed, usually a few seconds when fully open). Note: Any waste to be disposed of should be collected by a suitable contractor.

It is recommended that the unit be serviced regularly, the frequency being determined by the amount of solids built up in the plates at the time of the first inspection, which should take place approximately 3 months after installation.

A thin oil film present on the plates is normal. Cleaning need only be carried out if the plates are blocked by an oily sludge.

9.1 Inspecting & Servicing

1. The flow to the separator must be isolated before any servicing.
2. The oil skimmers can be lowered to remove accumulated oil from the surface of the OWS. The skimmers must be raised back up to the operating position.
3. Remove the plates by lifting slowly, allowing the water to drain back into the OWS.

Visual inspection will determine the amount of solids built up in the plates. If any of the plates appear to be silted up or partially blocked, they can be cleaned in one of the two following methods:

Method 1 – Cleaning In Situ

1. Makes sure the inlet flow is isolated during servicing.
2. Lower the plates back into the OWS and drain the water through the solids valve on the bottom of the hopper back into the collection tank or other suitable storage tank.
3. Hose down the plates with a hose or pressure washer until all sludge and oil has been removed. Remove any built up solids by hosing underneath the packs, ensuring no sludge remains in the OWS.
4. Follow Initial Start-up instructions above to return to operation.

DO NOT USE ANY DETERGENTS

Method 2 – Cleaning in a Bunded Area

1. Makes sure the inlet flow is isolated during servicing.
2. Drain the OWS through the solids valve on the bottom of the hopper back to the collection tank or gutter.
3. Remove the plate packs from the OWS and place into Bund or on the washbay.
4. Hose the plates thoroughly (in a bunded area draining back into the collection tank), ensuring any built up sludge is removed.
5. Hose the inside of the OWS, ensuring all collected sludge and oil is removed.
6. Replace cleaned plate packs back into the OWS and fill with clean water until water starts to flow over the outlet weir.
7. Follow Initial Start-up instructions above to return to operation.

DO NOT USE ANY DETERGENTS

9.2 When to Service your OWS?

Often, the service timeline requirements are dictated by your local governing authority. However, if there is no preset rules or guidelines, the quantity of sludge found in the hopper and in the plates can be used as a basis for determining the interval between subsequent cleaning operations.

A thin film of oil on the surface of each plate is normal. As is a 5-10mm crust of oil scum on the surface of the separator. The only main maintenance function is to ensure the plates cells are kept free of blockage to ensure the coalescing continues without obstruction.

If you carried out your first service at 3 months, and the plates were relatively clear and free of obstruction, you can consider making the next service date 4 months. Then you may push the next date out 5 months depending on what you find on the next service.

Collection Tank Cleaning:

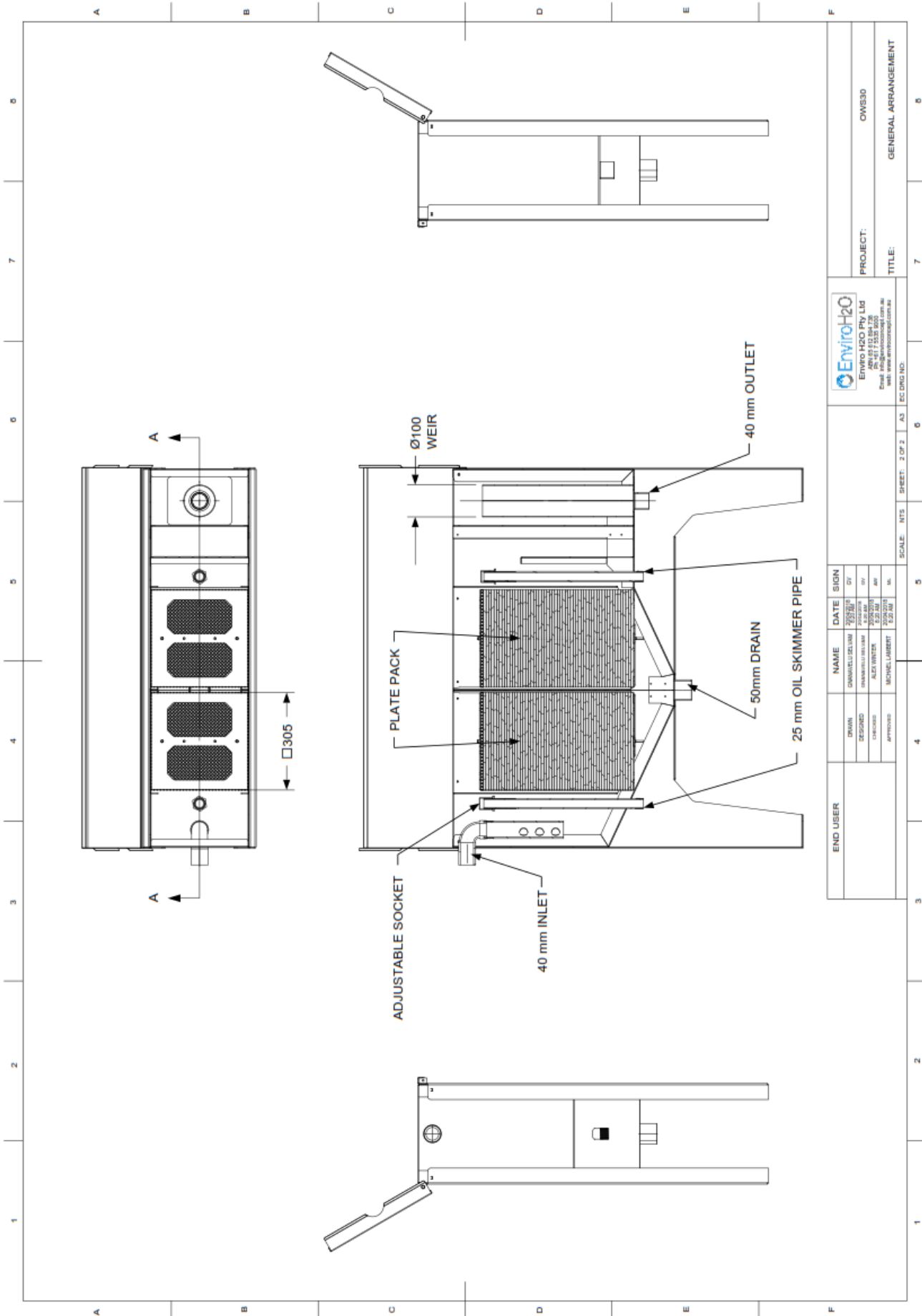
At frequencies, depending upon the build-up of sludge and oil, the collection tank should be emptied (sucked out by a suitable contractor) and cleaned so that all sludge and oil has been removed. Scrape the walls of the collection tank to clean if necessary.

