

CLEARTEC

The Cost-Effective Solutions
to Wastewater Treatment

&

SYSTEMS



SCOTT VICKERS

Wastewater Treatment Systems



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Specifications at a Glance

CLEARTEC

Wastewater Treatment Systems



Typical Influent



Typical Effluent

CLEARTEC Wastewater Treatment Systems are specifically designed to remove suspended solids from construction site rainwater runoff and selected industrial wastewater.

The chemical process reduces the suspended solids content below 50mg/litre to enable the treated water to be either discharged into the public drainage system or recycled for further use.

The residual sludge, which is formed by the reaction between the suspended solids and the dosing chemicals is discharged separately and automatically. Each model requires single phase power and is driven by the influent pump.

The influent pump power line for the **SVC10** to **SVC40** models can be connected directly into the Control Panel. The **SVC80** influent pump requires 3-phase power and must be connected to a separate power supply.

The treated water can be reused for vehicular washing bays, recharge of wells, toilets, cube curing, ponding tests etc, thereby significantly reducing water costs.

There are several models available with treatment capacities ranging between 5m³/hour and 80m³/hour all of which are fully automatic including chemical injection & sludge discharge.

Advantages

Fully Automatic
Low Manpower
Cost Effective

Low Maintenance Cost
Uses Single Phase Power
Uses Powder Chemicals

Fully Self-contained
Easy to Transport
Few Mechanical Parts



Standard Fittings



Automatic Sludge Discharge



Automatic Chemical Mixing & Dosing System



Hinged Walkways with Retaining Shackles & Hinged Railings



Security Gates & Hinged Roof



Built-in Influent Pump for SVC30-SVC80

CLEARTEC SVC*lite* Models

If a more basic model is preferred, then the **SVC*lite*** is available with just a Side Walkway and Railings but without Security Gates but they are still FULLY AUTOMATIC.

All models are constructed in steel and are painted internally with epoxy coating and externally with marine-grade paint, providing an extremely robust and long-lasting surface.

AUTOMATIC CHEMICAL MIXING SYSTEM

All models incorporate Automatic Chemical Mixing Systems for using powder chemicals, which are more cost effective than liquid supply for simpler logistics and to provide a longer shelf life.





Standard Key Features



FI



C2

POWDER CHEMICALS

The system incorporates simple but very efficient automated chemical mixers for both chemicals allowing dosing to be continued even while mixing is carried out. This operation does not require any specially skilled operator. The complete mixing cycle takes less than 15 minutes.

The **FI** Polymer is available in either 1kg bottles or 25kg bags

The **C2** Coagulant is available in 25kg bags

DESLUDGE VALVES

These are electrically operated and their high torque capacities are designed to handle high viscosity sludge which may include any solids which may have inadvertently been introduced into the system.



CHEMICAL INJECTION SYSTEM

The chemicals are injected into the influent and pass through static mixers eliminating the need for any moving parts, such as an electric motor in the filtration tank therefore reducing the number of mechanical parts.

ALL STEEL CONSTRUCTION

All models are completely self-contained and extremely robust. The internal surfaces of the Primary and Secondary Treatment Chambers are coated in epoxy paint internally and marine-grade paint externally. Together, these two features provide a very long service life.

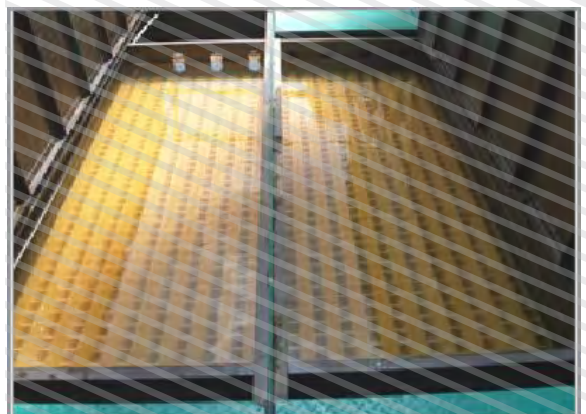


HINGED WALKWAYS & SAFETY RAILINGS (premium models only)

Provided on all models except the **SVCS** & **SVCIO**. The walkways not only reduce the possibility of mosquito breeding during periods of no rainfall with the walkways covering the stagnant water in the unit but are also essential during maintenance periods, enabling the operator to move around safely on the top. In addition, hinged railings with walkway retaining shackles make relocation from site to site simple.

LAMELLA BLOCKS

Located in the Secondary Chamber, these are made of Acrylonitrile Butadiene Styrene (ABS), an extremely robust material which gives a very long service life. Compared to the alternative polypropylene, they require very little maintenance other than occasional washing and should last the life of the equipment.





SECURITY GATES (*premium* models only)

These are provided on all models except the **SVC5** & **SVCIO** to prevent tampering with the equipment by unauthorised personnel and can be padlocked.

In addition, a hinged roof is also provided for protection from the elements for the operator when recharging the chemical tanks.

TILTING LADDER *premium & liteB* models

This is provided with extendable handrails for access to the top of the unit for inspection and maintenance purposes to enhance safety. It can also be folded back for ease of transport.



