

A WARNING

Read and fully understand technical manual prior to installation and operation of this machine.



VERNACARE VORTEX



Issue No: 3







Vernacare Vortex Technical Manual



Technical Manual

230 volt single phase machine



110 volt single phase machine

| Vernacare | | | | | | | |
|---|--------|---------|----------|--|--|--|--|
| MODEL NO. | Vortex | Amps/Hz | 4.4 @ 60 | | | | |
| SERIAL NO. | | PHASE | 1~ | | | | |
| DATE | | VOLTS | 110 | | | | |
| Read relevant manual prior to installation, use or repair of this machine | | | | | | | |

For Customer Service please contact: Customer Care Department Vernacare Limited Folds Road Bolton Lancashire United Kingdom BL1 2TX Telephone: +44(0)1204 555988 Fax: +44(0)1204 523595 E-mail: service@vernacare.com

| Machine number |
|--------------------|
| Installation date |
| Commissioning date |
| Machine location |

Declaration of Conformity- Vortex +

- **VERNACARE** Declare that this declaration has been issued under the sole responsibility of the manufacturer. The object of the declaration is in conformity with the relevant Union harmonisation
- **PRODUCT** Vernacare Vortex / Vortex + Macerator
- DIRECTIVE EC Directive 2014/30/EU EC Directive 2006/42/EC EC Directive 2014/35/EU EC Directive 2002/95/EC (RoHS) EC Directive 2011/65/EU (RoHS 2) EC Directive 2002/96/EC (WEEE)
- **STANDARDS** IEC EN61010 1: 2001 BS EN61010-1: 2001 BS EN 61000-6-1:2005 BS EN 61000-6-3:2007

EN ISO 12100:2010 Safety of machinery- General principles of design

Conformity is demonstrated by the affixing of the CE Mark.

LOCATION Vernacare Limited A Division of Vernagroup Limited Folds Road Bolton Lancashire

United Kingdom

BL1 2TX

DATED 11/11/2020

AUTHORISING SIGNATURE

for Steels

C.E.O of Vernacare Limited

Warranty

A. Warranty terms

- 1. The warranty is for 12 months from the date of commissioning or 18 months from the date of delivery, whichever is the shortest period.
- 2. The warranty will cover parts and labour.
- 3. The warranty will not cover customer damage or abuse.
- 4. Warranty requests should be submitted in writing, quoting the machine number, date of commissioning and the machine fault.
- 5. The warranty will not affect your statutory rights, or rights given in the company's Terms and Conditions of Sale.
- 6. Extended warranties are available. Contact Vernacare for further details.

B. Conditions of warranty

- 1. The Vortex must be installed to the instructions provided in this technical manual.
- 2. The Vortex must be commissioned by a person authorised by Vernacare, failure to do so may invalidate the warranty.
- 3. Unauthorised modifications may invalidate the warranty if not carried out by a person authorised by Vernacare.

The above warranty details should be read in conjunction with the Company Terms and Conditions of Sale, copies of which are included with your invoice, or available upon request from Vernacare:

Telephone: +44(0)1204 555988 Fax: +44(0)1204 523595

E-mail: service@vernacare.com

C. Service Contracts

To ensure continued reliability and performance, service contracts are available.

All warranty and service contract work will be carried out by Vernacare Technical Services, a division of Vernacare Limited OR in the case of an overseas installation, warranty and service contract work will be carried out by a Vernacare approved technician.

Contents

| Section 1 | Specifications | Page 06 |
|------------|--|---------|
| Section 2 | Installation / Commissioning | Page 09 |
| Section 3 | General Description | Page 16 |
| Section 4 | Outer Casing | Page 18 |
| Section 5 | Motor Assembly | Page 19 |
| Section 6 | Drain Valve Assembly | Page 20 |
| Section 7 | Lid Arm Assembly | Page 21 |
| Section 8 | Top Cover Assembly | Page 23 |
| Section 9 | Lid Interlock Assembly | Page 24 |
| Section 10 | Tub Vent Arrangement | Page 25 |
| Section 11 | Water Distribution | Page 26 |
| Section 12 | Electrical Circuit | Page 28 |
| Section 13 | Periodic Maintenance | Page 30 |
| Section 14 | Fault Finding | Page 31 |
| Appendix A | Manual Pump and Outlet pushbuttons | Page 40 |
| Appendix B | Motor Terminal Wiring | Page 41 |
| Appendix C | Motor Electrical box plug and socket connections | Page 42 |
| Appendix D | Orientation of Diodes for drain inlet and drain outlet solenoid valve coil terminals | Page 42 |
| Appendix E | Australia Watermark Certification | Page 43 |

Important Information

Failure to comply with the instructions & recommendations contained within this manual may impair the safe operation and reliability of the Vernacare Vortex.

Vernagroup Ltd, operate a policy of continuous improvement. Whilst every effort is made to ensure that the information contained within this manual is correct, we reserve the right to make technical changes.



WARNING:

Under NO circumstances should the machine be dismantled or worked upon without first fully isolating the machine from the electrical supply.

1 Specifications

1.1 Capacities and usage

The "Vernacare Vortex" macerator will dispose of a maximum of four "Vernacare" disposable products such as bedpan liners, bottles etc. together with their contents in a single cycle. Please note due to their physical size only two Vernacare wash bowls may be disposed of per cycle.

Products should be placed in the macerator one at a time and should not be stacked inside each other.

