



**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 3000
Manufactured by:	FujiClean Australia Pty Ltd Unit 3, 16 Waterway Drive COOMERA QLD 4209
DoH Approval Number:	F-AA-88008

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: **06 January 2026**
Date of Expiry: **14 February 2031**

This approval is valid until 14 February 2031 with FujiClean Australia Pty Ltd Global Certification number 8221-3561-01 or until withdrawn by the Chief Health Officer

Richard Theobald
delegate of
CHIEF HEALTH OFFICER

05 January 2026





SCHEDULE 1: GENERAL DESCRIPTION

Specification Summary

FujiClean		Specifications
Model		ACE 3000
Maximum daily influent volume		3000L/day
Approved disposal methods		• Surface spray irrigation • Substrata irrigation • Sub-surface irrigation • Conventional subsurface disposal systems, AS1547 Infiltration trenches and beds • An approved receptacle for drainage under the <i>Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974</i>
Treatment Method		Aeration – Contact Filter Bed Process
Disinfection method		Chlorine
Service interval		3 months, 2.3 yearly sedimentation pump out or as required
Effluent quality	BOD	≤ 10 mg/L (*1.29 mg/L)
	TSS	≤ 10 mg/L (*4.98 mg/L)
	Free Chlorine	Minimum 0.5 mg/L
	<i>E. coli</i>	≤ 10 cfu/100ml (*0.2 mg/L)
	*Nutrient removal capacity (% Reduction)	Total Nitrogen: 29.37 mg/L (61.25%) Total Phosphorus: 10.66 mg/L (6.49%)
Tank	Fibreglass	Tank Certified to AS1546.1: 2008 Global Certificate Pty Ltd (Number 294/7)

***Average results over the certification trial period for AS1546.3:2017**

SCHEDULE 2: CONDITIONS OF APPROVAL

1. General

- 1.1 The FujiClean ACE 3000 is approved to serve single dwelling units up to 10 person capacity (or non-residential developments with a combined wastewater flow of up to 3000 litres per day or 20 EP).
- 1.2 No alteration to the design or specification of the FujiClean ACE 3000 shall occur without prior approval of the Chief Health Officer.
- 1.3 Any changes to the design or the construction of the FujiClean ACE 3000 shall be submitted for assessment and approval to the Department of Health before being made commercially available in Western Australia.
- 1.4 Conditions of approval may be varied or withdrawn at the discretion of the Chief Health Officer.
- 1.5 Each FujiClean Australia Pty Ltd 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.
- 1.6 The manufacturer shall provide the following information to each Local Government where it is intended to install an ATU in their area once Departmental Approval has been obtained:
- Statement of warranty
 - Statement of service life
 - Quality Assurance Certification
 - Installation Manual
 - Service Manual
 - Owner's Manual
 - Service Report Form
 - Engineering Drawings on A3 format
 - Detailed Specifications
 - A4 Plans
 - 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 FujiClean ACE 3000 shall be carried out only by installers authorised by FujiClean Australia Pty Ltd.
- 2.3** The installation of each FujiClean ACE 3000 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 FujiClean ACE 3000, 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 FujiClean ACE 3000 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 FujiClean ACE 3000 shall be supplied, constructed and installed in accordance with the design as submitted and accredited by the Department of Health WA.
- 2.8** The manufacturer shall supply with each FujiClean ACE 3000 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 minimum 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 FujiClean ACE 3000. 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** At each anniversary of the approval date the manufacturer shall submit to Department of Health WA a list of all FujiClean ACE 3000 installed in WA during the previous twelve months. Department of Health WA may randomly select up to 10% of the installed FujiClean ACE 3000 from each year of installation for auditing purposes. The manufacturer, at its own cost, shall arrange for the selected FujiClean ACE 3000 to be inspected and sampled by certified auditors. Samples for BOD₅, TSS, *E. coli* are to be determined by a NATA registered laboratory, and samples for disinfectant concentration, if applicable, are to be determined on site. The results are to be reported to Department of Health WA by:
- address of premises
 - date inspected and sampled
 - sample identification number
 - Effluent quality parameters detailed in Schedule 1; and
 - service history (if available)
- 4.3** Effluent from the FujiClean ACE 3000 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 FujiClean ACE 3000 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 for the systems onsite is subject to the approval of the Local Government.





6 Reduction in nutrient levels

6.1 Refer to Schedule 1 for the nutrient reduction capacities for the FujiClean ACE 3000.

Richard Theobald
delegate of
CHIEF HEALTH OFFICER

06 February 2026

FujiClean ACE3000 Conditions of Approval





PRODUCT CERTIFICATE OF REGISTRATION

FujiClean Australia Pty Ltd

2/176 Siganto Drive, Helensvale, QLD 4212, Australia



Product Performance Testing

1546.3:2017

Advanced Secondary 3000 L/day or 20EP level with a reduction of 61.25% for Nitrogen and 6.49% for Phosphorus

Model	Disinfection	Average Results over the Test Period	Servicing Frequency	Discharge	Manufactured and assembled
FujiClean ACE 3000	Yes	TSS: 4.98mg/l BOD5: 1.29mg/l E Coli: 0.20 CFU/100mL Nitrogen: 29.37mg/L Phosphorous: 10.66mg/L	3 Month Service 2.3 yearly sedimentation pump out or as required	Pumped via disinfection/pump chamber with chlorine dispenser	Manufactured and Assembled: 59 Computer Road, Yatala, QLD 4207, Australia Or 37 Wells Road, Mordialloc, VIC 3195, Australia
The system took 1 week to meet the advanced secondary standard. No additives apart from Chlorine for disinfection was added to the system during testing. The tanks are certified to AS/NZS 1546.1:2008					

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.


Evan Miller - General Manager
Compass Assurance Services Pty Ltd



CERTIFICATION DATE:

14 February 2021

DATE OF ISSUE:

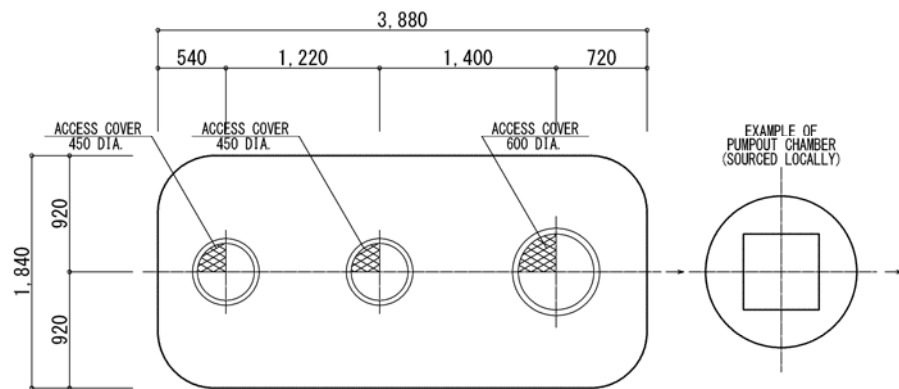
30 January 2026

EXPIRY DATE:

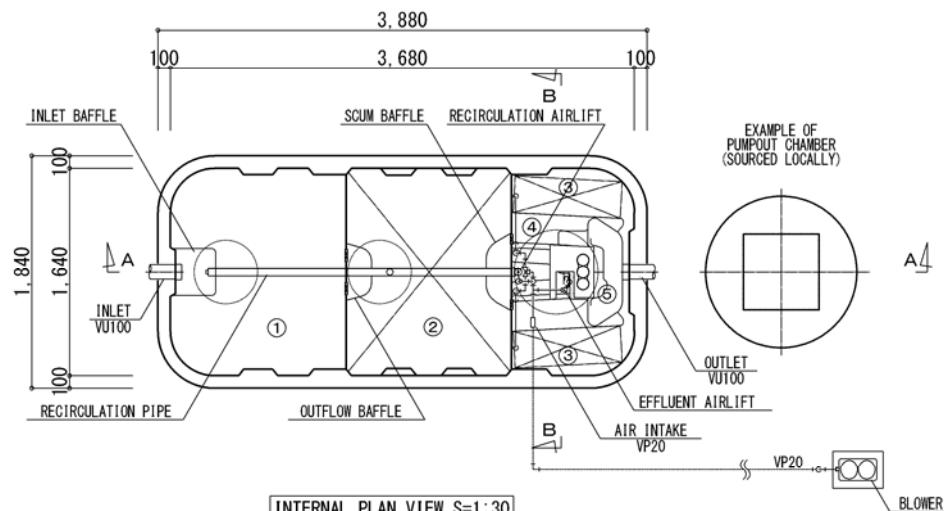
14 February 2031

CERTIFICATE #:

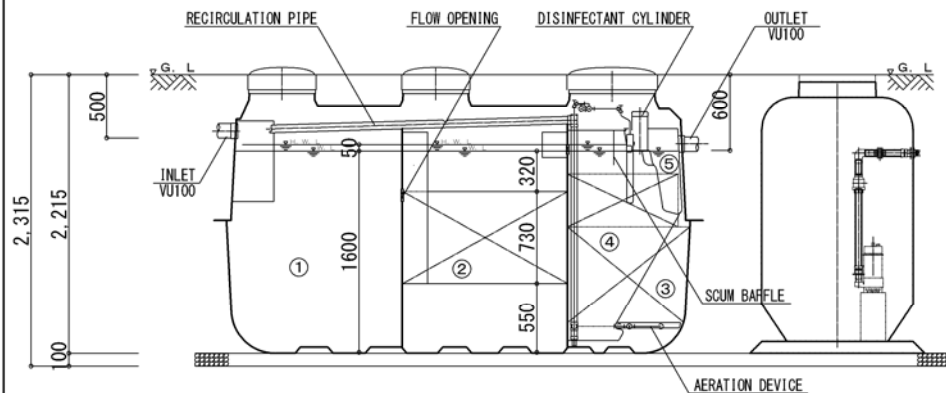
8221-3568-01



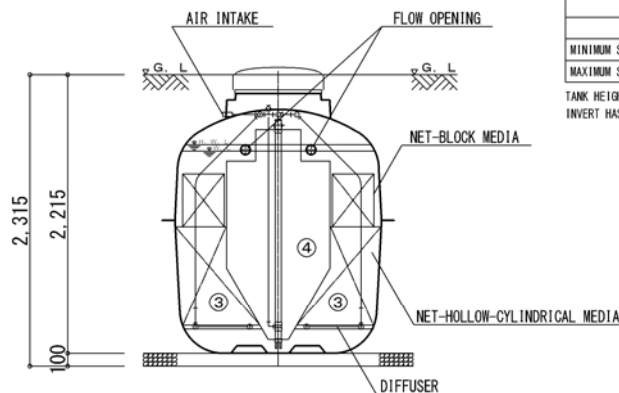
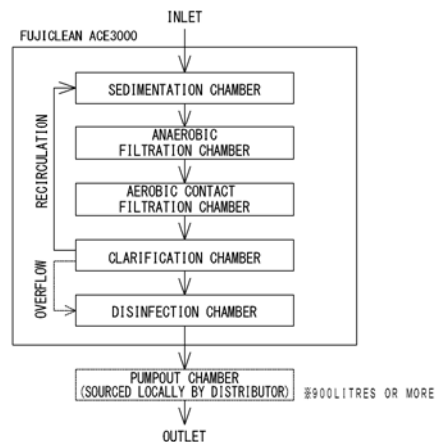
TOP VIEW S=1:30



INTERNAL PLAN VIEW S=1:30



A-A SECTION VIEW S=1:30



B-B SECTION VIEW S=1:30

SPECIFICATIONS					
DRAWING NUMBER		GJS****A			
TREATMENT METHOD		CONTACT MEDIA FILTRATION METHOD			
MODEL NAME		FUJICLEAN ACE3000		EMPTY WEIGHT:550kg	
DESIGN HYDRAULIC LOADING		3.00m ³ /d			
DESIGN INFLUENT QUALITY		BOD 450mg/L	T-N 50mg/L	SS 160mg/L	
DESIGN EFFLUENT QUALITY		BOD 20mg/L	T-N 20mg/L	SS 20mg/L	
EFFECTIVE CAPACITY					
①	SEDIMENTATION CHAMBER		3.169		m ³
②	ANAEROBIC FILTRATION CHAMBER		3.177		m ³
③	AEROBIC CONTACT FILTRATION CHAMBER		1.431		m ³
④	CLARIFICATION CHAMBER		0.703		m ³
⑤	DISINFECTION CHAMBER		0.044		m ³
TOTAL CAPACITY			8.524		m ³
SPECIFICATION OF DEVICES					
BLOWER	NORMAL OUTPUT	OUTLET DIAMETER	POWER RATE	OPERATION MODE	REQUIRED UNIT
	200 L/min	VP20	140W (240V/50Hz)	CONTINUOUS OPERATION	1
TANK MATERIAL		FRP			
PIPINGS		PVC, PP OR PE			
CONTACT MEDIA		PP OR PE			
ACCESS COVER		PP (500K)			
DISINFECTION AGENT		CHLORINE TABLETS			

SPECIFICATION	ON-LAND PIPING	VP
OF PIPINGS	UNDERGROUND PIPING	VP for <40mm dia. / VU for >50mm dia.
	INNER TANK PIPING	MANUFACTURER'S CHOICE (PVC)

PVC PIPE DIMENSION	
COMMON NAME	OUTSIDE DIAMETER
VP20	26 mm
VUBS	26 mm
VU100	114 mm
VU125	140 mm

- *1 THE DRAWING IS MADE FOR THE PURPOSE OF REFERENCE ONLY AND NOT FOR A SPECIFIC PROJECT.
- *2 DESIGN FOR WALKABLE LOAD. CONCRETE BASE IS NOT REQUIRED FOR UNDERGROUND INSTALLATION ONLY WHEN NO VEHICLE LOAD IS EXPECTED. FOLLOW FUJICLEAN INSTALLATION MANUAL FOR CORRECT PROCEDURES. FOR TRAFFICABLE LOAD CONTACT FCA.
- *3 ELECTRIC VOLTAGE IS 240V/50Hz.
- *4 DISTANCE BETWEEN BLOWER AND UNIT SHOULD BE LESS THAN 10METERS.
- *5 PLUMBING BEFORE INFLOW AND AFTER EFFLUENT ARE NOT INCLUDED.
- *6 PLUMBING FOR VENT IS NOT INCLUDED.
- *7 POWER POINT IN THE VICINITY OF BLOWER IS REQUIRED.
- *8 BEARING POWER OF SOIL SHOULD BE MORE THAN 60kN/M².
- *9 EXCAVATION AND RELATED JOB ARE NOT DESCRIBED.
- *10 A SUITABLE PUMPOUT CHAMBER IS REQUIRED SO PLEASE SOURCE THEM LOCALLY.
- *11 ENSURE TO CHOOSE A PUMPOUT CHAMBER THAT CAN GIVE A VOLUME OF 900 LITRES OR MORE BETWEEN THE HIGH WATER LEVEL AND BOTTOM OF INLET OF THE PUMPOUT CHAMBER. THE PUMPOUT CHAMBER MUST ALSO BE CERTIFIED TO AS1546.1.

INSTALLATION HEIGHT				
	RISER HEIGHT	INFLOW INVERT	EFFLUENT INVERT	TOTAL HEIGHT
MINIMUM SIZE (150H RISER)	150H	G.L-500	G.L-600	2315H
MAXIMUM SIZE	450H	G.L-800	G.L-900	2615H

TANK HEIGHT HAS ALLOWANCE OF +10MM/-20MM.
INVERT HAS ALLOWANCE OF +10MM.