SIDE WALKWAY with short tilting ladder (*lite* models only)

This is provided with slot-in handrails for access to the top of the unit for inspection and maintenance purposes to enhance safety. The complete walkway can also be folded down for ease of transport.



EFFLUENT SAMPLING POINT (*premium* models only)

Incorporated to enable visual checks to be made on the quality of the water which is being discharged without the need to take any sample from the outlet point which may be some distance from the equipment.

SINGLE PHASE POWER CONTROL PANELS

Extremely simple layout and method of operation. Each push button lights up for either start or stop functions. The system provides for either fully automatic or manual control of the complete system. If pH adjustment is required, a built-in control relay only requires the connection of an additional dosing pump and sensor.

The mixing, dosing and sludge discharge components are of such low power consumption that 3-phase power is unnecessary which will reduce running cost and simplify installation.



premium model



lite model



SPARE POWER SOCKET

A single phase electrical socket is fitted as standard on all premium models on the Control Panel so that a submersible pump (if single phase) can be connected directly to the unit. If not, this socket may be used for any additional single phase item.

WEATHERPROOF LIGHT *(premium models only)*

Provided on all premium models to facilitate the recharging of chemicals at night or during inclement weather



INTEGRAL FLOW SENSOR

This is provided to immediately start the chemical dosing pumps as soon as the influent pump in the sedimentation tank commences to inject the influent into the system.



SOLARTEC SOLAR-POWERED TOTAL SUSPENDED SOLIDS (TSS) & CCTV CONTINUOUS MONITORING SYSTEM

The very compact 250mm x 300mm Solar-Powered Control Panel of this optional extra can be mounted within the Chemical Processing Chamber or be tripod-mounted as a stand-alone system. It enables real-time monitoring to be accessed remotely and can notify by SMS if the TSS limit is exceeded. The system is also protected from unauthorised use if mounted within the Chemical Processing Chamber.



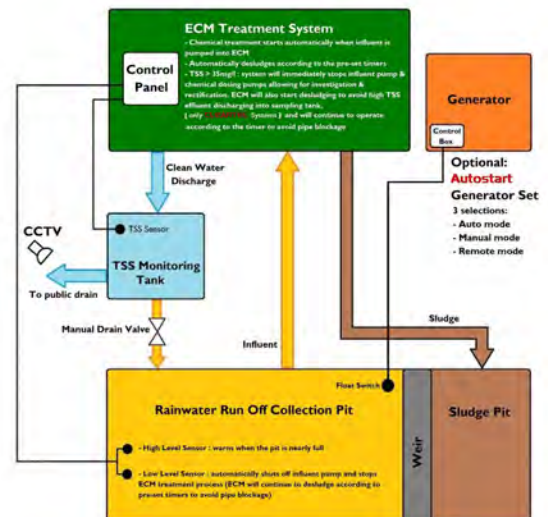
SMARTEC AUTOMATIC ECM MONITORING & CONTROL SYSTEM

- TSS exceeds maximum
- Pit level critical
- Chemical tanks empty

AND

AUTOSTART SOLAR-POWERED AUTOMATIC GENSET SYSTEM

To start or stop the GenSet automatically



WATERTEC SOLAR-POWERED EFFLUENT PARAMETER MONITORING SYSTEM

designed specifically to monitor or adjust the various water parameters



Optional Features

FLOWMETER

Where continuous monitoring of flow rate and total flow is required with the option of remote reading



pH DOSING SYSTEM

Automatically dispenses either an acid or alkali depending on the pH requirement. A pH probe located in the secondary chamber automatically activates the dosing pump as and when required

HYDROCARBON FILTER

Comprises a special replaceable filter which captures traces of oil and general hydrocarbons which are present in the influent.



CLEARTEC SVC5 & SVCIO



SVC5lite



SVCIOlite

The **SVC5 & SVCIO** are compact wastewater treatment systems designed to cater for either relatively small project such as individual housing or linear projects such sewer or road construction.

Both these models have integral mixers, automatically-controlled dosing pumps and desludge valve.

The detachable combined ladder and footplate allows the operator to inspect inside the unit without the need to climb on top and is therefore not provided with hinged walkways or safety railings.

The **SVC5 & SVCIO** are extremely easy to set up or relocate and can be loaded onto a small truck.

Specifications

DESCRIPTION	SVC5lite	SVCIOlite	
Electrical Power	1ph 240V 50Hz 15A		
Influent Diameter	mm	50	
Effluent Diameter	mm	75	
Max Discharge	m ³ /hr	5	10
Dimensions	m	1.1 x 1.0 x 1.9	1.4 x 1.2 x 2.1
Weight	kg	500	650

Note: Dimensions do not include removable ladder



CLEARTEC SVC20

The **SVC20** is a compact wastewater treatment system designed to cater for either small developments or for linear projects such as sewer or road construction.

This model has automatically-controlled mixers, dosing pumps and desludge valve.

The detachable tilting ladder allows safe access to the top where hinged walkways are fitted as standard for ease of inspection inside the unit. Hinged railings are also provided.

