

VERDERFLEX[®]

Peristaltic Cased Tube Pump

Original Operating Manual

Vantage 5000

Version 1.5v-10/2020

Print-No. 01



VERDER
passion for pumps

Version 1.5v-10/2020
Print-No. 01

Vantage 5000



The information in this document is essential for the safe operation and servicing of Verderflex[®] Vantage 5000 family of pumps. This document must be read and understood thoroughly prior to installation of unit, electrical connection and commissioning.

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1 About this Document

The Verderflex Vantage 5000 range of peristaltic pumps have been developed according to the latest technology and subject to continuous quality control. These operating instructions are intended to facilitate familiarisation with the pump and its designed use. This manual will act as a guide for operating the pump. You are advised to follow these guidelines to operate the pump correctly. These operating instructions do not take local regulations into account; the operator must ensure that such regulations are strictly observed by all, including the personnel responsible for installation.

1.1 Target Groups

Target Groups	Duty
Operating Company	<ul style="list-style-type: none"> ▶ Keep this manual available at the operating site of the pump. ▶ Ensure that personnel read and follow the instructions in this manual and any other applicable documents, especially all safety instructions and warnings. ▶ Observe any additional rules and regulations referring to the system.
Qualified personnel, fitter	<ul style="list-style-type: none"> ▶ Read, observe and follow this manual and the other applicable documents, especially all safety instructions and warnings.

Table 1 Target Groups

1.2 Warnings and Symbols Used in the Manual




Warning	Risk Level	Consequences of disregard
 DANGER	Immediate risk	Death, serious bodily harm
 WARNING	Potential acute risk	Death, serious bodily harm
 CAUTION	Potential hazardous situation	Potential damage to the pump
Note	For information	Possible incorrect use / maintenance of pump

Table 2 Warnings Used in the Manual



Symbol	Meaning
	Safety warning sign in accordance with DIN 4844 - W9 <ul style="list-style-type: none"> ▶ Take note of all information highlighted by the safety warning sign and follow the instructions to avoid injury or death.
▶	Instruction
1., 2.,	Multiple-step instructions
✓	Precondition
→	Cross-reference
	Information

Table 3 Symbols Used in the Manual

1.3 Warnings and Symbols Used on the Pump









Warnings and Symbols	Meaning
	Safety Warning
	Warning of Dangerous Electrical Voltage
	Protective Earth (Ground)
	Pinch Point/Entanglement Hazard
 	Waste Electronic and Electrical Equipment (WEEE)
	USB 2.0

Table 4 Warning and Symbols Used on the Pump

2 Safety

 The manufacturer does not accept any liability for damage resulting from disregard of this documentation.


2.1 Intended Use

- ▶ Only use the pump to handle fluids compatible with the fitted tube (→ *Appendix A*)
- ▶ Adhere to the operating limits
- ▶ Consult the manufacturer regarding any other use of the pump.

Prevention of misuse (examples)

- ▶ Note the operating limits of the pump with regard to temperature, pressure, flow rate and motor speed (→ *Appendix A*)
- ▶ Do not operate the pump with any inlet/outlet valves closed
- ▶ Only install the pump as recommended in this manual. For example, the following are not allowed:
 - Running the pump with tube that is not compatible with the fitted rotor
 - Insert any items into contact with moving parts
 - Installation in the immediate vicinity of extreme hot or cold sources (→ *Appendix A*)
 - Running pump in explosive atmosphere

2.2 General Safety Instructions

 Observe the following instructions before carrying out any work.