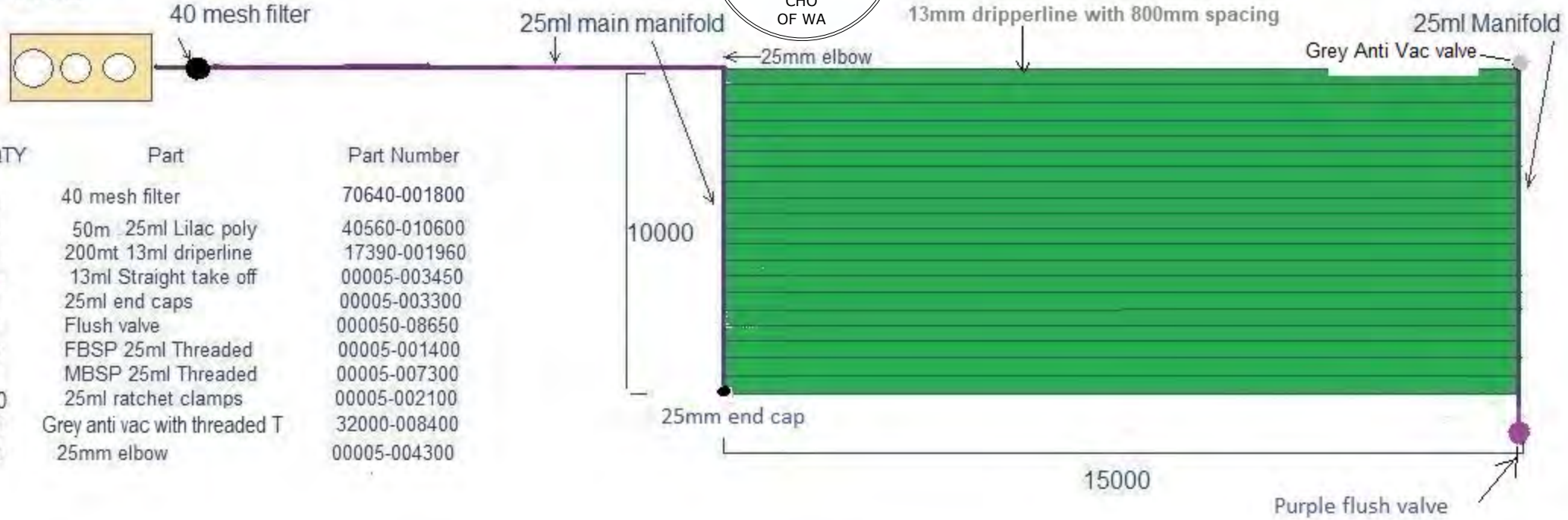
FujiClean
Wastewater Treatment Systems

MODEL	ACE3000 Standard Type	DRAWING NUMBER	GJS****A
DATE	NOV-2021	DRAWN	HORIUCHI
		DRAWN	TOGARI
SCALE	1:60 (when printed on A4 paper of size 297 x 210mm) 1:30 (when printed on A2 paper of size 594 x 420mm)		

150 subsurface for gardens



ATU

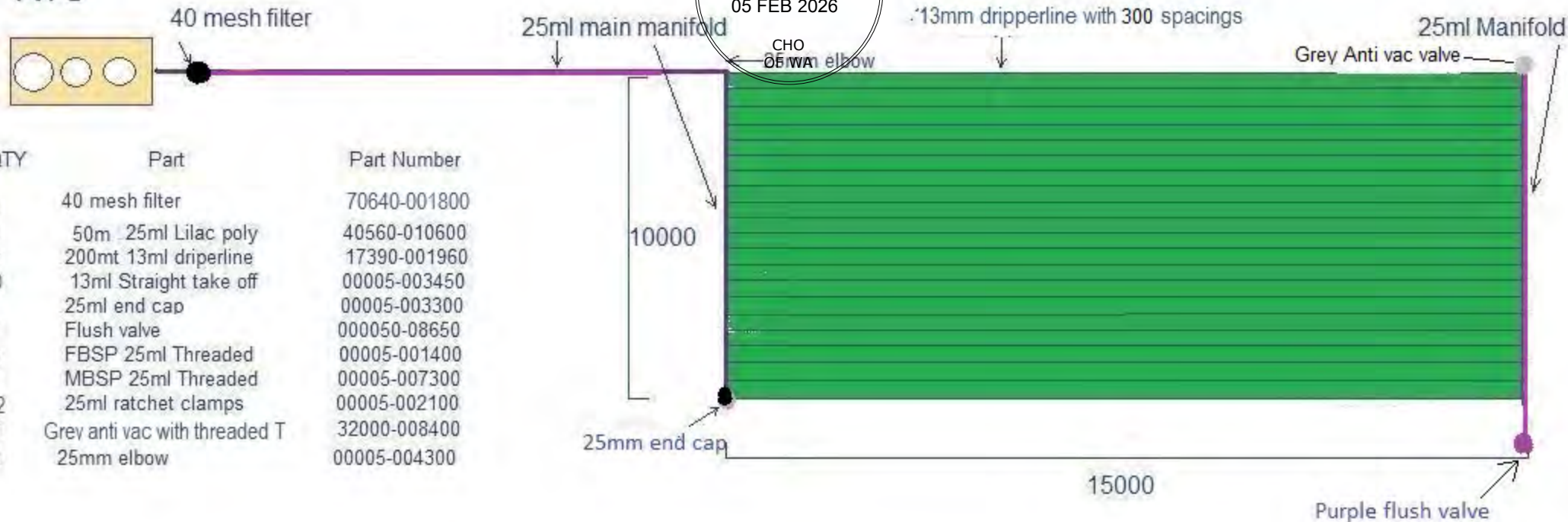


QTY	Part	Part Number
1	40 mesh filter	70640-001800
1	50m 25ml Lilac poly	40560-010600
1	200mt 13ml driperline	17390-001960
24	13ml Straight take off	00005-003450
1	25ml end caps	00005-003300
1	Flush valve	000050-08650
2	FBSP 25ml Threaded	00005-001400
1	MBSP 25ml Threaded	00005-007300
10	25ml ratchet clamps	00005-002100
1	Grey anti vac with threaded T	32000-008400
1	25mm elbow	00005-004300

150m2 subsurface drippers for lawn

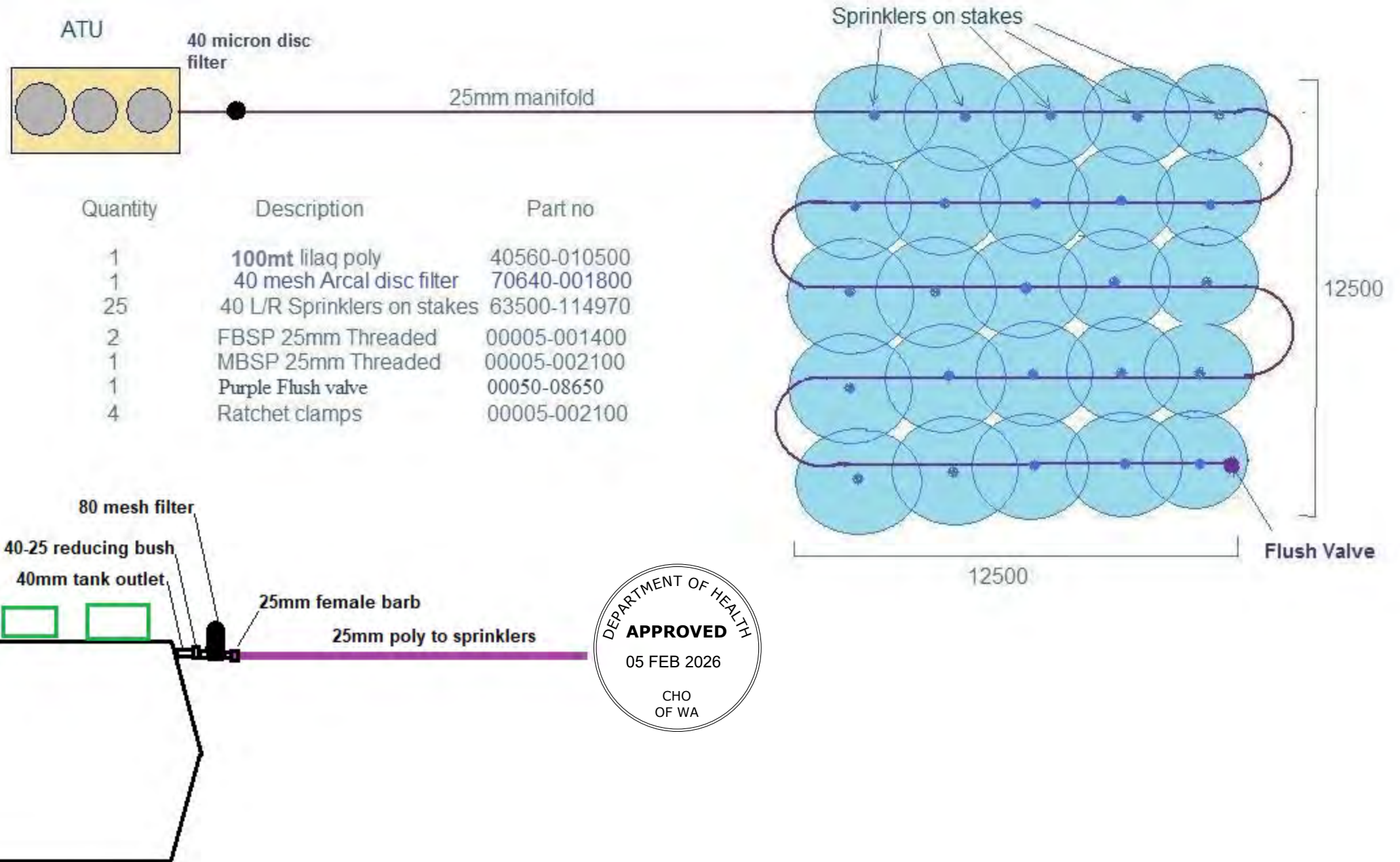


ATU



QTY	Part	Part Number
1	40 mesh filter	70640-001800
1	50m 25ml Lilac poly	40560-010600
2	200mt 13ml driperline	17390-001960
60	13ml Straight take off	00005-003450
1	25ml end cap	00005-003300
1	Flush valve	000050-08650
2	FBSP 25ml Threaded	00005-001400
1	MBSP 25ml Threaded	00005-007300
12	25ml ratchet clamps	00005-002100
1	Grey anti vac with threaded T	32000-008400
1	25mm elbow	00005-004300

150m2 Surface irrigation



FujiClean ACE 3000

SEWAGE TREATMENT SYSTEM

JAPANESE TECHNOLOGY ✓

MADE IN AUSTRALIA ✓

ADVANCED. ✓

COMPACT. ✓

EFFICIENT. ✓



**Advanced Secondary
Effluent Quality**

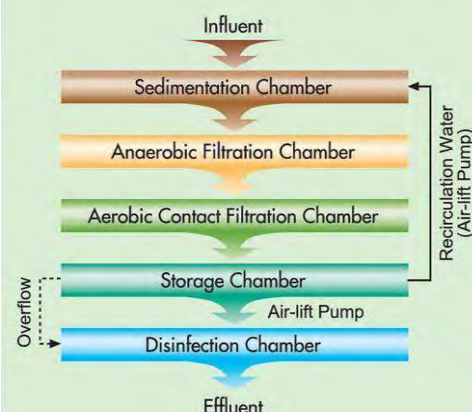
<10 Mg/L BOD₅

< 10 Mg/L Suspended solids

3000 LPD

20 EP @150 LPD

Multi-stage Integrated Unit



Compact and Efficient

This Advanced, Compact, and Efficient unit has been specifically designed using leading Japanese engineering technologies to achieve maximum operational efficiency. The ACE3000 is a whole household treatment plant.

Due to its light weight and compact design allowing for 3000 L per 24 hours, the Fuji Clean ACE system is extremely easy to transport and install. Overall weight of 550 KG makes for an easier delivery and installation.

Commercial Adaptability

The ACE system can easily be customised according to site requirements. The ACE systems can be installed easily at various types of sites (not only domestic) which are not connected to municipal sewage supply; including mining sites, caravan parks, resorts, remote islands, service stations, schools, tourist cabins, community housing and other similar projects producing up to 3000 LPD of influent.

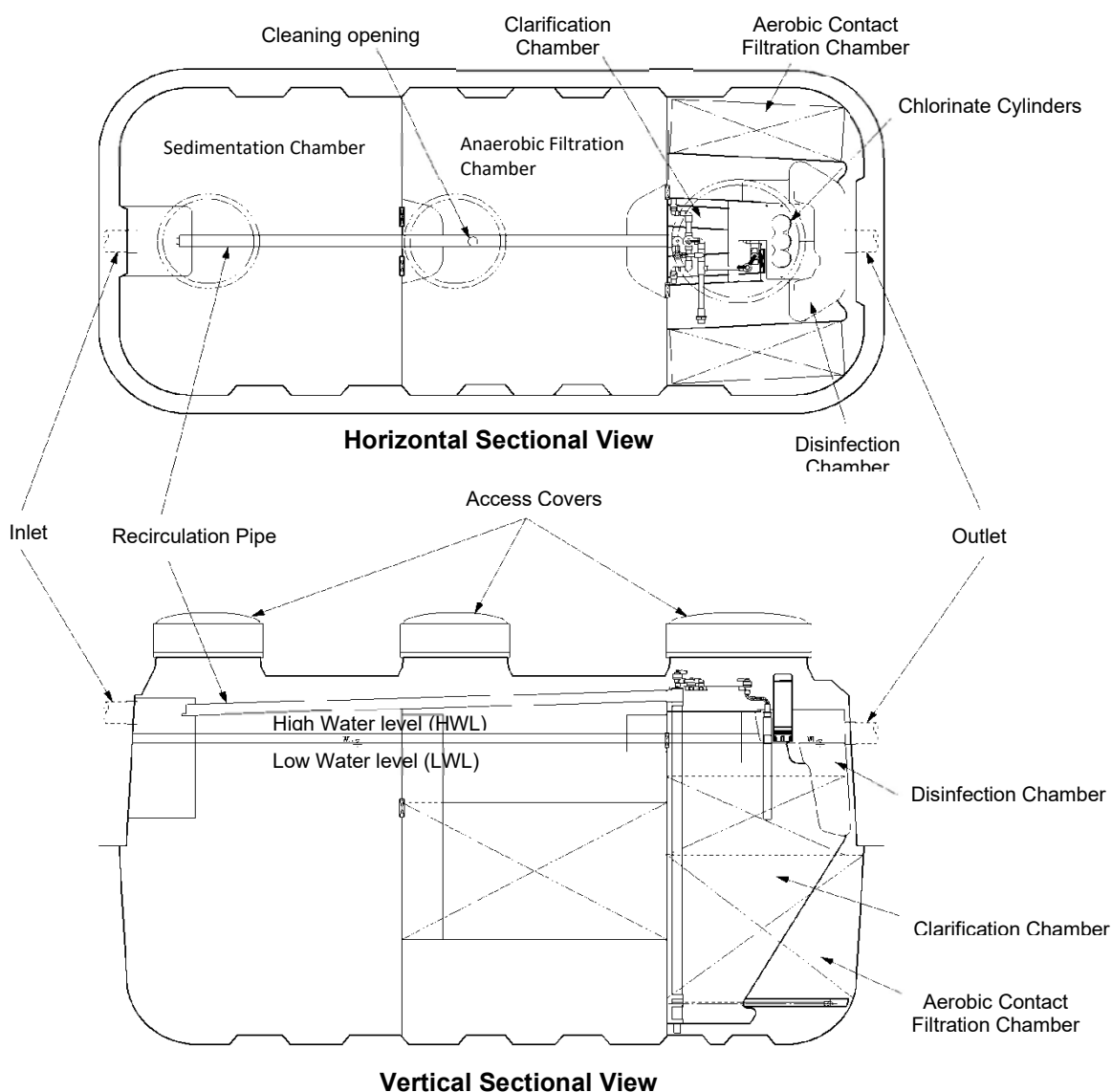
Fuji Clean Australia PTY LTD

With over 60 years of experience, Fuji Clean is one of the world's leading manufacturers of high efficiency wastewater treatment systems with over 2 million systems (both domestic and commercial) installed around the world.