The **SVC20** is extremely easy to set up or relocate and can be loaded onto a small truck fitted with a crane.

Specifications

DESCRIPTION		SVC20
Electrical Power		1ph 240V 50Hz 15A
Influent Diameter	mm	75
Effluent Diameter	mm	75
Max Discharge	m ³ /hr	20
Dimensions	m	2.0 x 1.8 x 2.5
Weight	kg	1,100 ^{premium} 1,000 ^{lite}

Note: Dimensions do not include removable ladder or railings when vertical



SVC20^{premium}



SVC20^{lite}

CLEARTEC SVC30 & SVC40

The **SVC30** & **SVC40** are wastewater treatment systems designed to cater for small to medium size sites such as small to medium building projects.

These models have automatically-controlled mixers, dosing pumps and two desludge valves.

The detachable tilting ladder allows safe access to the top where hinged walkways are fitted as standard for ease of inspection inside the unit and hinged railings are also provided (*premium* only). The *lite* model has a side walkway with railings & tilting ladder. Both are easy to set up or relocate and can be loaded onto a lorry crane

Specifications

DESCRIPTION	SVC30	SVC40
Electrical Power	1 ph 240V 50Hz 15A	
Influent Diameter	mm	75
Effluent Diameter	mm	75
Max Discharge	m ³ /hr	30
Dimensions	m	3.0 x 1.8 x 2.4
Weight	kg	2,000 <i>premium</i> 1,800 <i>lite</i>

Note: Dimensions do not include removable ladder



SVC40*lite*



SVC30*premium*



CLEARTEC SVC60 & SVC80

The **SVC60** & **SVC80** are wastewater treatment systems designed to cater for civil engineering sites or large building projects. These models have automatically-controlled mixers, dosing pumps and two desludge valves. The detachable tilting ladder allows access to the top where hinged walkways are fitted as standard on the *premium* model for ease of inspection inside the unit together with hinged railings. The *lite* model has a side walkway with railings & tilting ladder. Both models are easy to set up or relocate and can be loaded onto a lorry crane.

Specifications

DESCRIPTION	SVC60	SVC80
Electrical Power	1 ph 240V 50Hz 15A	
Influent Diameter	mm	75
Effluent Diameter	mm	150
Max Discharge	m ³ /hr	60 80
Dimensions	m	5.0 x 2.3 x 2.5 6.0 x 2.3 x 2.5
Weight	kg	3,200 <i>premium</i> 2,500 <i>lite</i> 3,500 <i>premium</i> 3,000 <i>lite</i>

Note: Dimensions do not include removable ladder



SVC80lite
with side walkway

SVC60premium

CLEARTEC^{eco}

The **CLEARTEC^{eco}** is a very efficient lamella clarifier designed for use where chemical dosing to ensure strict compliance with regulations on effluent quality is not required. It effectively removes most suspended solids from the influent when passing through lamella plate blocks.

This is achieved as the lamella blocks have an extremely large effective settlement area, allowing the whole process to be contained within a small footprint, removing the need for settlement ponds. This is ideal for sites with limited space.



The influent is pumped into the equipment from the site collection pond and rises up through the lamella blocks where the solids slide off the inclined surfaces and settle as a sludge in the base of the unit. The clean water rises to the top and is discharged. Hand-operated desludge valves can be opened as required to discharge the sludge. **CLEARTEC^{eco}** is available in three sizes up to 60m³/hr and is supplied complete with hinged walkways, fold-down railings and tilting access ladder to enhance safety.

Specifications

DESCRIPTION		SVC30 ^{eco}	SVC40 ^{eco}	SVC60 ^{eco}
Influent Diameter	mm	75	100	100
Effluent Diameter	mm	100	150	150
Max Discharge	m ³ /hr	30	40	60
Dimensions	m	3.0 x 1.8 x 2.5	4.0 x 1.8 x 2.5	5.0 x 2.3 x 2.5
Weight	kg	1,500	1,800	2,500

Note: Dimensions do not include removable ladder or railings when vertical



CLEARTEC_{plus}

Fully Automatic Wastewater & Sludge Treatment System

CLEARTEC_{plus} is designed to treat rainwater runoff and also remove sufficient water from the residual sludge to enable a sludge cake to be handled as a solid. This model has automatic chemical mixers, dual polymer dosing pumps, a coagulant dosing pump, desludge valves, a screwpress and cleaning system to enable the excess water to be continuously removed.

Periodically, the resultant sludge from the chemical process is discharged into a collection chamber at the base of the unit. It is then passed through a static mixer in which a flocculent is injected to re-floc the mixture before passing through the screwpress.

A sufficiently high percentage of the water content is extruded, producing a cake, which can then be used either as backfill on the site or disposed of in a conventional dump truck. Simultaneously, the extruded water is returned into the **CLEARTEC** to remove any suspended solids.



