

BundGuard[®]

BundGuard[®] ORS

FilterSepta[®] Mk2



ANDEL

Protecting your assets. Protecting the environment.

NET CARBON
ZERO BY
2025



ABOUT THE BUNDGUARD®

BundGuard® is an automatic bund dewatering and alarm system.

BundGuard® is a cost-effective, self-contained and easy-to-fit automatic submersible pump and alarm unit that is installed in a sump, within a Bund and works continuously and automatically.

To comply with current UK regulations, all above-ground oil storage tanks that contain more than 200 litres of oil, must have secondary containment or a bund to contain oil leaks and spills. Most bunds are exposed to the elements, consequently are likely to collect and fill with rainwater.

BundGuard® is designed to be used with or without an on site interceptor. In either case, BundGuard® is guaranteed to pump less than 5 parts per million oil to water and if required, can be discharged directly to the environment.

If full EN858-1:2002 Certification is required and there is no underground separator on site, the **BundGuard®** can be used in conjunction with **FilterSepta® Mk2**

SELF
CONTAINED

EASY TO FIT

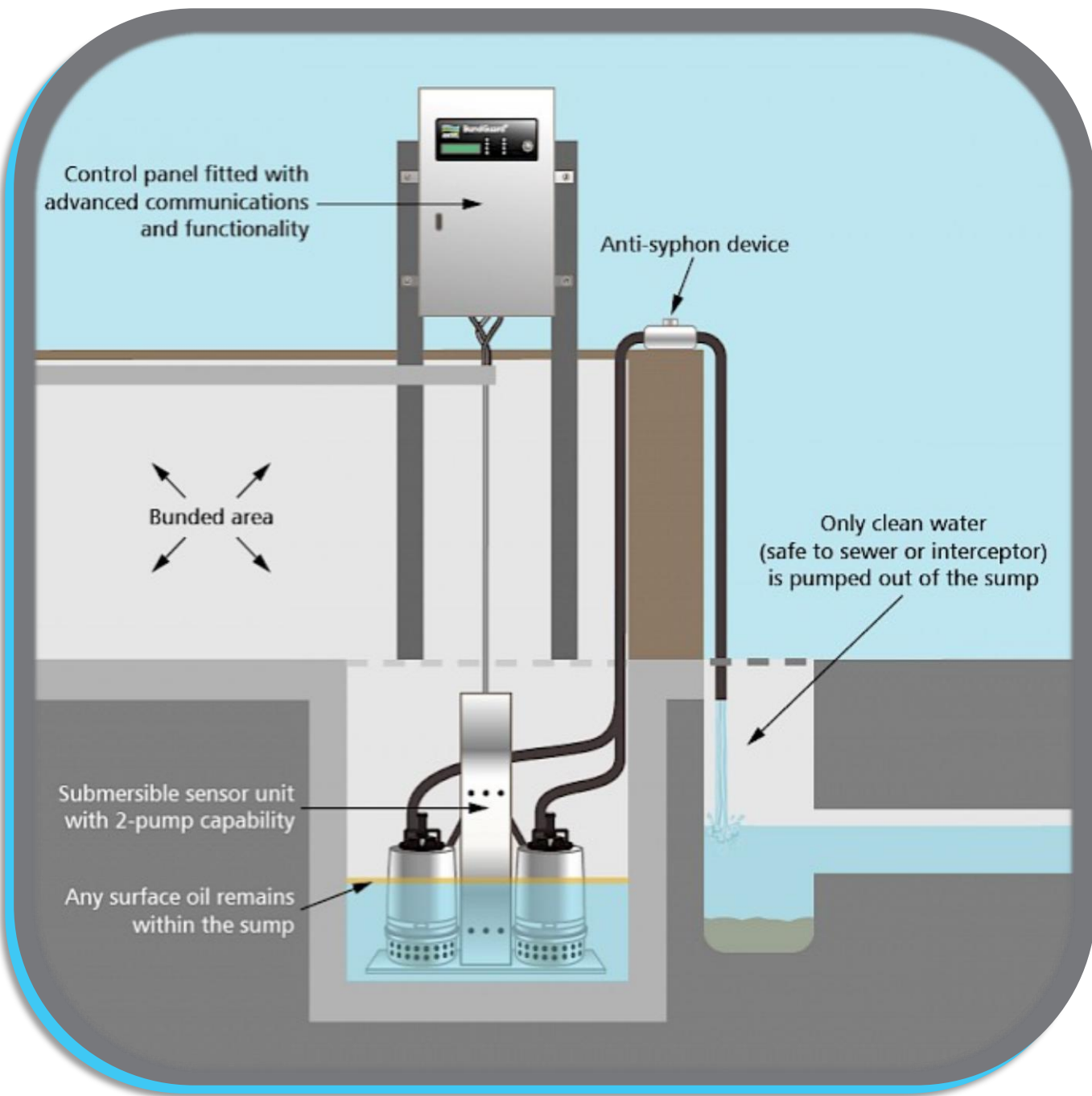
24/7
PROTECTION

BundGuard®

Over thirty thousand BundGuard® units have been installed both nationwide and overseas.