SPECIFICATIONS ACE3000

Volume (L)		Dimensions (mm)	
Sedimentation Chamber	3,169	Max. Width	1,840
Anaerobic Filtration Chamber	3,177	Max. Length	3,880
Aerobic Contact Filtration Chamber	1,431	Max. Height	2,215
Clarification Chamber	703	Max. Height (with 150mmH risers)	2,365
Disinfection Chamber	44	Max. Height (with 300mmH risers)	2,515
Total Volume	8,524	Inlet Invert	500
Weight (kg)	550	Inlet Invert (with 150mmH /300mmH risers)	650 / 800
		Outlet Invert	600
		Outlet Invert (with 150mmH /300mmH risers)	750 / 900
		Dia. 100	Dia. 100

Pump out chamber with emergency effluent storage required. Not shown here. 2000 ltrs.



Fuji Clean Australia

With over 60 years of experience, Fuji Clean is one of the world's leading manufacturers of high efficiency wastewater treatment systems with over 2 million systems (both domestic and commercial) installed around the world.

SOLAR AND POWER USAGE

FujiClean ACE 3000 – Domestic / Commercial AWTS

The FujiClean ACE 3000 AWTS is 100% compatible with homes using a stand-alone solar power system. For the system to operate correctly it requires:

- A stable and continuous connection to a 10 amp 240V AC +/- 5% maximum and a frequency of 50Hz.
- A suitable inverter is to be used.

NOTE: Must allow for the ACE3000 energy requirements.

- The power supply to have sufficient capacity to run all components without the voltage supply dropping when the load is applied.
- A contingency plan if the house experiences long periods without power.

NOTE: like any AWTS, prolonged periods without power will cause the bacteria to die off and result in system failure.

A standard 20 person household uses an average of 2500 L to 3000 L per day (24 hrs)

FujiSub 4520 submersible pump with 20m head has a flowrate of 45L/min.

An average pump cycle for the FujiClean ACE 3000 is 20 minutes. Therefore with average loading, the FujiSub 4520 will activate and cycle 2-3 times per day for 20 minutes. Used for subsurface irrigation disposal. Averages may differ per household

FujiSub 756 submersible pump with 8m head has a flowrate of 25L/min.

An average pump cycle for the FujiClean ACE 3000 is 36 minutes. Therefore with average loading, the FujiSub 756 will activate and cycle 2-3 times per day. Used for surface irrigation disposal. Averages may differ per household

MAC 200RII Air Blower runs 24 hours/day and provides 200L of aeration per minute.

Electrical Component	Startup Amps	Run Wattage / Amps	Daily Usage max
MKII Treatment Monitor Unit	3 W	3 W	24 hours
MAC200 RII Air Blower	Less than 1 A	140 Watts 0.53 A	24 hours
FujiSub 756 Submersible Pump	Less than 3.0 amps	550 watts 2.1 A	2 hours
FujiSub 4520 Submersible Pump	Less than 5.5 amps instant	800 watts 3.2 A	1.2 hours
FujiSub 5025 Submersible Pump 50 LPM at a 25 mtr head	Less than 7.0 amps	1000 watts 4.0 A	1.0 hours

NOTE: Only one type of submersible pump is required. If you require any further information on the FujiClean ACE 3000 energy requirements please contact FujiClean Australia Head Office on [1300 733 619](tel:1300733619) or info@fujiclean.com.au



FujiClean ACE3000 Product Specification and Outline

I. Table of Basic Specifications

1. Model	FujiClean ACE3000
2. Treatment Category	Advanced Secondary Treatment
3. Manufacturer	Fuji Clean Australia Pty. Ltd. ABN 74 129 181 317
4. Required Servicing Interval	Regular maintenance: Once every 3 months (Four per year) Suggested Pumpout Frequency: When sludge accumulation reaches a designated level or every 3 years.
5. Brief Description of the Device	On-site sewerage facility which is composed of Sedimentation Chamber, Anaerobic Filtration Chamber, Aerobic Contact Filtration Chamber, Clarification Chamber and Disinfection Chamber.
6. Device performance	
(1) Treatment Method	Contact Filter Bed Process
(2) Equivalent Person	20
(3) Average Daily Hydraulic Loading (Q): L/day	3000, 150 litres/person/day
(4) Designed Organic and Nutrient Loadings	BOD 70g/person/day, TSS 70g/person/day T-N 15g/person/day, T-P 2.5g/person/day
(5) Designed Outlet Quality	BOD - less than or equal to 10g/m ³ TSS – less than or equal to 10g/m ³ T-N removal – 64% reduction or more E.coli count – not exceeding 10cfu/100ml Chlorine concentration – greater than or equal to 0.5mg/L
(6) Designed Capacity of the Device: m³	8.524 (except for pump chamber)
(7) Treatment Process	<pre> graph TD Inflow --> Sedimentation[Sedimentation chamber] Sedimentation --> Anaerobic[Anaerobic Filtration Chamber] Anaerobic --> Aerobic[Aerobic Contact Filtration Chamber] Aerobic --> Clarification[Clarification Chamber] Clarification -- "Recirculation Water" --> Sedimentation Clarification -- "Overflow" --> Disinfection[Disinfection Chamber] Clarification -- "Effluent Air-lift" --> Disinfection Disinfection --> Pump[Pump Chamber (Separate, and supplied others)] Pump --> Discharge[Discharge] </pre>

7. Design Parameter	
1) Primary Treatment	(a) Sedimentation Chamber and Anaerobic Filtration Chamber are categorized into Primary Treatment.
2) Sedimentation chamber	(a) Effective depth is 1.60m or more. (b) Inflow baffle is located at 1/3–1/4 of effective depth and structured not to stir up sludge. (c) The lower edge of flow opening is over the upper edge of inflow baffle and number of openings should be 2 for $\phi 100$. The shape of opening can be adapted when it is determined that the result of the flow through test is equivalent.
3) Anaerobic Filtration Chamber	(a) Effective depth is 1.60m or more. (b) Filter media shape is designed to catch sludge and not to short-circuit. Media packing ratio is 46% or more of effective volume. Generally the chamber is filled with a spherical-skeleton media but the media which has the same function determined by flow through and short-circuit tests can be adapted. (c) Frames are installed above and under medias to support them in position.
4) Aerobic Contact Filtration Chamber	(a) Effective depth is 1.60m or more. (b) Upper section of the chamber is filled with net-block media with packing ratio of 17% or more of effective volume. (c) Lower section of the chamber is filled with net-hollow-cylindrical media with packing ratio of 55% or more of effective volume. (d) Recirculation water volume is 4-6Q (= Daily Hydraulic Loading).
5) Clarification Chamber	(a) Effective depth is 1.60m or more.
6) Disinfection Chamber	(a) Disinfection is carried out continuously and effectively by solid chlorine tablet contacting water. (b) Dissolve amount of the solid chlorine tablets is manually altered by adjusting the contact area of the water and tablet. (c) Effective volume for disinfection is 44 litres or more.
7) Emergency Storage	(a) Upper part of the pump chamber (1,500 litres or more) is kept empty as an emergency storage space.

II. Table of Design Parameters

Model			FujiClean ACE3000		
Equivalent person		(Person)	20		
Average daily hydraulic loading		(m ³ /day)	3.0		
Sedimentation Chamber	Effective volume		(m ³)	3.169	
	Width		(mm)	1,640	
	Length		(mm)	1,395	
	Effective depth		(mm)	1,600	
	Main material		FRP (Fiber Reinforced Plastic)		
Anaerobic Filtration Chamber	Effective volume		(m ³)	3.177	
	Width		(mm)	1,640	
	Length		(mm)	1310	
	Effective depth		(mm)	1,600	
	Main material		FRP		
	Filter media	Packing ratio		(%)	46
		Configuration		Spherical-skeleton media	
		Material		PP (polypropylene) or PE (polyethylene)	
		Diameter		(mm)	110
		Specific surface area		(m ² /m ³)	165
Aerobic Contact Filtration Chamber	Effective volume		(m ³)	1.431	
	Width		(mm)	1,640	
	Length		(mm)	975	
	Effective depth		(mm)	1,600	
	Main material		FRP		
	Upper media	Packing ratio		(%)	17
		Configuration		Net-block media	
		Material		PVC, PP or PE	
		Specific surface area		(m ² /m ³)	45
	Lower media	Packing ratio		(%)	55
		Configuration		Net-hollow-cylindrical media	
		Material		PP or PE	
		Diameter		(mm)	100
	Aeration	Specific surface area		(m ² /m ³)	133
		Required air flow volume		(L/min)	127
		Typical back pressure		(kPa)	15
Blower	Type		Positive displacement		
	Air flow volume		(L/min)	200	
	Electricity consumption		(W)	140	
	Pressure		(kPa)	20	
	Operation mode		Continuous		
Clarification Chamber	Effective volume		(m ³)	0.703	
	Width		(mm)	1020	
	Length		(mm)	882	
	Effective depth		(mm)	1,600	
	Main material		FRP or PP		
Disinfection Chamber	Effective volume		(m ³)	0.044	
	Width		(mm)	853	
	Length		(mm)	507	
	Effective depth		(mm)	489	
	Main material		FRP		
	Chlorine storable days		(day)	360	

Emergency Storage	Effective volume	(m ³)	1.529
	Main material		FRP
Inlet Pipe	Material		PVC(Rigid polyvinyl chloride)
	Nominal diameter	(mm)	100
Recirculation Pipe	Material		PVC
	Nominal diameter	(mm)	50
Outlet Pipe	Material		PVC
	Nominal diameter	(mm)	100

III. Specification of Ingredient, Material and Electrical Component

Parts	Specification																								
1.Tank body	a) Materials																								
Partition	○ FRP (Fibre Reinforcement Plastics) ▪ Unsaturated polyester resin ▪ Glass fiber • Hardener - Constituent: Methyl ethyl ketone peroxide 55% - Dimethyl phthalate 45%																								
	b) Material																								
	○ FRP																								
	Complies with the standard below.																								
	<table><tr><th>Item</th><th>Measurement</th><th>Standard value of FRP</th></tr><tr><td>Flexural strength</td><td>MPa</td><td>Not less than 110</td></tr><tr><td>Flexural modulus</td><td>MPa</td><td>Not less than 4,830</td></tr><tr><td>Hardness</td><td>-</td><td>Not less than 35</td></tr><tr><td>Water absorption</td><td>%</td><td>Not greater than 0.75</td></tr><tr><td>Glass fibre content</td><td>%</td><td>Not less than 30</td></tr><tr><td>Tensile strength</td><td>MPa</td><td>Not less than 63</td></tr><tr><td>Tensile Elongation</td><td>%</td><td>Not less than 1.5</td></tr></table>	Item	Measurement	Standard value of FRP	Flexural strength	MPa	Not less than 110	Flexural modulus	MPa	Not less than 4,830	Hardness	-	Not less than 35	Water absorption	%	Not greater than 0.75	Glass fibre content	%	Not less than 30	Tensile strength	MPa	Not less than 63	Tensile Elongation	%	Not less than 1.5
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Tensile strength	MPa	Not less than 63																							
Tensile Elongation	%	Not less than 1.5																							
2. Plumbing																									
Inlet pipe	Material: Rigid polyvinyl chloride Nominal diameter: 100mm																								
Outlet pipe	Material: Rigid polyvinyl chloride Nominal diameter: 100mm																								
Recirculation pipe	Material: Rigid polyvinyl chloride Nominal diameter: 50mm																								

DEPARTMENT OF HEALTH

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Parts	Specification
2. Plumbing (continued)	
Air supplying pipe	Material: Rigid polyvinyl chloride Nominal diameter: 20mm Configuration: Closed loop x 2 Hole size of air diffuser: 3mm dia.
Air-lift pump (Recirculation)	Material: Rigid polyvinyl chloride Nominal diameter: 40mm
Air-lift pump (Effluent)	Material: Polyethylene Cross section: 36*26mm
Aeration pipe/Media frame	Material: Rigid polyvinyl chloride or PP or FRP Nominal diameter: 16mm
3. Clarification Chamber	Material: FRP or PP
4. Disinfection Chamber	Material: FRP or PP
5. Pump Chamber	Material: FRP or PP
6. Anaerobic filter media	Material: PP or PE Configuration: Spherical-skeleton media Diameter: 110mm Packing ratio: 46% Specific surface area: 165 m ² /m ³
7. Aerobic upper media	Material: PP or PE Configuration: Net-block media Packing ratio: 17% Specific surface area: 45 m ² /m ³
8. Aerobic lower media	Material: PP or PE Configuration: Net-hollow-cylindrical media Diameter: 100mm Packing ratio: 55% Specific surface area: 133 m ² /m ³

IV. Description of Structure and Function of Each Chamber

1. Primary Treatment

Sedimentation Chamber and Anaerobic Filtration Chamber are categorized into Primary Treatment.

1 – 1 Sedimentation Chamber

1) Structure and function

The chamber is designed to separate, physically, large foreign material and fat/grease from the incoming water.

2) Configuration of the chamber

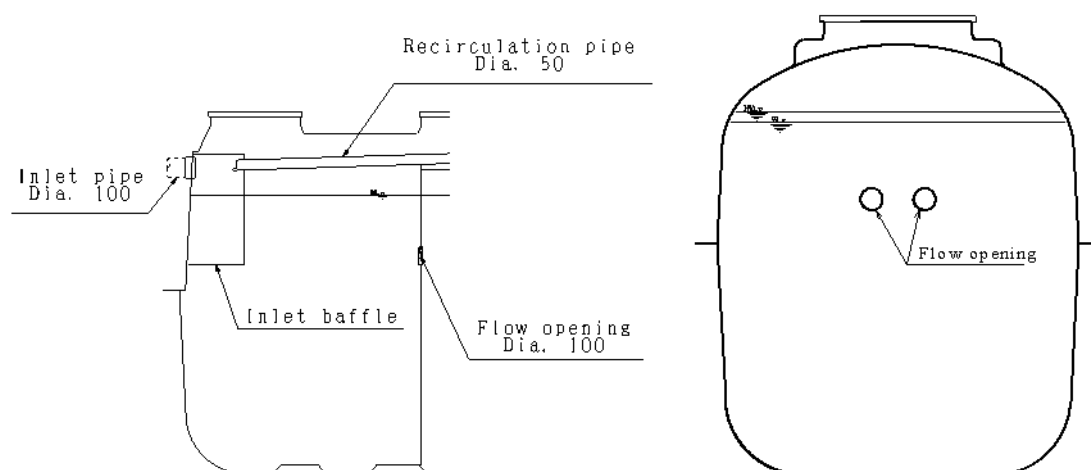


Fig.4-1 Sedimentation Chamber

Effective volume (m ³)	3.169
Effective depth (mm)	1,600

1 – 2 Anaerobic Filtration Chamber

1) Structure and function

The chamber is filled with spherical-skeleton media with packing ratio of 46% or more of effective volume in the chamber. With the help of micro-organism/ bacteria grown on the surface of the filter media, the biological anaerobic treatment takes place and at the same time suspended solid is captured. Furthermore, the micro-organism/bacteria in the chamber treats Nitrogen Oxides in the recirculation water as denitrification by consuming BOD. The gases generated by the treatment are being vented out of the system.