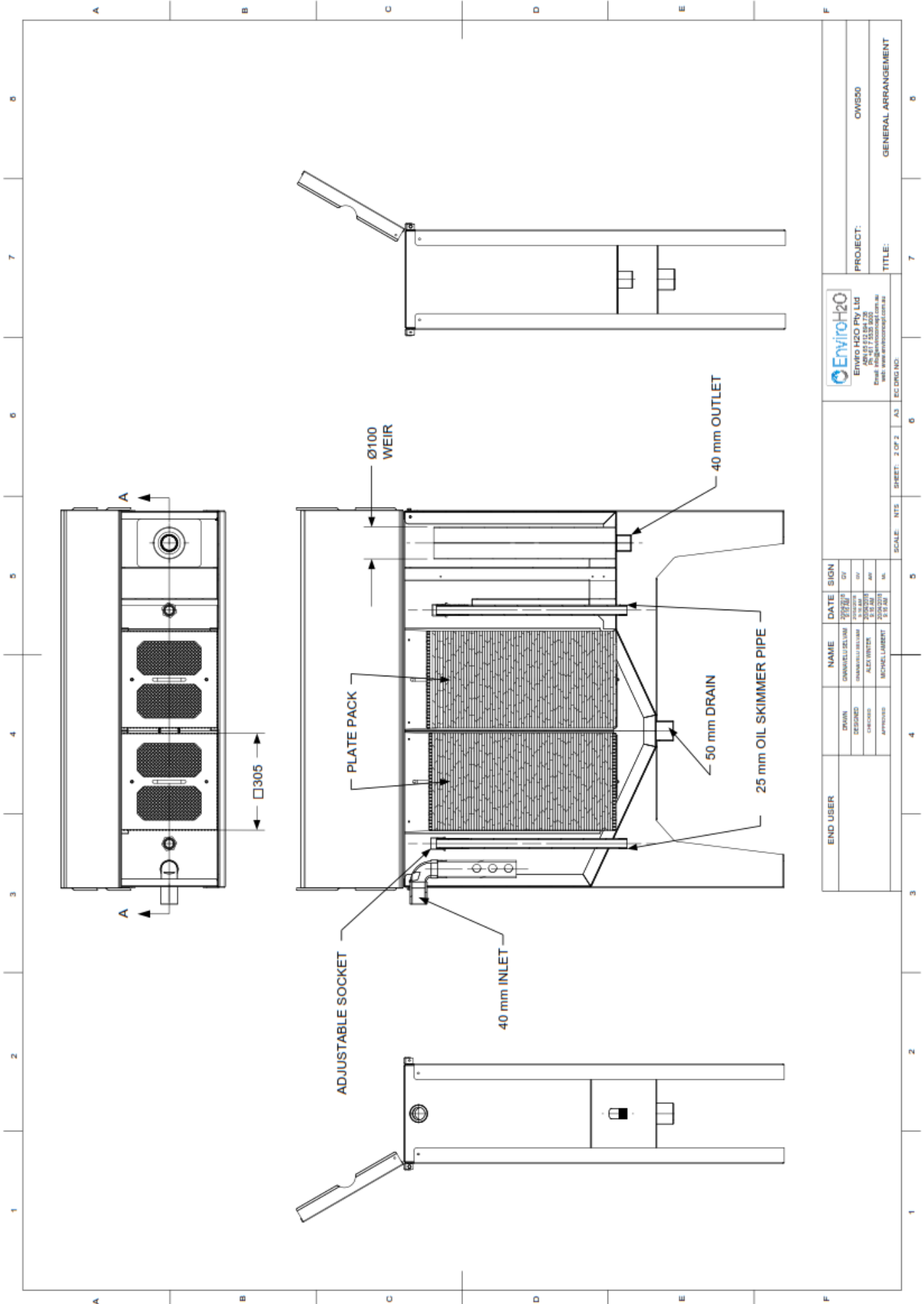
10 SPARE PARTS

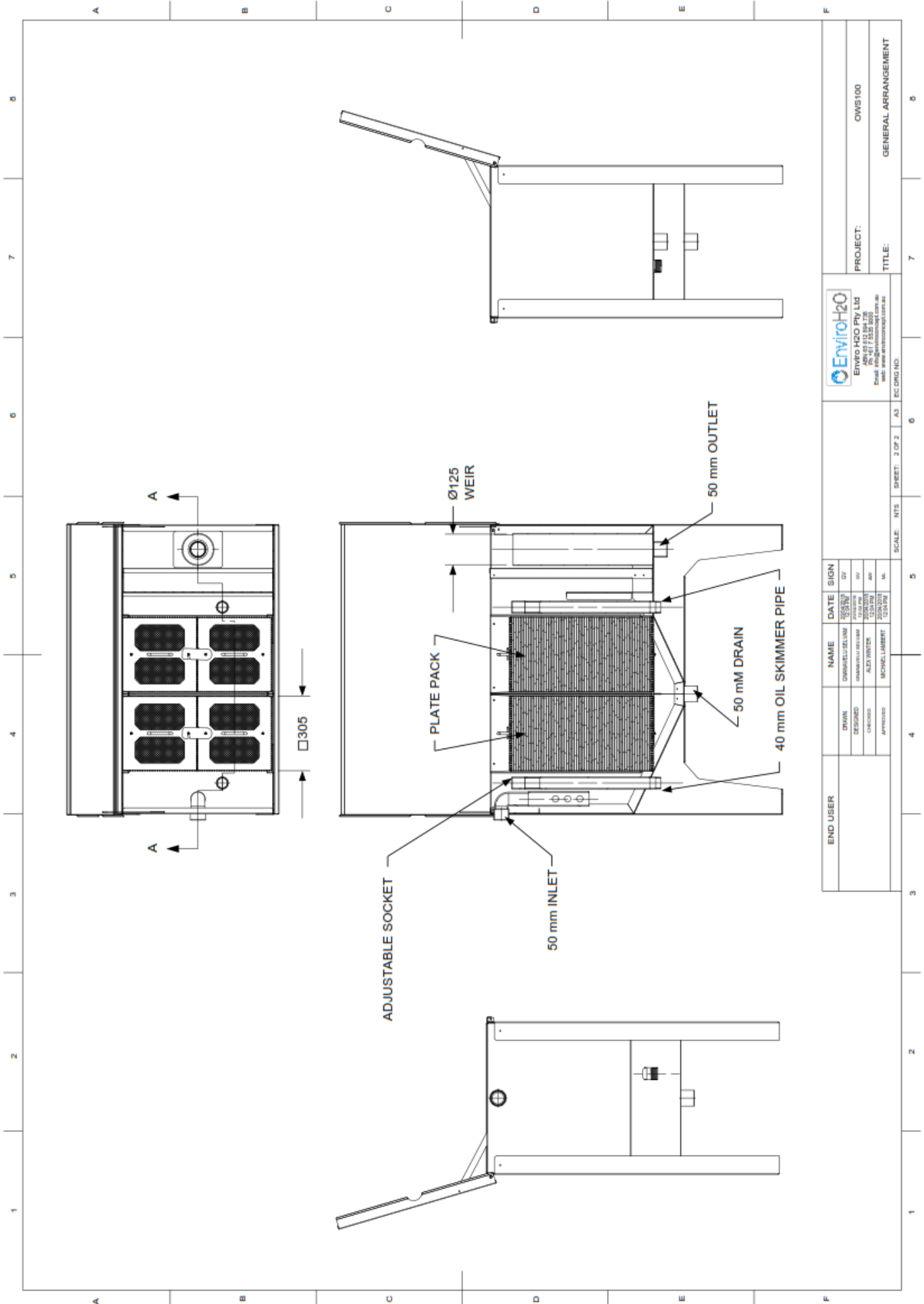
No spare parts are required for this unit. Should any plates or oil skimmer parts become damaged they can be repaired or replaced by contacting your supplier.