Do not stack products inside each other or attempt to dispose of more than four items in a single cycle as this will impair the effective operation of the machine and in severe cases, may cause the motor to stall. It is considered good practice to operate the machine each time a utensil is placed into the machine.

Do not place string, wipes, plastic or metal items inside the machine as these may damage components.

Note: Maceratable wipes that comply with AS/NZS 5328:2022 can be disposed of in the Vortex macerator.

1.2 Dimensions

The dimensions of the "Vernacare Vortex" are shown on page 9 (Figure 1)

1.3 Handling

The weight of the "Vernacare Vortex" complete with pallet and packaging is 83 kg (machine only 72 kg). The "Vernacare Vortex" should be moved to the point of installation by fork, pallet or sack truck whilst still attached to the pallet provided.

1.4 Electrical specification

The machine is supplied with a 3-meter length of 1.5mm flex, which shall be connected to either:

230 Volt Machine – 16 Amp MCB to BS EN60898 Type C or alternatively fused 16 Amp to BS EN60269-1. An appropriate I.E.C Approved 16 Amp isolator shall be installed in both cases.

110 Volt Machine – 16 Amp MCB to BS EN60898 Type C or alternatively fused 16 Amp to BS EN60269-1. An appropriate I.E.C Approved 16 Amp isolator shall be installed in both cases.

Where supplementary protection is provided by an RCD/RCBO, this should be rated at 100mA.

Note: The machine *should not* be switched off at the mains supply in mid-cycle except in case of emergency, as this will impair the effective operation of the machine and may cause damage to the components.

1.4.1 Motor

1.1 KW; 3 Phase; 220-240v 50Hz/ 380-420v 50Hz; IP55; D90 frame size. Rating at peak load 4.57 amps (nominal).

1.4.2 Invertor

AC invertor with either 110v or 230v supply voltage, 230v motor output and utilising current monitoring.

1.4.3 Pump

0.27 kW; 24vdc; 50 cycles. 40 l/min at 5 lbs/in². Protected by a 5 amp fuse.

1.5 Water requirements

Inlet supply: Cold water **ONLY** with flow rate of 18 l/min (4 gals/min) nominal. Nominal overall usage; 25 litres (+/- 10%) per cycle.

1.6 Drainage

A 2 inch/ 50mm P Trap compression fitting to be connected either directly, or via a swept bend, to a standard 2in/50mm drain pipe with a 1 in 25 or suitable fall into a soil drain.

A 1 1/4 inch/32mm tank connector is supplied, which should be used to connect the water tank warning pipe to a separate drain line, according to the relevant water regulations.

A standard warning pipe installation kit is available. Contact Vernacare Customer Care Department for details.

Figure 1 – Dimensions of the Vernacare Vortex



2 Installation / Commissioning

Installation

Note: Installation of this equipment should only be carried out by a suitable qualified person.

WRAS finds that the use of these products, when correctly installed as per

installation requirement notes below, will not contravene the requirements of The Water Supply (Water Fittings) Regulations 1999, The Water Supply (Water Fittings) (Scotland) Byelaws 2014, The Water Supply (Water Fittings) Regulations (Northern Ireland) 2009.



WARNING:

Under NO circumstances should the machine be dismantled or worked upon without first fully isolating the machine from the electrical supply.

2.1 Siting and fixing

The "Vernacare Vortex" macerator should be positioned adjacent to the following:

- a) A suitable power supply point.*
- b) An adequate water supply line.
- c) A suitable drainage connection.

Important- To ensure that the backflow prevention device in this appliance can operate correctly by allowing water to discharge freely from the weir, overflow or spillover positioned flush with the casing of the appliance. A permanent spacer **must be provided** to ensure the appliance cannot be installed tightly against any surface (e.g. wall or other appliance) in a way which interferes with the free discharge of water.

Check the floor area is firm and level. The unit **must be bolted down** using the holes provided. Mark out the bolt positions on the floor and fit bolts utilizing the dimensions given in Figure 1.

Ensure that adequate space is maintained at each side of the Macerator to allow for access. Vernacare recommend a gap of 6" - 8" (150 - 200mm) per side and 4" - 5" (100 - 125mm) away from the wall at the back.

Important- To comply with **UK WRAS regulations** sufficient clearance must be provided to allow water to freely discharge from the water tank overflow weir.

Check that the unit is level in both directions.

230 Volt Machine – 16 Amp MCB to BS EN60898 Type C or alternatively fused 13 Amp to I.E.C 60269-4. An appropriate I.E.C Approved 16 Amp isolator shall be installed in both cases.

110 Volt Machine - 16 Amp MCB to BS EN60898 Type C or alternatively fused 13 Amp

to I.E.C 60269-4. An appropriate I.E.C Approved 16 Amp isolator shall be installed in both cases.

Where supplementary protection is provided by an RCD/RCBO, this should be rated at 100mA.

For all installations, an I.E.E. approved disconnection device must be fitted to the final installation. This device shall be positioned in close proximity to the Vortex and within easy reach of the operator & shall also be clearly marked as being the disconnecting device for the machine.

For installations where the height of the existing drain causes difficulty a plinth is available which may be utilised in order to raise the height of the Vortex so that better alignment is achieved.

Please contact Vernacare for further information.

2.2 Plumbing

2.2.1 Water supply

The machine should be connected to a suitable cold water supply as follows:-

The connection to the machine water tank is made at the upper rear left or right hand side corner of the machine. It is a standard connection to a 1/2 inch BSP floattype cistern valve. This can be made in rigid or flexible piping, according to customer preference. Flow rate should be 18 litres per minute (4 gallons/minute) minimum, into the water tank, which holds sufficient water for a complete cycle.