2) Configuration of the chamber

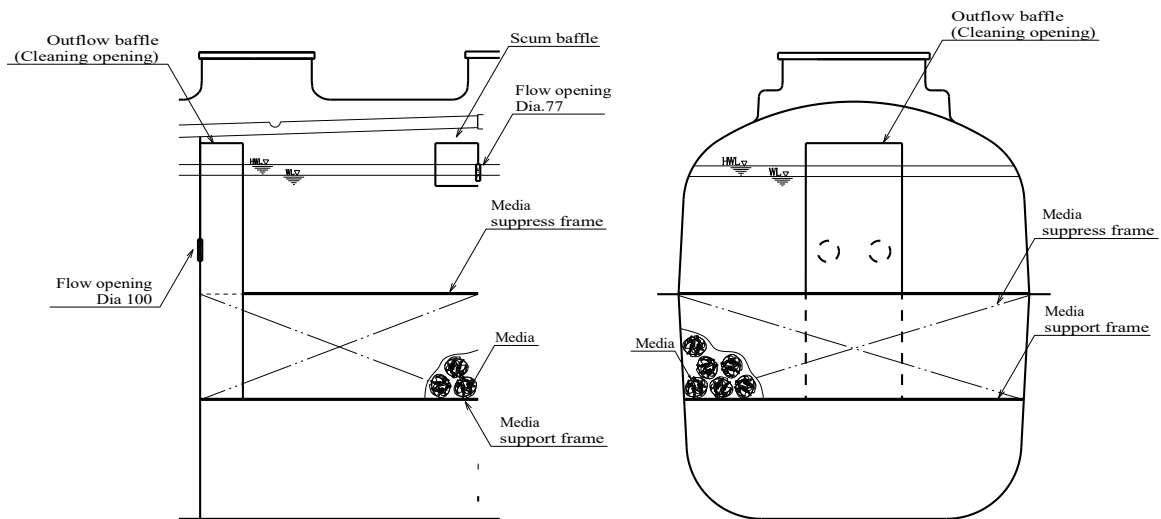


Fig.4-2 Anaerobic Filtration Chamber

Effective volume (m ³)	3.177
Effective depth (mm)	1,600
Media packing ratio (%)	46

2. Aerobic Contact Filtration Chamber

1) Structure and function

Upper section of the chamber is filled with net block media with packing ratio of 17% or more of effective volume in the chamber. Lower section of the chamber is filled with net-hollow-cylindrical media with packing ratio of 55% or more of effective volume in the chamber. Aeration goes on all the time over whole medias properly by the air diffuser located at the bottom of the chamber and the biological aeration treatment takes place with the help of the micro-organism/bacteria grown on the media surface.

2) Configuration of the chamber

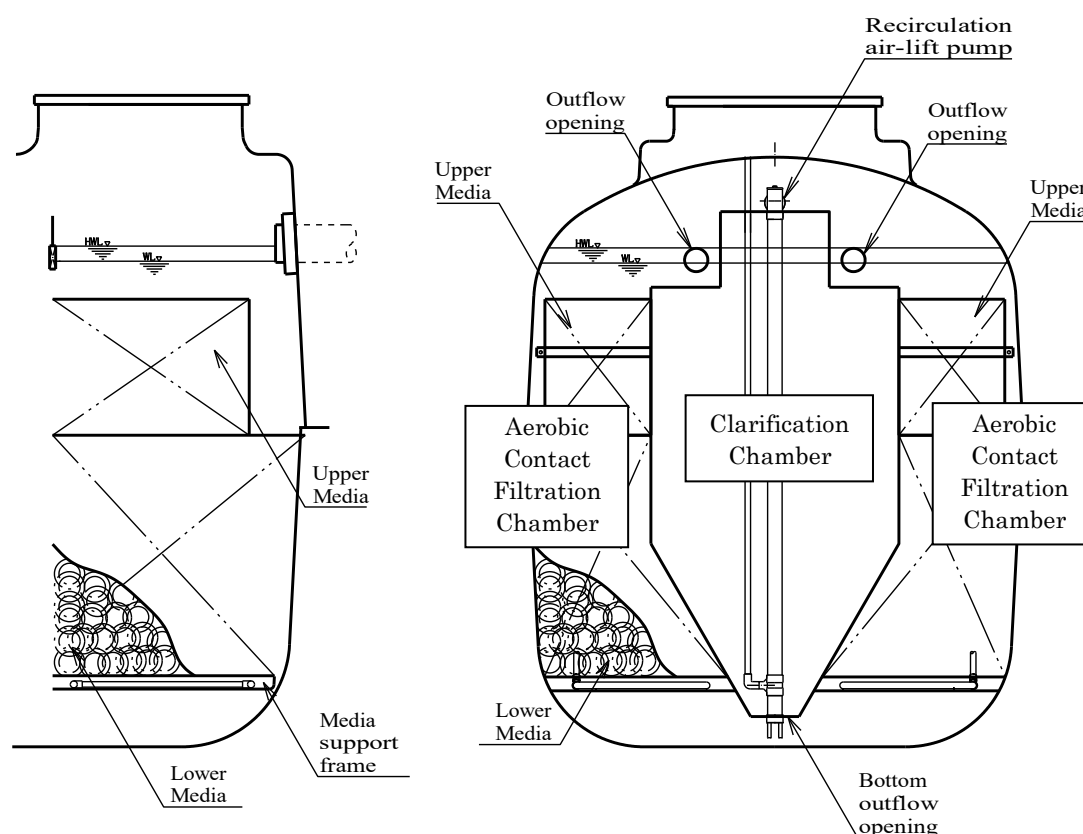


Fig.4-3 Aerobic Contact Filtration Chamber

Effective volume (m ³)	1.431
Effective depth (mm)	1,600
Upper media packing ratio (%)	17
Lower media packing ratio (%)	55

3. Clarification Chamber

1) Structure and function

The chamber is designed to temporarily store the treated water coming out of Aerobic Contact Filtration Chamber.

2) Configuration of the chamber

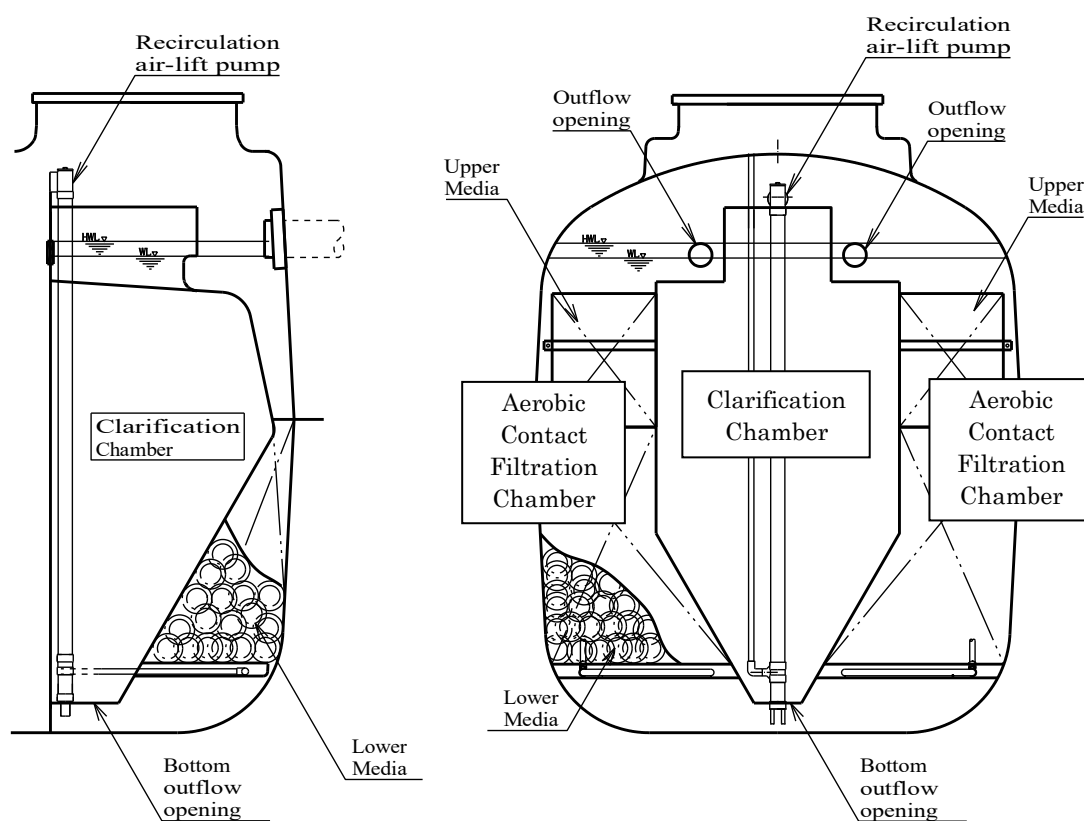


Fig.4-4 Clarification Chamber

Effective volume (m ³)	0.703
Effective depth (mm)	1,600

4. Disinfection Chamber (internal chamber)

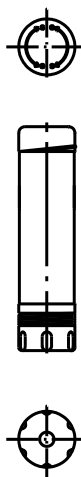
1) Structure and function

The treated water makes the contact with the solid chlorine tablets stored in the cylinder and dissolves the tablets for the disinfection. The cylinder has a capability to control the dissolved amount of the solid chlorine tablets by adjusting the cylinder opening area. Opening width and height can be adjusted finely by rotating the lower cap.

The treated water is stored in the chamber (44 litres or more) after contact with the solid chlorine to assure the disinfection.

2) Structure of the chlorine cylinder

The chlorinate cylinder has a capability to control the dissolved amount of the solid chlorine tablets by adjusting the cylinder opening area. Opening width and height can be adjusted finely by rotating the lower cap.



< 90φx 350H >

Fig.4-5 Chlorinate cylinder for chlorine tablets

3) Disinfection chamber detail

When the effective chlorine contained in the water is 5mg/L, one contained in the solid chlorine tablet is 90%, chlorine storable days would be calculated as follows;

$$\frac{200\text{g/tablet} \times 10 \text{ tablets} \times 3 \text{ cylinders} \times 0.9}{5/1000 \text{ (g/L)} \times \text{Average daily hydraulic loading (L/day)}} = \text{Storable days}$$

Type	Solid chlorine tablet
Active ingredient (%)	90
Total containable volume (kg)	6
Storable days	360

4) Configuration of the chamber

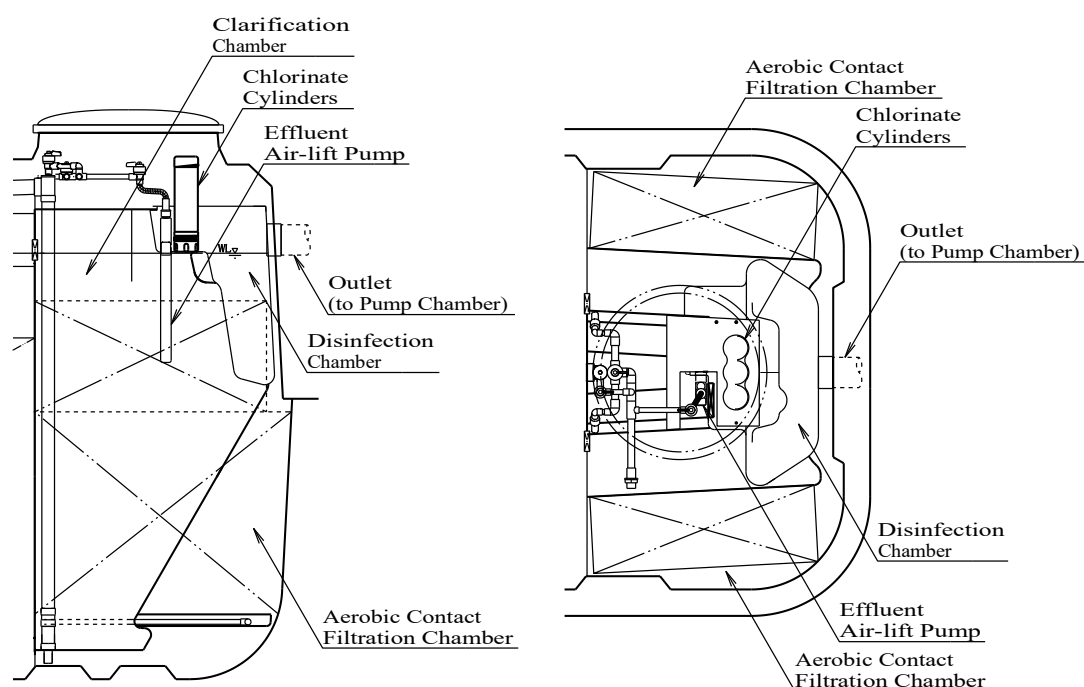


Fig.4-6 Disinfection Chamber

Effective volume for disinfection (m ³)	0.044
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COMMERCIAL WASTEWATER TREATMENT SYSTEM

FUJICLEAN ACE3000

Installation Manual



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

TABLE OF CONTENTS

1. SAFETY PRECAUTIONS	1
2. SPECIFICATIONS OF THE SYSTEM.....	2
3. SUPPLIED ITEMS	3
4. INSTALLATION	5
5. WIRING INSTRUCTIONS FOR ELECTRICIAN	9
6. COMMISSIONING	10
7. WARRANTY & REPAIR POLICY	11

1 SAFETY PRECAUTIONS

Read the safety precautions carefully before installing the FujiClean plant. 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.

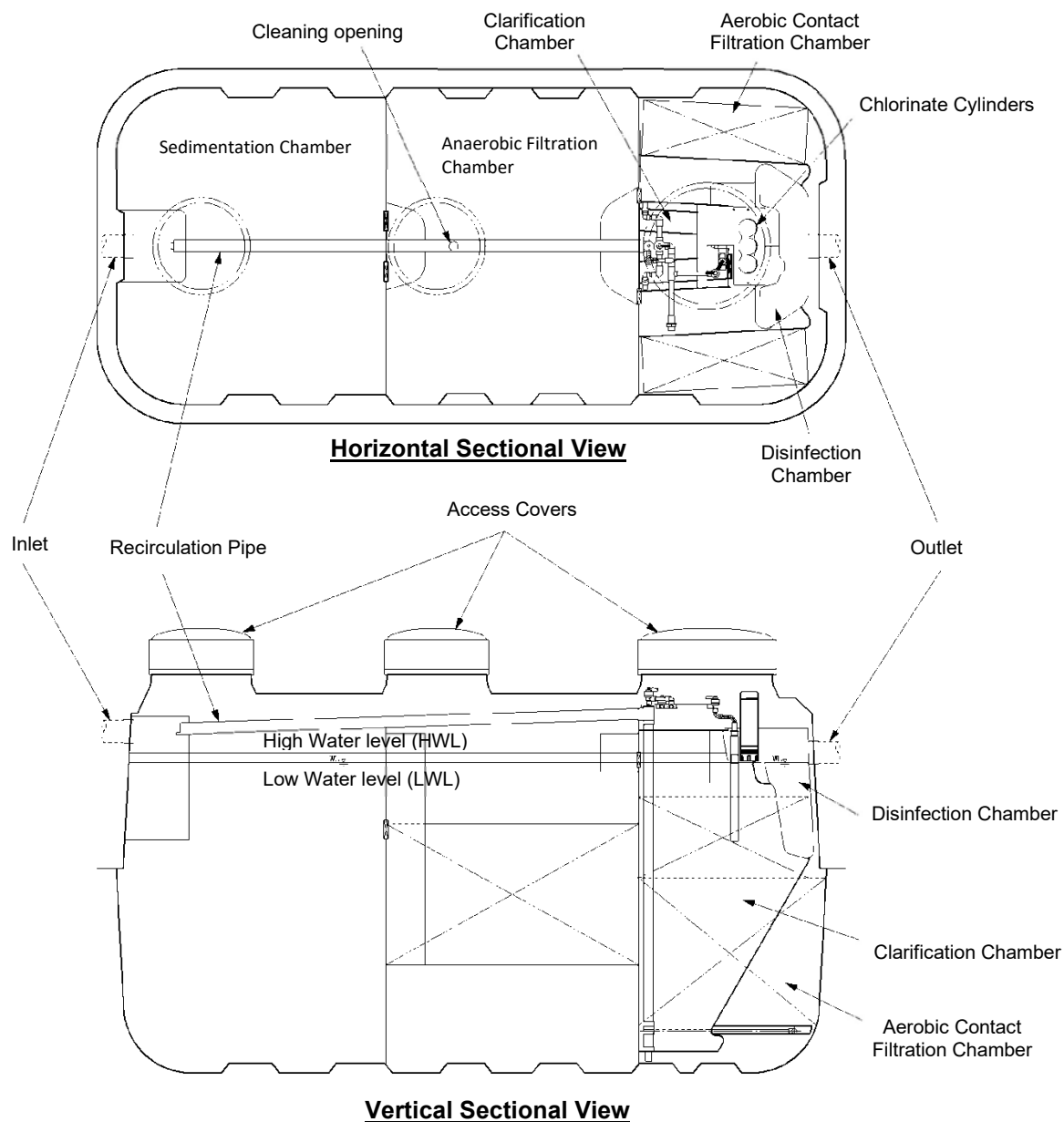
Green Riser Depth

- Maximum depth of cover (riser) is 300mm above the system. Mounting risers exceeding the 300mm 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