An automatic solution that has been in international use for over 25 years, that protects your site 24 hours a day, 7 days a week, 365 days a year.





BundGuard® expels water from the containment area.

Using advanced circuitry and micro-controller technology, **BundGuard®** discriminates between oil and water, keeping oil contained and expelling water from the containment or bunded area.

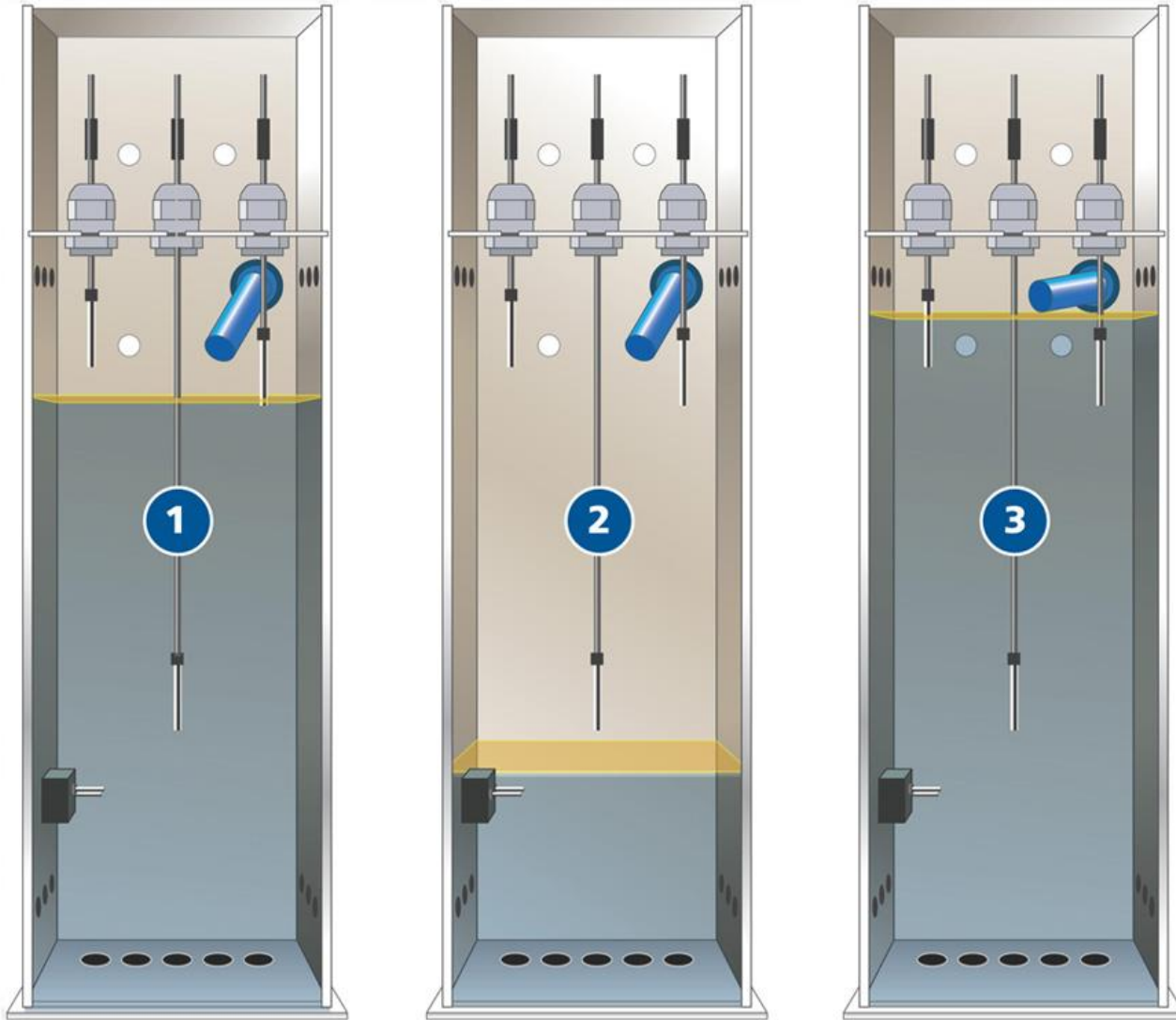
The robust, submersible stainless steel sensor unit monitors the different liquid levels via a series of conductive probes. The control unit activates the pump as required to remove only clean water, safe to sewer or interceptor, depending on site circumstances.

Failsafe systems and a range of visual and relay alarm outputs ensure complete safety and allow onward communication to remote monitoring systems.

BundGuard® not only gives total peace of mind and ensures compliance with regulations throughout the UK, it also removes the need for regular bund emptying by waste contractors, reducing costs, environmental impact and carbon footprint.