An 'Approved' double check valve or some other no less effective device providing backflow prevention protection to at least fluid category three shall be fitted at the point of connection between the water supply and the Vortex. A servicing valve shall be installed on the supply to the fitting in a readily accessible location.

Note: The inlet flow valve is supplied already fitted with a flow restrictor in place. The restrictor should be left in place on tank fed installations with heads above 50ft or mains fed installations with pressures above 1.5 bar (25psi). In all other circumstances the flow restrictor is not required.

Points to watch:

Ensure that the supply line to the unit is at no point less than 15mm - larger if available head is low.

Ensure that the water supply cannot be starved by any other fittings.

Fit an easily accessible, full way isolating valve close to the unit.

For installations with dirty water supplies it is recommended that an in-line filter is fitted.

2.2.2 Drain connection

The "Vernacare Vortex" is fitted with a 2 inch/50mm 'P' Trap. In order to connect to the drain, it is necessary to cut a minimal clearance hole in the plastic drain access cover located at the rear of the machine below the water tank. It is important to ensure that the drain access cover is fitted so as to prevent access to internal electrical components.

The drain is secured by tightening the compression fitting on the 'P' Trap onto the inserted plastic pipe. The free area below the water tank allows for the fitting of a swept bend if required.

Points to watch Part 1:

Ensure that the route taken to soil drain is the shortest, with minimum number of bends.

If necessary, use long radius or 'swept' bends - never short or 90' elbows.

The waste must be run separately to the soil stack or drain.

Ensure that there is a fall of a minimum of 1 in 25 or a sufficient fall to maintain a self-cleansing velocity.

Provide easy access for Roding.

Points to watch Part 2:

Ensure a clean run inside the pipework - leave no burrs or reducing shoulders.

With plastic pipework, ensure that there is no reduction in the bore size and that there is adequate support for horizontal runs to prevent sagging. Remember, ceiling voids can get very warm.

Avoid running the drain line near or across hot water pipes.

Anti-syphon precautions should be in line with general practice.

2.2.3 Overflow - Warning Pipe

The Vortex Is supplied with a 32mm (1 ¹/₄") tank connector which should be installed using one of the predrilled holes in either the Left Hand side or Right Hand side of the water tank. It is Important that any discharge from the warning pipe is visible.

A standard warning pipe installation kit is available. Contact Vernacare Customer Care Department for details.

2.3 Electrical

2.3.1 Single-phase electrical system (230v, 1 Ph, 50 HZ) (110v, 1 ph, 60 HZ)

The machine is supplied with a 3 metre length of 1.5mm flex to BS6500 which shall be connected to:

• 230 Volt Machine – 16 Amp MCB to BS EN60898 Type C or fused 16 Amp to IEC 60269.

• 110 Volt Machine - 16 Amp MCB to BS EN60898 Type C or fused 16 Amp to IEC 60269.

Notes:

1. All electrical installation to comply with current I.E.E. regulations.

2. Mains supplies to be protected by:

1 Phase 230v 16 Amp approved I.E.C. fuse.

1 Phase 110v...... 16 Amp approved I.E.C. fuse.

3. For all installations, an I.E.E. approved disconnection device **must** be fitted to the final installation. This device shall be positioned in close proximity to the Vortex and within easy reach of the operator & shall also be clearly marked as being the disconnecting device for the machine.

2.3.2 Back-up generator tests / mains electrical supply surges.

Damage to internal electrical components of the Vortex macerator can occur as a result of voltage surges / spikes occurring In the electrical supply to the machine. The likelihood of such damage occurring is increased when frequent testing of back-up electrical supplies are carried out.

To prevent such damage, Vernacare recommends that transient voltage suppressors (in accordance with IEC class 3 surge protection) be installed in the electrical supply to the machine.

2.4 Environment

Indoor use only. Altitudes up to 2000m. Temperatures 5°C to 40°C.

Maximum relative humidity 80% for temperatures up to 31'C, decreasing linearly to 50% relative humidity at 40°C.

Mains supply voltage fluctuations not to exceed +/- 10% of nominal voltage.

2.5 Commissioning

After installation, to ensure warranty validity the machine should be commissioned by a Vernacare technician OR in the case of an overseas installation, by a Vernacare approved technician. The machine should not be run until after this check has been done.

Important

The machine MUST be bolted down before use. The machine should be run once - empty - to prime the pipework, diaphragm valve, deodoriser feed etc.

Note: For warranty, service or repair please quote the machine serial number which can be found clearly marked upon the rating plate which is positioned on the RH side, bottom front of the machine.

2.6 Warning labels and icons – explanations



Please refer to the technical manual prior to installation, maintenance or operation of this equipment.



Symbol indicates presence of 230v 50hz/ 415v 3phase 50hz electrical supply.



Start Cycle – Press this button to start the machine. An auto-start option is also available. Contact Vernacare for more information.

| 2.7 Display screen | icons and warning messages – explanations |
|--------------------|---|
| RUNNING | The machine has been started and is running through its cycle. |
| END | The machine has finished the cycle and is ready to open. |
| BLOCKED BLADES | The motor invertor has defaulted to overload due to a blockage of the machine cutter blades. |
| BLOCKED DRAIN | The pressure transducer has sensed an over pressure in the chamber due to a blockage of the drain outlet. |
| LOW WATER | There is insufficient water in the water supply tank. |
| POWER FAIL | There has been an interruption to the mains power supply/cycle. |



The motor is running and the cutter blades are rotating.