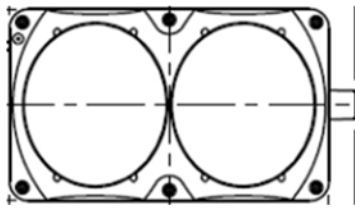


SPECIFICATIONS

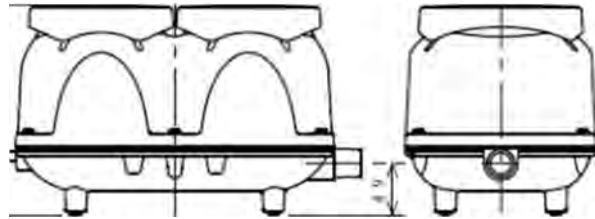
Volume (L)		Dimensions (mm)	
Sedimentation Chamber	3,169	Max. Width	1,840
Anaerobic Filtration Chamber	3,177	Max. Length	3,880
Aerobic Contact Filtration Chamber	1,431	Max. Height	2,215
Clarification Chamber	703	Max. Height (with 150mmH risers)	2,365
Disinfection Chamber	44	Max. Height (with 300mmH risers)	2,515
Total Volume	8,524	Inlet Invert	500
Weight (kg)	550	Inlet Invert (with 150mmH /300mmH risers)	650 / 800
		Outlet Invert	600
		Outlet Invert (with 150mmH /300mmH risers)	750 / 900
		Inlet Pipe Nominal Size	Dia. 100
		Outlet Pipe Nominal Size	Dia. 100

*Access cover lids are not included in the height

BLOWER



Top View



Side View

Model	FujiMAC200R II
Air Flow Volume	200L/min
Normal Pressure	20kPa
Outlet Pipe Size (diameter)	20mm (external dia.26mm)
Rated Voltage	AC240V
Frequency	50Hz
Power Consumption (at Normal Pressure)	140W
Weight	9.0kg

3 SUPPLIED ITEMS

The standard components FujiClean Australia supplies are;

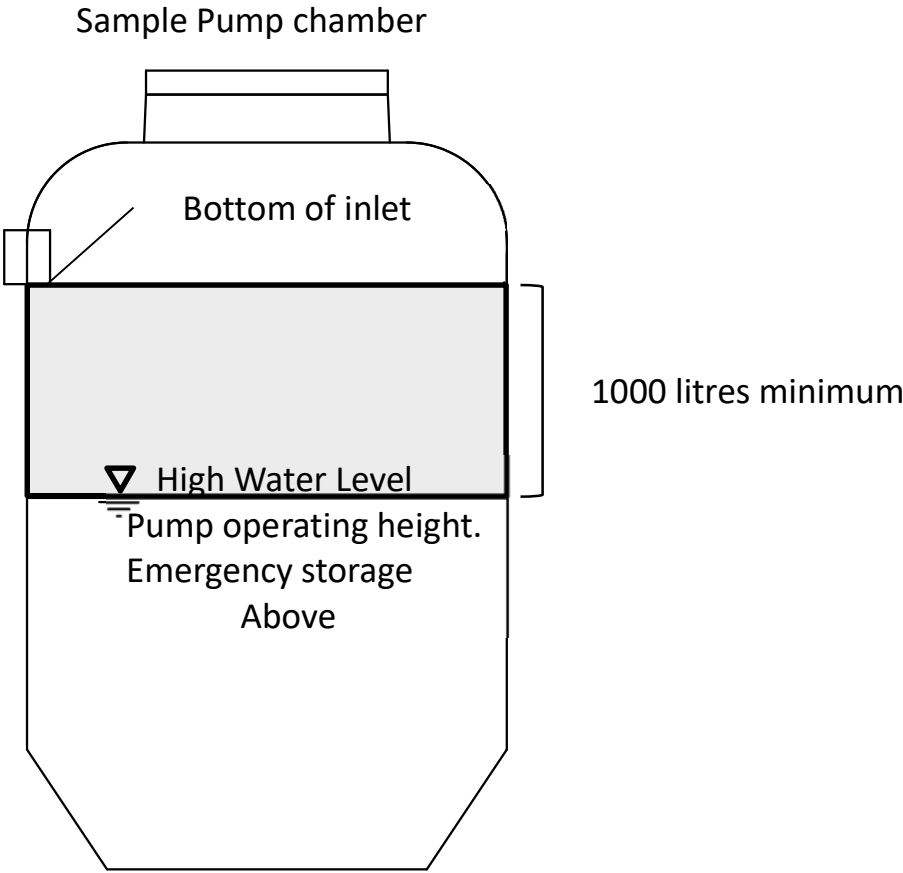
- ☐ 1 x ACE3000 system
- ☐ 1 x FujiMAC200R II Air Blower with rubber hose
- ☐ 1 x Treatment monitor unit (basic)
- ☐ 1 x Remote alarm panel (basic)
- ☐ 1 x GPO assembly (basic)
- ☐ 1 x Float switch FS-3m
- ☐ 2 x Coreflute warning sign and stake
- ☐ 1 x PVC grey air intake adaptor
- ☐ 1 x PVC pressure pipe 20mm with air hose nipple and clear tube
- ☐ 1 x LED strobe light
- ☐ 3 x Chlorine cylinder
- ☐ 1 x Installation guide

The optional components are;

- ☐ A set of 150mmH Riser & 300mmH Riser.
- ☐ Weather Box

Note: The components you will receive may be different from above so please check with your Account Manager. **Other parts, including a pump chamber and piping for submersible pump, should be provided by the contractor.**

Chosen pump chamber volume of 1000 litres between the high water level and bottom of inlet of the pump chamber. The pump chamber must be certified to AS1546.1.



4 INSTALLATION

STEP 1 SITE PREPARATION

- Inspect the tank for any damage during transportation.
- The system must be installed away from building foundations and traffic areas so the external loads will not direct to the system.

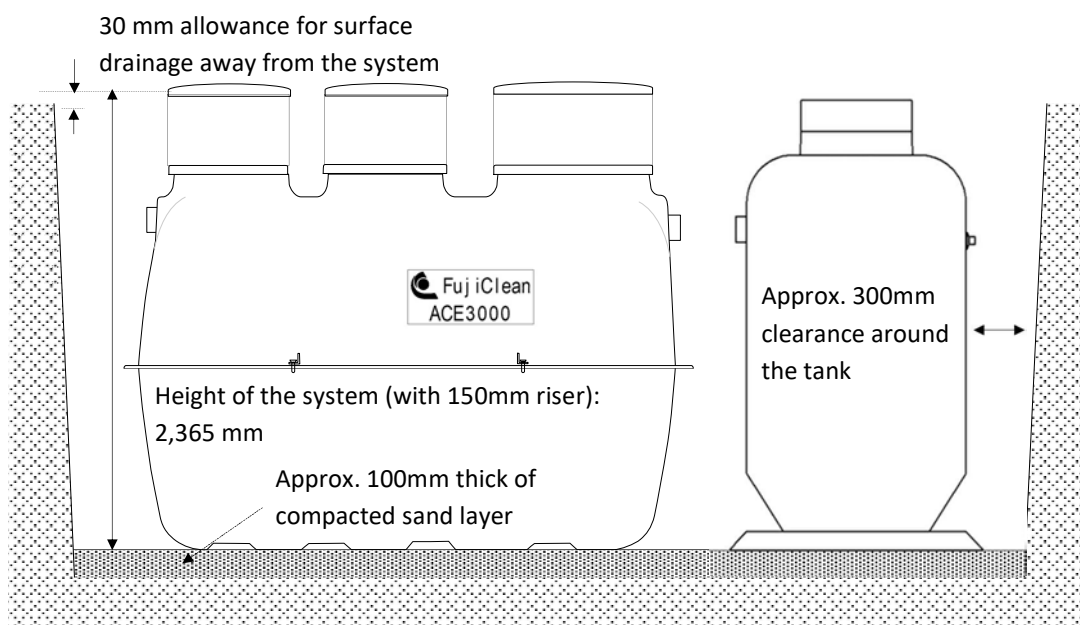
 **Caution** Warranty will be void if the system was installed subject to any external loads.

- 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 100 mm thick when compacted.
- Ensure that bed is level.

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



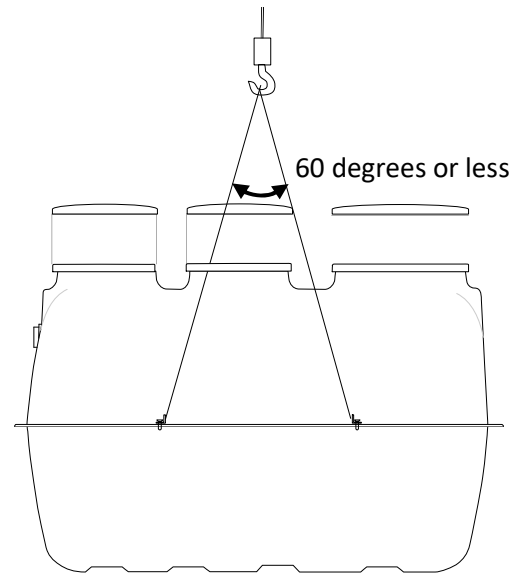
STEP 3 LIFTING THE PLANT

- Connect a suitable lifting device to the four lifting points as shown in the drawing on the right.
- Lifting angle must be 60 degrees or less.

⚠ Caution

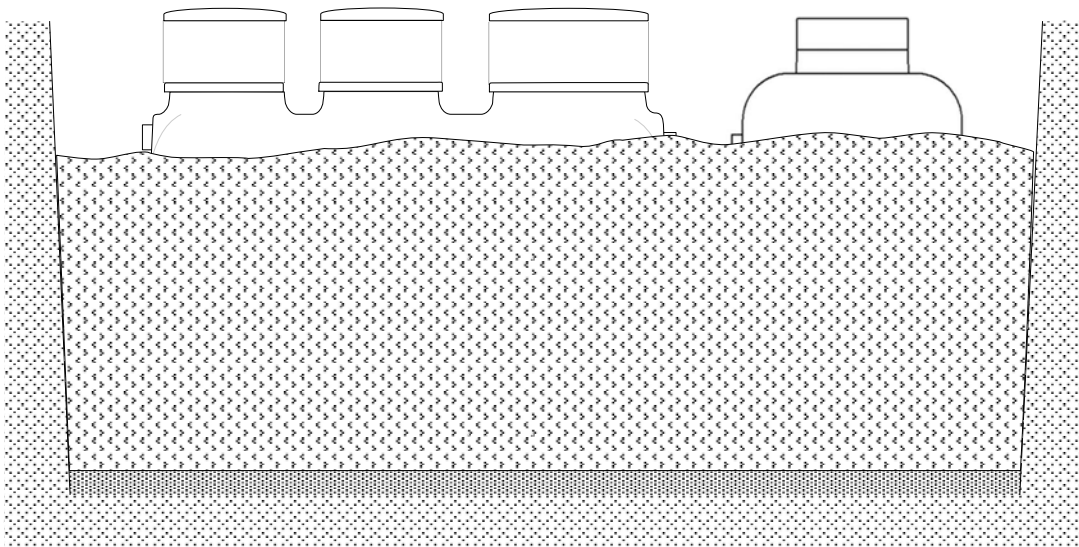
Since the outlet side of the tank is heavier, adjust the slings or chains so that the tank can be lifted horizontally.

- 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



STEP 4 BACKFILLING – up to the inlet

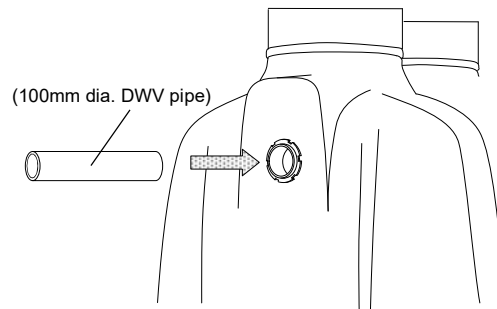
- The tank is to be filled with water evenly throughout all chambers before any backfill is placed around the system.
- Make sure all lids are closed before backfilling.
- Backfill must not contain any large stones, rocks or sharp objects and must be carefully placed around the system.
- Sand or similar 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 – ACE3000 Systems

Inlet

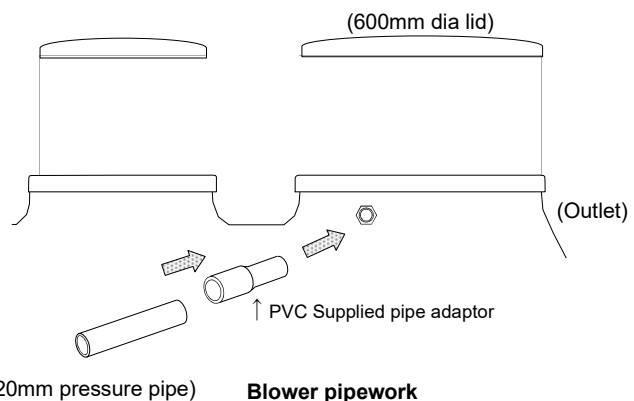
- Glue the supplied PVC pipe (100mm dia. DWV pipe) into the inlet fitting.
- Inclination of inlet pipe shall be 1/60 or more



Inlet and outlet pipe connection

Outlet

- Glue the supplied PVC pipe (100mm dia. DWV pipe) into the outlet fitting.
- Inclination of outlet pipe shall be 1/60 or more.



Blower pipework

Blower Pipework

- Connect the blower to the system with supplied PVC pipe adaptor and the 20mm dia. pressure pipe.
- Total length of pipe shall be 10m or less and the number of corner shall be 5 or less. Increase pipe diameter using reducer, if total length exceeds 10m.

- **Caution:**
- * Neglecting these processes may cause inundation of ground water.
 - * Mounting risers more than 500mm would void the warranty.

STEP 6 CONNECTIONS – Pump chamber

Inlet

- Glue the PVC 100mm dia pipe into the inlet fitting.

Pump Pipework

- Connect the pump(s) to the outlet with PVC pressure pipes and fittings. The pipe size and length can vary depending on the project.

Note: Please follow the installation procedure for the Pump chamber according to the tank manufacturer

Internal pipework for the Pump chamber is not included in the supplied parts.

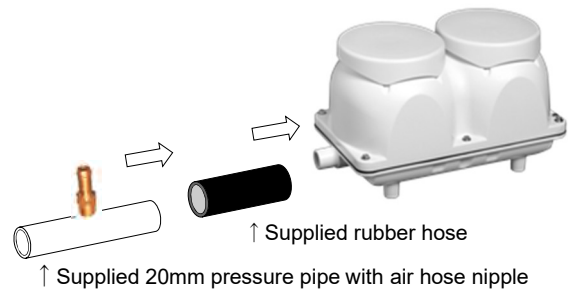
STEP 7 CONNECTIONS – Electrical components (see page 9)

Treatment monitor unit

- Connect the control box housing to the pump out chamber with PVC pipes and fittings.

Air blower

- Connect the air blower to the pressure pipe 20mm dia with the supplied rubber hose.
- Connect the treatment monitor unit to the air blower with the supplied air tube.