11 Drawings

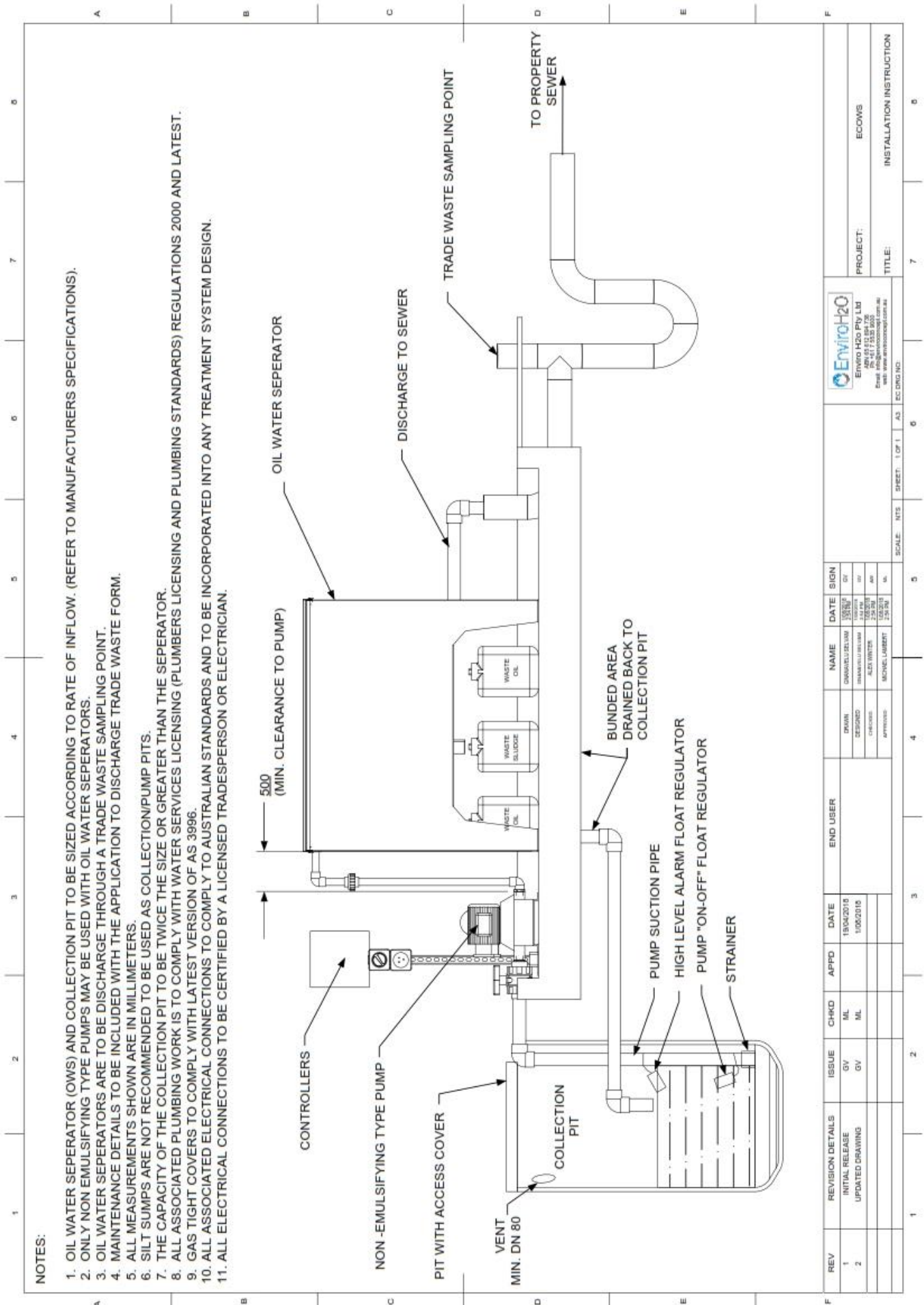
- a) ECOWS-030
- b) ECOWS-050
- c) ECOWS-100
- d) INSTALL GUIDELINES







END USER		NAME	DATE	SIGN
DRAWN	DIMANVELLO SELAM	20/03/14	DT	
DESIGNED	DIMANVELLO SELAM	20/03/14	DM	
CHECKED	ALEX WINTERS	20/03/14	AW	
APPROVED	MICHAEL LAMBERT	10/04/14	ML	
PROJECT:		ECOWS100		
TITLE:		GENERAL ARRANGEMENT		
SCALE:		SHEET: 2 OF 2		
SHEET:		2 OF 2		
ECOWS NO.:		A3		


NOTES:

1. OIL WATER SEPARATOR (OWS) AND COLLECTION PIT TO BE SIZED ACCORDING TO RATE OF INFLOW. (REFER TO MANUFACTURERS SPECIFICATIONS).
2. ONLY NON EMULSIFYING TYPE PUMPS MAY BE USED WITH OIL WATER SEPARATORS.
3. OIL WATER SEPARATORS ARE TO BE DISCHARGE THROUGH A TRADE WASTE SAMPLING POINT.
4. MAINTENANCE DETAILS TO BE INCLUDED WITH THE APPLICATION TO DISCHARGE TRADE WASTE FORM.
5. ALL MEASUREMENTS SHOWN ARE IN MILLIMETERS.
6. SILT SUMPS ARE NOT RECOMMENDED TO BE USED AS COLLECTION/PUMP PITS.
7. THE CAPACITY OF THE COLLECTION PIT TO BE TWICE THE SIZE OR GREATER THAN THE SEPARATOR.
8. ALL ASSOCIATED PLUMBING WORK IS TO COMPLY WITH WATER SERVICES LICENSING (PLUMBERS LICENSING AND PLUMBING STANDARDS) REGULATIONS 2000 AND LATEST.
9. GAS TIGHT COVERS TO COMPLY WITH LATEST VERSION OF AS 3996.
10. ALL ASSOCIATED ELECTRICAL CONNECTIONS TO COMPLY TO AUSTRALIAN STANDARDS AND TO BE INCORPORATED INTO ANY TREATMENT SYSTEM DESIGN.
11. ALL ELECTRICAL CONNECTIONS TO BE CERTIFIED BY A LICENSED TRADESPERSON OR ELECTRICIAN.

REV	REVISION DETAILS	ISSUE	CHKD	APPD	DATE	END USER	NAME	DATE	SIGN
1	INITIAL RELEASE	GV	ML		19/02/2018		DANIEL BELUM	19/02/2018	DB
2	UPDATED DRAWING	GV	ML		10/02/2018		ALAN BRITZ	10/02/2018	AB
							MONCLARETT	2/01/18	MS

		PROJECT: ECOWS TITLE: INSTALLATION INSTRUCTION
Enviro H2O Pty Ltd ABN 61 553 900 726 Email: info@enviroh2o.com.au web: www.enviroh2o.com.au		SCALE: NTS SHEET: 1 OF 1 A3 EC DRG/NO



Rain Diversion Operating Manual



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1. INTRODUCTION


Thank you for purchasing your Enviroconcepts Rain Diverter. This manual has been prepared to help you to understand, setup, operate and troubleshoot your system. This package has been designed so that minimal maintenance will be needed to keep it operating efficiently.


Before operating the user should be thoroughly familiar with equipment operation, limitations and hazards. Thoroughly read, understand and observe all safety and operating instructions. Please note – System components may vary with your system.

If you are unsure, please contact Enviroconcepts.

1.1 Important Notices

 **IMPORTANT:** Any electrical work must be undertaken by a qualified electrician; this unit will come as a package and will be installed by our technicians.

 **WARNING:** Observe and do not remove any warning and safety labels on the system.

 **WARNING:** All guards, shields and covers must be in place to prevent accidental contact with hazardous parts.

 **WARNING:** Never stand in water when cleaning, contacting or working with electrically powered equipment.

 **WARNING:** Verify the correctness of all electrical connections, especially check for proper electrical ground before servicing or operating this equipment.

 **WARNING:** Please do not attempt to service as hazardous voltages are contained within.

2. OPERATOR SAFETY

Do not operate the equipment without the proper instructions as given inside this manual. When in doubt ask! Remember that the equipment may operate automatically and can start at any time, isolate any equipment before working on it or asking others to work on it.

2.1 Make it safe first.

Always make the unit safe by flushing out any liquid residues from the pumps and pipelines and isolating the equipment.