2.2.1 Product Safety

- These operating instructions contain fundamental information which must be complied with during installation, operation and maintenance. Therefore this operating manual must be read and understood both by the installing personnel and the responsible trained personnel / operators prior to installation and commissioning, and it must always be kept easily accessible within the operating premises of the machine.
Not only must the general safety instructions laid down in this chapter on “Safety” be complied with, but also the safety instructions outlined under specific headings.
- Operate the pump only if it and all associated systems are in good functional condition.
- Only use the pump as intended, be fully aware of safety and risk factors involved and the instructions in this manual.
- Keep this manual and all other applicable documents complete, legible and accessible to personnel at all times.
- Refrain from any procedure or action that would pose a risk to personnel or third parties.
- In the event of any safety-relevant faults, shut down the pump immediately and have the malfunction corrected by qualified personnel.
- The installation of the pump must comply with the requirements of installation given in this manual and any local, national or regional health and safety regulations.

2.2.2 Obligation of the Operating Company

Safety-conscious operation

- Ensure that the following safety aspects are observed and monitored:
 - Adherence to intended use
 - Statutory or other safety and accident-prevention regulations
 - Safety regulations governing the handling of hazardous substances if applicable
 - Applicable standards and guidelines in the country where the pump is operated
- Make personal protective equipment available pertinent to operation of the pump.

Qualified personnel

- Ensure that all personnel tasked with work on the pump have read and understood this manual and all other applicable documents, including the safety, maintenance and repair information, prior to use or installation of the pump.
- Organize responsibilities, areas of competence and the supervision of personnel.
- Have all work carried out by specialist technicians only.
- Ensure that trainee personnel are under the supervision of specialist technicians at all times when working with the pump.

Warranty

The warranty is void if the customer fails to follow any Instruction, Warning or Caution in this document. Verder has made every effort to illustrate and describe the product in this document. Such illustrations and descriptions are however, for the sole purpose of identification and do not express or imply a warranty that the products are merchantable or fit for a particular purpose, or that the products will necessarily conform to the illustration or descriptions.

Obtain the manufacturer's approval prior to carrying out any modifications, repairs or alterations during the warranty period. Only use genuine parts or parts that have been approved by the manufacturer.

For further details regarding warranty, refer to terms and conditions.

2.3 Specific Hazards


2.3.1 Hazardous Pumped Liquids

Follow the statutory safety regulations when handling hazardous pumped liquids (e.g. hot, flammable, poisonous or potentially harmful).

Use appropriate Personal Protective Equipment when carrying out any work on the pump.

3 Transport, Storage and Disposal

3.1 Transport

 Always transport the pump in a horizontal position and ensure that the pump is securely packed in the box.

3.1.1 Unpacking and Inspection on Delivery

1. Report any transport damage to the manufacturer/distributor immediately.
2. Retain the packing if any further transport is required.

3.1.2 Lifting

 **CAUTION**

Pump damage caused by lifting

- ▶ Do not lift the pump by the Screen Module or the Pump Head as shown in the following illustration.

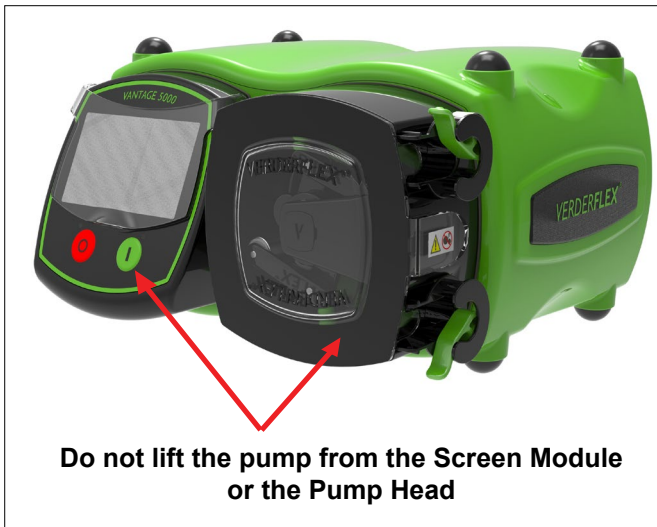


Figure 1 Lifting the pump

3.2 Storage Conditions

Make sure the storage location meets the following conditions:

- Dry, humidity not to exceed 80%, non-condensing
- Out of direct sunlight
- Frost-free; temperature range -40° to +70°C
- Vibration-free
- Dust-free

Tubing should be stored as supplied in their wrapper and should be stored away from direct sunlight and at room temperature.