The outlet diaphragm is open.



The outlet diaphragm is closed.



The water tank reservoir level is low.





The lid is open.



The lid is closed.

BLOCKED DRAIN The drain is blocked.



The foot sensor has been operated.

(For details of the fault finding guide see section 14 page 29).

2.7.1 Cycle Counter

At the end of each cycle the LCD screen will briefly display the TOTAL cycle count for the machine and also the SERVICE count which is the number of cycles since the machine was last serviced.

The TOTAL cycle display counts every machine cycle and is not resettable (unless the machine is reprogramed).

The SERVICE count is reset by the engineer when the machine is serviced. The service count will also trigger a "Service" message on the LCD display once 20,000 cycles have been completed since the last service visit.

3 General Description

3.1 General description

The "Vernacare Vortex" macerator is designed to operate within a 2-minute cycle using 25 litres +/-10% of water. The machine can dispose of up to four 'Vernacare" disposable pulp products, at one time.

The products are placed within the hopper; the lid is closed and secured by the handle catch. The lid is closed against a moulded silicone section which gives an effective seal whilst maintaining an abrasion resistant face.

When the lid catch is fully closed, the lid proximity sensor is made via a magnet and the lid interlock is energised locking the lid. In the event of the solenoid failing, or the lid-lock being physically disengaged, the interlock switch will stop the cycle.

The cycle is initiated by, momentarily, depressing the start switch, at which point the machine will give an 'audible sound' and the cycle will commence. An auto-start option is also available. Contact Vernacare for more information.

The display screen will then indicate the machine is 'Running' and the icons at the bottom of the screen will show the status of operation. (See section 2.7)

In the event of low water level, blocked blades or power failure, the fault will be clearly displayed upon the display screen and the cycle stopped. The Vortex will remain in this condition until the fault is cleared.

When the fault has been rectified, the start switch is to be held on for approximately 5 seconds until there is an 'audible sound'. This clears the display and resets the cycle to its last state prior to the fault. The cycle will then continue.

The 2-minute cycle is controlled by a pre-programmed microchip, which controls the operation and timing of the water pump, the cutter motor and the inlet, outlet and deodoriser solenoid valves.

Shortly after commencement of the cycle, the water pump starts to take water from the reservoir tank and pumps it to the following areas:

a) **The lid spray**, which provides a curtain of water, which washes over the lid and tub sides and provides the bulk of the 'tub fill' water.

b) **The mechanical seal flush**, which flushes and cools the outer faces of the mechanical seal and helps prevent ingress of dirt and fibres into the mechanical seal cavity.

c) **The diaphragm drain valve**, where water is fed through the non-return and inlet solenoid valve to the back of the diaphragm drain valve, the water outlet is shut off by the normally closed outlet solenoid valve, and the developing pressure expands the diaphragm drain valve to form a seal.

The combined water from a, b and c above builds up inside the tub whilst the pump runs for a pre-set time period to put 12 litres (+/- 10%) of water into the tub.

When the outlet valve has closed and the volume of water is building up in the tub, the displaced air is vented away through the drain by the vent valve and non-return valve arrangement, i.e. the non-return valve prevents the egress of air from within the tub into the atmosphere.

With the pump switched off, the diaphragm valve stays sealed as the water behind it is held by the non-return valve and solenoid valve.

During the period when the pump is running, the cutter motor starts up via the invertor unit, and breaks up the products by a combined mechanical and hydraulic action into small particles which can be easily flushed down the drain.

If the cutter motor is initially stalled by bottles blocking the blades, the invertor will reverse the blades and attempt to cut through the blockage again. This will be attempted three times before a 'Blocked Blade' fault is displayed. At which point the lid is to be opened and the blockage removed.

Approximately three-quarters of the way through the cycle the pump restarts to give a dilution flush of an additional 12 litres (+/- 10%) to the tub and its contents.

At the same time the inlet solenoid valve closes thus preventing additional pumped water from reaching the drain diaphragm, as the inlet solenoid valve is closed and the outlet solenoid valve opens which allows the pressurised water behind the drain diaphragm valve to dissipate. This allows the drain diaphragm to open and the contents of the tub to run to the drain.

During this period, the motor will initiate for a few brief seconds. This will dissipate any pulp particles from the blades and allow them to be washed to the drain.

Also at this point the deodoriser valve is opened and a small quantity of deodoriser is dispensed from the storage reservoir into the chamber removing any odours that may be present. In the event of the deodoriser reservoir being empty, the cycle will continue but the icon on the display will indicate the tank is empty and requires re-filling.

Vernacare recommend the use of Vernacare macerator deodoriser (902DL1000, 902DL2000, 902SD1000, 902SD2000).

The water pump then stops, the outlet solenoid valve closes a second later and then the overall cycle program ends. The display will indicate `End`.

The Vortex will remain in this condition with the lid locked until the foot sensor is operated. When the infra red beam is broken by the insertion of the operator's foot into the foot well at the bottom front of the machine, the interlock pin is withdrawn from the lid catch and the lid springs to the open position.

