Government of Western Australia
Department of Health

HEALTH (TREATMENT OF SEWAGE AND DISPOSAL OF EFFLUENT AND LIQUID WASTE) REGULATIONS 1974

SECONDARY TREATMENT SYSTEM APPROVAL

This is to certify that the FujiClean Advanced Secondary Treatment System:

Model Designation	**ACE 1200**
Manufactured by:	**FujiClean Australia Pty Ltd Unit 3, 16 Waterway Drive COOMERA QLD 4209**
DoH Approval Number:	**F-AA-72832**

is approved by the Chief Health Officer under the *Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974* for use within Western Australia in accordance with the conditions specified in Schedules 1 and 2.

Date of Issue: **12 June 2024**
Date of Expiry: **15 March 2029**

AS/NZS 1546.3: 2017 Certification Number and expiry date:

This approval is valid until 15 March 2029 with FujiClean Australia Pty Ltd Global Certification number 5627-3568-01 or until withdrawn by the Chief Health Officer

Richard Theobald
delegate of
CHIEF HEALTH OFFICER

DEPARTMENT OF HEALTH
APPROVED
12 Jun 2024
CHO
OF WA

12 June 2024

Environmental Health Directorate | Public and Aboriginal Health Division
All correspondence to: PO Box 8172 Perth Business Centre Western Australia 6849
Level 3, A Block, 189 Royal Street, EAST PERTH WA 6004
Telephone (08) 9222 2000
ABN 28 684 750 332
www.health.wa.gov.au

SCHEDULE 1: GENERAL DESCRIPTION

SPECIFICATION SUMMARY

Model Specifications	FujiClean ACE 1200
Maximum daily influent volume	1200 L/day (8EP)
Working Capacity	Total size: 3,265L Sedimentation Chamber: 1,114L Anaerobic Filtration Chamber: 982L Aerobic Contact Filtration Chamber: 580L Clarification Chamber: 281L Disinfection/ Pump Chamber: 208L
Total Capacity	4,369L
Emergency Storage Capacity	1,104L
Disinfection method	Chlorine
Discharge method	Pumped via disinfection/ pump chamber with chlorine dispenser
Approved disposal methods	Surface spray, substrata, subsurface irrigation, Conventional disposal systems (approved receptacle for drainage under the Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974, or AS/NZS 1547 infiltration trenches and beds)
BOD (≤ 10 mg/L, >90%)	*<2 mg/L (99.76%)
TSS (≤ 10 mg/L, >90%)	*2.9 mg/L (99.14%)
Turbidity	*3.63 NTU
E. coli (≤ 10 mg/L, >90%)	<1 CFU/100ml (99.99%)
TN	*14.79 mg/L (79.05%)
TP	*10.33 mg/L (14.50%)
Free Chlorine (Min 0.5 mg/L)	*2.03 mg/L
Service Interval	3 months, Sedimentation pump out 5 yearly or when required
Tank	Fibreglass Tank certified to AS1546.1:2008 (#249/4) Approved with below ground installation only

***Average results over the certification trial period for AS1546.3:2017**
#Global Certificate Pty Ltd

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SCHEDULE 2: CONDITIONS OF APPROVAL

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1. General

1.1 No alteration to the design or specification of the the Secondary Treatment System shall occur without prior approval of the Chief Health Officer.

1.2 Any changes to the design or the construction of the Secondary Treatment System shall be submitted for assessment and approval to the Department of Health before being made commercially available in Western Australia.

1.3 Conditions of approval may be varied or withdrawn at the discretion of the Chief Health Officer.

1.4 Each Secondary Treatment System shall be permanently and legibly marked on a non-corrosive metal plaque or equivalent, attached to the lid with the following information:

- The brand name of the system;
- The manufacturer's name or registered trademark;
- The month and year of manufacture
- The design hydraulic capacity in litres/day.

1.5 The manufacturer shall provide the following information to each Local Government where it is intended to install a Secondary Treatment System in their area once Departmental Approval has been obtained:

- Statement of warranty
- Statement of serviceable life
- Quality Assurance Certification
- Installation Manual
- Service Manual
- Owner's Manual
- Service Report Form
- Engineering Drawings
- Detailed Specifications
- Approval documentation from Department of Health WA.

2 Installation and Commissioning

2.1 For each installation, an application for approval to install shall be in the form of an application to install an apparatus as required under the *Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974*. Each application for installation shall be made to the Local Government and include full plans and specifications, a completed *Application to Construct or Install an Apparatus for the Treatment of Sewage* form, and pay all fees as prescribed.

2.2 Installation of each Secondary Treatment System shall be carried out only by installers authorised by FujiClean Australia Pty Ltd.

2.3 The installation of each Secondary Treatment System shall comply with Part 2 of the Department of Health *"Code of Practice for the Design, Manufacture, Installation and Operation of ATUs Serving Single Dwellings, November 2001"*.

2.4 The Local Government should require that on completion of the installation of each Secondary Treatment System, the system is inspected and checked by the manufacturer or the manufacturer's agent. The manufacturer or the agent is to certify that the system has been installed in accordance with Part 2 of the Department of Health *"Code of Practice for the Design, Manufacture, Installation and Operation of ATUs Serving Single Dwellings, November 2001* and commissioned in accordance with its design, conditions of Approval and any additional requirements of the Local Government*"*.

2.5 All necessary measures shall be taken by FujiClean Australia Pty Ltd (or their authorised agents) as directed by the Chief Health Officer to rectify any Secondary Treatment System installation should it be demonstrated to fail in meeting condition (2.4) above.

2.6 The Local Government should require that all electrical work must be carried out by a licensed electrician and in accordance with the relevant provisions of AS/NZS 3000.

2.7 The Secondary Treatment System shall be supplied, constructed and installed in accordance with the design as submitted and accredited by the Department of Health WA.

2.8 The Secondary Treatment System must not have any structure erected above it, and must not be subject to vehicular traffic and heavy pedestrian traffic, and must be located at least 1.2m from an area that is subject to vehicular traffic.

2.9 The manufacturer shall supply with each Secondary Treatment System an owner's manual, which sets out the care, operation, and maintenance and on-going management requirements of the system.

3 Maintenance and Servicing

3.1 The Local Government shall require the owner/occupier of a premise to enter into a 3 monthly service contract with a representative of FujiClean Australia Pty Ltd. Each 3 monthly service shall include a check on all mechanical, electrical and functioning parts of the system.

3.2 The Local Government should require that a service report sheet, in triplicate, is completed for each service. The original shall be given to the owner, the duplicate forwarded to the Local Government and the triplicate retained by the service contractor.

4 On-going Management

4.1 The owner's manual prepared by the manufacturer shall contain a plan for the on-going management of the Secondary Treatment System. The plan shall include details of:

- the treatment process
- procedures to be followed in the event of a system failure
- emergency contact numbers
- maintenance requirements
- inspection and sampling procedures to be followed as part of the on-going monitoring program developed by the Local Government.

4.2 Effluent from the Secondary Treatment taken in any random grab sample shall comply with effluent quality detailed in Schedule 1.

5 Permitted uses

5.1 The approved disposal methods for the effluent from the Secondary Treatment Systems are detailed in Schedule 1 and must be installed in accordance with Part 2 of the *Code of Practice for the Design, Manufacture, Installation and Operation of ATUs Serving Single Dwellings*, *AS/NZS 1547:2012* or the *Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974*.

5.2 Disposal method is subject to the approval of the Local Government.

Richard Theobald
delegate of
CHIEF HEALTH OFFICER

12 June 2024

W:\Public Health\EHD\Water Unit\WASTEWATER MANAGEMENT\WASTE\Product Approvals\PreApproval Documents\Secondary Treatment Systems\Fuji Clean CE1500EX\2024 Approval\F-AA-72832 - FujiClean ACE 1200 Approval Conditions 2024.docx

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PRODUCT CERTIFICATE OF REGISTRATION

DEPARTMENT OF HEALTH
APPROVED
12 Jun 2024
CHO
OF WA

FujiClean Australia Pty Ltd

59 Computer Road, Yatala, QLD 4207, Australia

Product Performance Testing

AS 1546.3:2017
Advanced Secondary 1200 Litres per day (8EP) Level

Model	Disinfection	Average Results over the Test Period	Servicing Frequency	Discharge	Manufactured and assembled	
FujiClean ACE 1200 8EP Advanced Secondary System AWTS	Yes	TSS 2.9mg/l BOD5 <2mg/l Total Nitrogen14.79mg/l Phosphorus 10.33mg/l Turbidity 3.63NTU E coli<1CFU/100ml	3 monthly. Sedimentation pump out 5 yearly or when required	Pumped via disinfection/ pump chamber with chlorine dispenser	Manufactured and Assembled: 59 Computer Road, Yatala, QLD 4207, Australia	
Description	Total Size	Sedimentation Chamber	Anaerobic Filtration Chamber	Aerobic Contact Filtration Chamber	Clarification Chamber	Disinfection/ Pump Chamber
Working capacity	3,265 L	1,114 L	982L	580L	281L	308L
Total capacity 4,369 L						
Emergency storage capacity 1,104 L						

This Certificate of Conformance to the Product Certificate Scheme for "Domestic Wastewater Treatment Units (AWTS)" remains the property of Global Certification Pty. Ltd. and is granted subject to the terms and conditions of the Contract Application, in respect of the Product certified on this page and the attached schedule to the Certification of Conformance, bearing the same number as this certificate.

Managing Director

JAS-ANZ

CERTIFICATION DATE:	DATE OF ISSUE:	EXPIRY DATE:	CERTIFICATE #:
16 March 2019	7 February 2024	15 March 2029	5627-3568-01

PRODUCT CERTIFICATE OF REGISTRATION

Global Certification Pty Ltd
Number 249/4

Product Performance Testing

AS/NZS 1546.1:2008 On-site Domestic Wastewater Treatment Units – Septic Tanks

Issued to

FujiClean Australia Pty Ltd
2/176 Siganto Drive, Helensvale, QLD 4212

Initial Certification Date: - 27th March 2020 Expiry Date: - 27th March 2025

Product Certified:

Tank Type	Description	System Capacity	Additional Product Information	Manufactured and assembled
ACE 1200 Fibre Glass Septic Tank	Fibreglass Tank with Access Cover Lids (Risers are available up to 450mmH)	4.369m3	4.369m3 Sedimentation Chamber 1.114 m3 Anaerobic Filtration Chamber 0.982 m3 Aerobic Contact Filtration Chamber 0.580 m3 Clarification Chamber 0.281 m3 Disinfection Chamber 0.308 m3 Emergency Storage Chamber 1.104m3	Manufactured and Assembled: 3/16 Waterway Drive, Coomera, QLD 4209 37 Wells Road, Mordialloc, VIC 3195

NACE CODES: 2221

This Certificate of Conformance to the Product Certificate Scheme for "Domestic Wastewater Treatment Units (Septic Tanks) and Rainwater Tanks" remains the property of Global Certification Pty. Ltd. and is granted subject to the terms and conditions of the Contract Application, in respect of the Product certified on this page and the attached schedule to the Certification of Conformance, bearing the same number as this certificate.

Date of Issue: 14th September 2021 Dave Steer – General Manager

JAS-ANZ

www.jas-anz.com.au/register

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12 Jun 2024
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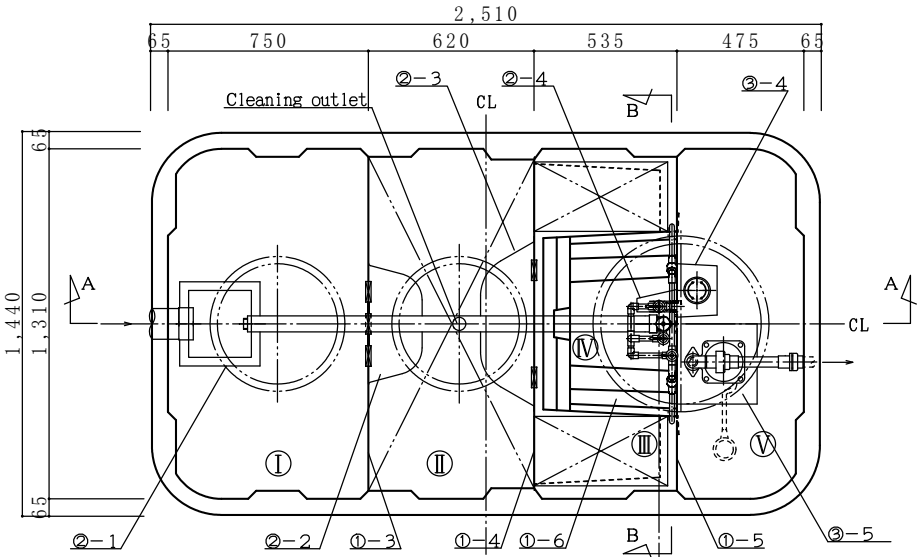
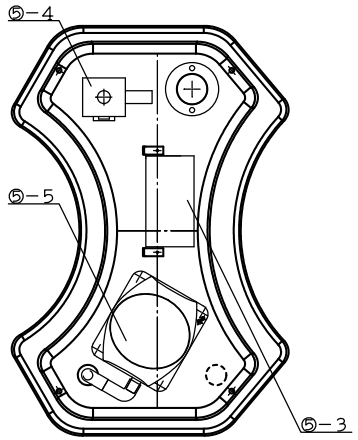
OF WA

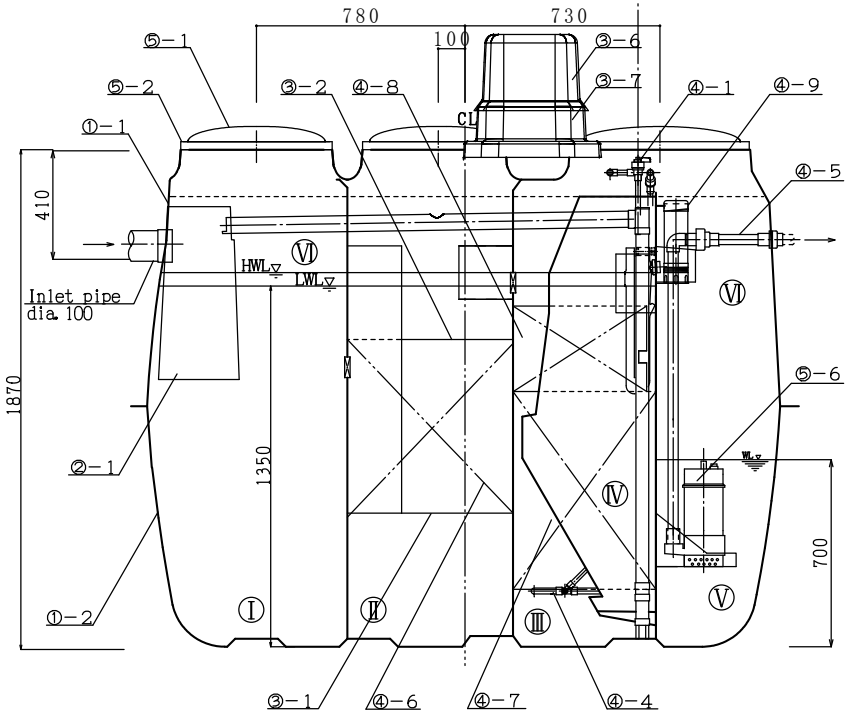
Signed for and on behalf of Global Certification Pty Ltd
PO Box 195, Morayfield QLD 4506