Always electrically isolate the equipment and switch off the local isolator **before** you dismantle any electrical equipment. Remember that equipment can be turned on by automatic means.

Do not undertake any works unless the consequences are carefully thought through. Many pipelines contain chemicals or effluent under pressure even when the equipment has been shut down for some time.

All warranties and guarantees with respect to the function and durability shall be void should the operator fail to adhere to these safety instructions or any other instructions within this Guide.

The associated risks due to failure to adhere to these safety instructions include but are not limited to:

1. Endangering people due to electrical, mechanical, and/or chemical/biochemical hazards.
2. Endangering the environment due to leakage of hazardous material (where chemicals are involved).
3. Failure of important equipment and process functions leading to inferior performance.
4. Biological hazard protocols should be followed as per type of wastewater being treated and standard industry guidelines.

2.2 Before Operating

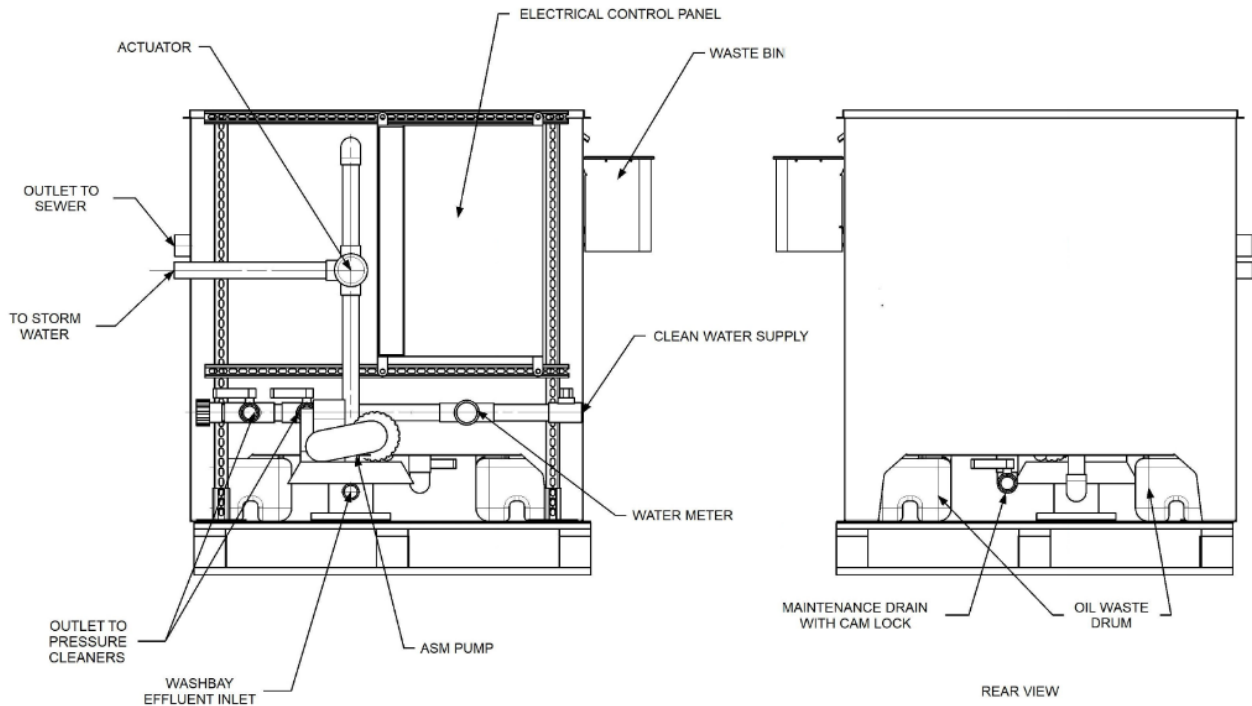
The user should be thoroughly familiar with equipment operation, limitations, and hazards. Thoroughly read, understand, and observe all safety and operating instructions Please note – System components may vary with your system please disregard/ignore system component instructions that are not relevant to your system. If you are unsure please contact Enviroconcepts.

3. SPECIFIC COMPONENTS

The Rain Diverter unit is an optional product incorporated into an existing unit. It is a combination of Plumbing, Electrical controls and flow sensors, Automated actuator valve or Solenoid valves (depending on model) and changes inside the control panel physically and in the PLC/Relay logic.

3.1 Components List

Refer to image;



4 CONTROL PROCESS

The system will switch between the following modes automatically.

4.1 System in Tradewaste / Treatment Mode

Trade Waste mode is triggered by the Flow Switch.

The clean water sent to the pressure cleaner will trigger the flow switch. This tells the system to expect trade waste and the actuator will change the valve position to accordingly send any liquid to the treatment unit.

The actuator will remain in this trade waste position while there is flow triggering this switch. Once there is no flow sensed, a time set for the specific site's worst-case requirements will elapse based on total time the water level in the gutter is high, after which if there is still no further flow, the actuator valve will switch to the stormwater position (rain-water mode) assuming a rain-water event. It will hold this position until the flow switch is activated again.

Generally, when the pressure cleaner is used and triggers the valve position to change to trade waste, there will be a corresponding signal received by the pit float switch. This signal will trigger the pump to run, emptying the pit and sending the waste to the treatment unit.

4.2 System in Rainwater Mode

Rainwater Diversion mode is enabled when there is no recent signal received by the Flow Switch. The valve will stay in the stormwater position until the flow switch is activated or the system is reset by the control panel.

In this mode the pump will run when triggered by a corresponding float switch which empties the pit to stormwater/rainwater.

5 COMMISSIONING

5.1 Pre-Commissioning

Pre-commissioning starts after completion of the erection and installation of the Treatment Unit and includes all activities that need to take place to confirm the correct installation of each individual component. This is done by checking against a checklist which is generated for each component separately before water is put through the system.

Activities to be undertaken as part of pre-commissioning are:

1. Clear site of any rubbish including equipment internally for any foreign material and clear if required
2. Check the services are connected and isolated
3. Undertake pre-commissioning checklist's
4. Close out priority punch list items
5. Mark up P&ID as "As Built"
6. Mark up Electrical Drawings as "As built"
7. Check that all isolators in the MCC are in the off position
8. Unlock the main power isolator to the MCC and place it in the ON position

5.2 Dry-Commissioning

Dry commissioning starts at the close out of the pre-commissioning checklists for all the individual components of a system in the plant. Generally, all individual systems will have completed pre-commissioning prior to the commencement of dry commissioning.

The dry commissioning will be a system wise procedure; it means this stage of commissioning will be completed for each plant system separately

5.3 Wet (Clean Water) Commissioning

Wet commissioning involves introduction of clean service water to primary equipment to prepare the system for first use.

Wet commissioning will be a system wise procedure; it means this stage of commissioning will be completed for each plant system separately.

The main actions that will be performed for each sub-system during Wet Commissioning are:

1. Fill the tanks with water and check the relevant Instruments functionality for each tank
2. Run the pumps with water and check the pumps functionality
3. Run each system separately on manual mode to make sure each system is installed and commissioned properly
4. Run each system in automatic mode to ensure correct operation
5. Activate a high level in the pit to test for automatic operation.

5.4 Hydraulic Leak Testing

The period when the system is being filled with water is the best time to perform leak testing. Check all pipe work for leaks while the system is being filled with water and rectify as necessary.

- Check for leaks around valves and flanges and rectify as necessary.
- Check for leaks around the flexible couplings and tighten clamps as necessary.
- Open the inspection hatch on the top of the bioreactor and check the spray system coverage.

There should be even distribution and wide coverage from each nozzle.