Vortex Normal Cycle Sequence

| | Start Cycle | Step 1 (2s) | Step 2 (17s) | Step 3 (46s) | Step 4 (94s) | Step 5 (103s) | Step 6 (104s) | Step 7 (105s) | Step 8 (114s) | Step 9 (120s) | Cycle End |
|----------------------|-------------|-------------|--------------|--------------|--------------|---------------|---------------|---------------|---------------|---------------|-----------|
| Pump | | | ON | OFF | ON | ON | ON | ON | ON | | |
| Motor forward | | OFF | ON | ON | ON | ON | ON | OFF | ON | OFF | |
| Motor speed 1 (55Hz) | | OFF | ON | ON | O FF | () () | 0++ | (OFF | OFF | (OFF | |
| Motor Speed 2 (66Hz) | | OFF | OFF | OFF | ON | ON | ON | OFF | ON | 077 | |
| Deoderisor valve | | OFF | OFF | OFF | OFF | ON | OFF | OFF | OFF | OFF | |
| Inlet solenoid | | | ON | OFF | OFF | OFF | OFF | 077 | OFF | OFF | |
| Outlet solenoid | | OFF | (OFF | 077 | ON | ON | | ON | ON | ON | |

4 Outer Casing



| KIT | REF | PART DESCRIPTION | KIT NUMBER | ITEM NUMBER* |
|-----|-----|------------------------|------------|--------------|
| 1 | | Front Cover Kit | 9207014 | |
| | 1.1 | Front Cover | | 9200531 |
| | 1.2 | Foot Sensor Housing | | 9200531 |
| | 1.3 | M6 x 20 Panel Screw x2 | | 9750023 |
| 2 | 2 | RH Side Panel | | 9200532 |
| 3 | 3 | LH Side Panel | | 9200533 |
| 4 | | Deodoriser Cap Kit | 9207013 | |
| | 4.1 | Deodoriser Tank Cap | | 9200206 |
| | 4.2 | Filler Cap 'O' ring | | 9200209 |
| 5 | 5 | Start Switch Keypad | | 9200534 |
| 6 | 6 | Display Screen | | 9200819 |

5 Motor Assembly

Figure 3 - Cutter Motor Assembly



| KIT | REF | PART DESCRIPTION | KIT NUMBER | ITEM NUMBER* |
|-----|-------|--|-----------------------|--------------|
| 1 | | Vortex Motor Kit | 9207004 | |
| | 1.1 | Electric Motor 230V/400V 3PH 50Hz | | 9200424 |
| | 1.2 | Motor Gasket | | 9752027 |
| | 1.3 | Barbed Fitting | | 9750100 |
| | 1.4 | Vortex Motor Cable | | 9200693 |
| | 1.5 | Cutter Motor Adaptor (x1) | | 9200402 |
| | 1.6 | Mechanical Seal (x1) | | 9753005 |
| 2 | | Vortex Mechanical Seal Kit | 9207006 | |
| | (1.6) | Mechanical Seal | | 9753005 |
| | 2.2 | V Seal | | 9753000 |
| | 2.3 | M8 x 50 H.H.S.S | | 9750006 |
| 3 | | Vortex Blade Kit | 9207015 | |
| | 3.1 | Top Cutter Blade | | 9200418 |
| | 3.2 | Bottom Cutter Blade | | 9200417 |
| | 3.3 | Cutting Blade Locking Plate (Tab Washer) | | 9753011 |
| | 3.4 | M8 x 20 Hex HD Screw x2 | | 9750077 |
| | 3.5 | M8 x 50 Hex HD Screw x1 | | 9750006 |
| | 3.6 | M8 x 35 Button HD Screw x2 | | 9750075 |
| | 3.7 | Fibre Gasket | (also in kit 9207004) | 9753010 |
| | 3.8 | D8 Spring Washer | | 9750033 |
| 4 | 4 | Cutter Motor Assembly Kit | 9207005 | |

6 Drain Valve Assembly

Figure 4 - Diaphragm Valve and Ancillary components



| KIT | REF | PART DESCRIPTION | KIT NUMBER | ITEM NUMBER |
|-----|-----|-----------------------------------|------------|-------------|
| 1 | | Diaphragm and Spring Kit | 9207012 | |
| | 1.1 | Diaphragm | | 9200304 |
| | 1.2 | Diaphragm Spring | | 9200333 |
| | 1.3 | Retaining Pin | | 9750085 |
| 2 | | Diaphragm Fastening Kit | 9207016 | |
| | 2.1 | Grub Screw x8 | | 9200326 |
| | 2.2 | Three Lobed Nut x 8 | | 9200327 |
| 3 | 3 | Water Inlet/Outlet Solenoid Value | | 9200724 |
| 4 | 4 | Non Return Value | | 9200726 |
| 5 | 5 | Diaphragm Chassis | | 9200328 |
| 6 | 6 | Plumbing Elbow | | 9200729 |