In the absence of an on-site drainage interceptor tank, and if full EN858-1:2002 Certification Discharge certification is required, then Andel recommend the **FilterSepta® Mk2** to be used in conjunction with the **BundGuard®**

HOW THE BUNDGUARD[®] WORKS



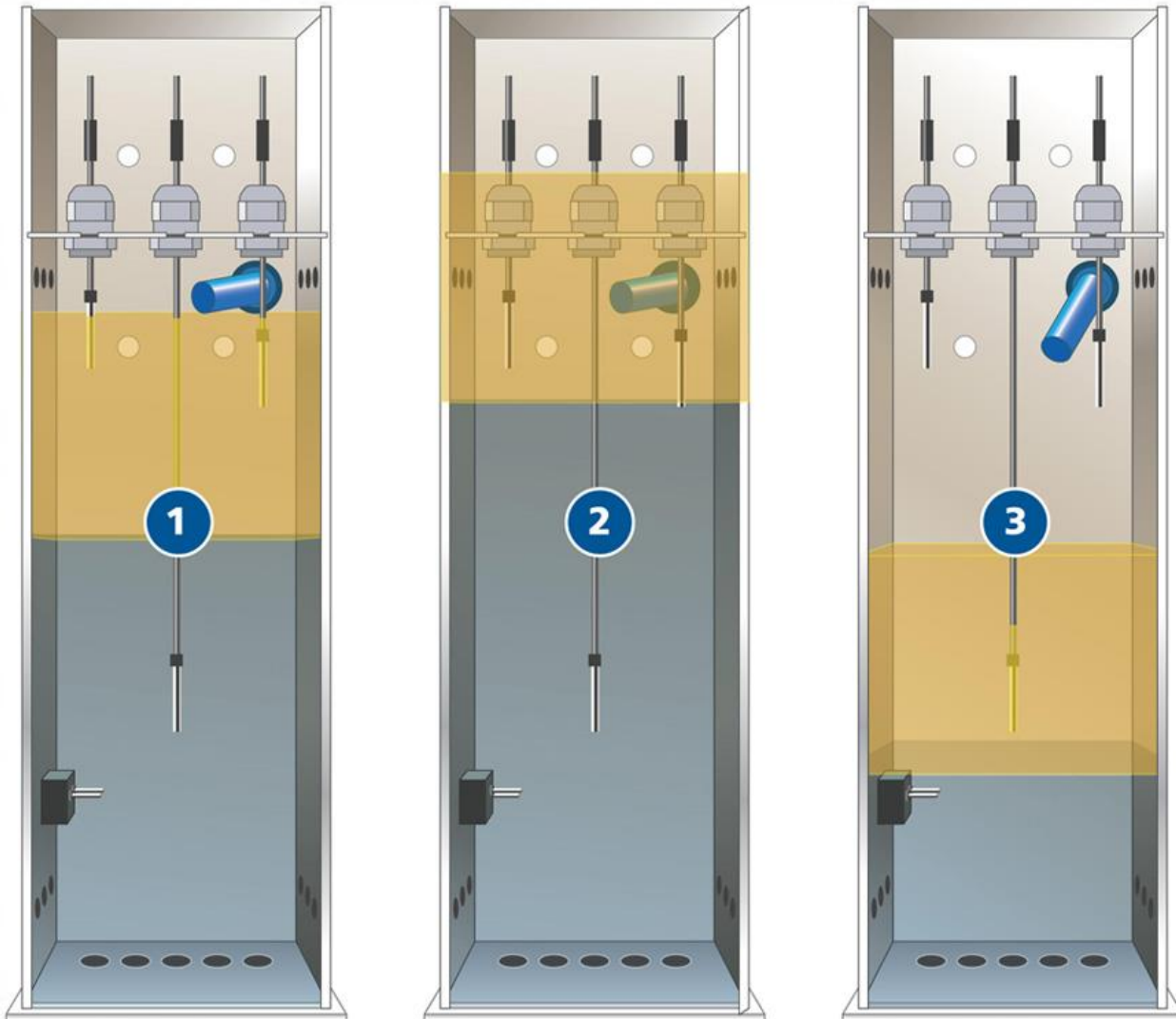
Example 1

1. Water entering the sump reaches the level of the start probe and the control panel activates the pump and the water is pumped out of the sump.

2. The water level is pumped below the stop probe and the control panel deactivates the pump. Any oil on top of the water is kept well away from the pump inlets.

3. If the water level keeps rising, likely due to an unusually high volume of water entering the sump (greater than 150 l/m), then the control panel will go into High Level Alarm and the second pump will be activated (if fitted).

HOW THE BUNDGUARD[®] WORKS



Example 2

1. With a significant volume of oil in the sump, the water entering the sump raises the level of the oil to the float switch, but because the water has not reached the start probe, the system recognises the activity and the control panel will go into High Oil Alarm.

2. The water level rises until it reaches the start probe (while still being in High Oil Alarm), the pump activates and pumps the water out of the sump.

3. When the water level drops so that the oil is no longer lifting the float switch, the control panel will no longer be in High Oil Alarm, but the activity will have been logged for future analysis. The water level is pumped below the stop probe and the control panel deactivates the pump. The significant volume of oil on top of the water is kept well away from the pump inlets.

BUNDGUARD®

TECHNICAL INFORMATION

BundGuard® 5 has the capability to operate two pumps simultaneously, as well as the option of using larger pumps where required and is equipped with advanced communications and display features.