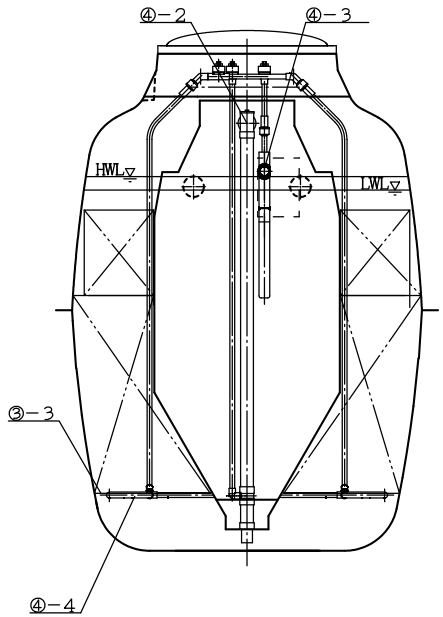
Top View



Blower Box Top View



A−A Section View



B−B Section View

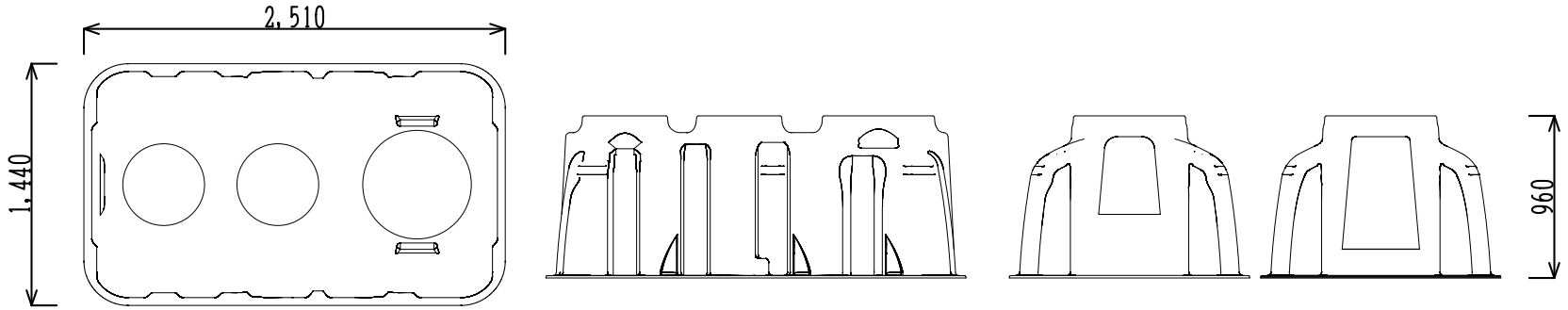
①− 1	Upper Shell
①− 2	Lower Shell
①− 3	Partition A
①− 4	Partition B
①− 5	Partition C
①− 6	Clarification Chamber Unit
②− 1	Inflow Baffle
②− 2	Outflow Baffle
②− 3	Scum Baffle A
②− 4	Scum Baffle B
③− 1	Anaerobic Chamber Support Frame
③− 2	Anaerobic Chamber Suppress Frame
③− 3	Aerobic Chamber Support Frame
③− 4	Chlorinate Clylinder Stand
③− 5	Pump Stand
③− 6	Blower Box Cover
③− 7	Blower Box Stand B
④− 1	Air Supply Pipe Kit
④− 2	Recirculation Air-lift Pump
④− 3	Effluent Air-lift Pump
④− 4	Aeration Pipe
④− 5	Pipe Kit for Pump
④− 6	Spherical-skeleton Meidia
④− 7	Net-hollow-cylindrical Media
④− 8	Net-block Media
④− 9	Chlorinate Cylinder
⑤− 1	RISP Domed Lid
⑤− 2	Riser to Tank Adaptor
⑤− 3	Alarm Panel and Connector Box
⑤− 4	Power Box
⑤− 5	Blower
⑤− 6	Pump

Ⅰ	Sedimentation Chamber	1.114m³
Ⅱ	Anaerobic Filtration Chamber	0.982m³
Ⅲ	Aerobic Contact Filtration Chamber	0.580m³
Ⅳ	Clarification Chamber	0.281m³
Ⅴ	Disinfection/Pump Chamber	0.308m³
Ⅵ	Emergency Storage capacity	1.104m³

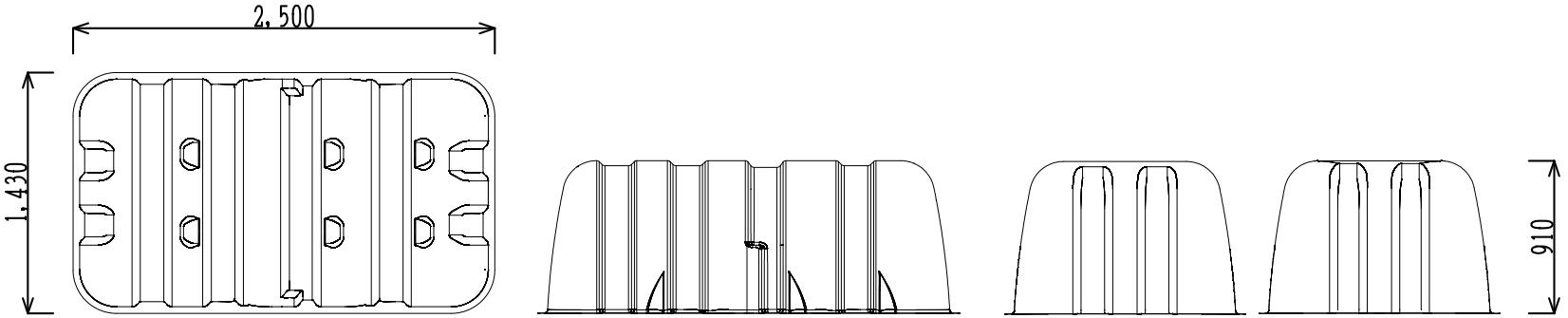
Name	FujiClean ACE Overall view			
Designed date	Design	Check	Number	Scale
Nov ·2018	H. Saito	H. Igara		

Fuji Clean Co., Ltd.

No	Date	Change



< Top View > < Side View (long side) > < Side View (short side) >



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FujiClean ACE - Shell	Page No. B1000			検印	作成
Fuji Clean Co., Ltd.	Scale				

Wednesday, 19 February 2020

FujiClean ACE 1200 Identification markings

The FujiClean ACE 1200 can be identified by

1. Model, year and month of manufacture, and serial number on a vinyl sticker on the base of the blower box.

2. The serial number and model on the outside of the tank (vinyl sticker)

3. Hand written serial number in texta, and a laminated sticker showing the model (CE1500EX) shown here as the example

FujiClean Australia

Towards Clean Water

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DOMESTIC WASTEWATER TREATMENT SYSTEM

FUJICLEAN ACE

Owner's Manual

Updated: 1 Aug 2020

Dear Customer,

Thank you for choosing a FujiClean Wastewater Treatment System. Please read this owner's manual carefully before using FujiClean ACE and keep for future reference.

The information contained in this manual is subject to change without notice. Please contact us via www.fujiclean.com.au for current updates.

TABLE OF CONTENTS

1 SAFETY PRECAUTIONS

Read the safety precautions carefully before operating the system.
The contents of this section are vital to ensure safety. Please pay special attention to the following signs.

⚠ **WARNING:** This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.

⚠ **CAUTION:** This symbol refers to a hazard or unsafe practice which can result in personal injury and/or the potential for product or property damage.

⚠ WARNING

Electrical safety

- Do not open the electrical box. There are no user serviceable parts inside. The system shall be maintained by a service agent approved by the local council.

Fall prevention

- Make sure the access covers are securely closed to prevent children from entering the tank.
- Report to the service agent if any cracks or damage is found on the access covers.

⚠ CAUTION

Preventing overload on the tank

- No vehicle shall approach within installed area of FujiClean system. Always maintain the system installed area free of all vehicle traffic. Parking a vehicle nearby the system may cause significant damage to the system.

Prevention of public health risk

- Do not use treated water for human consumption, livestock watering or irrigating edible crops.

Access Cover Lids

- Make sure there is no any vehicular traffic loads applied on the access cover lids during the installation and operations. Unless there is any particular reason please refrain from standing on the access cover

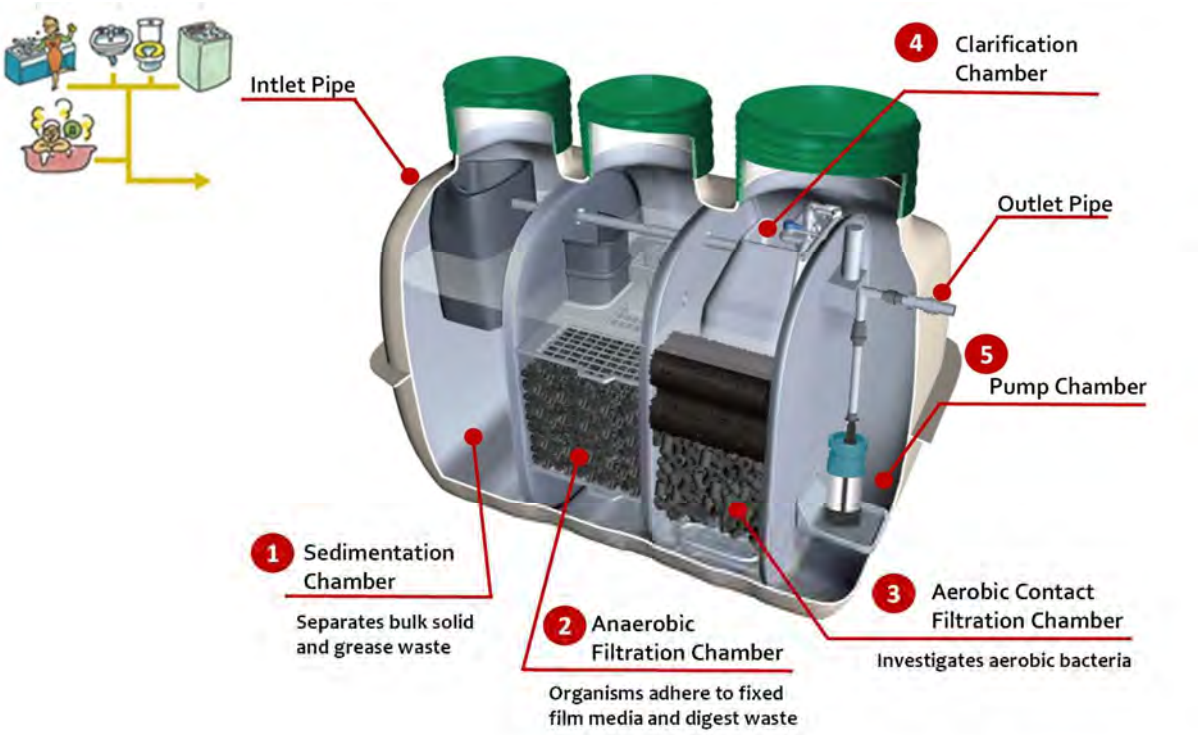
2 OVERVIEW

What is an AWTS?

An Aerated Wastewater Treatment System (AWTS) is a small scale onsite sewage treatment plant. An AWTS uses the processes of aeration followed by clarification to achieve biological treatment of wastewater.

FujiClean ACE is an AWTS designed to comply with the Australian Standard 1546.1 and 1546.3(2017) and to meet each state and territory in Australia's regulatory requirements.

FujiClean ACE Treatment System



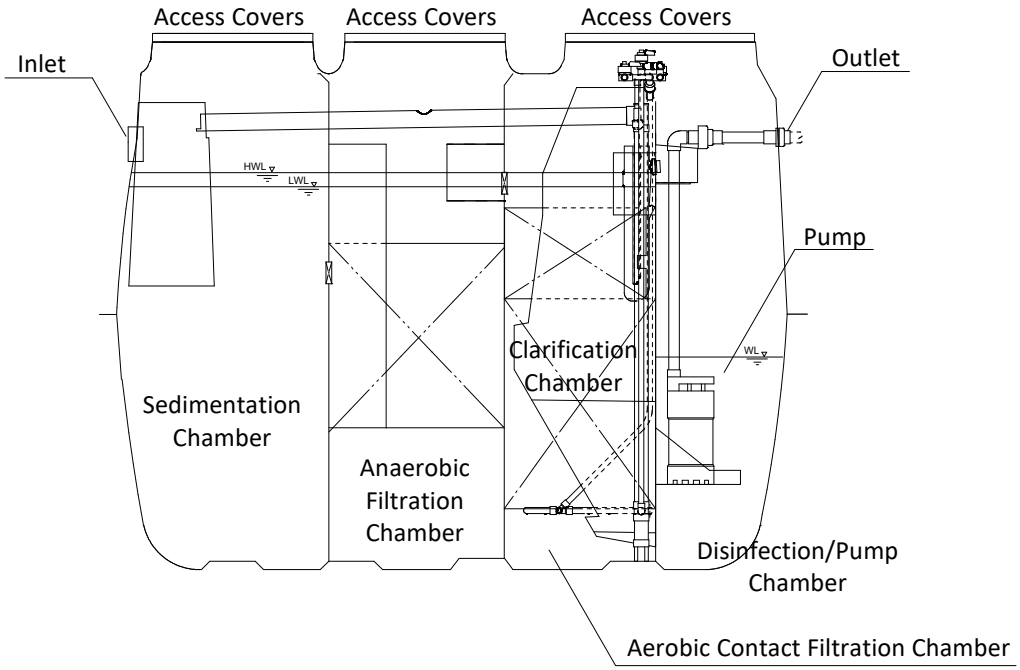
FujiClean ACE is designed to treat all household wastewater from the kitchen, bathroom, toilet and laundry area and is capable of producing Advanced Secondary Quality Effluent as specified below. The daily design flow rate of FujiClean ACE is 1,200 L/day.

- BOD equal to or less than 10mg/L
- Suspended Solids equal to or less than 10mg/L
- Thermotolerant coliform less than 10cfu/100mL

What is BOD?

Biochemical Oxygen Demand (BOD) is a standard measure of water quality. It is a measure of the amount of oxygen (mg/L) consumed by natural, biological processes, like bacteria, which break down organic matter. A higher BOD indicates poor quality of water.

3 TREATMENT PROCESS



Sedimentation Chamber

This chamber is designed to physically separate the solids from the incoming water.

Anaerobic Filtration Chamber

This chamber contains a spherical-skeleton type of filter media. Through bacterial growth processes on the surface of the filter media, biological anaerobic treatment thrives while suspended solids are captured. Furthermore, the bacteria in this chamber convert nitrates in the recirculated water returning from the aerobic chamber to gaseous nitrogen. The nitrogen then escapes to the atmosphere.

Aerobic Contact Filtration Chamber

The aeration chamber consists of upper section with net-block media and lower section with net-hollow-cylindrical media. Organic matters are decomposed by micro-organism/bacteria on the media surface while suspended solids are captured in media. Furthermore, suspended solids accumulated on the bottom are constantly transferring to the sedimentation chamber by a recirculation air-lift pump.

Clarification Chamber

This chamber is designed to temporarily store treated water flowing from the aeration chamber. In this chamber, the suspended solids settle to the bottom and are returned to the sedimentation chamber.

Disinfection/Pump Chamber

The treated water from the clarification chamber passes through the chlorinator for final disinfection. After disinfection, the treated effluent is stored. This treated water is ready for discharge.

4 MAINTAINING YOUR SYSTEM

Owner's Responsibilities

The owner is responsible for:

- Ensuring the system is operating efficiently at all times;
- Promptly fixing the system when problems are detected;
- Ensuring the system is inspected and serviced quarterly by a qualified service technician;
- Ensuring the system is desludged when it is required.

  To ensure the overall health and performance of your FujiClean wastewater treatment system, Fuji Clean Australia recommends a desludge of the system every 3 years, or earlier if the maximum accumulated sludge and scum levels are reached as specified by the manufacturer. The desludge frequency will depend on sludge and scum accumulation levels, which varies depending on usage. Your FujiClean service agent will measure the sludge depth at every service interval and will advise you when desludging is required.

  ⚠ **CAUTION:** Any problems caused due to the neglect of the quarterly service being carried out or disregarding when is time to desludge advice from your FujiClean service agent will immediately void warranty.