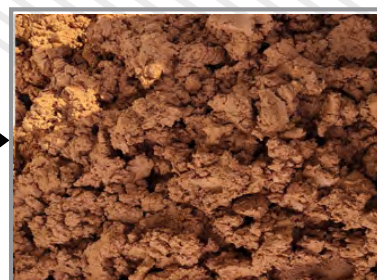
SVC60_{plus}



CLEAN WATER & SLUDGE CAKE - CONTINUOUSLY



Liquid Sludge



Sludge Cake

CLEARTEC^{plus}

When the sludge has been emptied from the collection chamber, the screwpress continues to operate for a set period of time to ensure the complete removal of any residual sludge. At predetermined times the outer surface of the screwpress rotating plates are sprayed with water for cleaning



Chemical Dosing Chamber



Control Panel for automatic operation of:-

CLEARTEC

- ❖ Chemical Mixers
- ❖ Chemical Pumps
- ❖ Desludge Valves

SLUDGTEC

- ❖ Sludge Transfer Pump
- ❖ Water Transfer Pump
- ❖ Sludge Conversion

OPTIONAL

SOLARTEC

- ❖ TSS Reading Panel

OPTIONAL

SMARTEC

- ❖ ECM Control System



FI Dosing Pumps & Mixer



Sludge Conversion Chamber



CLEARTEC^{plus}



Liquid Sludge Collection Chamber with Auto Desludge Valves & Overflow

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Storage Compartment for easy access of chemicals



Water Transfer Pump Exuded water is transferred back into the system for suspended solids removal



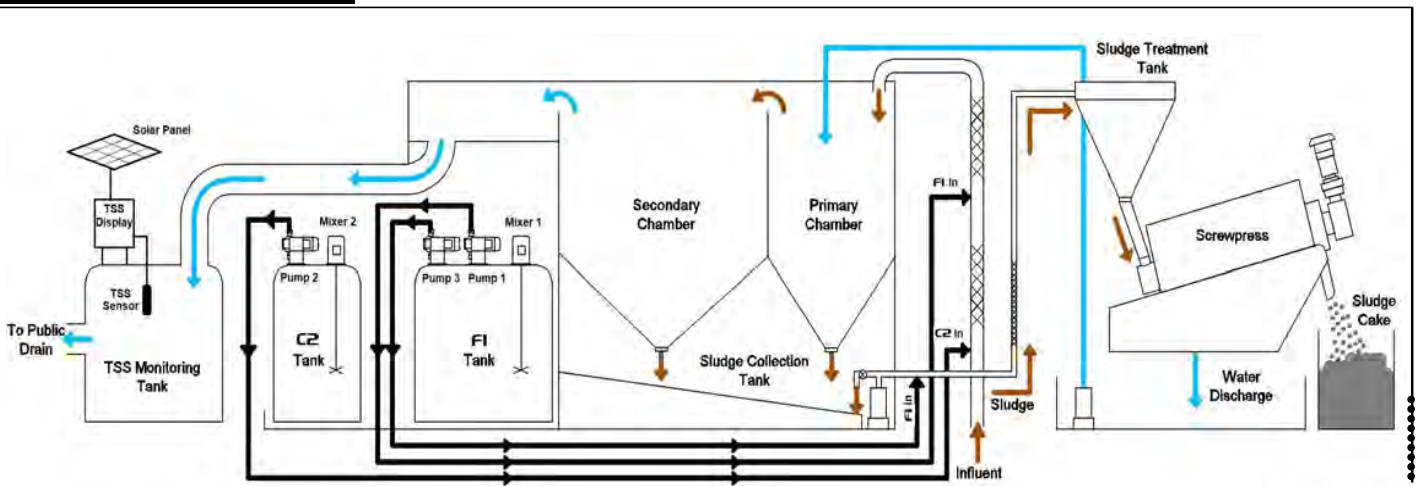
Sludge Inlet Control System Enables the sludge flow rate to be adjusted to suit the required flocculation



Sludge Cake Discharge Internal / External

CLEARTEC^{plus}

Flow Diagram



Specifications

DESCRIPTION	SVC60 ^{plus}	SVC80 ^{plus}
Water Treatment Capacity m ³ /hr	up to 60	up to 80
Electrical Power	I _{ph} 240VAC 50Hz 15A	
Primary Influent Diameter mm	75	
Effluent Diameter mm	150	
Liquid Sludge Flow Rate m ³ /hr	0.75 - 1.25	
Sludge Influent Diameter mm	50	
Cake Discharge Rate kg/hr	60 - 100	
Dimensions m	5.2 x 2.3 x 2.5	6.2 x 2.3 x 2.5
Weight kg	4,500	5,000

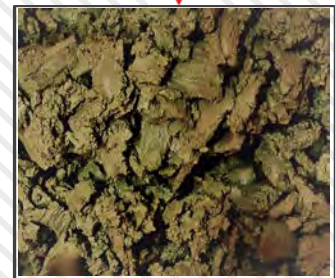


SLUDGTEC

SLUDGE CONTINUOUS DEWATERING SYSTEM



Liquid Sludge



Sludge Cake

The **SLUDGTEC** is a treatment system which converts construction liquid sludge into a solid cake by removing a high percentage of water continuously rather than as a batch process. The cake can then be used as backfill or removed from site in a conventional dump truck. The extruded water can then be treated by a **CLEARTEC** or other ECM to remove any remaining suspended solids.