- 2-Pump Capability
- LCD Menu Display
- High Oil Alarm
- High Water Alarm
- Mains Failure Alarm
- System Fault Alarm
- Pump Disable
- Historical Data Alarm
- Delay Customisation
- Technical Support Code
- Connector Disconnection Alarm
- Textual Alarms
- Filter Back-pressure Monitoring Support
- Outlet Water Meter Support
- Pump Current Monitoring
- Auto Changeover
- Over-current Disable
- Battery Backup
- MODBUS RTU Interface
- SMS Alarm Forwarding (optional)



BUNDGUARD®

CHOICE OF SUBMERSIBLE UNITS



XL



Standard



Compact



Mini

Andel supplies a range of sensor units. Smaller units are available for customers who have an existing sump with smaller dimensions than the standard sump size.

For example:

- An old oil tank bund that has a smaller sump for a manual pump.
- A point for a tanker to empty.
- A small bund for a small transformer where there is no space for a standard sump.
- A BundGuard® in a cable duct with limited space.

XL Sensor – 1000mm x 1000mm x 1000mm

Standard Sensor – 600mm x 600mm x 600mm

Compact Sensor – 450mm x 450mm x 450mm

Mini Sensor – 350mm x 350mm x 350mm



BUNDGUARD®

TECHNICAL INFORMATION



STAINLESS STEEL CONTROL PANEL

- Power: 110/230 Vac, 440 Watts (1 pump running), 970 Watts (2 pumps running)
- Construction: Stainless steel, IP66 rated (also available to National Grid spec in GRP enclosure)
- Dimensions: 410h x 262w x 100d mm
- Indicator LEDs
 1. Power – Green
 2. System Fault – Red
 3. Pump 1 Active – Green
 4. Pump 2 Active – Green
 5. High Oil Alarm – Red
 6. High Water Alarm – Red
 7. Pump 1 Disabled – Yellow
 8. Pump 2 Disabled – Yellow
- Display: 2 x 16 characters LCD for pump cycle counter and system status plus set-up menus when accessed
- Fixing: wall/surface mount via external fixing lug

SENSOR UNIT

- Power and Voltage: nominal
- Construction: Stainless steel, immersion proof

Dimensions:

Standard Sensor – 570h x 180w x 70d mm
Mini Sensor – 450mm x 450mm x 450mm
Micro Sensor – 350mm x 350mm x 350mm

- Fixing: Free standing in base of sump

STANDARD PUMP

- Power and Voltage: 230VAC (110VAC optional)
- Construction: Stainless steel
- Dimensions: 250h x 160w mm
- Safety: Thermal trip with self-reset
- Flow Rate: 110 litres per minute at 2-3 metre head
- Fixing: Part of the sensor unit

PLUG AND PLAY OPTION

A Plug-and-Play option is also available to simplify site maintenance where site conditions mean that a BundGuard® may require more frequent attention.

All connections between the sensor unit and the control panel are via IP68 connectors

FIXING AND CONFIGURATION

BundGuard® is supplied complete with a fixing kit, anti-syphon device and 5 metres of 18 bar flexible hose. The unit is configured in the factory prior to delivery though some on-site adjustment may be required on installation.

No further calibration is required. Maintenance should be carried out every 6 to 12 months depending on site conditions.

BUNDGUARD® SPECIAL BUILDS

Andel has a team of experts that can adapt BundGuard® to deal with a variety of site conditions and special requirements:

- Semi ATEX units – sensors and pumps for zone 0 areas and control panels fitted in non-hazardous areas
- Units linked to pH sensors
- Units linked to Ammonia Sensors
- Units linked to detect unwanted contaminants in a site's trade effluent
- Control units can be supplied in GRP enclosures to National Grid specifications
- Automatic sump frost protector systems for extreme weather conditions
- Adapted to include power coupling for portable generators

Special builds

Special-builds can be linked to sensors to detect unwanted contaminants in a site's trade effluent. Where, if high levels are detected, the system will deactivate the pump so the contaminants are contained and do not reach the drainage system.

A bespoke system, using the National Grid specification control units in GRP enclosures, was designed and built to be used in conjunction with a Glycol sensor system. If the level of Glycol rises above a predetermined level, the pump is isolated and will not discharge anything from the bund until the system is reset manually. The system alerts the site to initiate a response.



BUNDGUARD® TESTING RESULTS AND VALIDATION



The results of analysis on water samples collected during the tests on the BundGuard® 5 – Option 1 Unit are presented in Appendix 1. A summary is presented below.

PROJECT		Bundguard 5 - Option 1	
SAMPLE Ref SAMPLE TYPE DATE SAMPLED		Cycle 1 clean	Cycle 4 Oil Added
		water	water
EPH (C8-40)	ug/l	460	2560

NB 460ug/l is clean water

The results of analysis on water samples collected during the tests on the BundGuard® 5 – NGC Unit are presented in Appendix 1. A summary is presented below.