Tips for Trouble-Free Operation

Below is a guide on good maintenance procedures, which you should follow:

- Keep your household's water usage well below the system's daily design flow rate.
- Do not switch off the power to the system even if you are going on holidays. If extended periods of non-use are anticipated, contact your service agent.
- Do not use more than the recommended amounts of detergents.
- Do not put fats and oils down the drain and keep food waste out of your system.
- Do not put bleaches, disinfectants, whiteners, nappy, soakers, spot removers in large quantities into your system via the sink, washing machine or toilet.
- Do not allow foreign objects such as sanitary napkins, nappies, baby wipes, and other hygiene products to enter the system.
- Do not dispose of chemicals down the drain. The list below shows examples of chemicals which are considered harmful to the system.
  - Medicines
  - Paint, Paint Thinners and Paint Strippers
  - Solvents
  - Pesticides and Herbicides
  - Motor Oil, Petrol, Antifreeze, Break Fluid and Other Automotive Fluids

Regular Maintenance

The effective operation of the system is dependent on regular maintenance. It is to be serviced **EVERY 3 MONTHS** by a FujiClean authorised service agent.

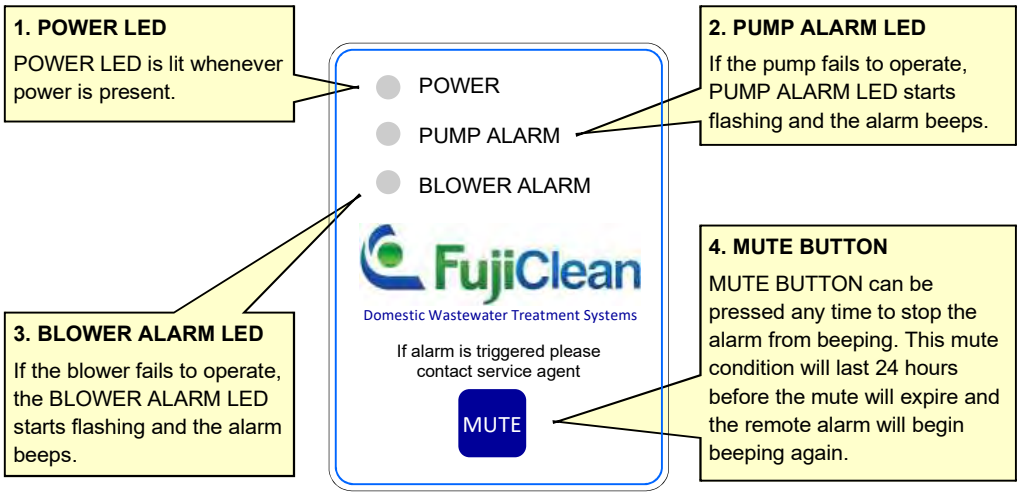
Regular maintenance involves periodic removal of excessive sludge and scum build-up from the system. The frequency of removal depends on the system's loading.

Consumable parts for the blower such as air filter and diaphragms need to be replaced regularly. The recommended replacement interval for these parts is between 12 months to 24 months.

Irrigation Area/Disposal

There are certain requirements and laws for the irrigation system for the disposal/reuse of the treated wastewater. The irrigation system must be designed and installed by qualified professionals by law, and in accordance with the requirements of your local, state and/or Australian standards.

5 OPERATION OF REMOTE ALARM PANEL



Normally when the system is operating correctly, only the green POWER LED is lit to indicate that power is available.

Pump Alarm

If the pump fails to operate, the PUMP ALARM LED starts flashing in red and the alarm beeps. In such cases, please contact the service agent and minimise your water usage until the problem has been rectified.

Blower Alarm

If the blower fails to operate, the BLOWER ALARM LED starts flashing in red and the alarm beeps. In such cases, please contact the service agent and minimise your water usage until the problem has been rectified.

Muting and Resetting

The mute button can be pressed at any time to stop the remote alarm from beeping. This mute condition will last 24 hours before the mute will expire and the remote alarm will begin beeping again. Note the mute timeout period will reset whenever the mute button is pressed so the user can press mute before going to bed to reduce disturbance during the night.

Once an alarm condition exists, the associated alarm LED will flash. Pressing the MUTE BUTTON will only silence the alarm. If the “Fault” condition still exists then the fault will continue to be indicated. However, should the fault clear then the alarm condition will automatically reset and both audible and visual alarms will be cleared.

If at any stage a new alarm condition occurs the mute will be overridden also expire and the alarm will begin beeping again.

⚠ CAUTION – WHEN THERE WAS POWER OUTAGE
With the FujiClean remote alarm panel with battery backup you will be notified by alarm beep when your FujiClean system lost power. However when there was a power outage it is highly recommended to check if the air blower and the submersible pump are still operating so your FujiClean system works properly.

6 WARRANTY & REPAIR POLICY

Warranty Period

- Structural tank: 15 years from the date of commissioning
- Riser, Blower Box, Access Cover Lids: 2 years from the date of commissioning
- Electrical components: 2 years from the date of commissioning

Scope of Warranty

Fuji Clean Australia would repair defects of a FujiClean wastewater treatment system for free of charge when it was confirmed that the system was installed by a licensed plumbing contractor and serviced quarterly by an approved FujiClean service agent AND the defects in structure and function was caused by responsibility of manufacture within the above warranty period.

However the repair would NOT be covered by Fuji Clean Australia when:

- consumable parts (i.e. disinfectant, diaphragm assembly, air filter) failed;
- there is no service agreement in place between customer and service agent;
- the system was not properly installed as per this installation instruction;
- the electrical components were not properly wired or mounted as per the Wiring Instruction;
- the system was broken down or damaged as a result of retrofitting, improper repair, or any other changes outside the instruction manual.
- the damage occurred a result of moving the electrical parts (i.e. air blower);
- the damage occurred by heavy loads and vibration of any vehicle;
- the damage resulted from natural disasters such as flood, fire, earthquake or lightening, problems with electrical power such as power surges or incorrect voltages;
- the damage resulted from any other accident, inappropriate handling, machine or building foundation, foreign objects, chemicals.
- any trouble caused by excessive amount of inflow and foreign substances as described in the section 4. Maintenance on page 4;

Contacts

Fuji Clean Australia Pty Ltd.
PO BOX 1230 Oxenford QLD 4210
Ph: 1300 733 619
Website: www.fujiclean.com.au
Email: info@fujiclean.com.au

WARRANTY

The rights expressed in this warranty are in addition to other consumer rights and remedies under a law in relation to the goods or services to which the warranty relates.

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

The Fuji Clean product is warranted by Fuji Clean Australia Pty. Ltd. against defects in material and workmanship, under normal use and service, for the following warranty periods from the date of commissioning.

Structural Tank:	15 years	Electrical Components:	2 years
Access Cover Lids, Risers, Blower Box:	2 years	Other components	2 years

Within the warranty period, any component forming part of the Fuji Clean Product which is determined by Fuji Clean Australia to be defective will be repaired or replaced by an authorised Fuji Clean service agent.

This warranty only applies if the product has been installed in accordance with the manufacturer's installation guidelines and serviced by a Fuji Clean Australia's authorised agent. The warranty does not cover damage resulting from use of accident, incorrect installation, misuse, neglect of periodical service and desludge, blockages, abuse, heavy loads such as any vehicle, machine or building foundation, foreign objects, root intrusion, chemicals, natural disasters such as flood, fire, earthquake or lightening, problems with electrical power such as power surges or incorrect voltages, repairs by unauthorised persons or exposure to abrasive or corrosive substances. This warranty does not apply to and shall not warrant any material or product that has been repaired or modified without prior approval from the manufacturer. This warranty does not cover consumable items unless the fault, defect existed at the time of purchase. Labour and travel related time and expense to replace any faulty parts including call out fee is not covered by the warranty.

Please fill out the following details completely and store in a safe place. To claim under this warranty, owner should contact Fuji Clean authorised service agent or Fuji Clean Australia Pty. Ltd.

Owner Details

Name: .....

Address: .....

..... Postcode: .....

Phone: ..... Email: .....

Product Model Number: FujiClean ACE

Serial Number: ..... Date of Commissioning: ..../..../....

Installer Details

Company: .....

Address: .....

..... Postcode: .....

Phone: ..... Email: .....

FujiClean Australia

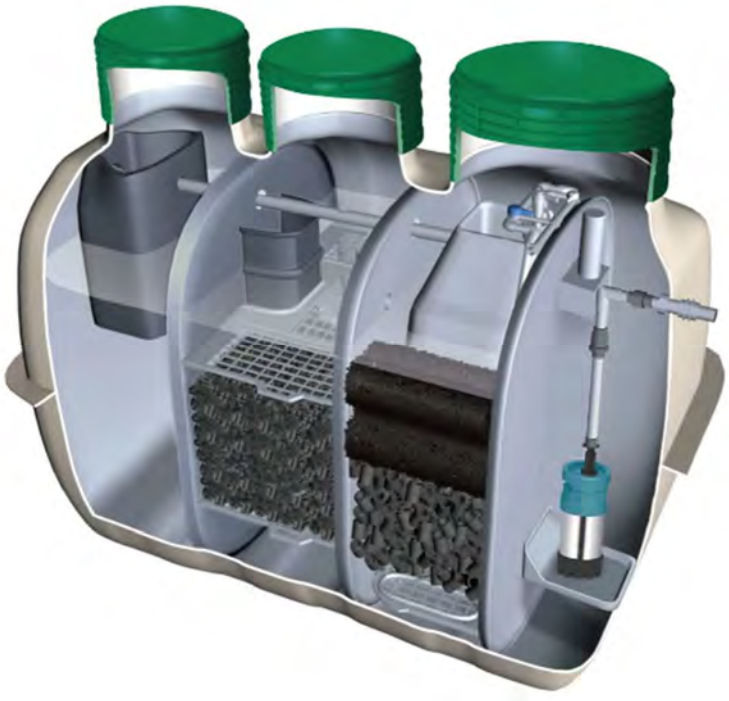
Towards Clean Water

DEPARTMENT OF HEALTH
APPROVED
12 Jun 2024
CHO
OF WA

DOMESTIC WASTEWATER TREATMENT SYSTEM

FUJICLEAN ACE

Installation Manual



Ver.14 Updated: 10 August 2023

Thank you for selecting a FujiClean Wastewater Treatment System. Please read this installation manual carefully before commencing installation.

TABLE OF CONTENTS

1 SAFETY PRECAUTIONS

Read the safety precautions carefully before installing the FujiClean system. The contents of this section are important to ensure safety. Please pay special attention to the following symbols. Installation must be carried out in accordance with the relevant safety regulations.

⚠ **WARNING:** This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.

⚠ **CAUTION:** This symbol refers to a hazard or unsafe practice which can result in personal injury and/or the potential for product or property damage.

⚠ WARNING

Electrical Safety

- All electrical work must be carried out by a licensed electrician.

Excavation Safety

- Before excavation work is carried out, the relevant person or principal contractor for construction work must:
  - find out what underground services exist
  - obtain relevant information about the service (location, type, depth, restrictions to be followed);
  - record all relevant information
- All excavation work must be carried out in a safe manner in accordance with the relevant regulations.

Safe Lifting Procedures

- Lifting operation must be carried out in a safe manner in accordance with the relevant regulations.

⚠ CAUTION

Access Cover Openings

- Make sure the access covers are securely closed during the installation and operation.

Access Cover Lids

- Make sure there is no vehicular traffic load applied to the access cover lids during the installation and operation. Do not stand on the access cover lids.

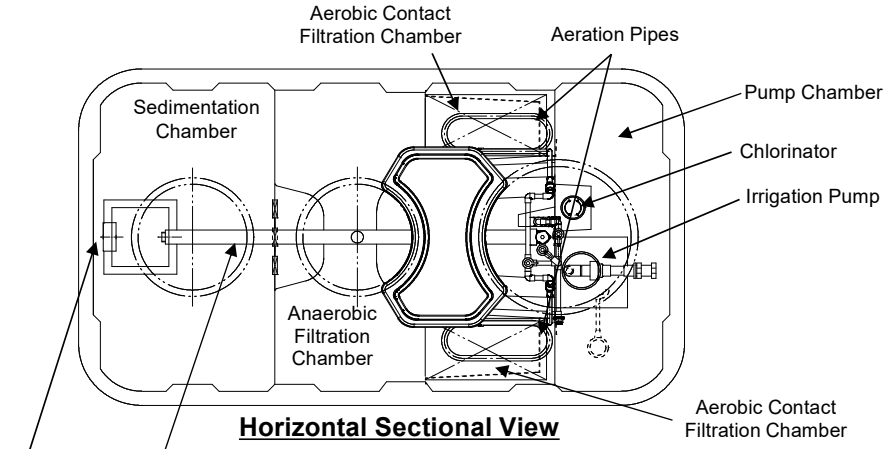
Green Riser Depth

- Maximum depth of cover (riser) is 450mm above the system. Mounting risers exceeding the 450mm height onto the system would void the warranty.

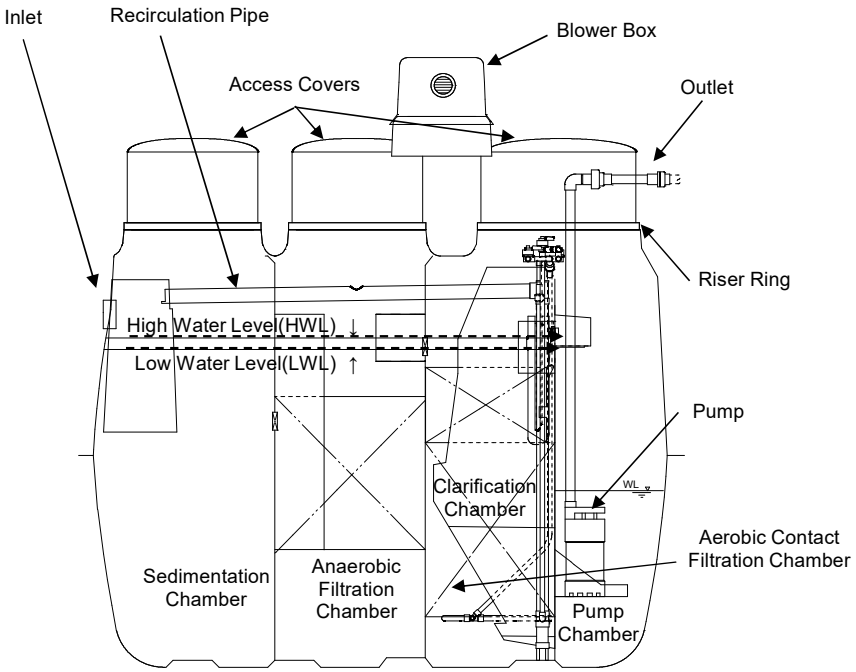
Above Ground & Half Buried Ground Install

- FujiClean ACE is designed to be installed below ground, as per this installation manual.
- Do not install this system above ground or half buried above ground without consulting FujiClean Australia for installation instruction.

2 SPECIFICATIONS OF THE SYSTEM



Horizontal Sectional View



Vertical Sectional View

SPECIFICATIONS			
Volume (L)		**Dimensions (mm)**	
Sedimentation Chamber	1,114	Max. Width	1,440
Anaerobic Filtration Chamber	982	Max. Length	2,510
Aerobic Contact Filtration Chamber	580	Max. Height (with No risers)	1,870
Clarification Chamber	281	Max. Height (with 150mmH risers)	2,060
Disnfection/Pump Chamber	308	Max. Height (with 300mmH risers)	2,210
		Max. Height (with 450mmH risers)	2,360
Total Volume	3,265	Inlet Invert (with No risers)	410
		Inlet Invert (with 150mmH risers)	600
Weight (kg)	440	Inlet Invert (with 300mmH risers)	750
		Inlet Invert (with 450mmH risers)	900
		Inlet Pipe Nominal Size	Dia. 100
		Outlet Pipe Nominal Size	Dia. 25

*Access cover lids are not included in the height

3 INSTALLATION

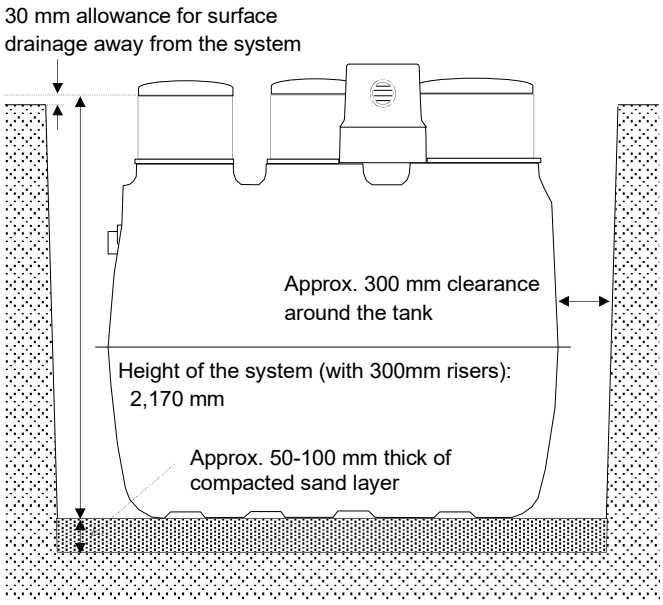
STEP 1 SITE PREPARATION

- Inspect the tank for any damage during transportation. The air blower, parts bag, and the submersible pump (if ordered) are stored in the anaerobic filtration chamber.
- The system must be installed away from building foundations and traffic areas at least beyond the excavation depth so the external loads will not direct to the system.
- ⚠ **Caution** Warranty will be void if the system was installed subject to any external loads.
- In the event the system requires repair, please contact FujiClean Australia.