Specifications

DESCRIPTION	SLUDGTEC	
Electrical Power	1ph 240V 50Hz 15A	
Influent Diameter	mm	25
Liquid Sludge Max Flow	m ³ /hr	1.0
Sludge Cake Discharge	kg/hr	60-100
Effluent Diameter	mm	75
Dimenions	m	2.0 x 1.8 x 1.9
Weight	kg	800

SLUDGTEC

A special flocculent is injected into the liquid sludge as it is being transferred from the sludge pit into the flocculation tank and then fed into the screw press.

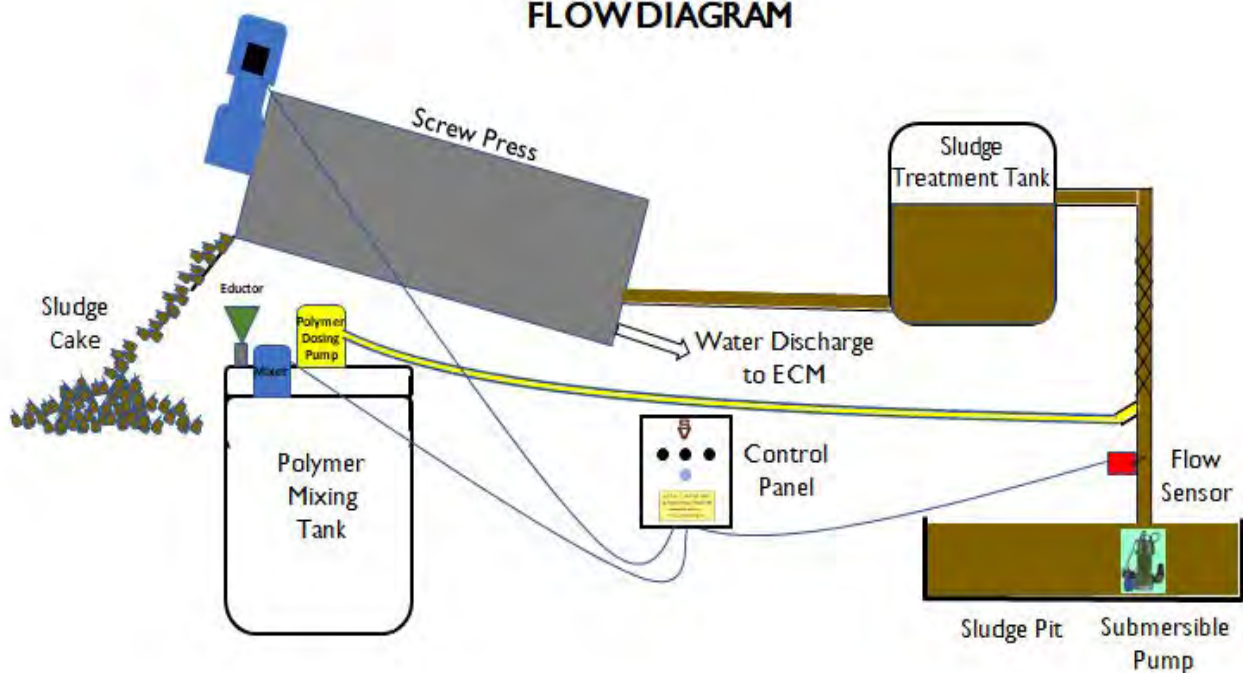
The water is squeezed out through the screw press moving plates and the sludge cake is slowly and continuously extruded.

The screwpress plates are automatically washed at predetermined times during the extrusion process without having to stop the machine.

The whole process is automatic and the system will still continue to produce sludge cake for a set period of time even after the submersible pump has stopped to ensure that all sludge cake has been removed from the screwpress plates.



FLOW DIAGRAM



SOLARTEC

SOLAR-POWERED CONTINUOUS MONITORING TSS & CCTV SYSTEM

Available for all ECM Systems

- ❖ Small, lightweight & portable
- ❖ Built-in or stand-alone
- ❖ Low power consumption
- ❖ Customised SMS alerts
- ❖ Smart Artificial Intelligence (AI)
- ❖ Generator not required
- ❖ Cyber secure network
- ❖ Web based access



Solar Panel above IP65 Steel Control Panel with built-in battery pack



CCTV System complete with LED light



Typical CCTV Installation adjacent to public drain



TSS Sensor installed in Cap (Plug & Play)

TSS Monitoring & Sampling Tank with Inlet & Outlet

SOLARTEC

Specifications

DESCRIPTION

Solar Power Unit

Multi-Crystalline Solar Panel 100W

Battery Pack 45AH

MPPT (Maximum Power Point Tracking) Charger

Load Balancing Controller

CCTV Camera

2MP Full-HD 1080P IP67 Bullet Type IR Camera

1 No. High Intensity LED day-light Light

TSS Sensor

0-400mg/litre (Total Suspended Solids Range)

Enclosure

300mm x 250mm x 150mm IP65 Steel Enclosure with hinged door

System

TSS/CCTV Controller with OLED Display.