7 Lid Arm Assembly



| KIT | REF | PART DESCRIPTION | KIT NUMBER | ITEM NUMBER* |
|-----|------|------------------------|------------|--------------|
| 1 | | Lid Arm Assembly Kit | 9207001 | |
| | 1.1 | Lid Arm Bottom | | 9200100 |
| | 1.2 | Lid Arm Top | | 9200101 |
| | 1.3 | Lid | | 9200103 |
| | 1.4 | Lever Handle | | 9200106 |
| | 1.5 | Extension Rail | | 9200932 |
| | 1.6 | Arm Seal | | 9200853 |
| | 1.7 | Lid to Arm Seal | | 9200109 |
| | 1.8 | Slide Bearing x2 | | 9200110 |
| | 1.9 | Lever Shaft | | 9200111 |
| | 1.10 | Hinge Bush x2 | | 9200146 |
| | 1.11 | Press Lok Insert | | 9200115 |
| | 1.12 | Lid Spray Washer | | 9200117 |
| | 1.13 | Self-Tapping Screw x12 | | 9200120 |
| | 1.14 | Lid Spacer x4 | | 9200122 |
| | 1.15 | Compression Spring | | 9200121 |
| | 1.16 | M5 Nyloc Nut x4 | | 9750012 |
| | 1.17 | Arm Inlet Pipe | | 9200161 |
| | 1.18 | D8 Spring Washer | | 9750033 |
| | 1.19 | D5 Plain Washer x4 | | 9750011 |
| | 1.20 | Lid Arm Label | | 9200160 |
| | 1.21 | Arm Hinge Shaft x2 | | 9200113 |
| | 1.22 | Damper | | 9200126 |
| | 1.23 | Arm Spring | | 9200125 |
| | 1.24 | Hinge Block x2 | | 9200114 |
| 2 | | Vortex Latch Kit | 9207011 | |
| | 2.1 | Magnet | | 9200119 |
| | 2.2 | Latch | | 9200157 |
| | 2.3 | Locking Block Screw x2 | | 9200120 |

8 Top Cover Assembly

Figure 6 – Top Cover Assembly



| KIT | REF | PART DESCRIPTION | KIT NUMBER | ITEM NUMBER* |
|-----|-----|------------------------|--------------------|--------------|
| 1 | | Top Cover Assembly Kit | 9207002 | |
| | 1.1 | Top Cover | | 9200158 |
| | 1.2 | Lid Seal | | 9200159 |
| | 1.3 | Lid Seal Clip | | 9200152 |
| | 1.4 | Start Switch Keypad | | 9200534 |
| | 1.5 | Display Screen | Not Include in kit | 9200819 |
| | 1.6 | Display Membrane | | 9200535 |
| 2 | | Deodoriser Cap Kit | 9207013 | |
| | 2.1 | Deodoriser Tank Cap | | 9200206 |
| | 2.2 | Filler Cap 'O' ring | | 9200209 |
| 3 | 3 | Lever Hook | 9200933 | |

9 Lid Interlock Assembly





| KIT | REF | PART DESCRIPTION | KIT NUMBER | ITEM NUMBER* |
|-----|-----|---------------------------------|------------|--------------|
| 1 | | Interlock Interface Cable Kit | 9207018 | |
| | 1.1 | Interlock Actuator (with cable) | | |
| 2 | | Interlock Assembly Kit | 9207017 | |
| | 2.1 | Spring Pin | | 9200689 |
| | 2.2 | Interlock Pin/Pin Shaft | | 9200687 |
| | 2.3 | Interlock Guide Bush | | 9200635 |
| | 2.4 | Guide Bush 'C' Clip | | 9200626 |
| 3 | | Vortex Latch Kit | 9207011 | |
| | 3.1 | Latch | | 9200157 |
| | 3.2 | Magnet | | 9200119 |
| | 3.3 | Locking Block Screw x2 | | 9200120 |

10 Tub Vent Arrangement

Figure 8 – Vent Assembly



| KIT | REF | PART DESCRIPTION | KIT NUMBER | ITEM NUMBER* |
|-----|-----|-------------------------------|------------|--------------|
| 1 | | Vent Connector Kit | 9207007 | |
| | 1.1 | Non Return Valve | | 9757030 |
| | 1.2 | Vent Connector | | 9200334 |
| | 1.3 | 'O' Ring | | 9752018 |
| | 1.4 | Vent Deflector | | 9200325 |
| | 1.5 | M4 x8 LG Slotted Pan Screw x2 | | 9750064 |
| | 1.6 | M4 Nylon Washer x2 | | 9752022 |
| 2 | 2 | 16mm PVC Tubing | 9200721 | |

Detail of Vent Connection

Situated at the front top right hand side of the hopper is a vent connector (2) which allows the foul air which is displaced whilst water is filling the hopper, to be vented into the drain.

The vent connector is fitted with a non - return valve (1) (push fit into connector with the arrow on its body pointing into the connector). This valve prevents air from being expelled to atmosphere during water filling but allows air to be drawn into the hopper during the drain cycle when a vacuum would otherwise be created.

The connector is secured to the hopper via two M4 screws (5) and two nylon washers (4), to prevent leakage an O-ring (3) is used to seal the connector to the hopper and is located in a groove on the inner face of the connector.

11 Water Distribution

Figure 9 – Water Distribution



| КІТ | REF | PART DESCRIPTION | KIT NUMBER | ITEM NUMBER* |
|-----|-----|--------------------------------------|------------|--------------|
| 1 | 1 | Water Tank Assembly Kit | 9207010 | |
| | N/A | End Caps (x2) | | 9757047 |
| | N/A | Blank Plug | | 9757034 |
| | N/A | Low Water Sensor (x1) | | 9200202 |
| | N/A | Hydroflo Side Entry Float Valve | | 9200204 |
| | N/A | Water Tank | | 9200846 |
| | N/A | No. 6 x ½ Pozi s/s Screw Button Head | | 9200212 |
| | N/A | Float Valve Bracket | | 9200211 |
| | N/A | M4 Plain Washer s/s | | 9200540 |
| 2 | 2 | Deodoriser Tank Kit | 9207009 | |
| | N/A | Tank Level Switch | | 9200208 |
| | N/A | Deodoriser Tank | | 9200207 |
| | N/A | Red Male Bullet (x2) | | 9200663 |
| 3 | 3 | 2" P Trap Kit | 9207008 | |
| | N/A | Hose Clips 60mm | | 9757035 |
| | N/A | Drain Connector | | 9757001 |
| | N/A | 2" P Trap | | 9757002 |
| 4 | 4 | Water Pump | 9200529 | |
| 5 | 5 | Anti Syphon Valve | 9200875 | |
| 6 | 6 | Pump Inlet Assembly | 9200728 | |
| 7 | 7 | Deodoriser Solenoid Valve | 9200725 | |
| 8 | 8 | Water Inlet/Outlet Solenoid | 9200724 | |