Example of Air blower pipe connection

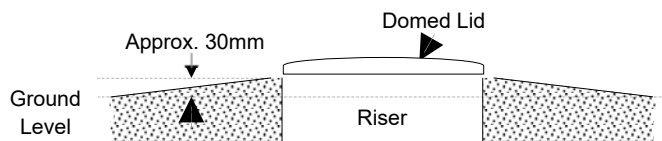
Conduit for Pump Cable & Float Switch

- Connect the control box housing to the pump out chamber with PVC pipes and fittings.
- Connect the float switch cable to the terminal block in an appropriate treatment monitor unit. Adjust and lock the height of the float switch so that the switch is triggered as soon as the pump fails.
- Connect submersible pumps to an appropriate treatment monitor unit.
- Apply seal plugs and silicone caulking onto each end of the pipework.

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

STEP 8 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.



STEP 9 OWNER'S MANUAL

- Email a soft copy of the FujiClean ACE3000 owner's manual to the owner.

STEP 10 COMMISSIONING FORM

- Commission the FujiClean ACE3000 as instructed on page 10.
- Keep the completed commissioning form for future reference (i.e. warranty claim)

5 WIRING INSTRUCTIONS FOR ELECTRICIAN (BASIC)

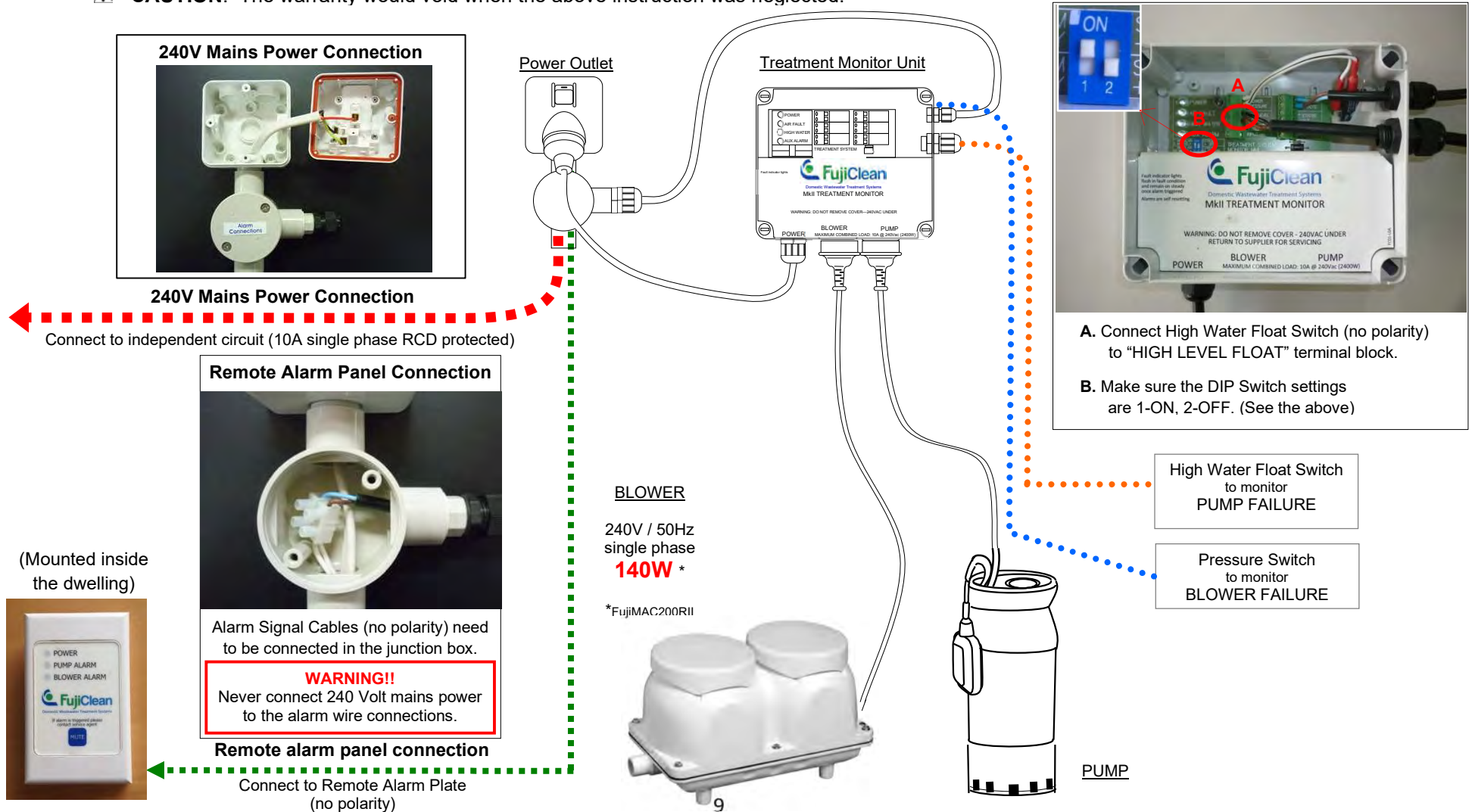
All electrical power connections to the system must be carried out by a licensed electrician.

The power supply to the FujiClean ACE3000 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.



6 COMMISSIONING

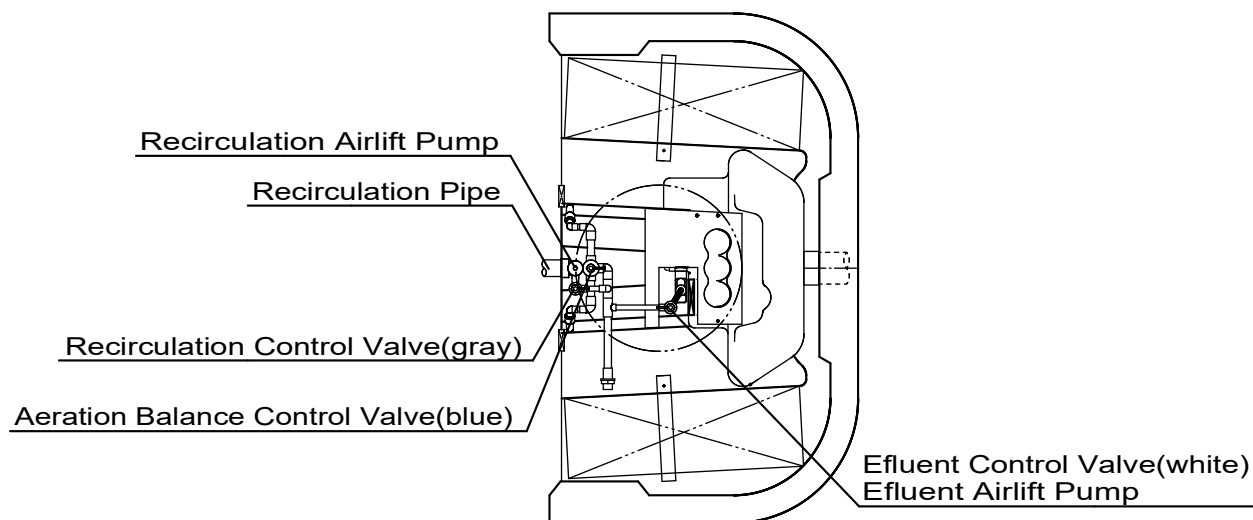
Pre-operational Inspection

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: if you are using the FujiClean domestic treatment monitor unit, 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: if you are using the FujiClean domestic treatment monitor unit, 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 25, 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 9 – 12 L/min.
- Step 7.** Fill the three chlorinators 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 or 9.
- ☐ The system has broken down or was 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 or chemicals.

Contacts

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



COMMERCIAL WASTEWATER TREATMENT SYSTEM

FUJICLEAN ACE 3000

Operation & Maintenance Manual



FOR SERVICE PERSONNEL ONLY

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7. SPECIFICATIONS	20

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;
 - inorganic chlorinating agents such as calcium hypochlorite, lithium hypochlorite, sodium hypochlorite; and
 - 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

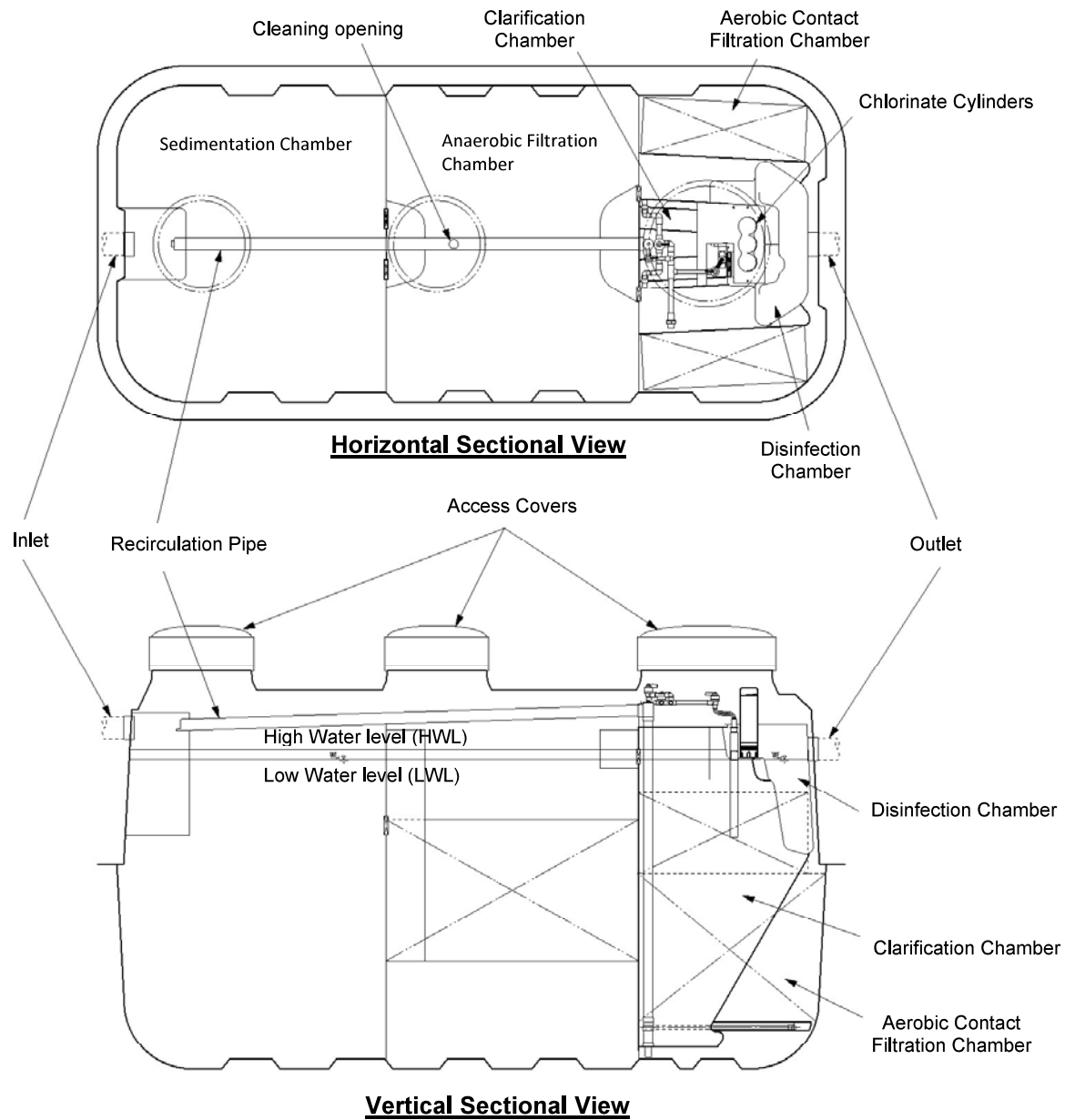
- Do not use treated water for human consumption, livestock watering or irrigating edible crops.

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



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 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. 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.

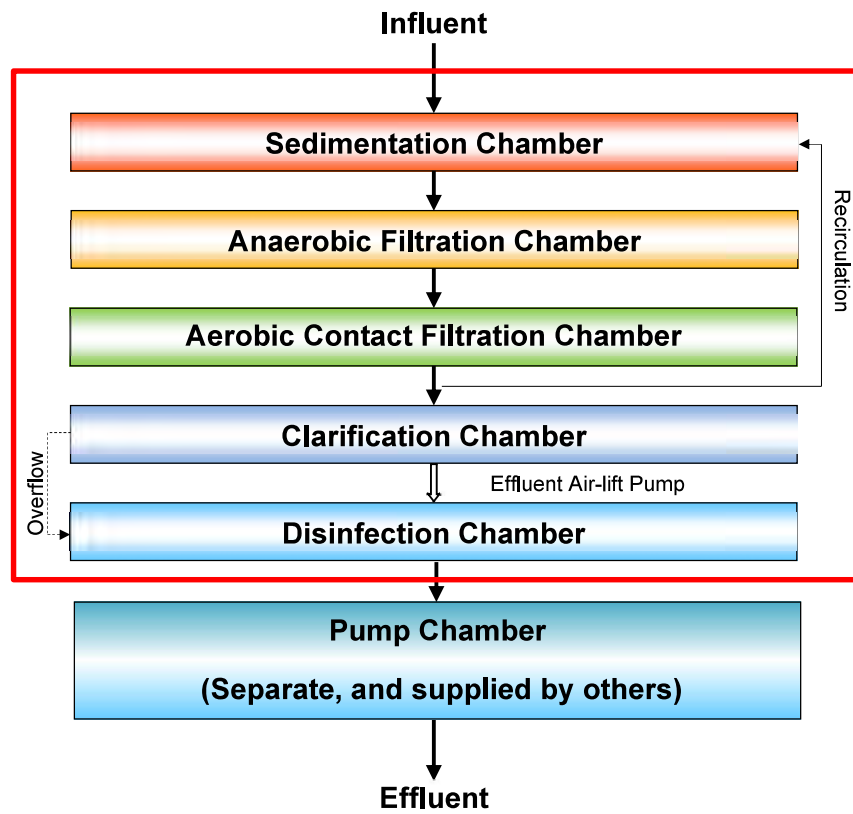
Disinfection Chamber

This treated water from the clarification chamber passes through the chlorinator for final disinfection. This is the final process of treatment.

Pump Chamber (Separate, and supplied by others)

This treated water is ready for discharge to the disposal area. A separate pumpout chamber is required after FujiClean ACE3000. A suitably sized pumpout chamber can be sourced locally or supplied from Fuji Clean Australia.

Treatment Flow



Hydraulic Loading and Effluent Quality

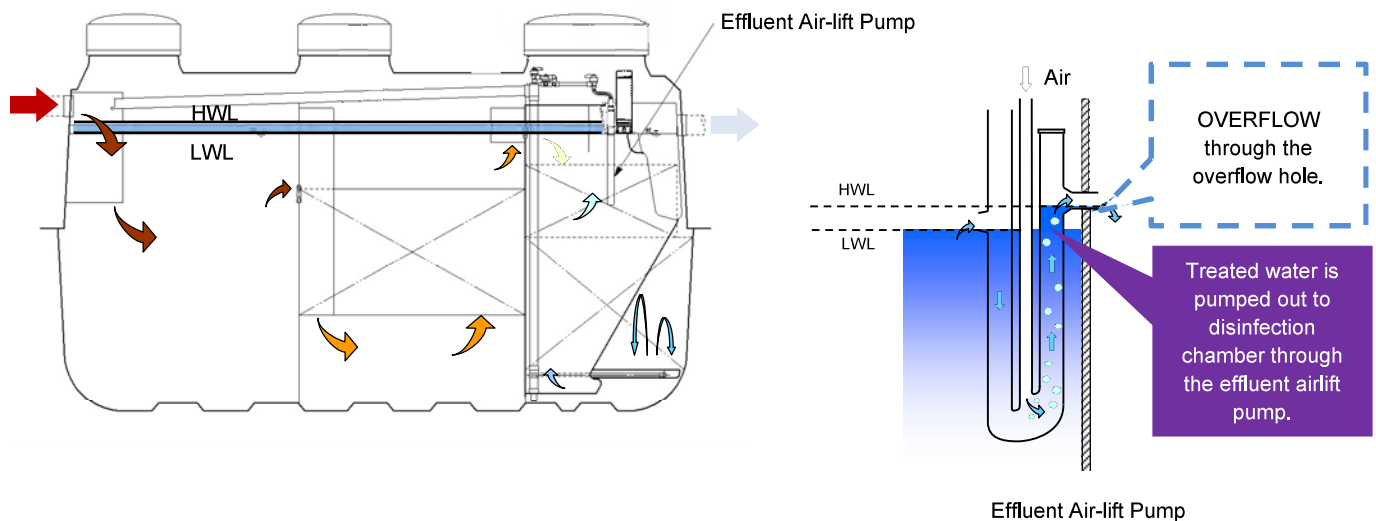
FujiClean ACE3000 is designed to treat the commercial wastewater from the kitchen, bathroom, toilet and laundry area and capable of producing **Advanced Secondary Quality Effluent** as specified below. The daily design flow rate of FujiClean ACE3000 is 3,000 L/day.