3G/4G Broadband Device

SD card image backup

VPN Secured

Website

User login details

15-day downloadable archived image

30-day downloadable data

SMS - 3 numbers included. Additional numbers up to a max 10 at extra cost



Typical TSS
Monitoring Installation
with Solar Panel on top



Typical CCTV Installation
with Solar Panel on top

SMARTEC

AUTOMATIC ECM CONTROL SYSTEM

SMARTEC Automatic Control System to control the operation of the ECM system and will activate a siren with flashing light and send an SMS alert if:-

- ❖ TSS exceeds maximum permitted reading the ECM will stop, automatically drain the Sampling Tank and go on standby
- ❖ Collection Pit influent level reaches critical height, the ECM will continue operating but stop and go on standby when the Pit is empty
- ❖ Chemical Tank levels are monitored for full - **GREEN** Light, low - **AMBER** Light and empty **RED** Light, when the ECM will stop and go on standby

Components

- ❖ Control Panel
- ❖ Level Sensors
- ❖ Influent Pump Controller
- ❖ Siren & 3-colour Flashing Light



OPTION

AUTOSTART Solar-powered GenSetSystem

Complimentary to **SMARTEC** or as a stand-alone. It will automatically stop the GenSet when the water in the collection pit is too low for a **CLEARTEC** or other brand ECM to function and will automatically restart when the water level rises sufficiently.

Components

- ❖ Control Panel
- ❖ Collection Pit Level Sensor for Auto Mode
- ❖ SMS Modem Controller for SMS Remote Mode
- ❖ Manual By-Pass Switch for Manual Mode
- ❖ Solar Powered & Back-up Battery