STEP 2 EXCAVATION AND BEDDING

- The excavation should allow approximately 300mm clearance around the tank.
- Depth of the excavation should be decided based on the height of the system, terrain, surface drainage and the bedding.
- Spread and compact a layer of bedding sand or crusher dust. It should be approximately 50-100mm thick when compacted.
- Ensure the bed is level.

⚠ **Caution**
Warranty will be void if the system is installed incorrectly.

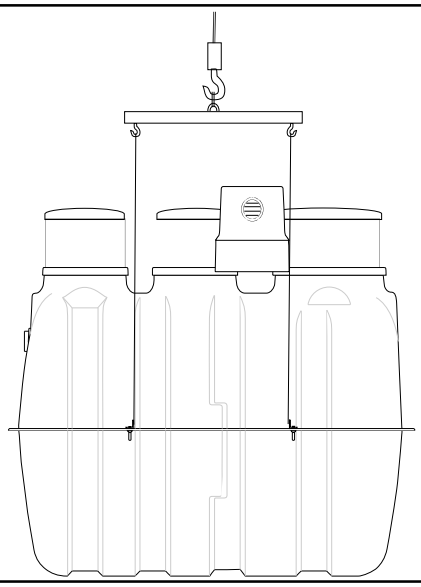


STEP 3 LIFTING THE SYSTEM

- Connect a suitable lifting device to the four lifting points as shown in the drawing on the right.

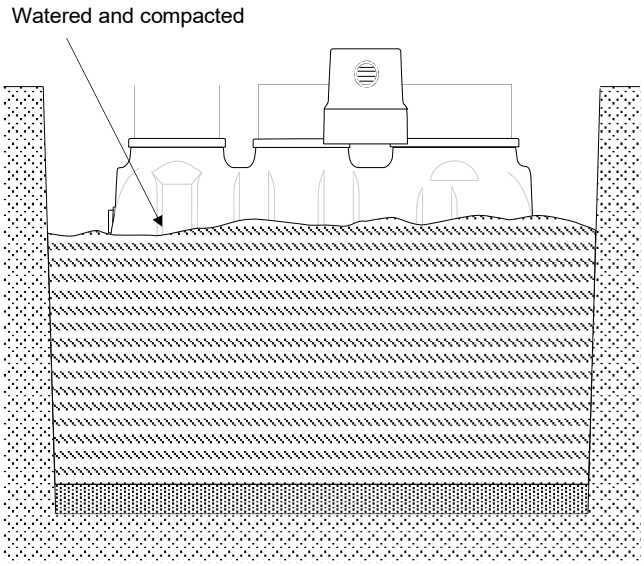
> ⚠ **Caution**
> Since the outlet side of the tank is heavier, adjust the slings or chains so that the tank can be lifted horizontally.

- Carefully lower the tank into the hole and place on the bedding sand.
- Tank must be level in all directions to work properly. The maximum allowable deviation from level is 1/200.

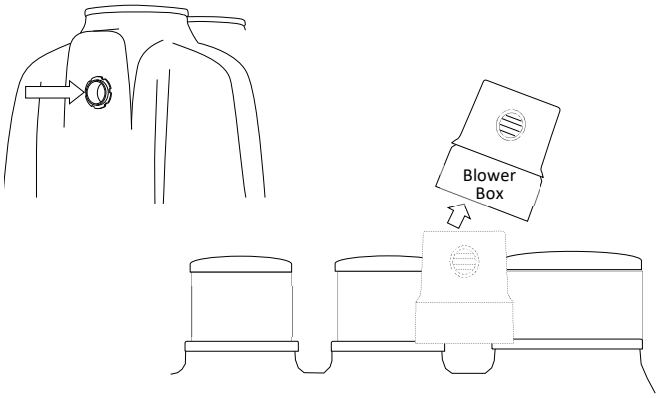


STEP 4 BACKFILLING – up to the inlet

- The tank is to be filled with water evenly throughout all chambers before any backfill is placed around the system.
- Make sure all lids are closed before backfilling.
- Backfill must not contain any large stones, rocks or sharp objects and must be carefully placed around the system.
- Sand or similar material is suitable for backfilling, no greater than 7mm dia.
- Native soil should not be used when it consists of heavy clay, since it may cause subsidence or damage to the system.
- Backfill must be watered and compacted.
- Backfill evenly around the system up to the bottom of the inlet.



STEP 5 CONNECTIONS



Inlet

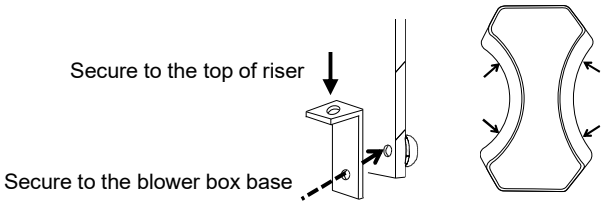
- 100mm dia. pipe into the inlet.

Remove the Blower Box

- Remove the screws securing the blower box to the adaptor ring (4 places) and remove the blower box.

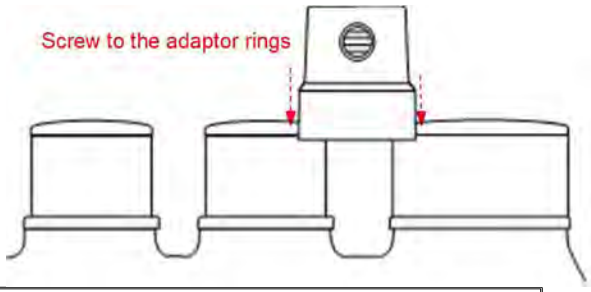
Attach the bracket to Blower Box

- Attach the L-shape brackets to blower box base with screw (4 places).
- These parts are in the parts bag.



Return the Blower Box

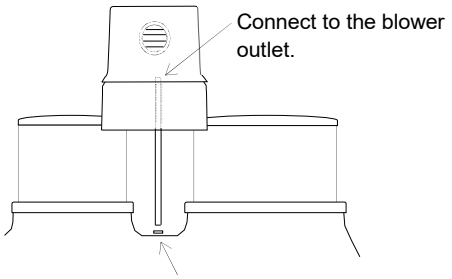
- Reposition the Blower Box on top of the risers and screw the brackets to the risers (4 places).
- Aline the blower box with the label on the cover.
- Make sure the top of the base is level.



➢ **Caution:** * Neglecting these processes may cause inundation of ground water.
* An out of level base may cause noise issues.
* Mounting risers more than 450mm would void the warranty.

Blower Pipework

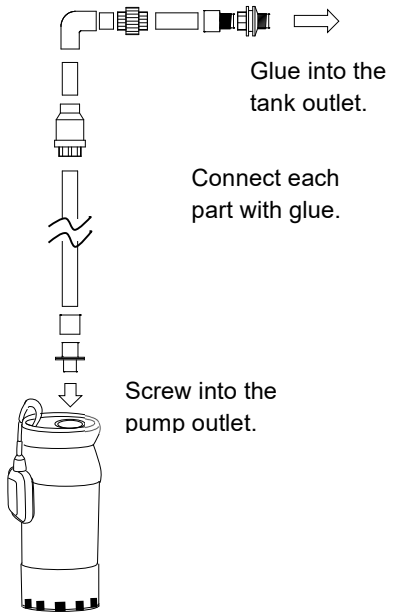
- Connect the blower to the system with supplied PVC Grey pipes and fittings as shown in the drawing on the right.



STEP 5 CONNECTIONS (continued)

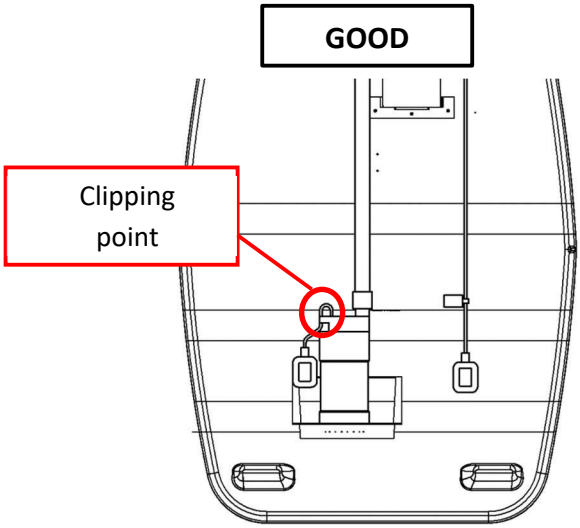
Pump Pipework

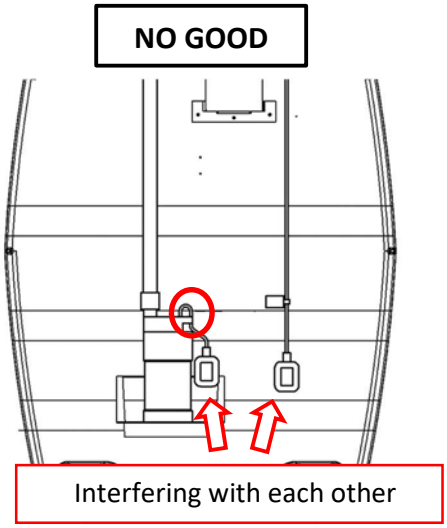
- Connect the pump to the outlet with PVC pressure pipes and fittings



IMPORTANT

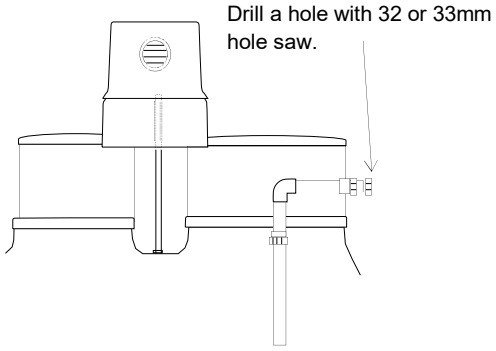
Place the pump so that the clipping point is opposite the alarm float to prevent the floats from interfering with each other. Make sure that the pump is correctly on the pump stand.





Drill outlet hole

- Drill a hole on the side of the riser (or tank wall) with 32 or 33 mm hole saw.
- Attach the outlet fitting to the hole.



STEP 5 CONNECTIONS (continued)

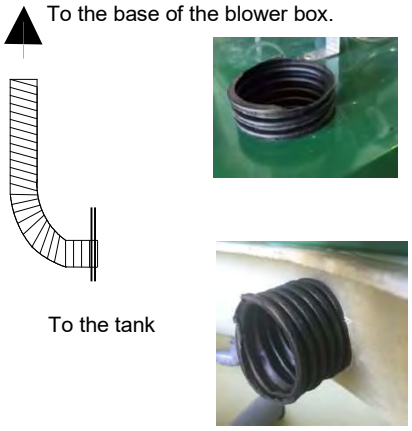
Conduit for Pump Cable & Float Switch

- The flexible conduit is secured ex-factory so do not try to pull out from the tank.
-

IMPORTANT

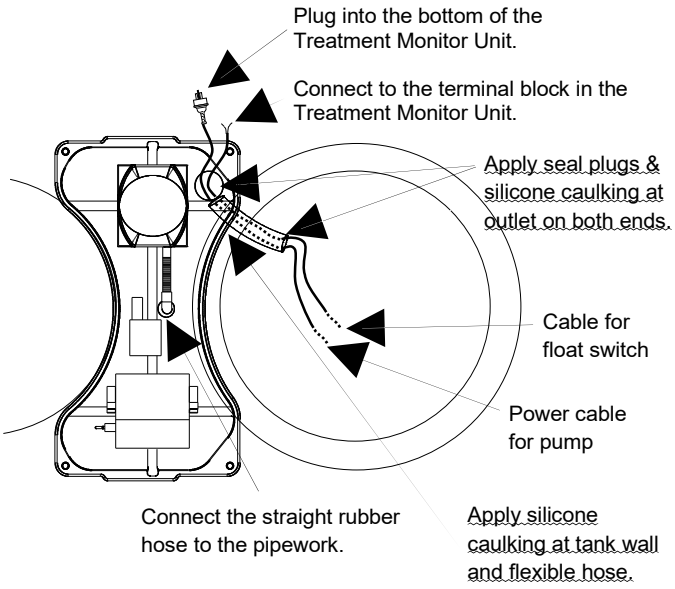
Apply enough **silicon sealant** on gap between flexible conduit and the tank to prevent water and soil from entering the system.

- The flexible conduit fits the drilled hole tight on the blower box so no screw or rivet is needed. We recommend applying silicon sealant on the gap between the blower box base and flexible conduit.



STEP 6 CABLE WORKS

- Run the power cable for the pump and the cable for the float switch through the flexible conduit from the pump chamber to the blower box.
- Plug the power cable into the socket on the bottom of the alarm panel.
- Connect the float switch cable to the terminal block in the connection box.
- Pass each cable through the centre of the Blower box so that it does not touch the Blower box cover. Interference between the cable and cover increase vibration and noise.



IMPORTANT

- Apply seal plugs and silicone caulking onto each end of the flexible conduit.

Note: This is very important as it protects the electrical components in the blower box from corrosion.

⚠ **Caution**

* Neglecting this process would void the warranty.

- Adjust and lock the height of the float switch so that the switch is triggered as soon as the pump fails.
- Apply silicone caulking at tank wall and flexible hose.

4 WIRING INSTRUCTIONS FOR ELECTRICIAN

All electrical power connections to the system must be carried out by a licensed electrician.
The power supply to the FujiClean ACE is single phase service and requires a dedicated circuit protected by a 10A RCD.
Connect remote alarm plate to the Treatment Monitor Unit with two wire cable. Since the two wire alarm cable is enclosed in the same conduit as the mains supply to this unit back to the house, the cable must be rated for 240V to comply with the Australian Standard.
Remote Alarm Plate must be positioned inside the dwelling in an area that is readily visible as per the Australian Standard.
If this is not possible an LED strobe light must be placed on blower box which is readily visible from inside the dwelling.

⚠ **CAUTION**: The warranty would void when the above instruction was neglected.

240V Mains Power Connection

240V Mains Power Connection

Connect to independent circuit (10A single phase RCD protected)

Remote Alarm Panel Connection

Alarm Signal Cables (no polarity) need to be connected in the junction box.

WARNING!!
Never connect 240 Volt mains power to the alarm wire connections.