6 SHUTDOWN & DE-COMMISSIONING

Should the Enviro Rain Diverter need to be shut down for an extended period (greater than one week) or de-commissioned, then please contact Enviroconcepts for technical advice and support.

7 GENERAL MAINTENANCE

Period inspection and maintenance routine.

MAINTENANCE ITEM	MAINTENANCE ROUTINE
DAILY	
Pipework/Plumbing	Inspect pipework and valves for leakages. Check for damage
Pumps	Check for correct operation Is liquid being pumped Is there any damage Inspect pumps for unusual noises and/or vibrations. Visual inspection
Actuators	Check for correct operation Is there any damage Visual inspection Is the unit in the correct position i.e Stormwater when not in use, discharge when in use
WEEKLY	
Pumps	Check Pump Oil Check condition of diaphragm Check for damage
Actuators	Check flow through sight glass in both storm water and sewer discharge modes Check for damage
Water Meter	Note water usage for the week and log
Control Panel	Check status indication lights operate in correct modes Operate pump in Manual to check operation of selector switch
Observe wastewater flow through visual inspection	Check that the water is flowing freely through the pump and into the OWS system.
Flow rates	Check and review pressure and flow rates across entire system. Reduction in flow rate will most likely be an issue with the pump/s.
MONTHLY	
Inlet	Check inlet for blockages and check all seals. Clean blockages by applying light to medium hose pressure to remove any sludge build up.
Outlet	Inspect outlet for blockages and check seals and rubber joints. Clean blockages by applying light to medium hose pressure to remove any sludge build up
Other	Services on the Enviro Rain Diverter will need to be carried out by Enviroconcepts personnel every 12-18months

Any person performing maintenance on a wastewater treatment system should wear neoprene gloves, safety goggles and covered rubber soled shoes.

After work is complete the service technician(s) should completely decontaminate by washing their hands with soap and water and then with a disinfectant hand wash. Where more extensive services are performed, the technician should shower.

Any cuts contaminated with wastewater or solids should be washed as described above and then an antiseptic or antibiotic should be applied. For systems treating sewage or animal waste we recommend the wearing of protective breathing mask

General caution should be followed with work on platform and water as surfaces can become wet and slippery.

NOTE: The above intervals are a general guideline. Actual requirements will be dependent on the individual assignment.

8 ONGOING SUPPORT

8.1 General Monitoring and Program Updates

The Rain diverter is controlled via an inbuilt PLC (Programmable Logic Controller) or physical relays (relay logic) depending on the system.

Optional is a remote monitoring module package that requires a PLC that allows us to push program updates and software updates remotely. This also enables to keep track and log any faults and ongoing maintenance concerns.

There is an option for the User to obtain access or to receive email/SMS notifications when a fault occurs with the unit if the remote monitoring module package is installed.

In the case that one of our technicians cannot attend site, we have in house diagnostics staff that can monitor the system while in use and identify any issues that are occurring if the remote monitoring package is installed.



**EC-F-034
CMS Checklist**

Date: 30/06/2018

Revision: 1

CMS (Continuous Media System) Check List

Date of Inspection: _____

Client: _____

Checklist:		Initial	
		Checked	N/A
1	CMS unit securely mounted and free from damage		
2	Pipework to CMS secure and free from damage and leaks		
3	Pipework from CMS to Oil Water Separator (OWS) secure and free from damage and leaks		
4	Lid of CMS opens easily and support bar is present and serviceable		
5	Check over all condition of the CMS internally		
6	Check condition of paper feed conveyor		
7	Check drive chain and motor for signs of damage and adequately secured		
8	Check condition and operation of feed conveyor float		
9	Observe feed conveyor for at least 1 full revolution and correct paper alignment as required		
10	Check condition and operate pump VM float (submersible pump operation)		
11	Check submersible pump operation		
12	Optional - Check operation of CMS high level float (toggle style float)		
13	Check inside lower section of CMS unit for build up of silt or debris		
14	Operate drain valve at base of CMS unit to ensure operation and check for leaks		
15	Wipe down unit		

ECI Technician Name: _____

ECI Technician Signature: _____

Client Name: _____

Client Signature: _____



EC-F-036
OWS Checklist

Date: 30/06/2018

Revision: 1

OWS (Oil Water Separator) Check List

Date of Inspection: _____

Client: _____

Checklist:	Initial		
	Checked	N/A	
1	OWS unit securely fastened down and free from damage		
2	Pipe work to OWS secure and free from damage and leaks		
3	Pipework from OWS to transfer pit secure and free from damage and leaks		
4	Lid of OWS has handles and lifts off easily		
5	Check overall condition of the OWS internally		
6	Check height of incoming oil drain		
7	Check height of outgoing oil drain		
8	Check condition of coalescing plates		
9	Check for clear no surging flow from OWS to transfer pit		
10	Check inside of OWS unit for build up of silt or debris		
11	Operate drain valve at base of OWS unit to ensure operation and check for leaks		
12	Wipe down unit		