SMARTEC & AUTOSTART REDUCES MANPOWER - INCREASES PRODUCTIVITY

SMARTEC

Specifications

SMARTEC

Control Panel with Analyser

Chemical Drum Level Sensors

Influent Collection Pit Level Sensor

Submersible Pump Contactor
Power Disconnection

Automatic Drain Valve

Alert

Siren - Audible & -Visual Tri-coloured
Flashing Light

SMS - 3 numbers included. Additional
numbers up to a max 10 at extra cost

AUTOSTART

Solar Power Unit

Mono Crystalline Panel

SLA Battery Pack

Solar Charge Controller

Enclosure

Steel 300mm x 300mm x 200mm IP65

Mounting Bracket GI-Pole

SYSTEM

SMS Modem Controller - Remote Mode

Manual By-Pass Switch - Manual Mode

Float Switch - Auto Mode

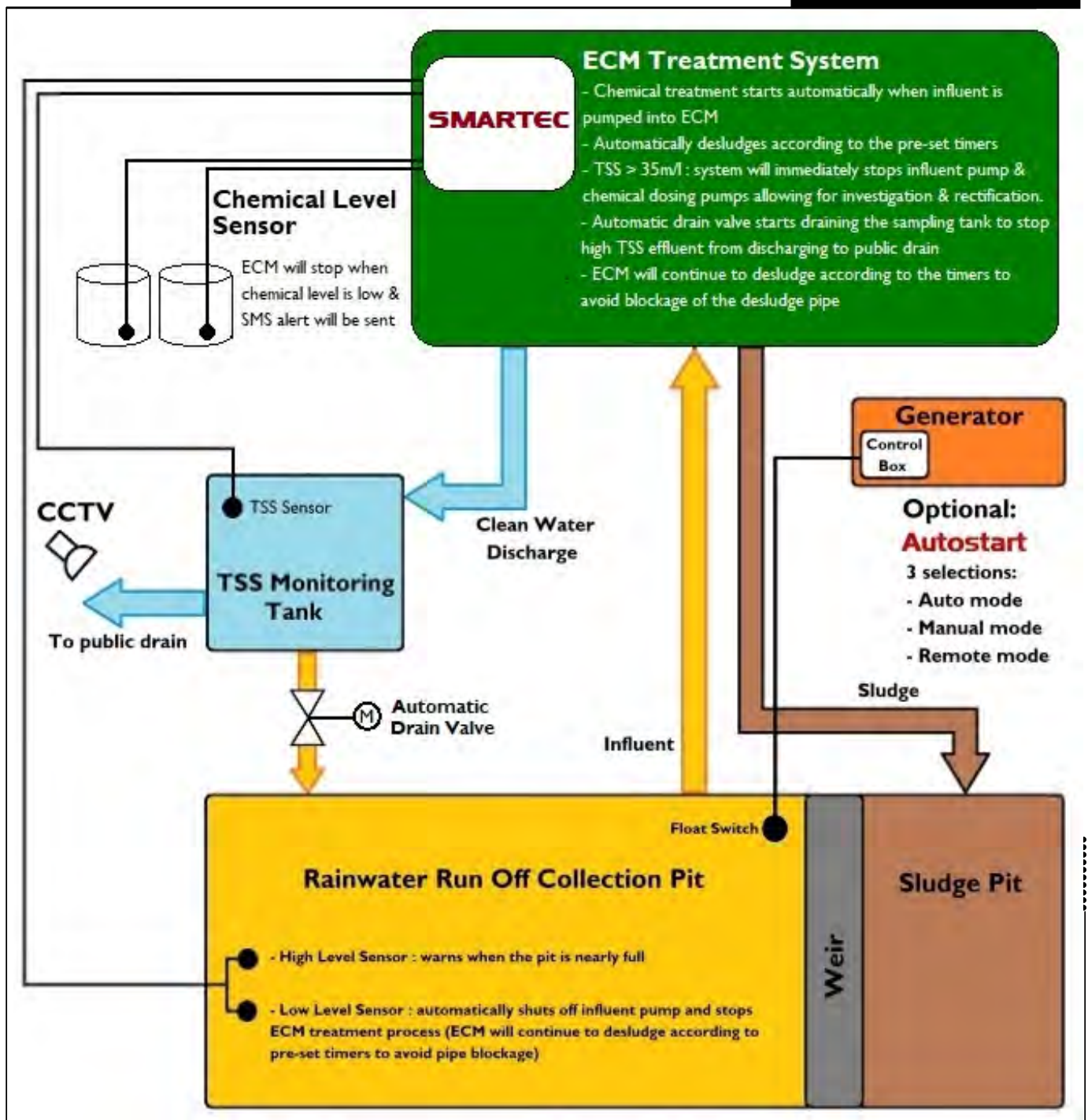
8 PARAMETERS

Power Supply (if required)*	AUTOSTART Generator	✓
Remote Controls	SMS Command	✓
Monitoring & Alert	Sedimentation Pond	✓
	Chemical Level	✓
	Treated Water Quality	✓
Automatic Intervention	Stop/Divert silty water	✓
	Stop treatment plant	✓
Site Warning	Siren/Flashing Light	✓