12 Electrical Circuit

Figure 10 - Electrical Circuit



12 Electrical Circuit

| REF | PART DESCRIPTION | ITEM NUMBER |
|-----|-------------------------------------|-------------|
| 1 | РСВ | 9200820 |
| 2 | Water Pump | 9200529 |
| 3 | Power Supply Unit 230V (UK) | 9200920 |
| 4 | Display Screen | 9200819 |
| 5 | Low Water Sensor | 9200202 |
| 6 | Tank Level Switch (Deodoriser) | 9200208 |
| 7 | Foot Sensor | 9200681 |
| 8 | Start Switch Keypad | 9200534 |
| 9 | Lid Sensor | 9200691 |
| 10 | Power Supply Unit 110v (Outside UK) | 9200921 |
| 11 | Auto Start Jumper Plug | 9200646 |

| PART DESCRIPTION | KIT NUMBER |
|---|------------|
| Interlock Interface Cable Kit | 9207018 |
| Solenoid Diode Kit | 9207019 |
| Water & Disinfectant Cable Kit | 9207020 |
| PCB Power Cable Kit | 9207022 |
| Water Pump Cable Kit | 9207023 |
| Sheathed Data Cable (to be used with 9200920 & 9200921) | 9207029 |
| Installation Kit | 9207025 |

13 Periodic Maintenance

A Suggested periodic planned maintenance

- 1 Remove all panels (clean as required, see cleaning instructions below).
- 2 Clean the lid seal & check for wear or damage.
- 3 Check that the lid arm lock operates effectively via the foot operation.
- 4 Check the blade for damage and free rotation.
- 5 Check the condition and correct positioning of the V- seal on cutter adapter (ensure lip is in constant contact with hopper bottom). Vortex must be electrically isolated whilst carrying out this operation.
- 6 Operate the machine when pump stops (after approx. 30 sec) **isolate the machine** from power, open lid and check for correct water level in hopper (observe for approx. 5-10 seconds). Correct water level is level with the top of the hopper base +/- 12 mm.
- 7 Check the condition of the diaphragm valve, its seating and operation.
- 8 Check the non-return valve's operation, clean if required. (only if the water level is low within the hopper).
- 9 Check the solenoid valve's operation, clean if required. (only if the water level is low in the hopper).

10 Check all plumbing, pipe work and connections for leaks.

- 11 Check that the solenoid valve filters are clean.
- 12 Check for water at the seal flush pipe during the cycle and that the pipe is not blocked.
- 13 Check the operation of the tub vent assembly and small non-return valve.
- 14 Check the drain and overflow connections for leaks.
- 15 Check the operation of the water inlet float valve.
- 16 Check the operation of the deodoriser level switch.
- 17 Check the operation of the water-level switch (clean if required).
- 18 Remove and clean the external in-line filter (if fitted).
- 19 Check the drain pressure sensing unit operates correctly.
- 20 Check that the foot sensors are working correctly and operating the lid.
- 21 Check the lid catch block for wear.
- 22 Check the connections to all electrical components.
- 23 Replace all panels.
- 24 Check the deodoriser tank level. Fill if necessary with Vernacare macerator deodoriser part number 203MD005
- 25 Run a full load to test cycle with the maximum amount of product.

B Cleaning Instructions

Wipe down external surfaces using Tuffie 5 wipes, Tuffie detergent wipes or detergent and water as required. Internal components can be kept clean by running a **daily** cleansing cycle (without product).

14 Fault Finding

Vernacare Vortex Fault Finding

In the event of a fault developing on the machine, causing ineffective operation or inability to operate, the appropriate works department or our service engineering department **Vernacare Technical Services**, should be notified to attend the machine.

| Index of Faults | | Page |
|-----------------|--|-------|
| Fault 1 | Machine will not start | 30/31 |
| Fault 2 | Motor does not function | 32 |
| Fault 3 | Water pump does not function | 32 |
| Fault 4 | Unable to close the lid | 33 |
| Fault 5 | Unable to open the lid | 33 |
| Fault 6 | Water leaking internally | 34 |
| Fault 7 | Lid seal leaking/ bubbling | 34 |
| Fault 8 | Hopper does not empty | 35 |
| Fault 9 | Product stock has large particle size | 35 |
| Fault 10 | Machine is not clean after use internally | 35 |
| Fault 11 | Deodoriser is not working | 37 |
| Fault 12 | Display screen not working | 37 |
| Appendix A | Manual Pump and Outlet pushbutton | 37 |
| Appendix B | Motor Terminal Wiring | 38 |
| Appendix C | Motor Electrical box plug and socket connections | 39 |
| Appendix D | Orientation of Diodes for drain inlet and drain outlet solenoid valve coil terminals | 39 |



WARNING:

Under NO circumstances should the machine be dismantled or worked upon without first fully isolating the machine from the electrical supply.