PROJECT		Bundguard 5 - NGC	
SAMPLE Ref SAMPLE TYPE DATE SAMPLED		Cycle 1 claeen	Cycle 2 Oil Added
		water	water
EPH (C8-40)	ug/l	470	470

NB 470ug/l is clean water

Conclusions

During the test both the Andel BundGuard® units operated as would be expected in site operating conditions with the pump unit being activated when the tip of the pump start probe came into contact with water as water levels rose and stopped when the tip of the pump stop probe came into contact with water as water levels dropped.

No hydrocarbon was detected in water samples collected from the water discharge following pump activation in both pumps. The very slightly elevated hydrocarbon reading with the Andel **Bundguard® 5** – Option 1 was as a result of repeated pumping with recycled water.

Tests conducted by Celtest – Independent Material Testing – Report issued April 2020

BUNDGUARD®

EC Declaration of Conformity

In accordance with EN ISO 17050-1 2



EC Declaration of Conformity
In accordance with EN ISO 17050-1 2

We of Andel Limited, New Mills, Brougham Road, Marsden, Huddersfield, HD7 6AZ

In accordance with the following directives

2006/95/EC The Low voltage Directive 2006

2004/108/EEC The Electromagnetic Compatibility Directive

Hereby declare that the under our sole responsibility that the

BundGuard Issue 5

Is in conformity with the applicable requirements of the following documents

Ref. No.	Title	Edition/date
EN 61010-1	Safety requirements for electrical equipment for measurement control and laboratory use	2010
BS EN 61000-6-2 + A1	Electromagnetic compatibility (EMC). Generic standards. Immunity for Industrial environments	2007-2011
BS EN 61000-6-3 + A1	Electromagnetic compatibility (EMC). Generic standards. Emission standard for residential, commercial and light-industrial environments	2007-2012
BS EN 61000-3-2	Electromagnetic compatibility (EMC). Limits. Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)	2014

I hereby declare that the equipment named above has been designed to comply with the relevant sections of the above referenced specifications.

The unit complies with all applicable essential requirements of the directives.

Signed

Date: 24-05-18

Dr Marshall Booth PhD BEng MIET

Technical Director



ABOUT THE BUNDGUARD® ORS

Excessive Oil Removal & Oil Discriminating System

The **BundGuard® ORS** is a combined unit hybrid system.

While it removes excessive oil within the bund, it also has the capability to simultaneously discriminate between oil and water from within a banded area.

The system consists of a control panel, with a combined DUAL pump support sensor unit – one water pump and one oil pump.

The **BundGuard® ORS** uses a backlit LCD display and LED indicators to show the system status at all times.

COMBINED
UNIT

AUTOMATIC
SYSTEM

EXCESS OIL
REMOVAL

BundGuard® ORS

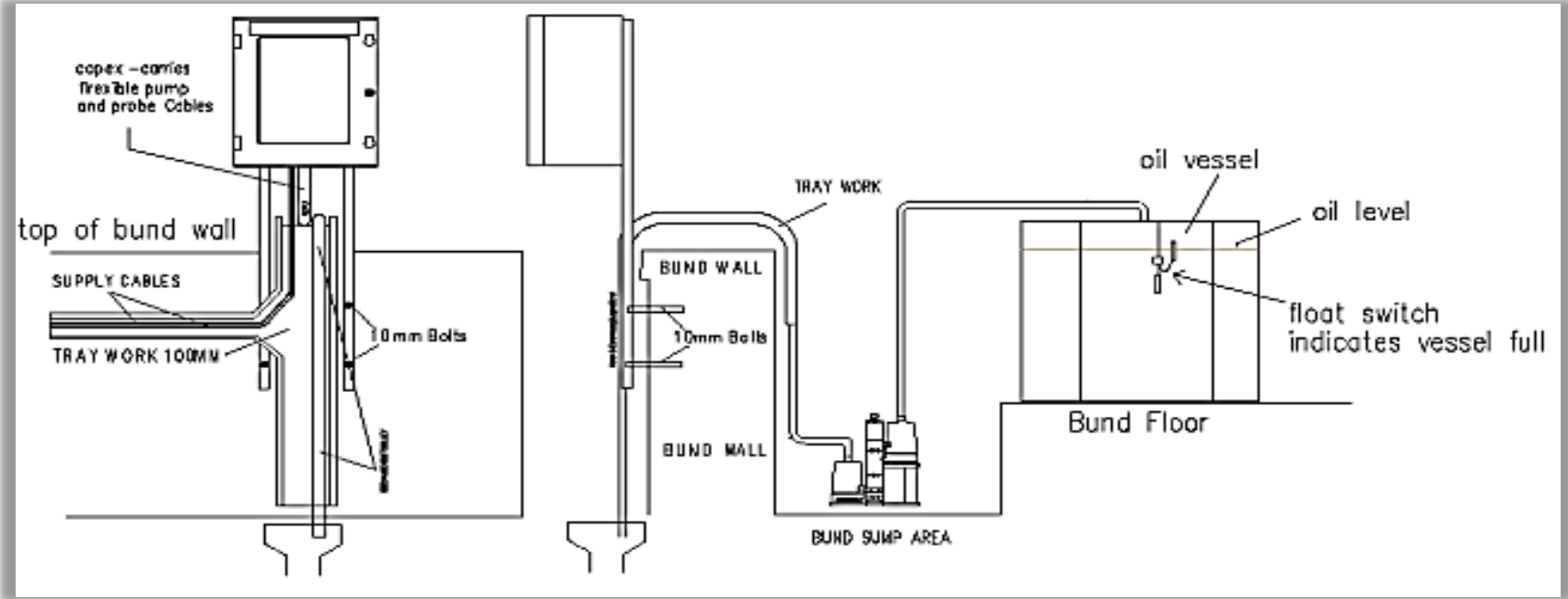
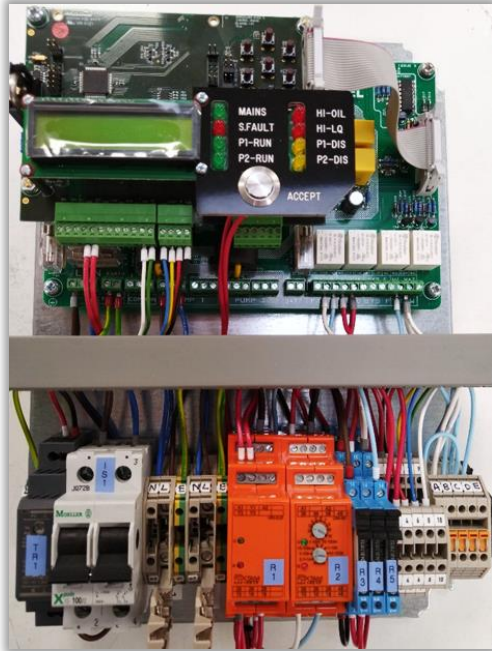
The specially designed Dual Pump Support Unit, houses two pumps mounted at different heights.