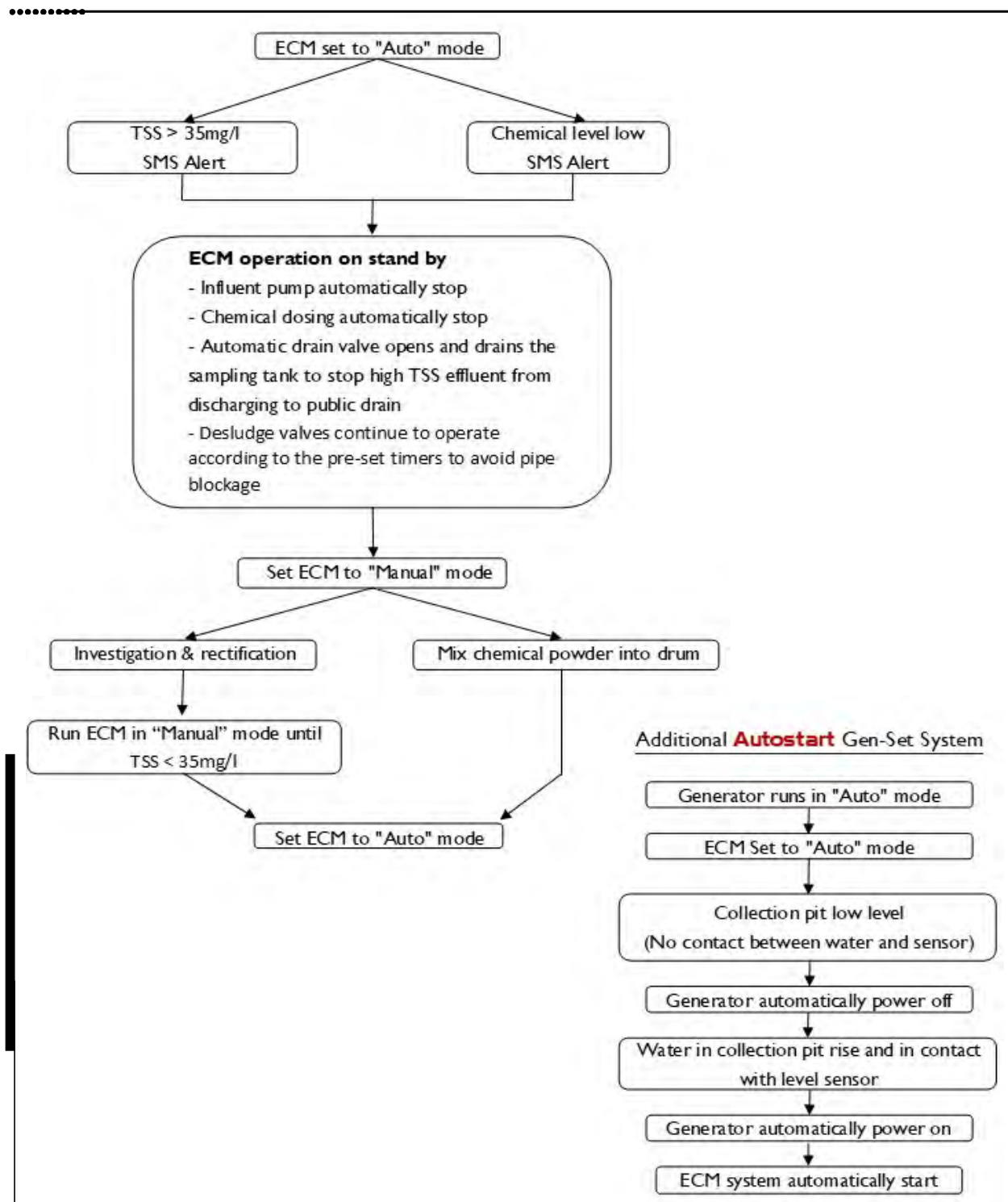
SMARTEC

Schematic Layout



SMARTEC

Flow Chart with Separate Auto GenSet





WATERTEC

EFFLUENT PARAMETER CONTINUOUS MONITORING SYSTEM

The **WATERTEC** System is designed specifically to monitor or adjust the following effluent parameters:-

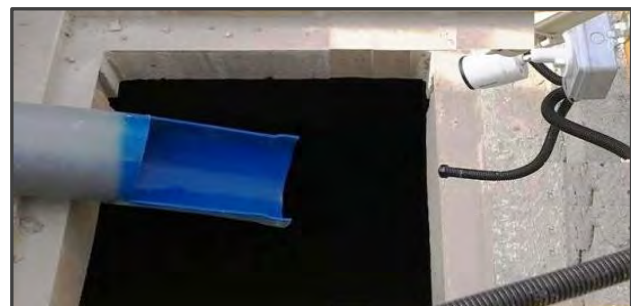
- ❖ Total Suspended Solids (TSS)
 - ❖ Total Dissolved Solids (TDS)
 - ❖ Electrical Conductivity (EC)
 - ❖ Turbidity
 - ❖ pH
- Also available for:-
- ❖ Biological Oxygen Demand (BOD)
 - ❖ Chemical Oxygen Demand (COD)



Monitoring Probes in Collection Tank



Solar Panel



Typical CCTV complete with 2 No. LED lights installed adjacent to public drain

WATERTEC

Specifications

DESCRIPTION

Solar Power Unit

50W Monocrystalline Solar Panel

30AH Lithium-Ion Battery Pack

MPPT (Maximum Power Point Tracking) Charge

Load Balancing Controller

CCTV Camera

2MP Full-HD 1080P IP67 Bullet Type IR Camera

2 No. High Intensity LED day-light Lights

Sensors

TSS: 0-400 mg/litre (Total Suspended Solids Range)

pH: 0-14

Conductivity: 0-44,000 uS/cm

Turbidity: 0-400 NTU

Enclosure

300mm x 250mm x 150mm IP65 Steel Enclosure with hinged door

System

TSS/CCTV Controller with OLED Display.

4G LTE Wi-Fi Router 300MBps (2 No. Antenna)

SD card image backup

VPN Secured

Website

User login details

14-day downloadable archived image

30-day downloadable data

SMS - 3 numbers included. Additional numbers up to a max 10 at extra cost



Control Panel for Mixer & Dosing System



Typical CCTV Installation with Solar Panel on top



CLEARTEC

Fully Automatic Model Specifications at a Glance

DESCRIPTION	SVC5 ^{lite}	SVC10 ^{lite}	SVC20 ^{premium}	SVC30 ^{premium}	SVC40 ^{premium}	SVC60 ^{premium}	SVC80 ^{premium}	
CHEMICAL PROCESSING CHAMBER								
Dosing Pumps	2 No.							
Chemical Tank	2 No. 80 litres	2 No. 200 litres			2 No. 500 litres			
Chemical Mixers	2 No.							
Level Sensor	1 No. in each chemical tank except lite models							
Flocculent Dispenser	1 No.							
Chemicals	Flocculent F1 in powder form							
	Coagulant C2 in powder form							
AUTOMATIC DESLUDGING SYSTEM								
Desludge Valves	1 No. Electric			2 No. Electric				
pH SYSTEM (OPTIONAL)								
Dosing Pump	-		1 No. c/w pH Controller					
Chemical Tank	-		1 No. 80 litres			1 No. 200 litres		
CONTROL SYSTEM								
Control Panel	Weatherproof to IP54 Steel Cabinet with manual/automatic control of:-							
	Chemical Dosing Pumps							
	Chemical Mixers							
	Integral Flow Sensor							
	Chemical Tank Level Sensors - <i>premium</i> only							
	Desludge Valves complete with Timer System							
	pH Dosing Pump & Probe (if fitted)							
GENERAL								
Influent Diameter	mm	50		75				
Effluent Diameter	mm	75		75		100		
Discharge	m ³ /hr	5	10	20	30	40	60	80
Dimensions (L x W x H)	m	1.1 x 1.0 x 1.9	1.4 x 1.2 x 2.2	2.0 x 1.8 x 2.5	3.0 x 1.8 x 2.5	4.0 x 1.8 x 2.5	5.0 x 2.3 x 2.5	6.0 x 2.3 x 2.5
Weight	kg	500	650	1,100	2,000	2,200	3,000	3,500

Note:
 Dimensions do not include removable ladder or railings when vertical
 Weights refer to all *premium* models unless specified otherwise

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