ECI Technician Name: _____

ECI Technician Signature: _____

Client Name: _____

Client Signature: _____



Design Diagrams & Drawings

1 2 3 4 5 6 7 8

A

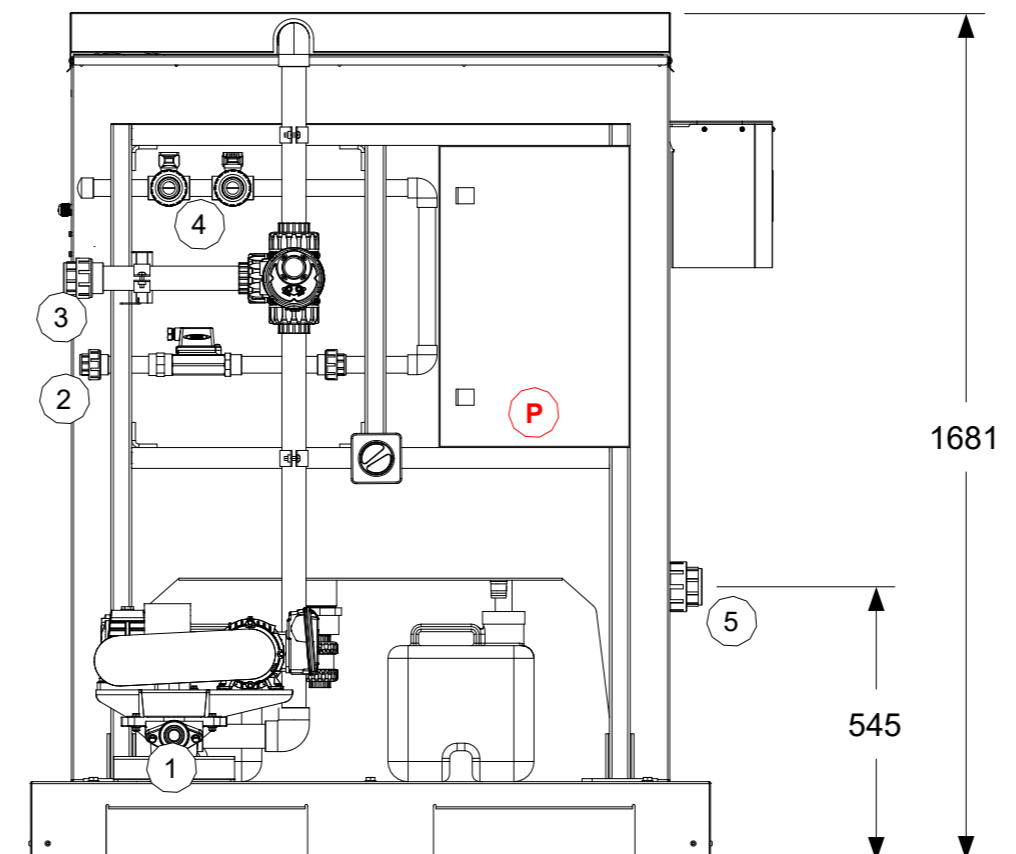
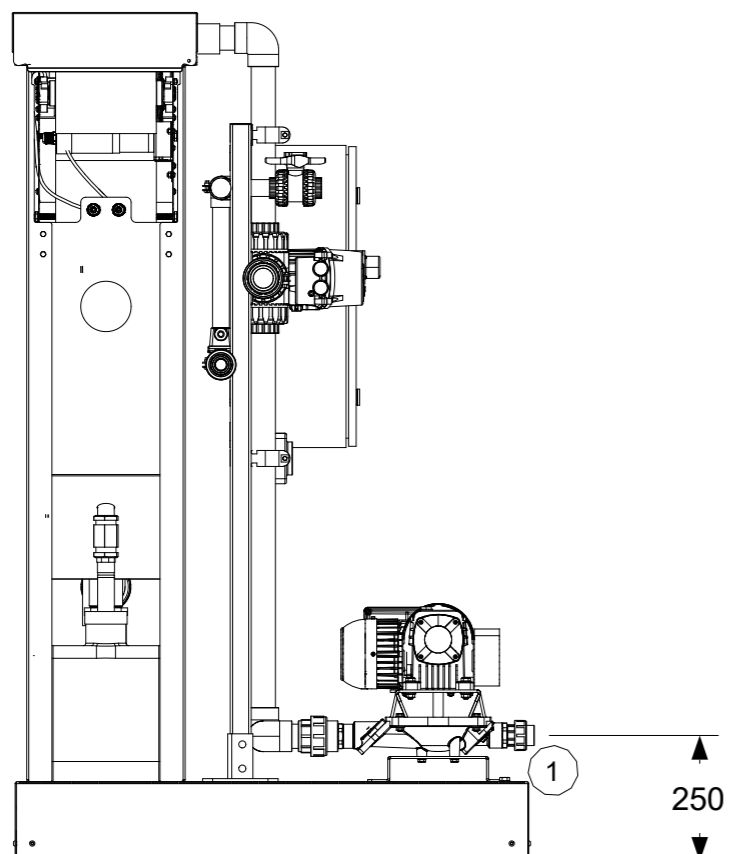
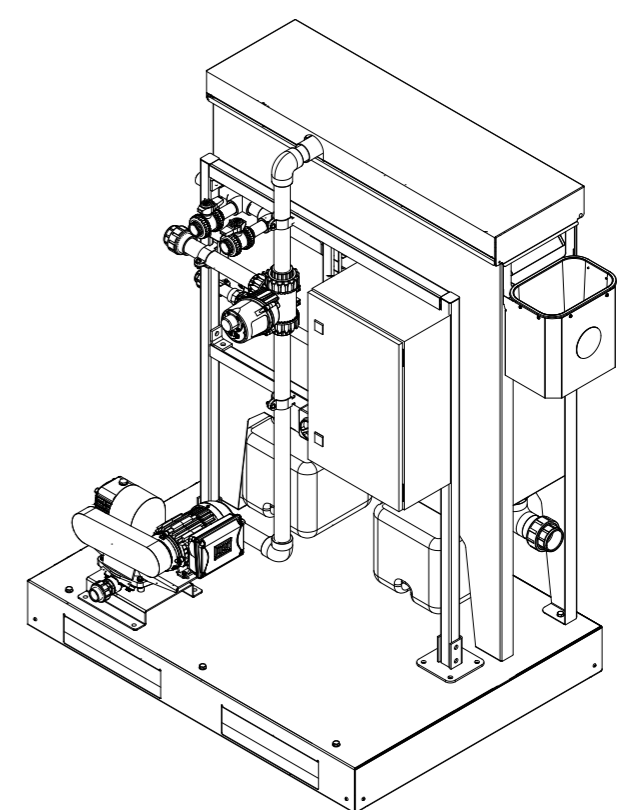
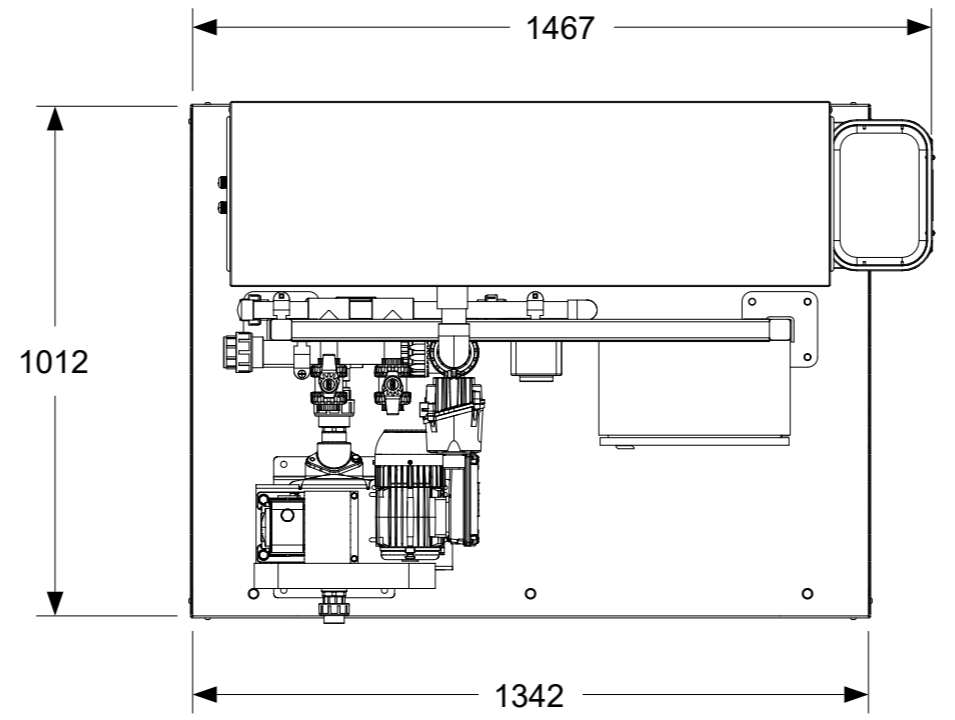
B

C

D

E

F



SYSTEM CONNECTIONS	
REF	DESCRIPTION
1	SYSTEM INLET (DN25)
2	MAINS WATER INLET (DN25)
3	STORMWATER OUTLET (DN40)
4	MAINS WATER OUTLET (2 x DN25)
5	TRADE WASTE OUTLET (DN50)
P	POWER CONNECTION (APPROX 2 x SINGLE PHASE)

REV	REVISION DETAILS	ISSUE	CHKD	APPD	DATE
5	RELEASED DRAWING W/O TRANSFER PIT	GV	GV		2/08/2019
6	UPDATED DRAWING	GV	GV		8/08/2019
7	STANDARDISED PUMP LOCATION	MF	ML		9/06/2020