The following chart will give assistance in identifying the possible cause of a fault and the recommended action to be taken.



Fault 1 Continued









Fault 8



Fault 9







Appendix A

Engineer's manual pump and outlet pushbuttons

Sited on the face of the PCB within the main electrical panel are two manual push buttons. The first button is the drain outlet valve manual opening. The second button is the pump manual run. The button locations are shown to the right of the Vortex PCB Image below.

In the event of the machine being in failure mode during the cycle, often the tub will be still full of water and or product due to the drain outlet being closed. Operating the manual outlet pushbutton will open the drain outlet diaphragm and allow the contents to empty into the main drain. Additionally the water pump can be run manually to help with the drainage.

If the water tank is full during a cycle when in fault condition, the tank can be drained to allow work to be carried out on the water system. Firstly the water tank has to be isolated from the water supply to stop the water tank from re filling. The manual `pump` pushbutton can then be pressed, this will pump out any water from the tank and out in to the main drain.

Maintenance can then be carried out on the pipe system with only a minimum of water being left.

Do not run the pump dry, as this will result in damage to the pump seals.



Appendix B

Diagram for Motor Terminal Wiring

Motor wired in Delta for 220 volt input from the invertor unit.

Voltage amps check for Vortex Macerator.

Note: Readings are for a product load of four bottles.

| | CURRENT RANGE | | | |
|---------|---------------|------------------|-----------------|----------|
| VOLTAGE | PHASE | NOM RUNNING LOAD | MAX LOAD | MAX PEAK |
| 110 | 1 | 2.5 to 4.8 amp | 6.1 to 12.7 amp | 44 amp |
| 200 | 1 | 2.9 to 3.5 amp | 6.3 to 8.8 amp | 39 amp |
| 220 | 1 | 2.8 to 3.2 amp | 5.3 to 9.1 amp | 41 amp |
| 230 | 1 | 2.4 to 3.1 amp | 5.2 to 8.1 amp | 44 amp |
| 250 | 1 | 2.8 to 3.7 amp | 5.3 to 7.9 amp | 44 amp |

Appendix C

Diagram for motor electrical box plug and socket connections

Appendix D

Orientation of Diodes for drain inlet and drain outlet solenoid valve coil terminals

SAI Global hereby grants:

Ebos Group Pty Ltd

ABN 38 125 401 247

Unit 2A, 109 Vanessa Street, Kingsgrove, NSW 2208, Australia

Watermark Certificate of Conformity

Evaluated to:

WMTS 104:2018 - Appliances (miscellaneous)

"the WaterMark Licensee" the right to use or arrange the use of the WATERMARK as shown below only in respect of the goods described and detailed on the product schedule identified on www.saiglobal.com which are produced by the WaterMark Licensee or on behalf of the WaterMark Licensee* and which comply with the appropriate Standard referred to above as from time to time amended. The Licence is granted subject to the rules governing the use of the WATERMARK and the Terms and Conditions for certification. The WaterMark Licensee covenants to comply with all the Rules and Terms and Conditions.

This Certificate is issued by a JAS-ANZ accredited certification body. The Scheme Owner, Administering Body and Accreditation Body do not in any way warrant, guarantee or represent that the product the subject of this Certificate conforms to the WaterMark Certification Scheme Rules, nor accepts any liability arising out of the use of the product. The Scheme Owner disclaims to the extent permitted by law, all liability (including negligence) for claims of losses, expenses, damages and costs arising as a result of the use of the product(s) referred to in this Certificate.

Certificate No:WMKA25524

Issued: 17 July 2020 Expires: 31 March 2024

deatherlie

Heather Mahon Head of Global Technical Services SAI Global Assurance

Originally Certified: 22 June 2012 Current Certification: 15 July 2020

* For details of manufacture, refer to the licensee

The WaterMark is a registered certification trademark of Australian Building Codes Board ABN 74 599 608 295 and is issued under licence by SAI Global Certification Services Pty Limited (ACN 108 718 669) ("SAI Global") 680 George Street, Sydney NSW 2000, GPO Box 5420 Sydney NSW 2001. This certificate may only be reproduced in its entirety and remains the property of SAI Global and must be returned to SAI Global upon its request. Refer to www.saiglobal.com for the list of product models.

SCHEDULE TO CERTIFICATE OF CONFORMITY

SAI Global hereby grants:

Ebos Group Pty Ltd Unit 2A, 109 Vanessa Street, Kingsgrove, NSW 2208, Australia

Watermark Certificate of Conformity

Evaluated to: WMTS 104:2018 - Appliances (miscellaneous)

Model identification of the goods on which the WATERMARK may be used:

| Model Identification | Model Name | Brand Name | Product Description | Date Endorsed |
|----------------------|-------------------|------------|---------------------|---------------|
| Compact | Vemacare Compact | Vernacare | Macerator | 15 Jul 2020 |
| Compact Plus | Vernacare Compact | Vernacare | Macerator | 15 Jul 2020 |
| Vortex | Vernacare Vortex | Vernacare | Macerator | 29 Mar 2019 |
| Vortex + | Vernacare Vortex | Vernacare | Macerator | 24 Mar 2020 |

End of Record

The latest version of this manual can be found at www.vernacare.com

Certificate No: WMKA25524

Issued Date: 17 July 2020

schedule sunersedes all nreviously issued schedule