The upper pump is the oil pump.

The lower pump is the water pump.



HOW THE BUNDGUARD® ORS WORKS



- Once the pre-set water level in the bund is reached, the lower water pump activates, and the water is removed from the sump within the bund, to a level that always keeps the lower pump primed.
- The upper pump removes excessive oil that may form on the surface of the sump fluid. The oil pump activation point is 90mm of oil on top of the sump water surface.
- The pumps/sensor unit should always be mounted in a sump within the bund.
- The recommended minimum size and depth of sump for this unit is 600mm x 600mm x 600mm deep, to ensure the water or oil level within the sump is kept regulated.
- The sensor unit is connected to the control panel which controls the pump and the control panel handles ALL the indicators and alarm outputs. Alarm Relays are provided and are volt free contacts for Mains Fail, Hi-Oil, System Fault, Hi Level, Oil Vessel Full and IBC Full Alarm.

BUNDGUARD® ORS



FEATURES AND BENEFITS



This **BundGuard® ORS** has a special latching relay triggered by a dual position float switch, housed in the dual pump support unit, the COMBINATION of the upper float position, and Hi-Oil Alarm produces the signal for the upper oil pump to operate.

The maximum level of oil allowed in the sump is 90mm, the oil pump will begin to remove oil until the lower float switch is activated, at which point the oil pump will STOP.

A timer module is used to delay the Hi- Oil Alarm, to the BMS, the delay, simply allows the oil pump time to remove the excessive oil from the sump.

The timer can be set by the user - seconds, minutes, and hours with the factory default being 30 seconds.

The **Non-Return Valve** is in the neck of the **OIL** pump and it prevents excess oil returning to the sump.

The lower pump operates independently removing any excessive water from the sump, performing its normal oil discriminating duties, thus maintaining the required 110% capacity of the bund, and in both cases, will send an appropriate alarm onward.

An **external float switch** is attached to a vessel which will be receiving the excess oil from the oil pump. If the float switch activates, it will instantly disable the oil pump, and in turn the control panel sends a simultaneous alarm to a SCS/IO or BMS, or Scada.

If all of the available alarms are connected, the IBC FULL alert confirms the **Oil Capture Vessel is full**, and should be attended to at the earliest convenience.

ABOUT THE **FILTERSEPTA®** MK2

FilterSepta® works as an above-ground interceptor and filter system. It is designed for site operators concerned that their existing oil and water separating pump systems may need additional support.

An additional and highly cost-effective, secondary containment safeguard for sites where extra caution is required.

- Environmentally critical sites where there is concern about pumped water discharge through soak-away.
- Surface water drainage where there is no underground drainage interceptor or separator.

FilterSepta® is ideally partnered with the **BundGuard®**

In rigorous tests, **BundGuard®** is shown to separate oil and water extremely effectively, in fact less than 5 parts per million of oil present in pumped discharge water.

FilterSepta® eliminates the need for costly underground interceptor or separator tanks to be installed and maintained.

A cost-effective, secondary containment safeguard.