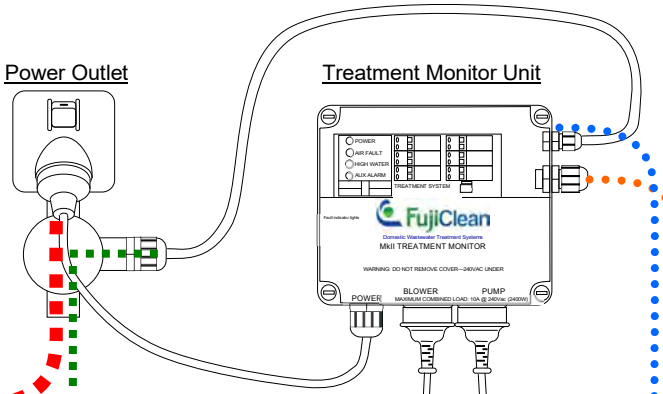
Remote alarm panel connection

Connect to Remote Alarm Plate (no polarity)

(Mounted inside the dwelling)

Power Outlet

Treatment Monitor Unit

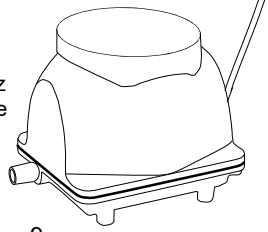


A. Connect High Water Float Switch (no polarity) to "HIGH LEVEL FLOAT" terminal block.

B. Make sure the DIP Switch settings are 1-ON, 2-OFF. (See the above)

High Water Float Switch to monitor PUMP FAILURE

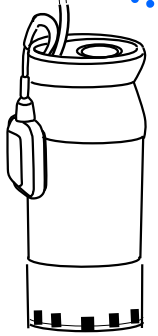
Pressure Switch to monitor BLOWER FAILURE



BLOWER

240V / 50Hz
single phase
68W *

*MAC100RII



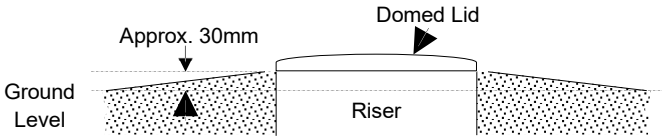
PUMP

240V / 50Hz
single phase
800W *
(FS4520)

* SP800 MULTI-B

STEP 7 BACKFILLING

- Bottom of the Domed Lid should be approximately 30mm higher than the ground level so that surface water can flow away from the system.



Note

- Completely cover the riser and tank with soil so that the risers and tank are NOT exposed above the ground. The FRP material needs to be protected from UV sunlight.
- Backfilled ground level will be subsidence. Apply the UV paint/spray coating on the exposed riser or add extra soil to completely cover the riser and tank

GOOD

STEP 8 CLOSE THE LIDS

- Close and secure all the three access cover lids with 22 x screws supplied with the system.

STEP 9 OWNER'S MANUAL

- Pass a hard copy of the FujiClean ACE owner's manual supplied with the system (included in the clear parts bag), or email a soft copy to the owner.

STEP 10 COMMISSIONING FORM

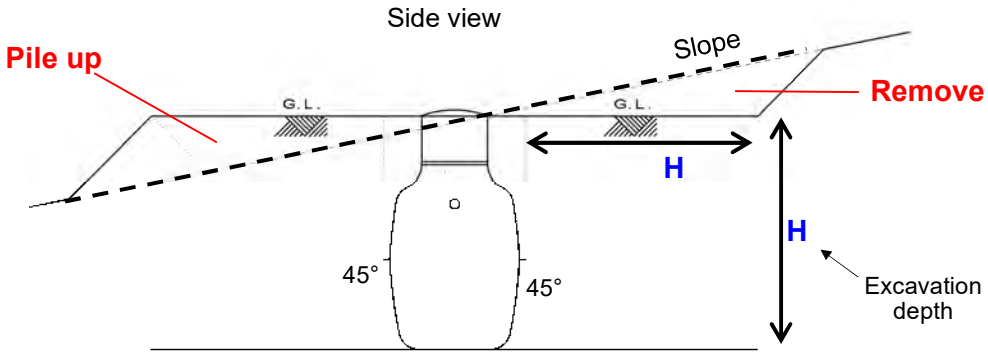
- Commission the FujiClean ACE as instructed on page 9.
- Keep the completed commissioning form for future reference (i.e. warranty claim)

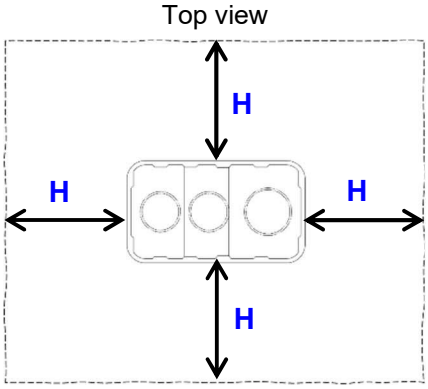
5 SPECIAL INSTALLATION

NOTE:
Warranty would be void if the system was not installed as per the following special installation instructions.

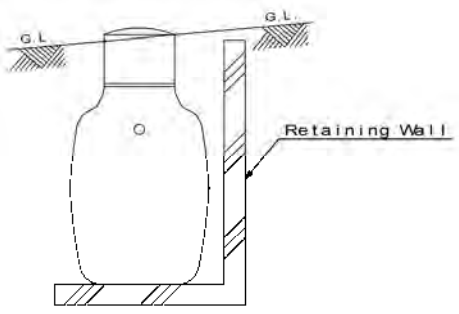
5-1. Installation on slope areas or areas close to buildings

It is required to level the ground level (G.L.) of specific area or the retaining walls are constructed if the system is to be installed on a slope.

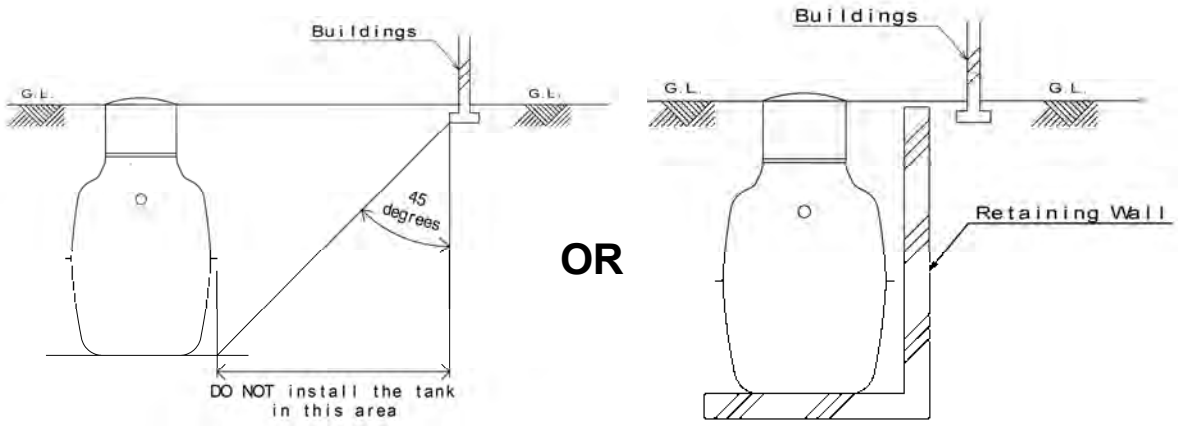




OR



DO NOT install the system within 45 degrees of the foundation of the buildings. If not possible, it is recommended that the retaining walls are constructed.

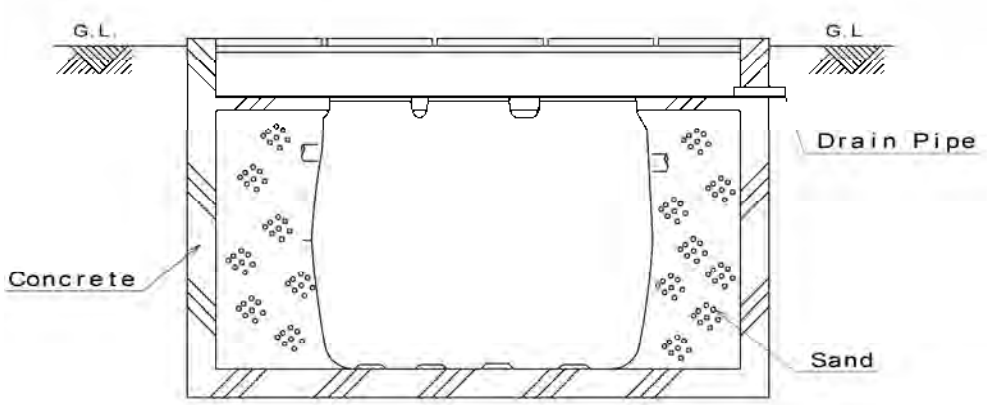


5-2. Deep burial of tanks

If the tank needs to be buried so deeply that the riser is more than 450mm, install the retaining wall around the tank in order to prevent the high earth pressure.
Make sure to backfill the concrete box with sand or similar material and the drain pipe is installed.

NOTE

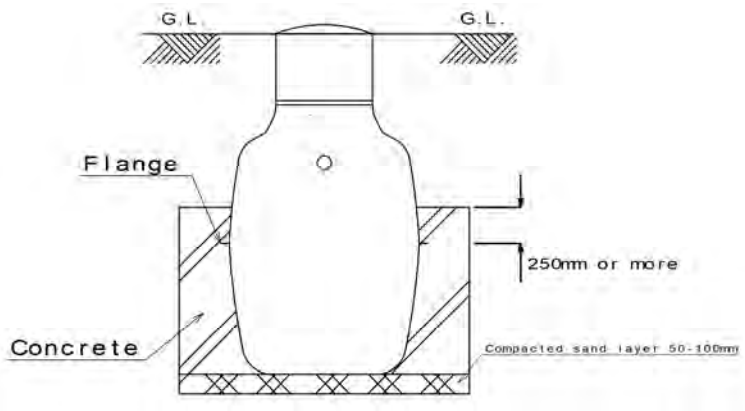
The earth pressure or top load need to be fully taken into account in the specification.



5-3. Installation in the high underground water area

If the tank is installed in the high underground water area, backfill with concrete at least 250mm above the flange of the tank.

- Make sure the tank is filled with water before concrete is poured.
- Dewatering the ground water is highly recommended to properly excavate and install the tank.
- Take at least two steps to pour concrete around the tank in order to prevent the tank from floating.
- It is also recommended to cover the tank surface with a soft cloth to prevent it from being damaged.



5-4. Ground installation

If the tank need to be installed above ground, note the following

- Secure all tanks correctly.
- Sufficient safety measures against vibration shall be taken.
- Use the flexible pipe for all pipes connected to tanks.
- Apply the weather proof coating to surface of tanks in order to prevent deterioration.
- Install the scaffold for maintenance work.

If special installation is required, please consult with FujiClean Australia

6 COMMISSIONING

Pre-operational Inspection

Inspect and ensure the following requirements are met:

- The system is accessible and nothing inhibits maintenance.
- Surface water is draining away from the system.
- The system is filled with water, is level, and each component functions properly.
- There is no damage to the tank, piping, or other components.
- There are no air leaks in the air piping and the air piping is connected correctly.

Start Up the System

Step 1. Make sure electrical power is supplied to the system and all electrical components are plugged in properly.

Step 2. Make sure the blower operates properly. To test: turn OFF the air blower for a few moments to check that the alarm is triggered. Note: As there is a 60 second delay designed into the alarm, it will take 60 seconds until the air fault alarm is triggered.

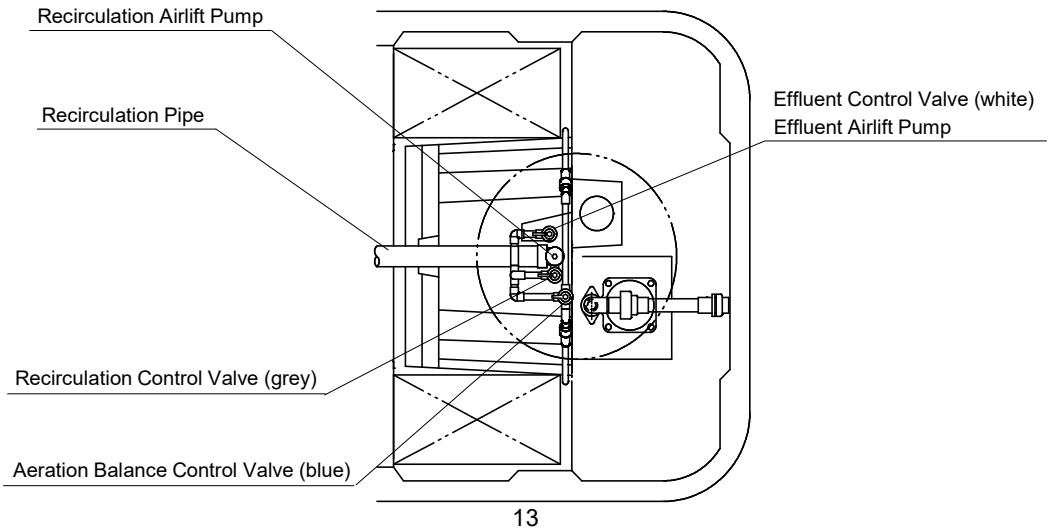
Step 3. Lift up the pump float switch to check that the pump operates properly and lift up the high water float switch to check that the alarm is triggered. Note: it will also take 60 seconds until the high water alarm is triggered. Check alarm monitoring unit as well as remote alarm plate for alarm activation.

Step 4. Set the Effluent Control Valve to 40, and then make sure that the Effluent Air-lift Pump works while the water level is above the LWL.

Step 5. Visually observe the airflow rates on each side of the Aerobic Contact Filtration Chamber to verify equal flow. If there is an obvious discrepancy in airflow between the two sides, adjust the Aeration Balance Control Valve so that the airflow is equal.

Step 6. Measure the recirculation rate at the end of the recirculation pipe while the water level is at the LWL. The recirculation rate should be approximately 4 to 6 times as much as the inflow rate. If the daily inflow volume is obtainable, calculate the appropriate recirculation rate accordingly. Otherwise set the rate to 3 – 5 L/min.

Step 7. Fill the chlorinator and adjust the dissolve rate if applicable.



7 WARRANTY & REPAIR POLICY

Warranty Period

- Structural tank: 15 years from the date of commissioning
- Riser, Blower Box, Access Cover Lids: 2 years from the date of commissioning
- Electrical components: 2 years from the date of commissioning

Scope of Warranty

- FujiClean Australia would repair defects of a FujiClean wastewater treatment system for free of charge when it was confirmed that the system was installed by a licensed plumbing contractor and serviced quarterly by an approved FujiClean service agent AND the defects in structure and function were caused by responsibility of manufacture within the above warranty period.

- However the repair would NOT be covered by FujiClean Australia when:
  - consumable parts (i.e. disinfectant, diaphragm assembly, air filter) failed;
  - there is no service agreement in place between customer and service agent;
  - the system was not properly installed as per this installation instruction;
  - the electrical components were not properly wired or mounted as per the Wiring Instruction on page 8;
  - the system was broken down or damaged as a result of retrofitting, improper repair, or any other changes outside the instruction manual.
  - the damage occurred a result of moving the electrical parts (i.e. air blower);
  - the damage occurred by heavy loads and vibration of any vehicle;
  - the damage resulted from natural disasters such as flood, fire, earthquake or lightening, problems with electrical power such as power surges or incorrect voltages;
  - the damage resulted from any other accident, inappropriate handling, machine or building foundation, foreign objects, chemicals.
  - any trouble caused by excessive amount of inflow and foreign substances as described in the section 4. Maintenance on page 4;

Contacts

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PO BOX 1230 Oxenford QLD 4210
Ph: 1300 733 619
Website: www.fujiclean.com.au
Email: info@fujiclean.com.au

FujiClean Australia
Towards Clean Water

DEPARTMENT OF HEALTH
APPROVED
12 Jun 2024
CHO
OF WA

DOMESTIC WASTEWATER TREATMENT SYSTEM

FUJICLEAN ACE

Operation & Maintenance Manual

FOR SERVICE PERSONNEL ONLY

Ver.13 Updated: 31 July 2023

TABLE OF CONTENTS

1. SAFETY PRECAUTIONS

Read the safety precautions carefully before operating the plant. The contents of this section are important to ensure safety. Please pay special attention to the following symbols.

⚠ **WARNING:** This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.

⚠ **CAUTION:** This symbol refers to a hazard or unsafe practice which can result in personal injury and/or the potential for product or property damage.