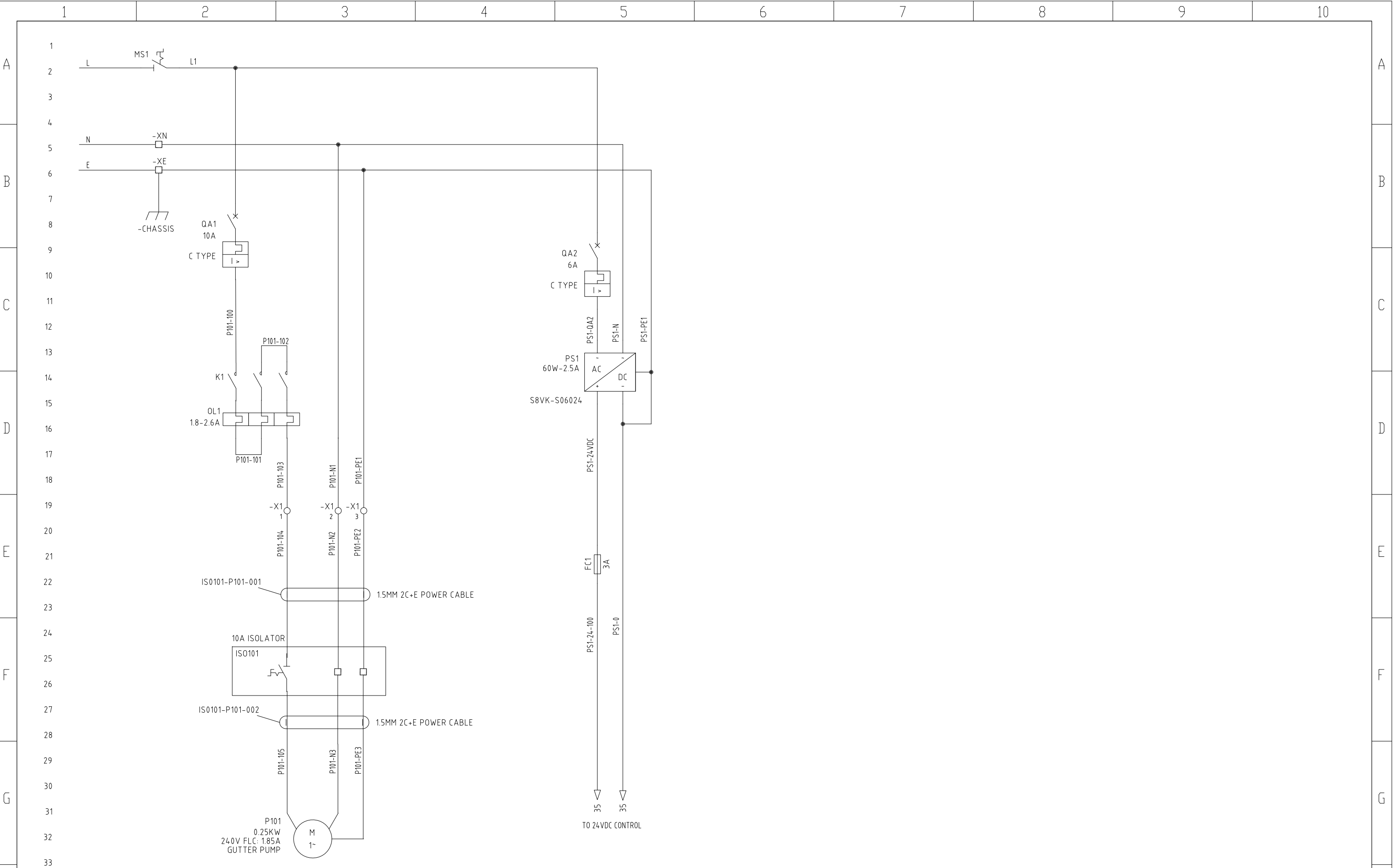
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DRAWN	GNANAVELU SELVAM	9/06/2020 12:23 PM	GV
DESIGNED	GNANAVELU SELVAM	9/06/2020 12:23 PM	GV
CHECKED	MICHAEL LAMBERT	9/06/2020 12:23 PM	ML
APPROVED	MICHAEL LAMBERT	9/06/2020 12:23 PM	ML

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 web: www.enviroconcept.com.au

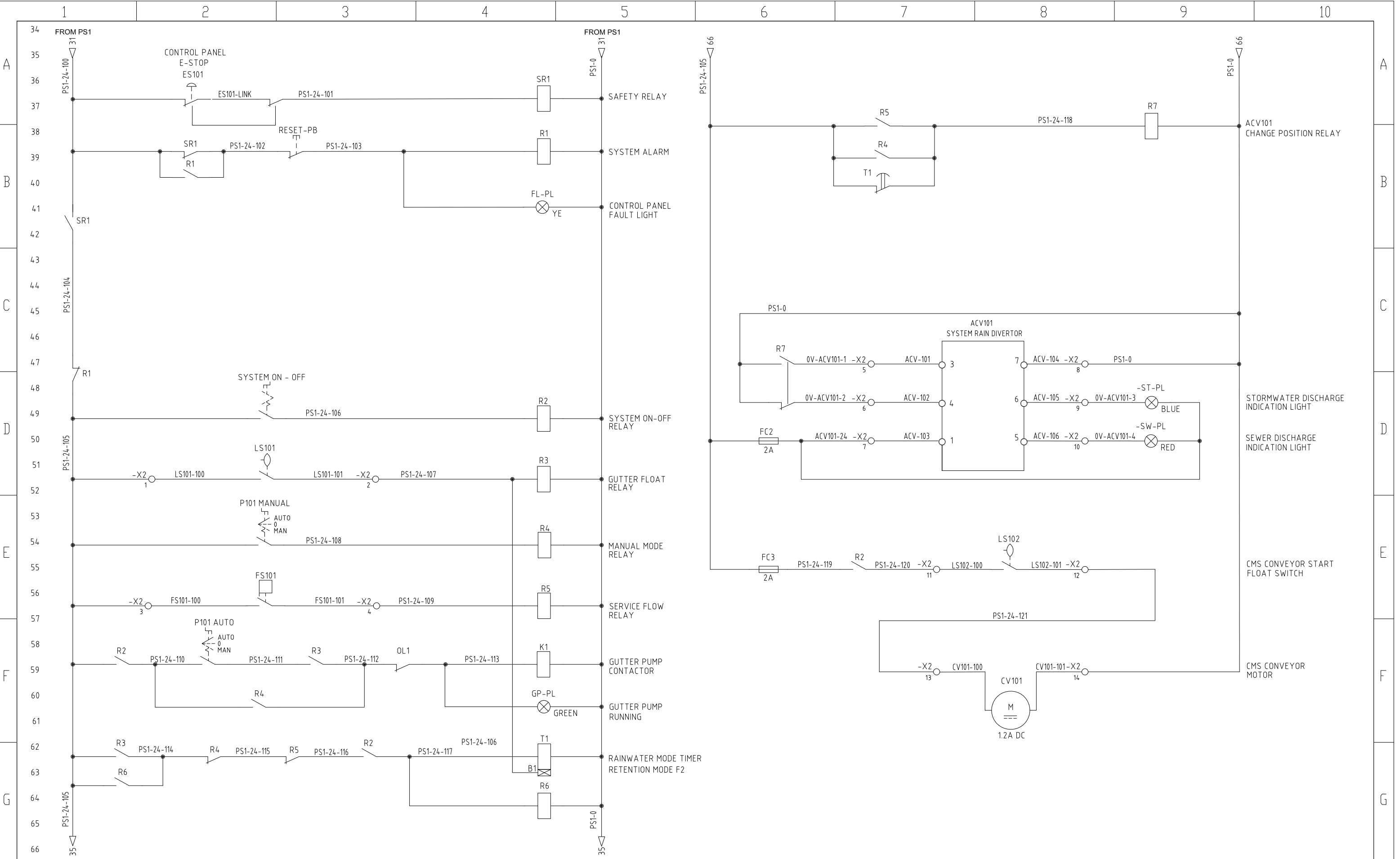
PRODUCT:	SIOSTM-030
TITLE:	GENERAL ARRANGEMENT