**COST
EFFECTIVE**

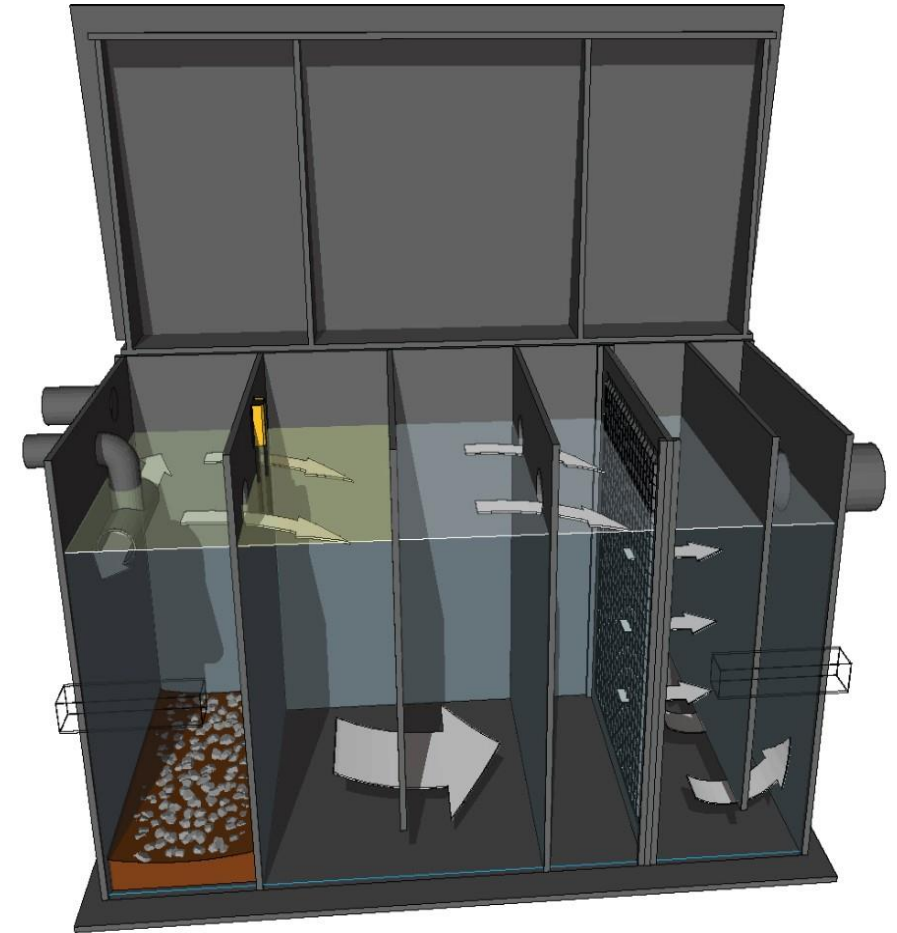
ROBUST

**LIGHT
WEIGHT**



HOW THE FILTERSEPTA® WORKS

- Water is pumped into the first chamber through a T-section preventing the bottom of the chamber being disturbed by the water flow.
- Silt and heavy solids will settle at the bottom of the chamber as the outlet to the next chamber is at a high level.
- Free oil will also separate forming a layer at the top and is allowed to flow in to the next chamber.
- The outlet to the third chamber is at a lower level, so only water that is free of oil is allowed to pass through.
- If over time there is a significant build-up of oil in the second chamber, there is an oil sensor that will shut off the BundGuard®. This in turn will alert the site of an issue, allowing simple maintenance to deal with the problem.
- Gravity balances out each chamber from the pumped water entering the first chamber, which progressively reduces the flow from one chamber to the next, giving more time for any suspended solids to fall to the bottom.
- The final stage before discharge is for the water to flow through two Coalescing Filters that serve to remove any remaining suspended solids and emulsified oils as in a Class 1 interceptor.



FILTERSEPTA®

FEATURES AND BENEFITS

Accessible silt trap chamber – easy and safe to empty, clean and maintain

Accessible coalescing filter media – both filters are easy and safe to remove, clean and maintain on site, no need for disposal or replacement

Sludge volume of 100 litres – allowing for extended maintenance breaks

If there is a significant build up of oil within the second chamber, an oil sensor will shut off the BundGuard®, which in turn will alert the site of an issue

Robust double-extrusion welded throughout for extreme durability

Manual lifting lugs positioned to allow for safe lifting below head height – crucial for High Voltage Sites

No exposed metal parts – eliminating the risk of arcing in High Voltage Sites and minimising metal corrosion

Extremely high gravity outflow of 3 litres per second (site conditions may vary)

Lightweight, robust construction from 100% recycled plastic (HDPE). No mechanical lifting equipment required for delivery and installation and well within capacity of a two-person lift.

Automatic bypass overflow returns water to the bunded area – avoiding contamination to the unit.