⚠ WARNING

Handling chlorinating agents

- There are two main types of chlorinating agents;
  - o inorganic chlorinating agents such as calcium hypochlorite, lithium hypochlorite, sodium hypochlorite; and
  - o organic chlorinating agents such as trichloroisocyanuric acid, potassium dichloroisocyanurate, sodium dichlorocyanurate.
- Organic and inorganic chlorinating agents are not compatible with each other. Mixing or cross-contamination of these chemicals can form an explosive mixture.
- Chlorinating agents are highly corrosive and very damaging to exposed body tissue. Always wear protective clothing and protective equipment such as gloves, safety glasses, etc.
- Dispose of the material according to manufacturer instructions and according to local regulations.
- Read the chemical label before opening the package. Understand the directions for use and safety information before starting an application.

Working in confined spaces

- Personnel required to enter and carry out maintenance work in the unit must comply with confined space regulations.

Electrical safety

- Do not touch any components in the blower box with wet hands.

⚠ CAUTION

Preventing overload on the tank

- No vehicle shall approach within installed area of FujiClean system. Always maintain the system installed area free of all vehicle traffic. Parking a vehicle nearby the system may cause significant damage to the system.

Prevention of public health risk

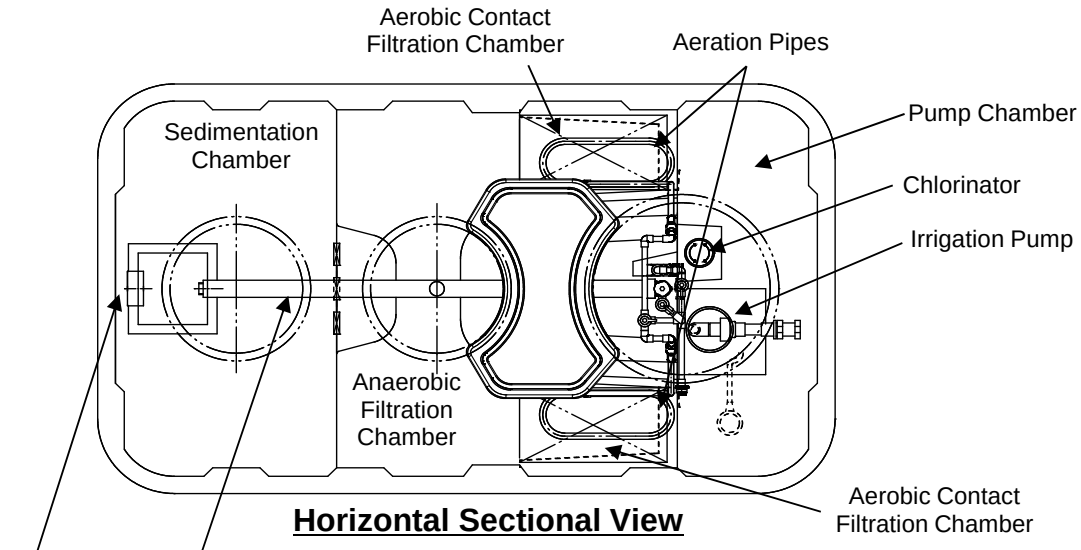
- Do not use treated water for human consumption, livestock watering or irrigating edible crops.

Access Cover Lids

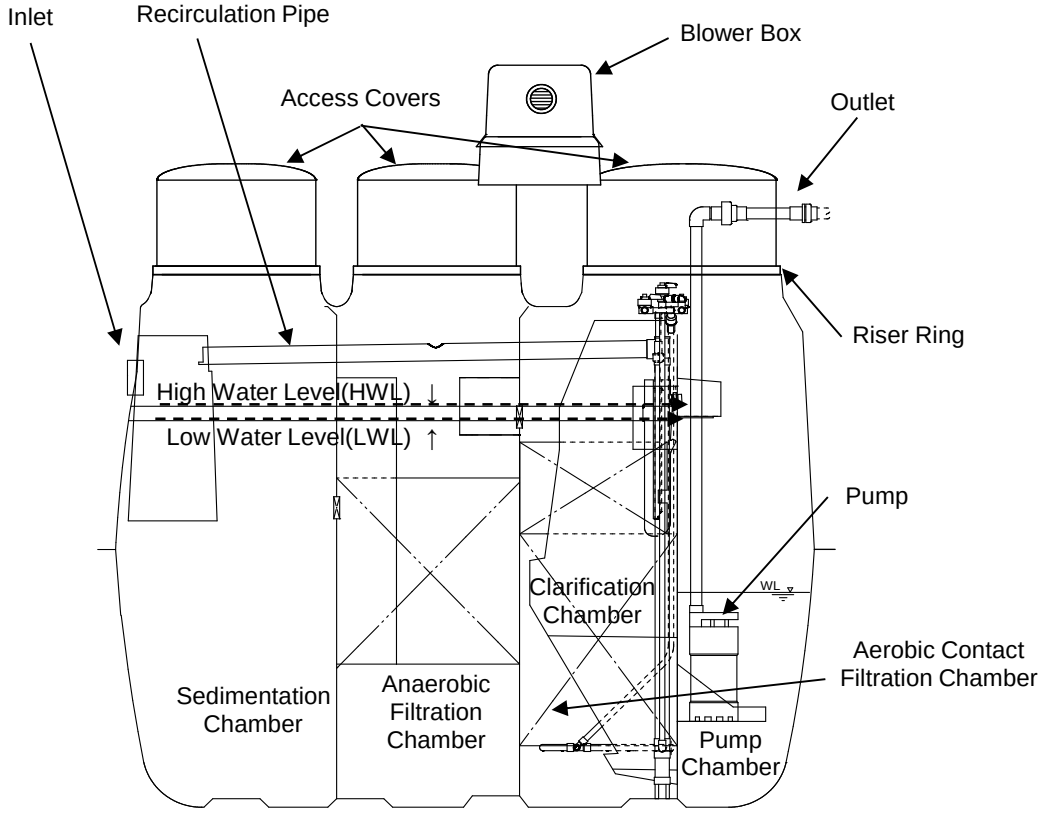
- Make sure there is no vehicular traffic load applied to the access cover lids during the installation and operation. Do not stand on the access cover lids.

2. PROCESS DESCRIPTION

System Components



Horizontal Sectional View



Vertical Sectional View

Function of Each Chamber

Sedimentation Chamber

This chamber is designed to physically separate the solids from the incoming water.

Anaerobic Filtration Chamber

This chamber is filled with spherical-skeleton media. Through bacterial growth processes on the surface of the filter media, biological anaerobic treatment thrives while suspended solids are captured. The bacteria in this chamber convert nitrates in the recirculated water returning from the aerobic chamber to gaseous nitrogen. The nitrogen then escapes to the atmosphere.

Aerobic Contact Filtration Chamber

The aeration chamber consists of upper section with net-block media and lower section with net-hollow-cylindrical media. Organic matters are decomposed by micro-organism/bacteria on the media surface while suspended solids are captured in media. Furthermore, suspended solids accumulated on the bottom are constantly transferring to the sedimentation chamber by a recirculation air-lift pump.

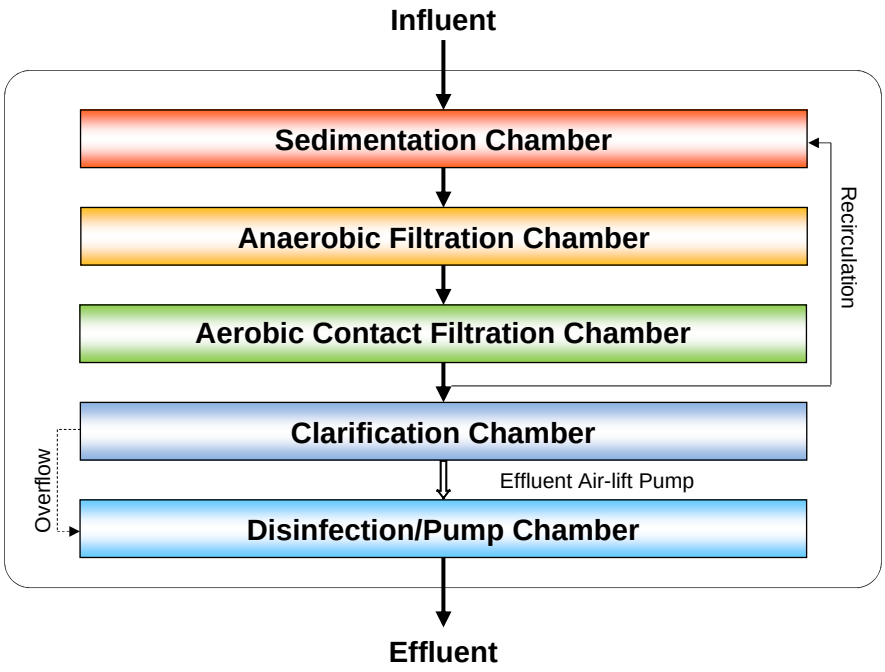
Clarification Chamber

This chamber is designed to temporarily store the treated water flowing from the aeration chamber. The treated water is pumped out to the disinfection chamber by an air-lift pump.

Disinfection/Pump Chamber

The treated water from the clarification chamber passes through the chlorinator for final disinfection. After disinfection, the treated effluent is stored. The irrigation pump in this chamber is controlled by a float switch.

Treatment Flow



Hydraulic Loading and Effluent Quality

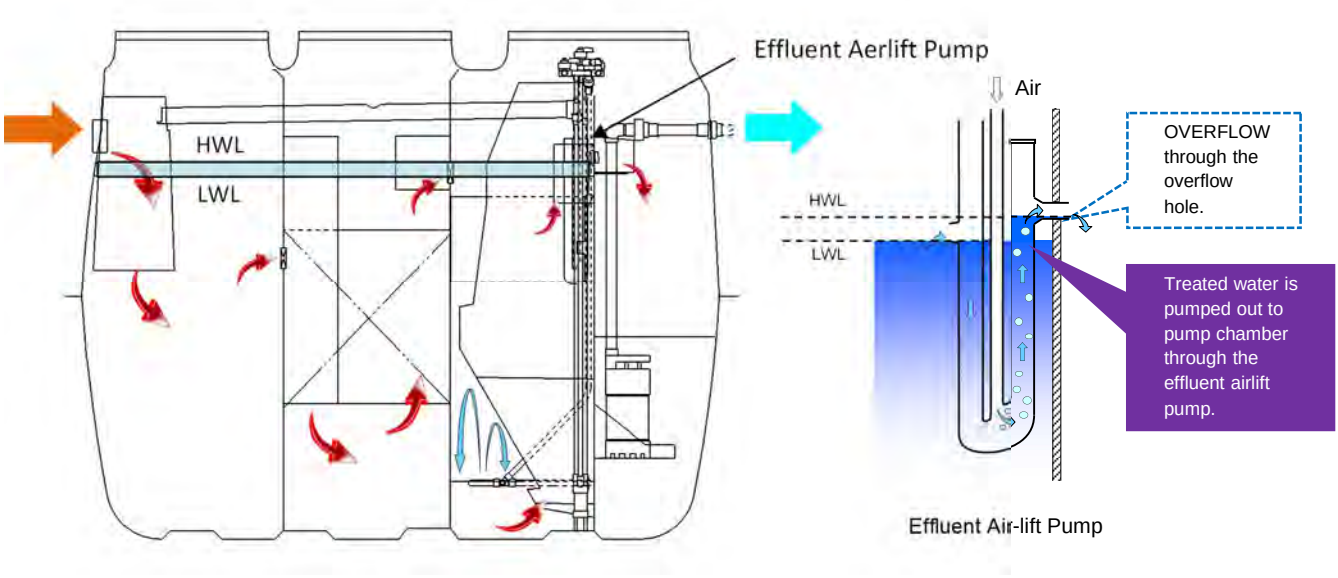
FujiClean ACE is designed to treat all household wastewater from the kitchen, bathroom, toilet and laundry area and capable of producing Advanced Secondary Quality Effluent as specified below. The daily design flow rate of FujiClean ACE is 1,200 L/day (8EP).

- BOD equal to or less than 10mg/L
- Suspended Solids equal to or less than 10mg/L
- Thermotolerant coliforms less than 10cfu/100mL

Shock Loading Capability

Despite its compact size, FujiClean ACE can effectively cope with shock loading. The system has a buffer capacity of 109L.

When the water level exceeds the Low Water Level (LWL), the treated water is pumped out to the pump chamber through the chlorinator by the effluent air-lift pump. If the water level exceeds the High Water Level (HWL), the treated water overflows through the effluent weir to the pump chamber. When there is no inflow, it takes 15 - 30 minutes for the water level to drop from HWL to LWL.



3. MAINTENANCE PROGRAM

Scheduled Maintenance IMPORTANT!

The effective operation of the system is dependent on regular maintenance. The system must be serviced **EVERY 3 MONTHS** by a qualified service professional. Regular maintenance involves periodic removal of excessive sludge and scum build-up from the plant. The frequency of removal depends on the system's loading.

Consumable parts for the blower such as air filter and diaphragms need to be replaced as required.

Pre-operational Inspection

Inspect and ensure the following requirements:

- The plant is accessible and nothing inhibits maintenance.
- Surface water is draining away from the plant.
- The plant is filled with water, is level, and each component functions properly.
- There is no damage to the tank, piping, or other components.
- There are no air leaks in the air piping and the air piping is connected correctly.

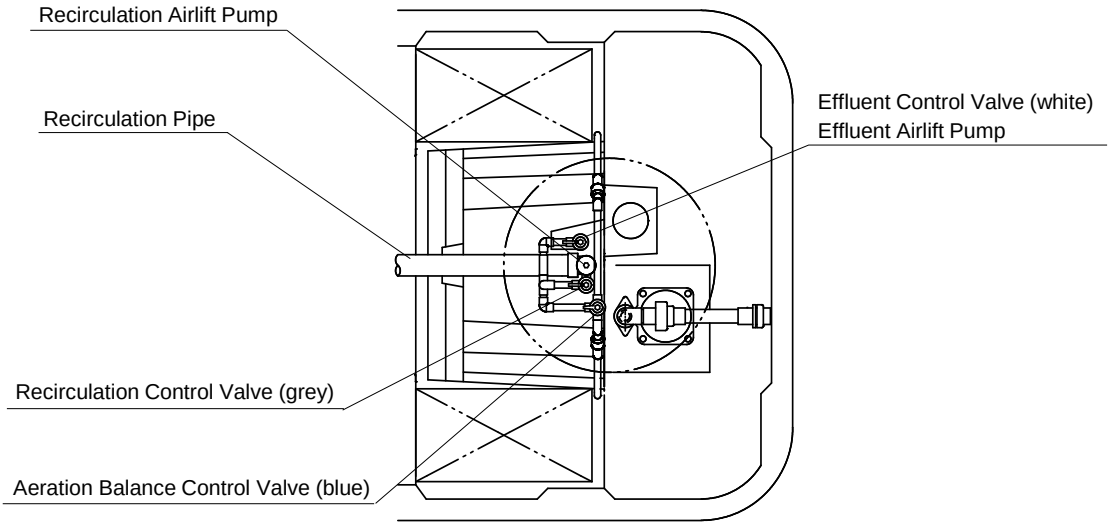
Regular Maintenance Procedures

Following steps 1~12 are the action points for checking present status, and steps 13~20 are the action points for adjustment and maintenance to optimize the operation.

1. Check for the following signs of trouble:
   - Any obvious signs of physical damage to the plant.
   - Surface ponding or muddy soil around the plant or disposal area.
   - Unusual smells around the plant.
   - IMPORTANT **Any ground subsidence around the plant. (refer to page 15)**
2. Remove blower box lid and inspect all components and vents to ensure they are clean and dry.
3. Ensure blower operates properly. Clean the air filter or replace it. Turn off blower for 1 minute to check the alarm is triggered. (Allow 1 minute alarm delay)
4. Check alarm signal is being received at both monitoring unit and remote alarm plate.
5. Open all access covers and secure the area around the access openings.
6. Collect a sample of treated effluent from the pump chamber and check the condition.
7. Check high water float switch and pump float switch are operating freely. Lift up pump float switch to check the pump operates properly and lift up high water float switch to check the alarm is triggered. (Allow 1 minute alarm delay)
8. Make sure that the inlet pipe is not blocked.
9. Check scum level of each chamber and measure the sludge accumulation depth of each chamber using **sludge/scum measuring judge**.
10. Measure the recirculation rate as described in "(3) Measuring Recirculation Rate" on page 6.
11. Check air bubbles are evenly distributed throughout aeration chamber.
12. Pour some water to raise the water level and check if the effluent air-lift pump is operating properly.
13. Flush the air-lift pump as described in "Servicing the Effluent Air-lift Pump" on page 8.
14. Perform a backwash operation as described in "Backwash and Sludge Transfer" on page 7.
15. Prevent blockage as described in "Preventing Blockage of Anaerobic Filtration Media" on page 9.