- 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 ACE3000 can effectively cope with shock loading. The system has a buffer capacity of 252L.

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 disinfection 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

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.

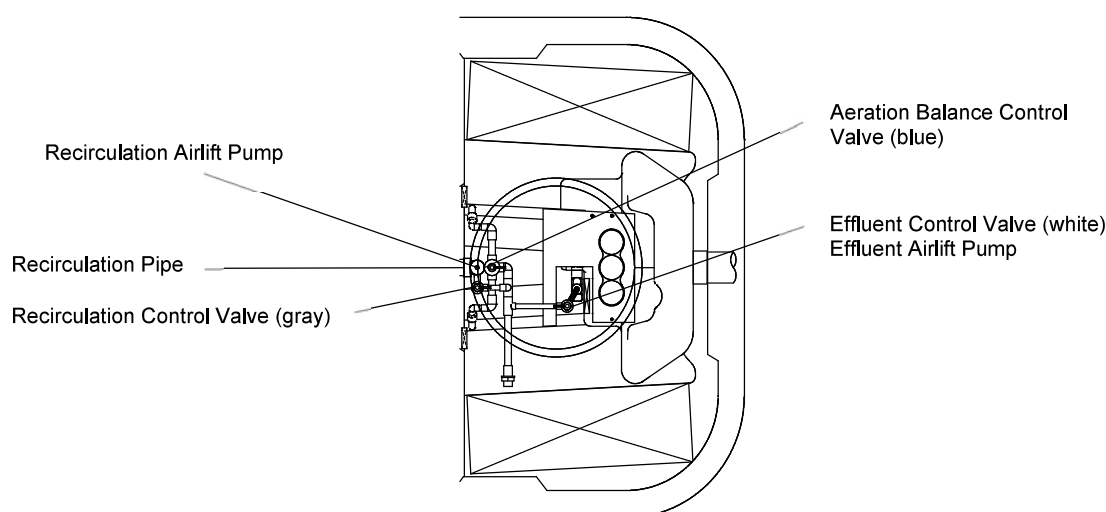
Regular Maintenance Procedures

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 17)
2. Open the blower box 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 8.
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 10.
14. Perform a backwash operation as described in “Backwash and Sludge Transfer” on page 8.

15. Prevent blockage as described in “Preventing Blockage of Anaerobic Filtration Media” on page 10.
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 7.
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.

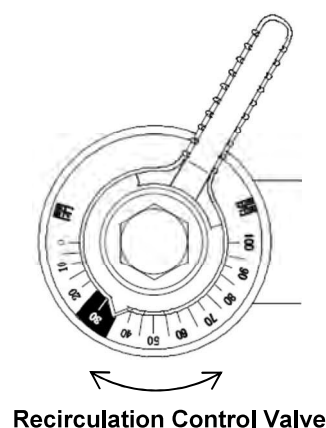
(2) Adjusting Recirculation Rate

The recirculation rate is also adjustable by the Recirculation Control Valve (grey valve) and should be adjusted within **9.0 – 12.0 L/min (= 450 – 600 mL/3sec)**. (The optimum valve range is between 25 - 35.)

If Valve Reading is less than 20, perform a “Cleaning Aeration Pipe” as described on page 9.

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.

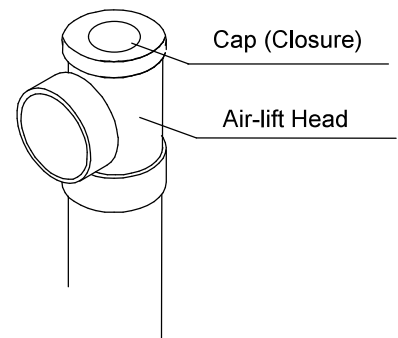
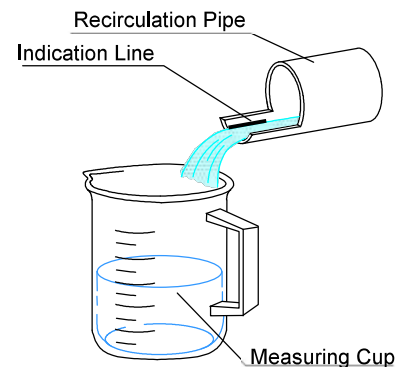
When measuring the recirculation rate, make sure there is no inflow to the system and the water level is at Low Water Level (LWL).

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

Excessive biofilm growth on the contact and filter media may cause partial clogging or short circuiting and deteriorate the performance of the system. 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 7.

Cleaning Aeration Pipes

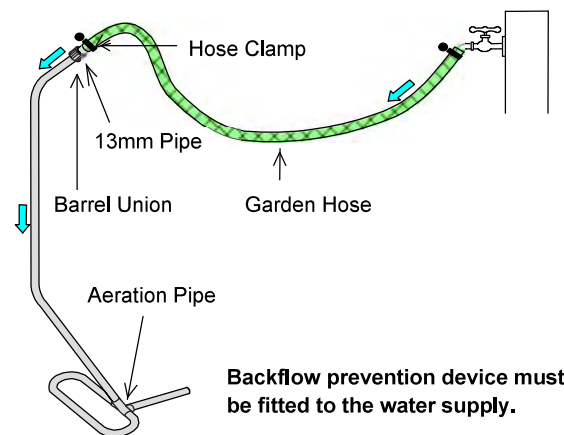
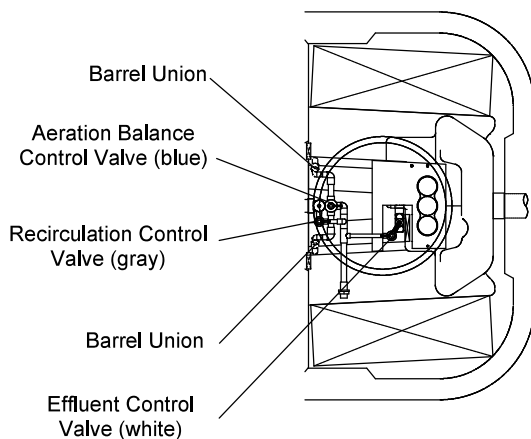
The following symptoms indicate that the aeration pipes may be partially clogged and the pipes need to be flushed or cleaned with a pipe brush.

- 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

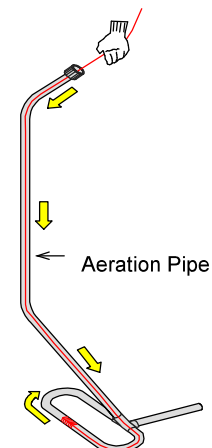
*This method must not be used unless an appropriate backflow prevention device is fitted to the tap.

- 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.



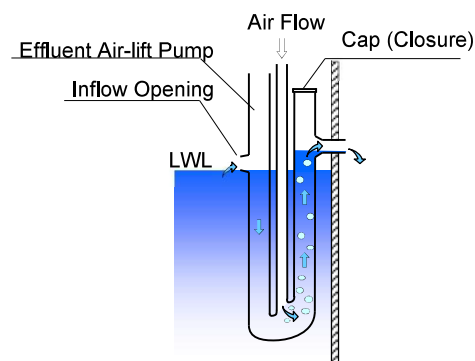
(2) Cleaning with Pipe Brush

- 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 4,500mm 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 25% 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

Blockage of Anaerobic Media makes T-N of effluent worse and is a cause of unwanted problems. Accumulated sludge on the anaerobic media could cause a complete or partial blockage.

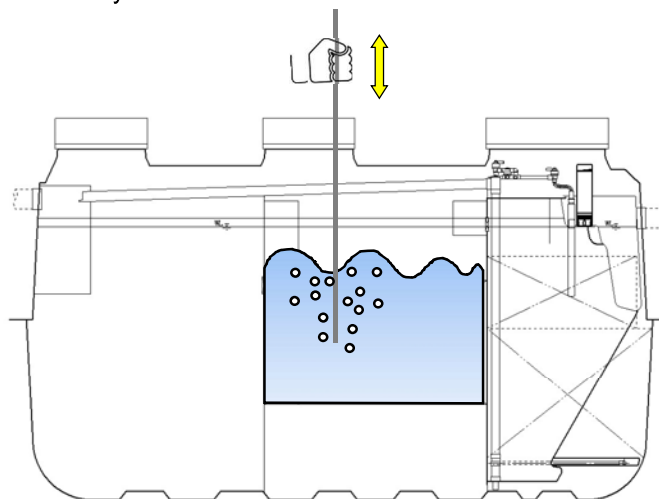
Ensure prevention of blockage by performing “(1) Degassing / Agitating Anaerobic Media” **EVERY SERVICE**. If water level inside the baffle in the anaerobic chamber is higher than the outside even after Degassing, perform “(2) Backwashing Anaerobic Media” as described below.

(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.

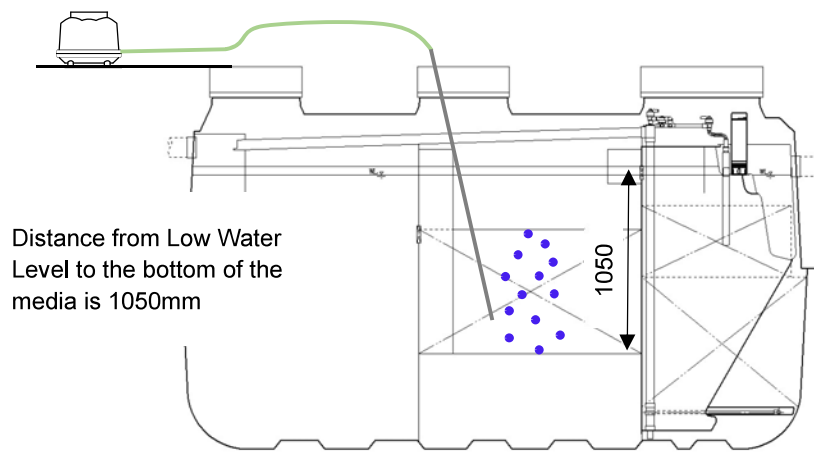
IMPORTANT

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.



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 14)**
- Sludge layer 550mm in the anaerobic filtration chamber (up to the bottom of the media) and 1,200mm in the sedimentation chamber. **(refer to page 14)**
- 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

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 10)

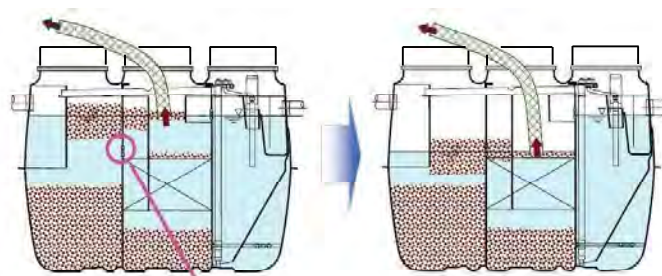
IMPORTANT!

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.

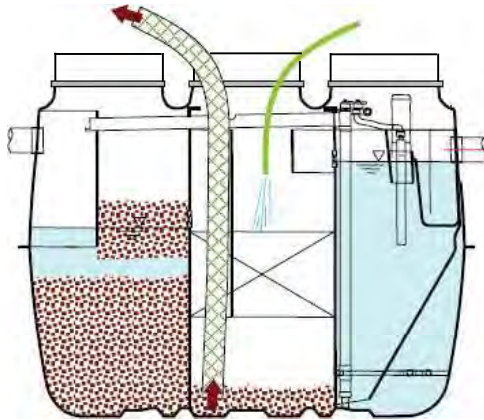
IMPORTANT!

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.

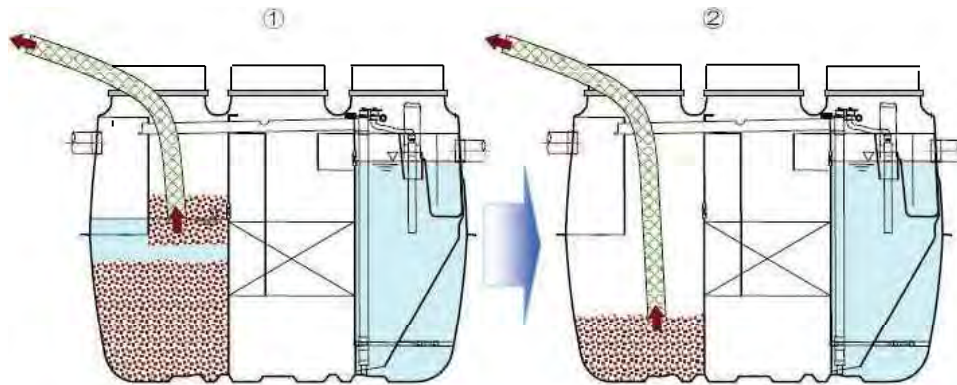


Outflow openings

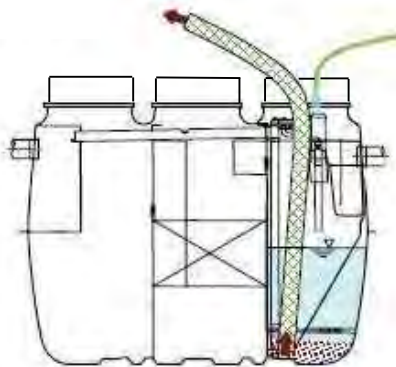
Step 6. Insert suction hose into the baffle. Remove sludge from the bottom of the anaerobic filtration chamber while washing the filtration media and chamber wall **with high pressure water.**



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 disinfection/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 450mm 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 1,200mm.)	● 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 200mm)	● Have the plant pumped out.
Excessive sludge accumulations.	● If the bottom sludge layer is thicker than 550mm 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 3.0mg/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 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.