FILTERSEPTA®

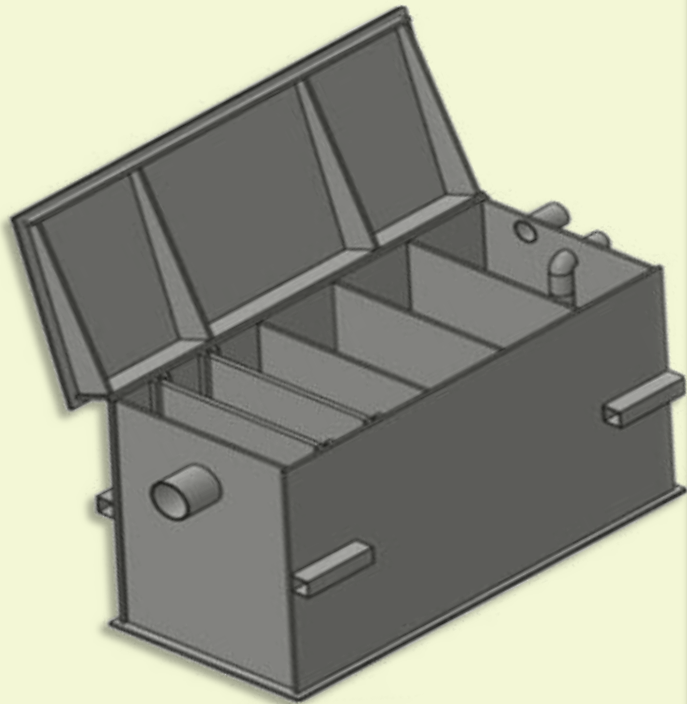
TECHNICAL INFORMATION



- Inlet: barbed hose tail to connect 1" ID hose
- Outlet: 100mm discharge pipe
- Automatic bypass overflow (water return to bunded area)
- Nominal height: 824mm
- Nominal width: 500mm
- Nominal length: 1200mm
- Total liquid retention capacity: 300 litres
- Sludge volume: 100 litres
- Maximum oil storage: 70 litres, 150mm oil layer
- Maximum chamber depth: 710mm (allows for easy cleaning and maintenance as and when required)
- Typical flow rates: around 3 litres/second (depending on site conditions)

FILTERSEPTA®

TECHNICAL INFORMATION *continued..*



MAINTENANCE

- The silt and oil levels should be regularly inspected.
- Servicing of the alarm probes.
- Check coalescing filters and clean if required.

HEALTH AND SAFETY

Personal protective equipment should be used during maintenance of the FilterSepta® unit.

Protective equipment should also be used when handling contaminated material.

PERFORMANCE

Typical flow rates are around 10 to 120 litres per minute.

Performance figures may vary and are dependent upon site conditions and specifications.



FILTERSEPTA® TESTING

FilterSepta® performs to the requirements of a **Class 1 full retention oil/water separator and relevant section EN858-1:2002** under test conditions.

FilterSepta® is ideal for both retro-fit and new installations. FilterSepta® works as an above-ground interceptor and filter system and is ideally partnered with Andel's **BundGuard®**

It removes any oil or debris, however small, still present in the pumped water which allows discharge through existing surface water drainage.

Waste water analysis - Mineral oil

Hydrocarbon total C10-C40	mg/l	4,0
Hydrocarbon fraction C10-C12	mg/l	<0,010 ”
Hydrocarbon fraction C12-C16	mg/l	0,20 ”
Hydrocarbon fraction C16-C20	mg/l	0,75 ”
Hydrocarbon fraction C20-C24	mg/l	0,84 ”
Hydrocarbon fraction C24-C28	mg/l	1,9 ”
Hydrocarbon fraction C28-C32	mg/l	0,25 ”
Hydrocarbon fraction C32-C36	mg/l	0,006 ”
Hydrocarbon fraction C36-C40	mg/l	<0,005 ”

Applied methods: Equivalent to **NEN-EN-ISO 9377-2**

Hydrocarbon fraction C10-C12 Hydrocarbon fraction C12-C16
Hydrocarbon fraction C16-C20

Hydrocarbon fraction C20-C24 Hydrocarbon fraction C24-C28
Hydrocarbon fraction C28-C32

Hydrocarbon fraction C32-C36 Hydrocarbon fraction C36-C40

Equivalent to **NEN-EN-ISO 9377-2** Hydrocarbon total C10-C40

Tests conducted by the Agrolab Group – Report issued February 2021

WORLDWIDE MARKET

Selection of users worldwide

UKPN (UK)
SSE (UK)
National Grid (UK)
NPN (UK)
Scottish Power (UK)
NIE- Northern Ireland
ESB Republic of Ireland
EDF France
Terna Italy
PGE Polska
Grupa Energetyczna S.A. (PGE)
TAURON Polska

Energia S.A. (TAURON)
ENEA S.A. (ENEA)
ENERGA S.A.
ENERGA Poland
Essent
Microsoft
Rolls Royce
RFI rail
Deuche Bahn Bus
Arriva Bus
The UK Ministry of Defence

Home Office
(Police and Prison use)
Electrabel Netherlands
TasNetworks Australia
Johnson Controls
Mitie
Snider
BAM Nuttall
Schneider
Department of Health

NG Bailey
Freedom Group
Eandis Belgium
NHS Hospitals
Sodexo
CBRE
Security Agency

Where are these products are in use?

Britain | Ireland | France | Netherlands | Poland | Italy | Spain | Israel | South Africa | Rwanda |
Norway | Sweden | Denmark | South Korea | Kuwait | Australia | Belgium | Germany | Canada | USA



ANDEL

Protecting your assets.
Protecting the environment.