16. If scum appears in the clarification chamber or the pump chamber, scoop and transfer into the sedimentation chamber.
17. Any sludge built up in the clarification chamber or the pump chamber needs to be transferred to the sedimentation chamber.
18. Adjust the recirculation rate as described in "(2) Adjusting Recirculation Rate" on page 6.
19. Refill the chlorinator and adjust the dissolve rate if applicable.
20. Close the blower box and lock all access covers.

Adjusting Valves



(1) Adjusting Aeration Balance

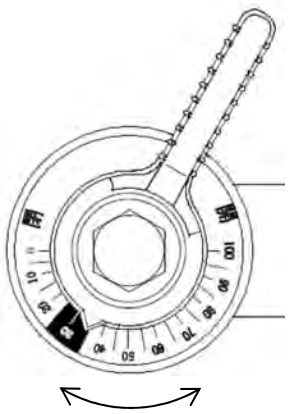
The aeration system is divided into two parts. The airflow balance between right and left part is adjustable by the Aeration Balance Control Valve, which is normally set to 50. The bubbles should be evenly distributed throughout the aeration chamber.

Visually observe the airflow rates on each side of the plant to verify equal flow. If there is an obvious discrepancy in airflow between the two sides, adjust the Aeration Balance Control Valve so that the airflow is equal.

(2) Adjusting Recirculation Rate

The recirculation rate is also adjustable by the Recirculation Control Valve (grey valve) and should be adjusted within **3.0 – 5.0 L/min (= 150 – 250 mL/3sec)**. (The optimum valve range is between 25 - 35.)

If Valve Reading is less than 20, perform a "Cleaning Aeration Pipes" as described on page 7.



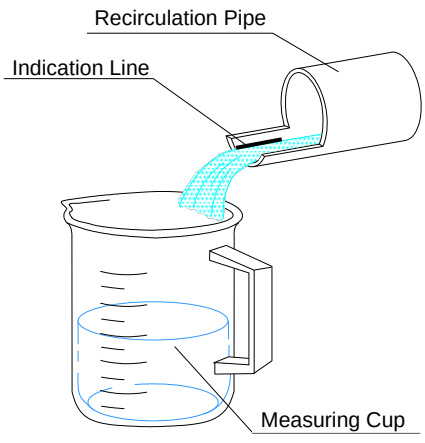
Recirculation Control Valve

IMPORTANT

Too much recirculation can cause stirring or agitation in the sedimentation chamber and solids to flow into the anaerobic chamber. Also, treatment performance could be deteriorated and this could cause odour.

(3) Measuring Recirculation Rate

Recirculation rate can be measured at the end of the recirculation pipe in the Sedimentation Chamber by using a measuring cup as shown in the right drawing.

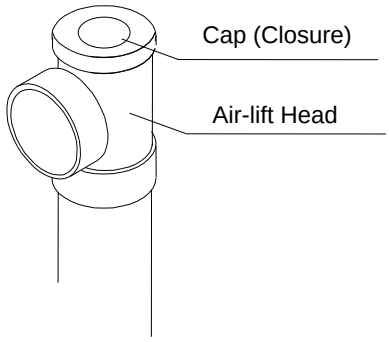


When measuring the recirculation rate, make sure **there is no inflow to the system and the water level is at Low Water Level (LWL).**

If the water level is higher than that, wait until it drops to LWL. The recirculation rate is increased considerably when the water level is above LWL.

Although the recirculation rate can be adjusted to some extent by the Recirculation Control Valve, measure the actual flow rate at the end of the recirculation pipe in the Sedimentation Chamber by using a measuring cup.

The upper part of the end of the Recirculation Pipe is cut off as shown in the drawing on the previous page. Adjust the Recirculation Control Valve so that the water level in the pipe is between the horizontal edge of the pipe end and the Indication Line.



If the recirculation rate has increased considerably since the last maintenance, this could indicate a clogged aeration pipe.

(4) Cleaning Recirculation Air-lift Pump

Excessive biofilm build-up in the recirculation air-lift pump could affect the recirculation rate. Remove the cap on the air-lift head, clean inside the pipe with a pipe cleaning brush and water hose.

Backwash and Sludge Transfer IMPORTANT!

Excessive biofilm growth on the contact and filter media may cause partial clogging or short circuiting and deteriorate the performance of the system. In addition, too much sludge accumulation in the bottom of the clarification chamber may cause the performance deterioration. **It is important to carry out a backwash operation and sludge transfer at EVERY MAINTENANCE VISIT.**

Step 1. Shut off the Effluent Air-lift Pump by turning the Effluent Control Valve (white valve) clockwise until it won't turn any more.

Step 2. Transfer the sludge on the bottom of the aeration chamber by turning the Recirculation Control Valve (grey valve) to 70 – 80 and wait for one minute.

Step 3. Reset the Recirculation Control Valve (grey valve) to the original position.

Step 4. Aerate one side of the chamber by turning the Aeration Balance Control Valve (blue valve) fully one way. Wait for one minute, and then turn the valve fully to the opposite direction. Wait for another minute, and then reset the valve to the original position.

Step 5. Repeat **Step 2** – **4** a few times.

Step 6. Perform **Step 2**.

Step 7. Reset the Recirculation Control Valve (grey valve) and the Effluent Control Valve (white valve) to the original position. Make sure that the aeration is working properly.

Step 8. Adjust the recirculation as described in "(2) Adjusting Recirculation Rate" on page 6.

Cleaning Aeration Pipes

The following symptoms indicate that the aeration pipes may be partially clogged and the pipes need to be flushed or cleaned with a pipe brush.

- Bubbles are not evenly distributed throughout the chamber even after adjusting the aeration balance.
- Recirculation rate has increased considerably although the recirculation valve setting has not been changed.

(1) Flushing with Pressure Water

*This method must not be used unless an appropriate backflow prevention device is fitted to the tap.

Step 1. Close the Recirculation Control Valve (grey valve) and the Effluent Control Valve (white valve).

Step 2. Turn off the blower.

Step 3. Disconnect a barrel union.

Step 4. Attach a piece of 13mm PVC pipe to the end of a garden hose with a hose clamp, and then connect the pipe with the barrel union.

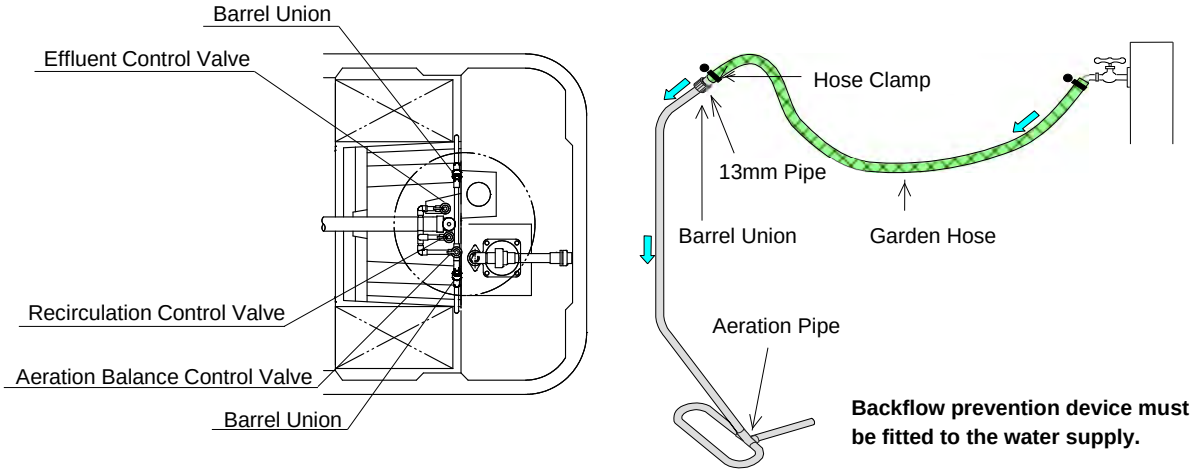
Step 5. Connect the other end of the hose to a tap and run water through it.

Step 6. Turn off the tap and disconnect the barrel union.

Step 7. Connect the hose to the barrel union in the other side of the aeration chamber.

Step 8. Turn off the tap and reconnect the aeration pipework.

Step 9. Turn on the blower and adjust all the valve settings.



(2) Cleaning with Pipe Brush

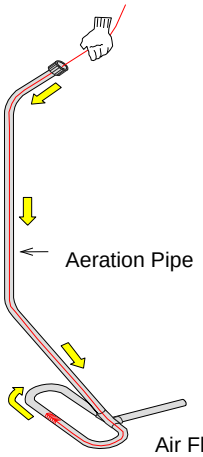
Step 1. Turn off the blower.

Step 2. Disconnect a barrel union.

Step 3. Insert a pipe cleaning brush into the aeration pipe to clean it (Wire length of 2,450mm is required to reach the end of the pipe).

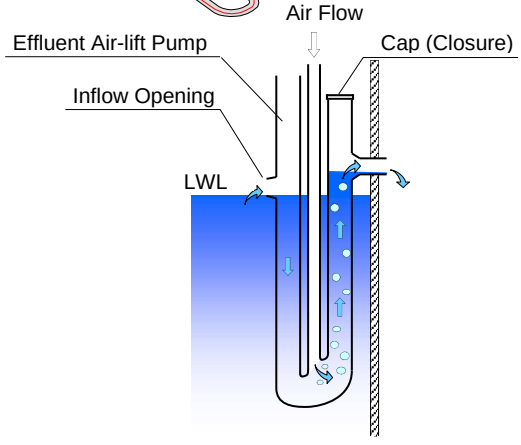
Step 4. Reconnect the aeration pipework.

Step 5. Turn on the blower and adjust all the valve settings.



Servicing the Effluent Air-lift Pump

The Effluent Air-lift Pump can be checked even while the water level is at the Low Water Level (LWL). Push down the air-lift pump so that the water flows into the inflow opening (or pour water directly into the air-lift pump) and see if the water is discharged to the disinfection chamber.



(1) Setting the Effluent Control Valve

The Effluent Control Valve is initially set to 40% and there is no need for it to be adjusted normally. However, if the air-lift pump does not work while the water level exceeds LWL, the valve needs to be adjusted accordingly.

(2) Flushing the Effluent Control Valve

Rotate the valve back and forth from 0 to 100 several times to flush and reset the valve.

Preventing Blockage of Anaerobic Filtration Media

IMPORTANT!

Blockage of Anaerobic Media will worsen T-N of effluent and cause unexpected problems. Accumulated sludge on the anaerobic media could cause a complete or partial blockage.

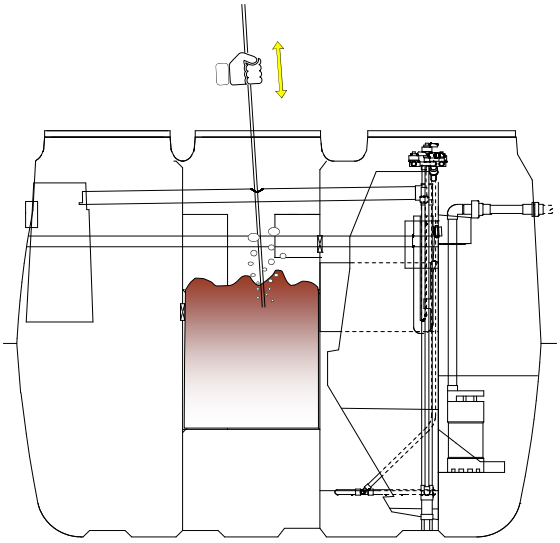
Ensure prevention of blockage by performing **"**(1) Degassing / Agitating Anaerobic Media**" EVERY SERVICE.** If water level inside the baffle in the anaerobic chamber is higher than the outside even after Degassing, perform **"**(2) Backwashing Anaerobic Media**"** as described below**.**

(1) Degassing / Agitating Anaerobic Media (on every service)

Agitate the filtration media gently by using PVC or stainless steel pipe with less than 20mm outside diameter. Nitrogen gas trapped in the media will be released during this process.

IMPORTANT

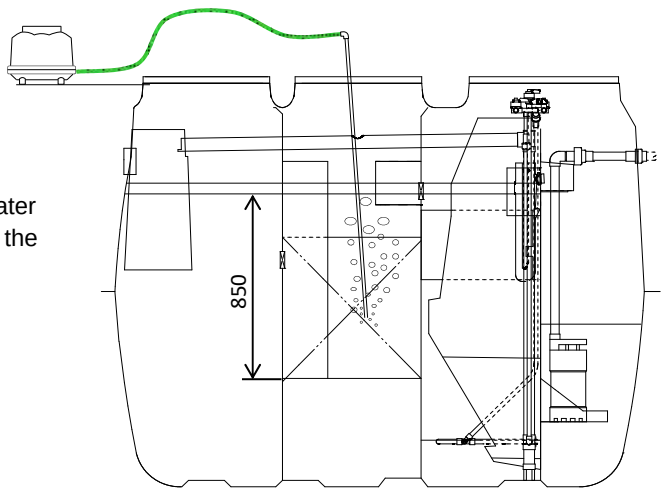
Degassing must be done every service.



(2) Backwashing Anaerobic Media (if necessary)

Connect pipe with a blower to backwash the media as shown below. The end of the pipe should be kept just above the bottom of the media so that the accumulated sludge at the bottom of the chamber is not disturbed.

Distance from Low Water Level to the bottom of the media is 850mm



4. DESLUDGING

When do you need to pump out the plant?

Fuji Clean Australia recommends desludging every 3 years. Accumulated sludge trapped under the anaerobic filtration chamber can lead to the filtration media becoming clogged up.

Desludging is required to remove accumulated solids when one or more of the following conditions are present:

- Biological treatment performance is severely deteriorated due to excessive amounts of oil or chemicals which interfere with the bacterial activity.
- Excessive scum builds up in the sedimentation chamber and/or the anaerobic filtration chamber and large amount of solids flow into the next chamber. **(refer to page 15)**
- Sludge layer 400mm in the anaerobic filtration chamber (upto the bottom of the medias) and 1,000mm in the sedimentation chamber. **(refer to page 15)**
- Excessive suspended solids are observed in the aerobic contact filtration chamber and the symptoms do not improve even after performing a sludge transfer.

Desludging Procedures

IMPORTANT

The pump truck performing pump out operations shall not be closer than **3m** from the tank. The tank may be damaged or deformed by earth pressure.

Step 1. Turn off all electrical components.

Step 2. Clean the inlet pipe.

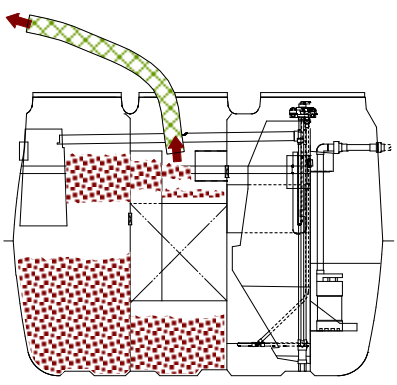
Step 3. Transfer suspended solids in the aerobic chamber and scum and sludge in the clarification chamber to the sedimentation chamber.

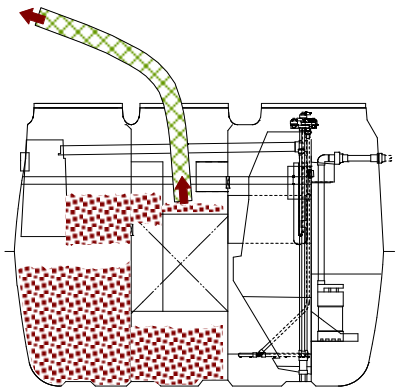
Step 4 Backwashing Anaerobic Media. (refer to page 9)

IMPORTANT!
If sludge remains in the filtration media, desludging maybe required more frequency than the expected period.