Pump Chamber

Symptom	Solution
Excessive biofilm on the wall. (more than 5mm thick)	● Clean the wall.
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.
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:

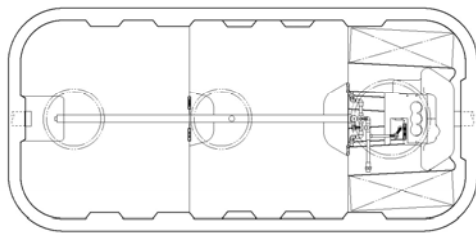
- consumable parts (i.e. disinfectant, diaphragm assembly, air filter) failed;
- there is no service agreement in place between customer and service agent;
- the system was not properly installed as per the installation instruction;
- the system was not properly serviced as per the operation and maintenance 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

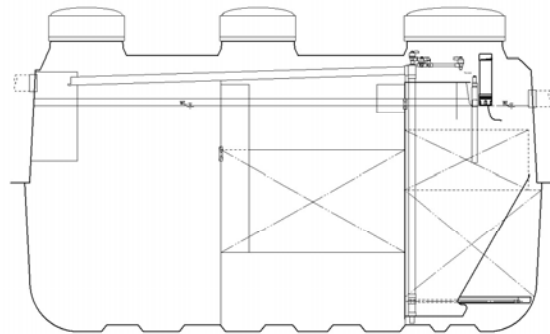
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Email: info@fujiclean.com.au

7. SPECIFICATIONS

TREATMENT UNIT



Horizontal Sectional View



Vertical Sectional View

Volume (L)

Sedimentation Chamber	3,169
Anaerobic Filtration Chamber	3,177
Aerobic Contact Filtration Chamber	1,431
Clarification Chamber	703
Disinfectin Chamber	44
Total Volume	8,524

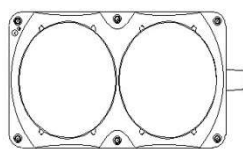
Weight (kg)

550

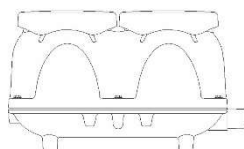
Dimensions (mm)

Max. Width	1,840
Max. Length	3,880
Max. Height	2,215
Max. Height (with 150mmH risers)	2,365
Max. Height (with 300mmH risers)	2,515
Inlet Invert	500
Inlet Invert (with 150mmH risers)	650
Inlet Invert (with 300mmH risers)	800
Outlet Invert	600
Outlet Invert (with 150mmH risers)	750
Outlet Invert (with 300mmH risers)	900
Inlet Pipe Nominal Size	Dia. 100
Outlet Pipe Nominal Size	Dia. 100

BLOWER



Top View



Side View

Model	FujiMAC200RII
Air Flow Volume	200L/min
Normal Pressure	20kPa
Outlet Pipe Size (diameter)	20mm (external 26mm)
Rated Voltage	AC240V
Frequency	50Hz
Power Consumption	140W
Weight	9kg

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.

COMMERCIAL WASTEWATER TREATMENT SYSTEM

FUJICLEAN ACE3000

Owner's Manual



Dear Customer,

Thank you for choosing a FujiClean Wastewater Treatment System. Please read this owner's manual carefully before using FujiClean ACE3000 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.

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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 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 lids.

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 ACE3000 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 ACE3000 Treatment System



FujiClean ACE3000 is designed to treat the commercial 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 ACE3000 is 3,000 L/day.

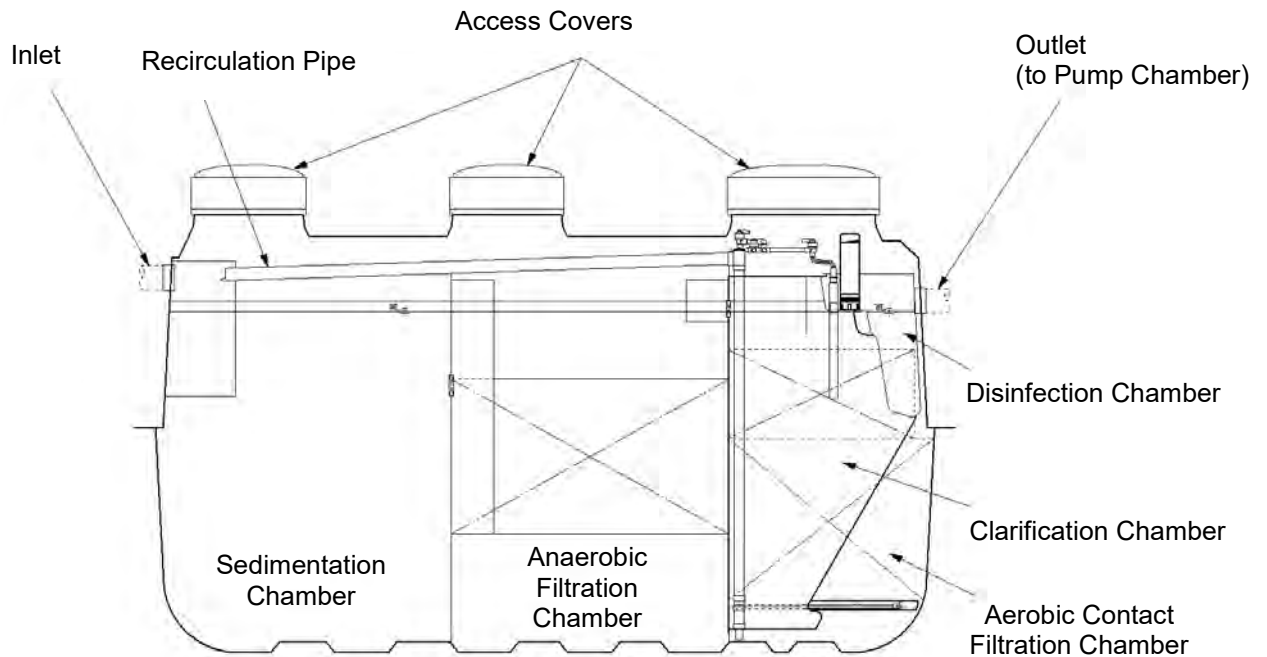
- BOD equal to or less than 10mg/L
- Suspended Solids equal to or less than 10mg/L
- Thermotolerant coliform less than 10cfu/100mL

Final effluent quality will be determined by a number of factors. Your installer and your service agent will offer advice, and monitor the system at service, and report to you accordingly.

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 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 Chamber

The treated water from the clarification chamber passes through the chlorinator for final disinfection. This is the final process of treatment.

Pump Chamber (Separate, and supplied by others)

This treated water is ready for discharge to the dispersal area.

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 a problem is 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 desludging 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 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.

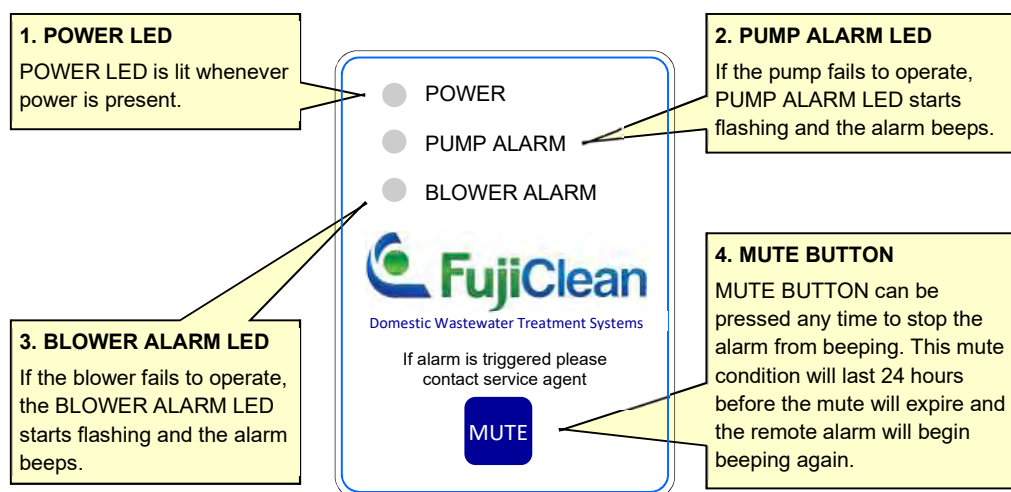
Regular maintenance includes periodic removal of excessive sludge and scum build-up from the system. The frequency of removal depends on the system's loading.

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, 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

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 was 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 the installation instructions.
- the electrical components were not properly wired or mounted as per the Wiring Instruction.
- the system has broken down or was 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 or vibration of any vehicle.
- the damage resulted from natural disasters such as flood, fire, earthquake or lightning, 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 or chemicals.
- any trouble caused by excessive amount of inflow and foreign substances as described in section 4. Maintenance on page 4.

Contacts

FujiClean 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 FujiClean product is warranted by FujiClean 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 FujiClean Product which is determined by FujiClean Australia to be defective will be repaired or replaced by an authorised FujiClean service agent.

This warranty only applies if the product has been installed in accordance with the manufacturer's installation guidelines and serviced by a FujiClean 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 FujiClean authorised service agent or FujiClean Australia Pty. Ltd.

Owner Details

Name:

Address:

..... Postcode:

Phone: Email:

Product Model Number: FujiClean ACE3000

Serial Number: Date of Commissioning: / /

Installer Details

Company:

Address:

..... Postcode:

Phone: Email:

1. SITE DETAILS

Site Address:					
	Suburb:		State:		Postcode:
Site Contact: (System Owner)	Name:				
	Phone:		Email:		
Owner's Manual:	☐ Left with client ☐ Left in house ☐ Left in blower box ☐ Left in letterbox				
Council:					
Installation Date:			Commissioning Date:		

2. AGENT DETAILS

Installer

Name:					
Address:					
	Suburb:		State:		Postcode:
Contact:	Phone:		Email:		

Service Agent (if different from Installer)

Name:					
Address:					
	Suburb:		State:		Postcode:
Contact:	Phone:		Email:		

3. SYSTEM DETAILS

System Model:	ACE3000	Serial Number:			
Pump Model:		Type of Effluent Disposal System:			
Pre-operational Checklist:	☐ No blockage at inlet pipe ☐ System is installed level ☐ System is backfilled up to top of riser.				
	☐ System is filled with water ☐ No damage to the tank ☐ No air leaks in the air piping				
	☐ No leakage to the tank ☐ No damage to the internal components and media ☐ Aerating evenly to both aerobic chamber				
	☐ Access lids are lockable ☐ Pump operating ☐ Pump's float is operating				
	☐ Blower / Box is level ☐ Blower(s) operating ☐ High Water Float Level operating				
	☐ Alarm operating ☐ Enough silicon applied at the conduit (if applicable) ☐ Distribution box working (if applicable)				
Valve Readings (Default setting)	☐ Chlorine is placed with (if applicable) ☐ Adjust chlorinator openings ☐ Seeding (if applicable)				
	ACE3000 ☐ Aeration balance: 50% ☐ Recirculation: 30-35% ☐ Effluent air-lift: 25%				

The system has been commissioned in accordance with the manufacturer's guidelines.

Agent Name: _____

Signature: _____ Date: _____



Commissioning Certificate

PLEASE NOTE:- Any component that fails to work as detailed must be repaired or replaced, by Distributor, before completion of commissioning, and before completing this commissioning certificate.

Please send a copy of this form to your local shire

Customer Name: _____

System Address: _____

Customer Contact No.: _____

Technician Name: _____

System Serial No.: _____

Date of Commissioning: _____

Alarm Panel Location: _____

Owners Manual: ☐ Left with Client ☐ Left in Control Box

☐ Left in House ☐ Left in Letterbox

Commissioning Certificate Copy: ☐ Left with Client ☐ Left in Control Box

☐ Left in House ☐ Left in Letterbox

General Comments: _____

Technician's Signature: _____

Date: _____

Tick the appropriate box to confirm that the components have been checked, and that they are working as required :-

- | | | |
|---|--|--|
| ☐ 1. Tank Installation | ☐ 7. Effluent Transfer Chamber | ☐ 13. Check aeration valve (Blue) in correct position |
| ☐ 2. Irrigation Area | ☐ 8. Chlorinator | ☐ 14. Check recirculation valve (Grey) in correct position. |
| ☐ 3. Check air blower | ☐ 9. Effluent pump | ☐ 15. Check Effluent valve (White) in correct position. |
| ☐ 4. Check air lines | ☐ 10. Power light on alarm pad | ☐ 16. Check lids and motor box secure |
| ☐ 5. Aeration tank diffusers | ☐ 11. Effluent high level float | |
| ☐ 6. sludge return tube | ☐ 12. Alarm - remote plate LED lights working | |

Commissioning Certificate



FUJICLEAN ACE 3000 Installation Certificate

This system has been installed in accordance with Part 2 of the Code of Practice for the Design, Manufacture, Installation and Operation of ATU's Servicing Single Dwellings

(November 2001)

**Please return this form via fax or email to
Local Shire**

Please tick the boxes as each step is completed.

1. ☐ Excavate the hole – approx 2800mm long x 1800mm wide and approx 2180mm deep
2. ☐ Place sand bedding layer
3. ☐ Check depth from sand bed to natural ground level no greater than 2270mm
4. ☐ Check depth from sewer invert to bedding sand no greater than 1400mm
5. ☐ Check depth of sewer invert to natural ground level no greater than 760mm.
6. ☐ Check that motor box base is secure
7. ☐ Fill all chambers with water to working level - approx. 4,000 Lt
8. ☐ Connect sewer piping to the sewer inlet
9. ☐ Backfill around tank with clean fill or 5-7mm crushed blue metal (free from large lumps of clay, stones, bricks, foreign objects, or dumped rubbish from other trades people)
10. ☐ Check the irrigation system. It could be of several different formats, check council requirements
11. ☐ Fill out the declaration below, and forward a copy of this page to your local council

The Fujiclean system has been installed in accordance with the procedures detailed in the Installation Manual.

System serial number			
Name of current customer			
Customer contact number			
Installation address			
Installer's name			
Installer's signature		Installation date	/ /

Installation Certificate

ACE3000 SERVICE REPORT

1. CUSTOMER INFORMATION

Name:	Click here to enter text.		Phone:	#	
Address:	Click here to enter text.				
Model:	FujiClean ACE3000	Riser config.	Serial Number:		
Date Serviced:	Date	No of Residents:	0-20	Estimated Water Usage:	L/day

2. CHECKLIST ***Fill out all the white boxes below.**

Blower Box	☐ Clean ventilation		☐ Check bolt locking		☐ Reseal the conduit with silicon if broken. (IMPORTANT)
Blower	Operating	☐ Yes ☐ No	Noise or Vibration?	☐ Yes ☐ No	☐ Check the air line
	☐ Clean Air Filter and clear dust and sand			Diaphragms Replaced?	☐ Yes ☐ No
Effluent	Turbidity or Clarity	mm	pH	.	DO (if applicable) mg
	Free Residual Chlorine	mg/L	Odour Present		☐ Yes ☐ No
Alarm	Air Blower Alarm	☐ Perform alarm test	Remote Alarm Plate/Strobe operating? (Audible & Visual)		☐ Yes ☐ No
	High Water Alarm	☐ Perform alarm test	Remote Alarm Plate operating/Strobe? (Audible & Visual)		☐ Yes ☐ No
	☐ Check high water float switch is in a good condition.				
Pump	Operating	☐ Yes ☐ No	Pump's float switch		☐ Good ☐ Poor
Scum & Sludge Levels	Sedimentation Chamber	Scum	mm	Sludge	mm
	Anaerobic Chamber	Scum	mm	Sludge	mm
	Clarification Chamber	Scum	mm	Sludge	mm
Anaerobic Chamber	☐ Agitate media gently to prevent blockage (IMPORTANT)		Backwashing anaerobic media? *Necessary only when blockage was not cleared by agitation		☐ Yes ☐ No
Aerobic Chamber	Aeration Operating	☐ Good ☐ Poor	Excessive Foaming?		☐ Yes ☐ No
	☐ Conduct the manual backwash (IMPORTANT)				
Cleaning	☐ Aeration Pipe	☐ Airlift Pump	☐ Recirculation pipe (vertical / horizontal)		☐ Disinfection Chamber
	☐ Transfer scum in Anaerobic Chamber to Sedimentation Chamber (if any)			☐ Transfer scum in Storage Chamber to Sedimentation Chamber (if any)	
Valve Setting	Aeration Valve (blue)	☐ (50%)	Effluent Valve (white)		☐ (40%)
	Recirculation Valve(grey)	Setting %	Recirculation Rate	Rate (9.0-12.0L/min)	L/min
Chlorine Canister	Number of Chlorine Tablets Refilled		Click here to enter text.		☐ Adjust the slit opening
Irrigation System	Type	Click here to enter text.		Disposal Area	☐ Good ☐ Fair ☐ Poor
	☐ Effluent Filter Cleaned			☐ Flushed the irrigation line	

Comments (Tick the box if applicable)	☐ The system requires pump out by this date - DATE ☐ The system does not require pump out yet. Click here to enter text.		
3. SERVICE AGENT			
Name:	Click here to enter text.	Signature	
Address:	Click here to enter text.		
Contact:	Phone:	Click here to enter text.	Email: Click here to enter text.

Please complete & return this form to: Email: admin@fujiclean.com.au

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