SCALE: NTS SHEET: 1 OF 4 A3

1 2 3 4 5 6 7 8



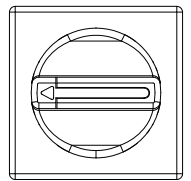
REV	REVISION DETAILS	ISSUE	CHKD	APPD	DATE	END USER	DESIGNED	NAME	DATE	SIGN	CLIENT:
							DESIGNED	G UNWIN	26/05/20	GU	PROJECT: SIDS30TM
							DRAWN	G UNWIN	26/05/20	GU	TITLE: SIDS30TM ELECTRICAL SCHEMATICS 240V & 24V POWER
<p style="text-align: center;"> <small>Enviroconcepts International Pty Ltd ABN 65 612 894 738 Ph +61 7 5535 9000 Email: info@enviroconcept.com.au web: www.enviroconcept.com.au</small> </p>											
<p style="text-align: center;"> <small>SCALE: NTS SHEET 1 OF 3 A3 EC DRG NO: ELE-2002-001</small> </p>											



REV	REVISION DETAILS	ISSUE	CHKD	APPD	DATE	END USER	DESIGNED	NAME	DATE	SIGN	CLIENT:
A							G UNWIN	G UNWIN	26/05/20	GU	SIOS30TM
											SIOS30TM ELECTRICAL SCHEMATICS CONTROL

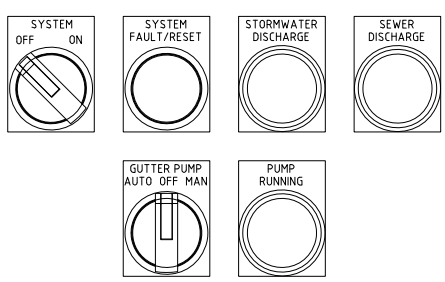
Enclosure 380x600x210

SIOS30TM OWS-CMS
SIOS30TM-GP-001

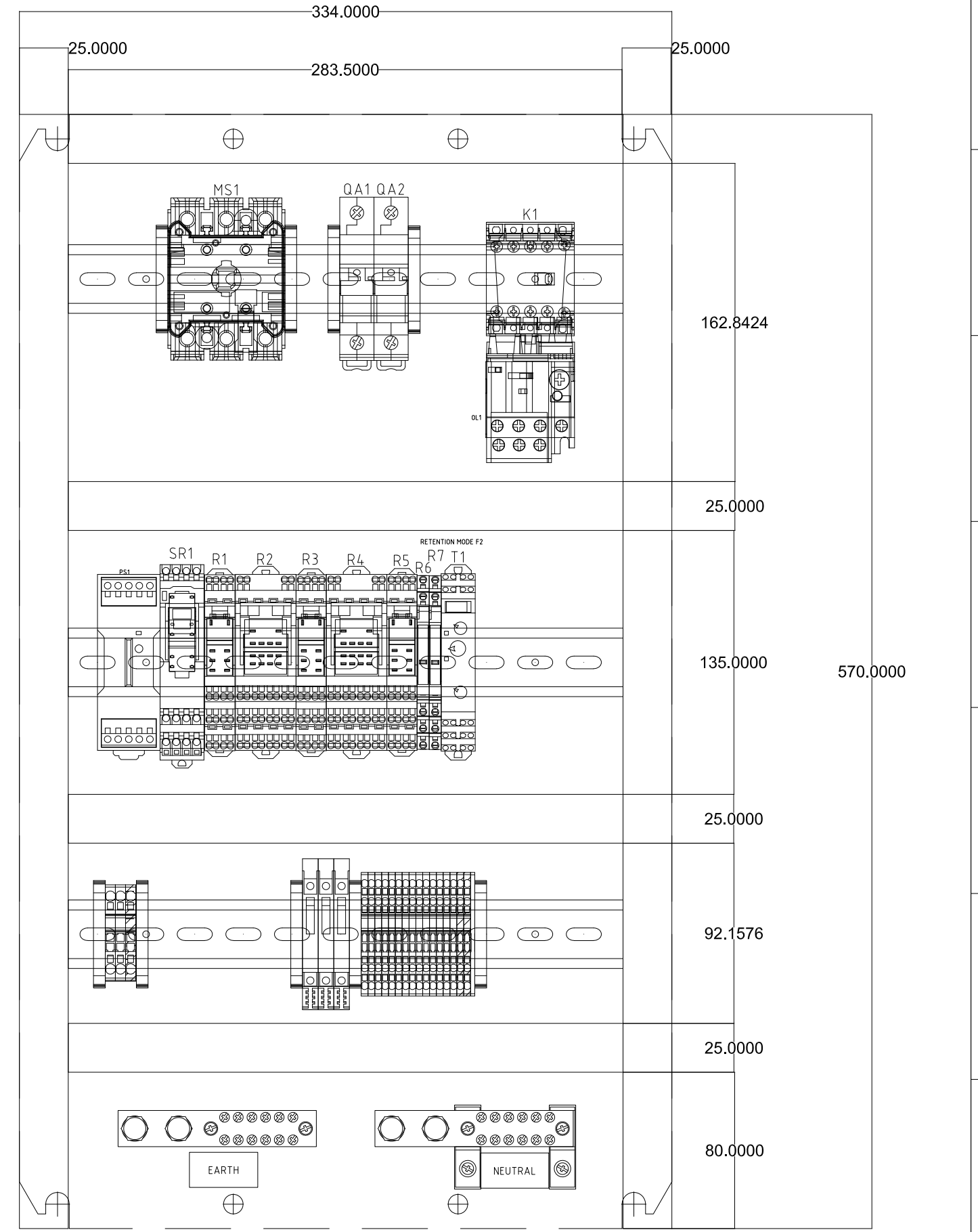
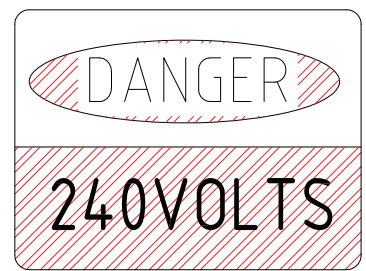
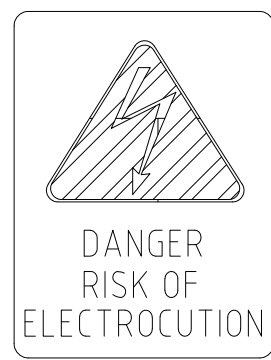


MAIN SWITCH
MS1

SYSTEM CONTROL



SYSTEM E/STOP
ES101



REV	REVISION DETAILS	ISSUE	CHKD	APPD	DATE	END USER	DESIGNED	NAME	DATE	SIGN	CLIENT:
							DESIGNED	G UNWIN	26/05/20	GU	- - - - -
							DRAWN	G UNWIN	26/05/20	GU	PROJECT: SIOS30TM
											TITLE: SIOS30TM ELECTRICAL SCHEMATICS PANEL LAYOUT
<p>Enviroconcepts International Pty Ltd ABN 65 612 894 738 Ph +61 7 5535 9000 Email: info@enviroconcept.com.au web: www.enviroconcept.com.au</p>											
<p>SCALE: NTS SHEET 3 OF 3 A3 EC DRG NO: ELE-2002-003</p>											

PUMP DATA SHEET

D SERIES DIAPHRAGM PUMP – DS25

Description	Value
Pump Specifications:	
Model:	DS25
Port Size:	1" BSPF
Max Flow:	23 L/min
Max Suction Lift:	6m
Max Disch Head:	6m
Max Solid Size:	15mm Sphere
Motor Specifications	
kW:	0.25
RPM:	1480
Voltage:	240v
Full Load Current:	1.95A
IP Rating:	IP55
Materials:	
Diaphragm:	Nitrile
Valves:	Nitrile
Castings:	SG Iron