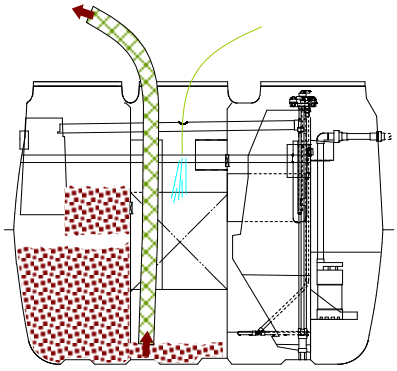
Step 5. Remove scum and sediment build-up on the filtration media in the anaerobic filtration chamber.

IMPORTANT!
If sludge in the sedimentation chamber is pumped out before scum and sediment on the media is removed, scum and sediment will be drawn into the filtration media as the water level drops.

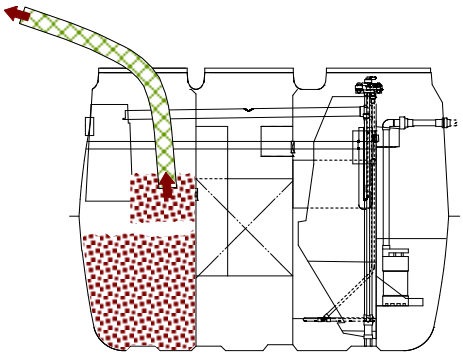


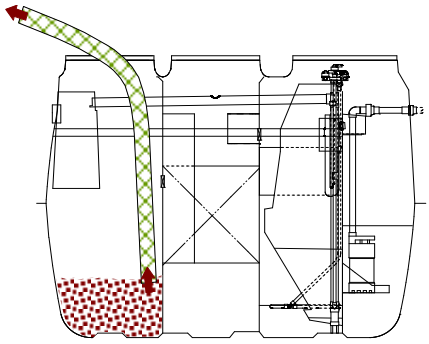


Step 6. Insert suction hose into the baffle. Remove sludge from the bottom of the anaerobic filtration chamber while washing the filtration media and chamber wall **with high pressure water.**

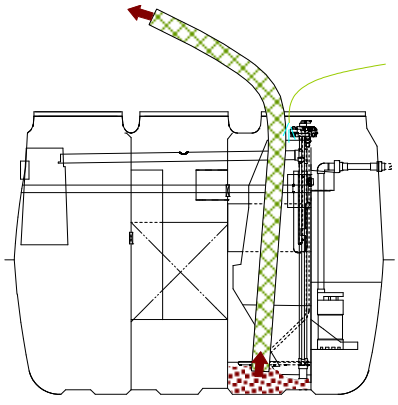


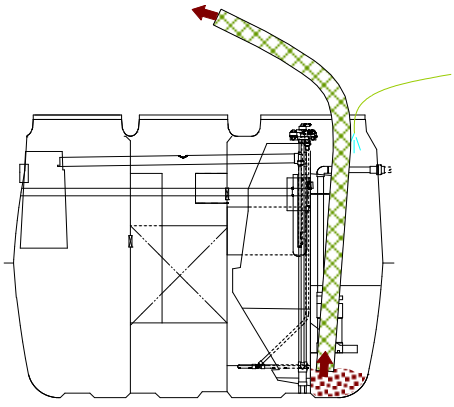
Step 7. Remove scum and sludge in the sedimentation chamber.





Step 8. (optional) Although it is unnecessary to vacuum the aerobic contact filtration chamber, it is possible to do so by inserting the suction hose into the clarification chamber and sucking water from the bottom while washing the media and chamber wall with high pressure water. Also, if necessary, the disnfection/pump chamber can be vacuumed as well.





Step 9. Fill the plant with water to LWL.

Step 10. Turn on all electrical components.

5. TROUBLESHOOTING

Sedimentation Chamber

Symptom	Solution
Inlet pipe is blocked.	● Remove the blockage.
Strong and unusual odour persists even with the manhole lids closed.	● During the first few weeks of operation there may be some odour from the system. This should cease once the bacteria are established. ● Improper operation may generate odours. Add seeding material to both anaerobic and aeration chambers, and/or adjust the operational conditions such as recirculation rate.
Excessive scum accumulations. (Scum layer reaches the top of the influent baffle.)	● If the depth of sludge accumulation is less than 300mm and the anaerobic chamber still has the remaining sludge holding capacity, break the scum layer, otherwise have the plant pumped out.
Excessive sludge accumulations. (Depth of sludge layer exceeds 1,000mm.)	● Check the sludge accumulations in the anaerobic chamber. If the sludge exceeds the holding capacity, have the plant pumped out.
Foreign materials, excessive oil or fat entering the system.	● Remind the homeowner to refrain from disposing prohibited substances and limited-use substances.

Anaerobic Filtration Chamber

Symptom	Solution
Excessive scum accumulations. (less than 100mm)	● If the sedimentation chamber still has the remaining sludge holding capacity, transfer the scum to the sedimentation chamber, otherwise have the plant pumped out.
Excessive scum accumulations. (more than 100mm)	● Have the plant pumped out.
Excessive sludge accumulations.	● If the bottom sludge layer is thicker than 400mm and excessive sludge has accumulated on the filtration media, have the plant pumped out.
Filtration media is blocked up. (The water level in the anaerobic chamber is lower than that in the baffle.)	● Perform a degassing operation on the filtration media. ● If the problem still persists even after the degassing operation, backwash the filtration media by using a blower.

Aerobic Contact Filtration Chamber

Symptom	Solution
Bubbles are not evenly distributed throughout the chamber or there are no bubbles at all.	● Adjust the aeration control valve. ● Check to make sure that there is no leakage from the aeration pipework. ● Check to make sure that the blower operates properly. ● Flush the aeration pipe. ● Perform a backwash operation.

Dissolved Oxygen is less than 1.0mg/L.	● Check to make sure that the blower operates properly. ● Perform a backwash operation.
Recirculation rate is unable to be adjusted or no recirculation at all.	● Adjust the recirculation control valve. ● Check to make sure that there is no leakage from the aeration pipework. ● Check to make sure that the blower operates properly. ● Clean the recirculation air-lift pump.
Excessive foaming.	● Some foaming may occur during the early stage of operation. This should cease once the bacteria are established. Seeding may also be effective.
Excessive suspended solids.	● Perform a backwash and sludge transfer operation.
Abnormal water level. (50mm above LWL when there is no inflow)	● Clean the effluent air-lift pump and the effluent weir. ● Flush the effluent control valve. ● If the problem still persists, backwash the filtration media by using a PVC pipe.

Clarification Chamber

Symptom	Solution
Scum forming.	● Transfer the scum to the sedimentation chamber.
Excessive sludge accumulations.	● Transfer the sludge to the sedimentation chamber.
pH is too low or too high. (pH < 5.8 or pH > 8.6)	● Check to make sure the recirculation rate is appropriate. ● Remind the homeowner not to dispose any prohibited substances.
Excessive biofilm on the chamber wall.	● Clean the wall and transfer solids to the sedimentation chamber.
Effluent air-lift pump is not working.	● Clean the air-lift pump. ● Flush the effluent control valve. ● Check to make sure there is no leakage from the blower pipework. ● Check to make sure that the blower operates properly.
Effluent weir is blocked.	● Remove the blockage.

Disinfection/Pump Chamber

Symptom	Solution
Excessive biofilm on the wall. (more than 5mm thick)	● Clean the wall.
Chlorine tablets dissolve too fast or too slow.	● Adjust the chlorinator.
Poor water clarity with scum or sediment forming.	● Have the plant pumped out.
Irrigation pump is not working.	● Ensure the power plug is firmly plugged into AC outlet. ● Check to make sure the circuit breaker is not tripped. ● Check to make sure the pump float switch is not stuck or

	entangled.
High water float switch is not working.	● Check wiring connections.

Blower

Symptom	Solution
Blower is not working.	● Ensure the power plug is firmly plugged into AC outlet. ● Check to make sure the circuit breaker has not tripped. ● Ensure the internal diaphragms are in a good condition. ● Ensure the internal safety switch is in the correct position.
Air pressure is too low.	● Rectify air leaks.
Abnormal noise or vibration.	● Ensure the blower is not touching the wall and cables. ● Ensure the mounting legs of the blower firmly contact the base.
Dirty or clogged air filter.	● Clean or replace the filter.

Submersible Pump

Symptom	Solution
Pump is not working.	● Ensure the power plug is firmly plugged into AC outlet. ● Ensure the float can move freely. ● Ensure there is no blockage at the suction filter and impeller.
Dirty or clogged mesh filter.	● Clean the suction filter with tap water and brush.

Alarm System (Monitor Unit and Alarm Panel)

Symptom	Solution
No LED(s) on monitor unit & Power LED flashing at alarm panel (only battery type)	● Power is lost to the monitor unit. Check the mains power supply.
Power LED flashing at monitor unit	● Power down the monitor unit, disconnect all output, and power back up so the power LED should remain ON. Then reconnect the outputs one at a time to identify what caused the fault.
Power LED flashing at alarm panel (only battery type)	● Disconnect and remove the alarm plate and locally connect it to the monitor unit with a different wire. If problem goes away the existing wire is damaged or broken. ● Otherwise replace with a new alarm panel and/or a new monitor unit.
Air Fault LED at alarm panel	● Ensure the air blower is working, clear air tube is intact, and the pressure switch is working properly by blowing through the clear tube.
High Water Fault LED at alarm panel	● Check the water level in the pumpout chamber ● Ensure the float switch is working properly.
All LEDs at alarm panel flashing or behaving erratically	● Wait for 10-20 minutes until the alarm plate is fully recharged. ● Otherwise replace with new alarm panel

Others

Symptom	Solution
Ground subsidence	● Ensure the risers and tank are NOT exposed above the ground. ● Apply the UV paint/spray coating on the exposed riser or add extra soil to completely cover the riser and tank. The FRP material needs to be protected from UV sunlight. GOOD 
Conduit seal is broken.	● Ensure the conduit is still well sealed with the foam gasket and silicon sealant on every inspection. ● Reseal the conduit with silicon sealant if broken.

6. WARRANTY & REPAIR POLICY

Warranty Period

- Structural tank: 15 years from the date of commissioning
- Riser, Blower Box, Access Cover Lids: 2 years from the date of commissioning
- Electrical components: 2 years from the date of commissioning

Scope of Warranty

Fuji Clean Australia would repair defects of a FujiClean wastewater treatment system for free of charge when it was confirmed that the system was installed by a licensed plumbing contractor and serviced quarterly by an approved FujiClean service agent AND the defects in structure and function were caused by responsibility of manufacture within the above warranty period.

However the repair would NOT be covered by Fuji Clean Australia when:

- consumable parts (i.e. disinfectant, diaphragm assembly, air filter) failed;
- there is no service agreement in place between customer and service agent;
- the system was not properly installed as per the installation instruction;
- the system was not properly serviced as per the operation and maintenance manual;
- the electrical components were not properly wired or mounted as per the Wiring Instruction on page 9;
- the system was broken down or damaged as a result of retrofitting, improper repair, or any other changes outside the instruction manual.
- the damage occurred a result of moving the electrical parts (i.e. air blower);
- the damage occurred by heavy loads and vibration of any vehicle;
- the damage resulted from natural disasters such as flood, fire, earthquake or lightening, problems with electrical power such as power surges or incorrect voltages;
- the damage resulted from any other accident, inappropriate handling, machine or building foundation, foreign objects, chemicals.
- any trouble caused by excessive amount of inflow and foreign substances as described in the section 4. Maintenance on page 4;

Contacts

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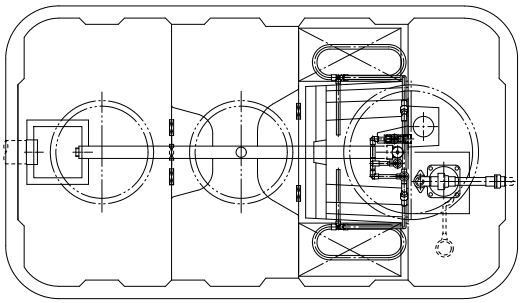
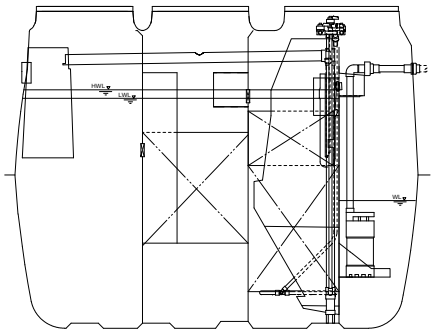
7. SPECIFICATIONS

TREATMENT UNIT



Horizontal Sectional View

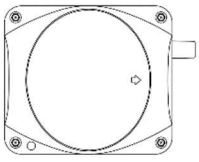


Vertical Sectional View

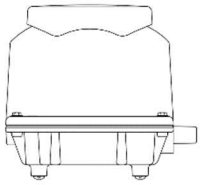
Volume (L)	
Sedimentation Chamber	1,114
Anaerobic Filtration Chamber	982
Aerobic Contact Filtration Chamber	580
Clarification Chamber	281
Disnfectin/Pump Chamber	308
Total Volume	3,265
Weight (kg)	430

Dimensions (mm)	
Max. Width	1,440
Max. Length	2,510
Max. Height (with No risers)	1,870
Max. Height (with 150mmH risers)	2,060
Max. Height (with 300mmH risers)	2,210
Max. Height (with 450mmH risers)	2,360
Inlet Invert (with No risers)	410
Inlet Invert (with 150mmH risers)	600
Inlet Invert (with 300mmH risers)	750
Inlet Invert (with 450mmH risers)	900
Inlet Pipe Nominal Size	Dia. 100
Outlet Pipe Nominal Size	Dia. 25

BLOWER



Top View



Side View

Model	MAC100RII
Air Flow Volume	100L/min
Normal Pressure	18kPa
Outlet Pipe Size (diameter)	18mm
Rated Voltage	AC240V
Frequency	50Hz
Power Consumption	69W
Weight	5kg

ALARM SYSTEM

MONITOR UNIT

The monitor unit is installed at the treatment system and provides connections for the air blower, pump and sensors, along with power and signal to the remote alarm. The monitor unit has three local LED indicators for easy verification of the power input states:

Power:	This LED is lit whenever power is present.
High Water:	When the High Water alarm is activated this LED will begin to flash. After 1 minute the High Water alarm is sent to the remote alarm panel, at which time the LED will remain lit.
Air Fault:	When the Air Pressure alarm is activated this LED will begin to flash. After 1 minute the Air Fault alarm is sent to the remote alarm panel, at which time the LED will remain lit.

REMOTE ALARM PANEL

The remote alarm is an electrical switch plate styled unit which informs the owner of the treatment system to its status at a location remote to the system (i.e. in the house). The remote alarm plate uses a non-polarized 2-wire system to transfer both power and data to the remote alarm unit.

Care must be taken to ensure the connection between the monitor unit and the remote alarm are kept tidy and sealed as factors such as moisture and bad connections can interfere with performance of alarm system. It is also advised to avoid joins in the cable.

NB: If the 2-wire alarm cable is to be run in the same conduit as the mains supply to this unit from the house, the alarm cable must be 240VAC rated. Caution needs to be exercised when connecting this alarm wiring, as inadvertent connection to the mains voltage will irreversibly damage both the alarm plate and the control unit.

Muting and Resetting

The mute button can be pressed at any time to stop the remote alarm from beeping. This mute condition will last for 24 hours (modified from the previous 12 hour setting) before the mute will expire and the remote alarm will begin beeping again. Note that the mute timeout period will reset whenever the mute button is pressed so the user can press mute before going to bed to reduce disturbance.

Once an alarm condition exists, the associated alarm LED will be flashing. Pressing the "Mute" button will only silence the alarm. If the "Fault" condition still exists then the fault will continue to be indicated. However, should the fault clear then the alarm condition will automatically reset and both audible and visual alarms will be cleared.

If at any stage a new alarm condition occurs the mute will also expire and the unit will begin beeping again.