3.3 Interim Storage After Using the Pump

- ▶ The tube should be removed from the pump.
- ▶ The pumphead should be washed out, allowed to dry and any external build up of product removed.

3.4 Interim Storage Before Using the Pump

 **CAUTION**

Pump damage caused by interim storage

- ▶ Allow the pump to reach ambient temperature before use.
 - ▶ Please observe the storage recommendations and use-by dates which apply to tubing you may wish to bring into service after storage.
-

3.5 Disposal


With prolonged use, pump parts can be contaminated by hazardous pumped liquids to such an extent that cleaning may be insufficient.

 **WARNING**

Risk of poisoning and environmental damage by the pumped liquid

- ▶ Use suitable personal protective equipment when carrying out any work on the pump.
 - ▶ Prior to disposal of the pump:
 - Collect and dispose of any leaking pumped liquid in accordance with local regulations.
 - Neutralize residues of pumped liquid in the pump.
 - ▶ Dispose of the pump and associated parts in accordance with local regulations.
-

4 Layout and Function

 The medium to be pumped does not come into contact with any moving parts and is totally contained within the tube. A roller passes along the length of the tube, compressing it. This motion forces the contents of the tube directly in front of the roller to move forward along the length of the tube in a 'positive displacement' peristaltic movement. In the wake of the roller's compressing action, the natural elasticity of the tube material causes the tube to recover and regain its round profile. This creates suction pressure which refills the tube.

4.1 Design Details of Vantage 5000

i The Verderflex Vantage 5000 range of tube pumps, provide a balanced selection of simple to operate peristaltic pumps. The range offers the customer pump choices that are simple by design, with touchscreen interface and 4000:1 turndown ratio with the stepper drive.

4.2 Vantage 5000 - an overview

- A. SCREEN PROTECTOR
 - Gently pull up the screen protector to touch the screen.
 - Gently push the screen protector down after selecting the functions.
- B. SCREEN MODULE
 - Presents information to the user about the status of the pump.
 - Accepts and implements the operators control instructions using the touchscreen.
 - Use a suitable stylus or finger to select the functions. (→ 6 User Interface - overview)
- C. STOP BUTTON
 - Stops the pump.
 - RED LED illuminated when the pump is stopped
 - FLASHING RED indicates an alarm or fault mode.
- D. START BUTTON
 - Starts the pump or press and hold to prime the pump with maximum 100% flow rate.
 - GREEN LED illuminated when the pump is running.
 - FLASHING GREEN LED indicates the pump is paused.
- E. PUMP DOOR
 - Must be closed for the pump to run.
 - When opened during the operation, the pump will stop and the red led will flash.
- F. CONTINUOUS TUBE CLAMP
 - Clamps the loose tube in place or locate the tube assembly on fixed element pumps.
- G. CONTINUOUS TUBE



Figure 2 Key Parts of the Pump

4.2 Vantage 5000 - an overview (continued)

H. BREATHER POINT (do not cover)


I. ON/OFF SWITCH

- Turns the pump ON or OFF.

J. EARTH POINT (M4)

K. NAME PLATE

- Part Number
- Model of Pump
- Serial Number

 When requesting spares, the part number and serial number should always be quoted.

L. POWER CABLE

M. M12 COMMS CONNECTOR (where fitted)

- For digital RS485 and MODBUS® communications.

N. 25WAY REMOTE I/O CONNECTOR (where fitted)

- Connection for footswitches, 0-10V DC & 4-20 mA remote controls.
- Provides connection for opto isolated BREAKOUT BOX modules.

O. USB 2.0 SOCKET CONNECTOR

- Pump can be backed up to USB memory.
- Pump programs can be loaded.
- Pump firmware can be updated.

P. WiFi Antenna

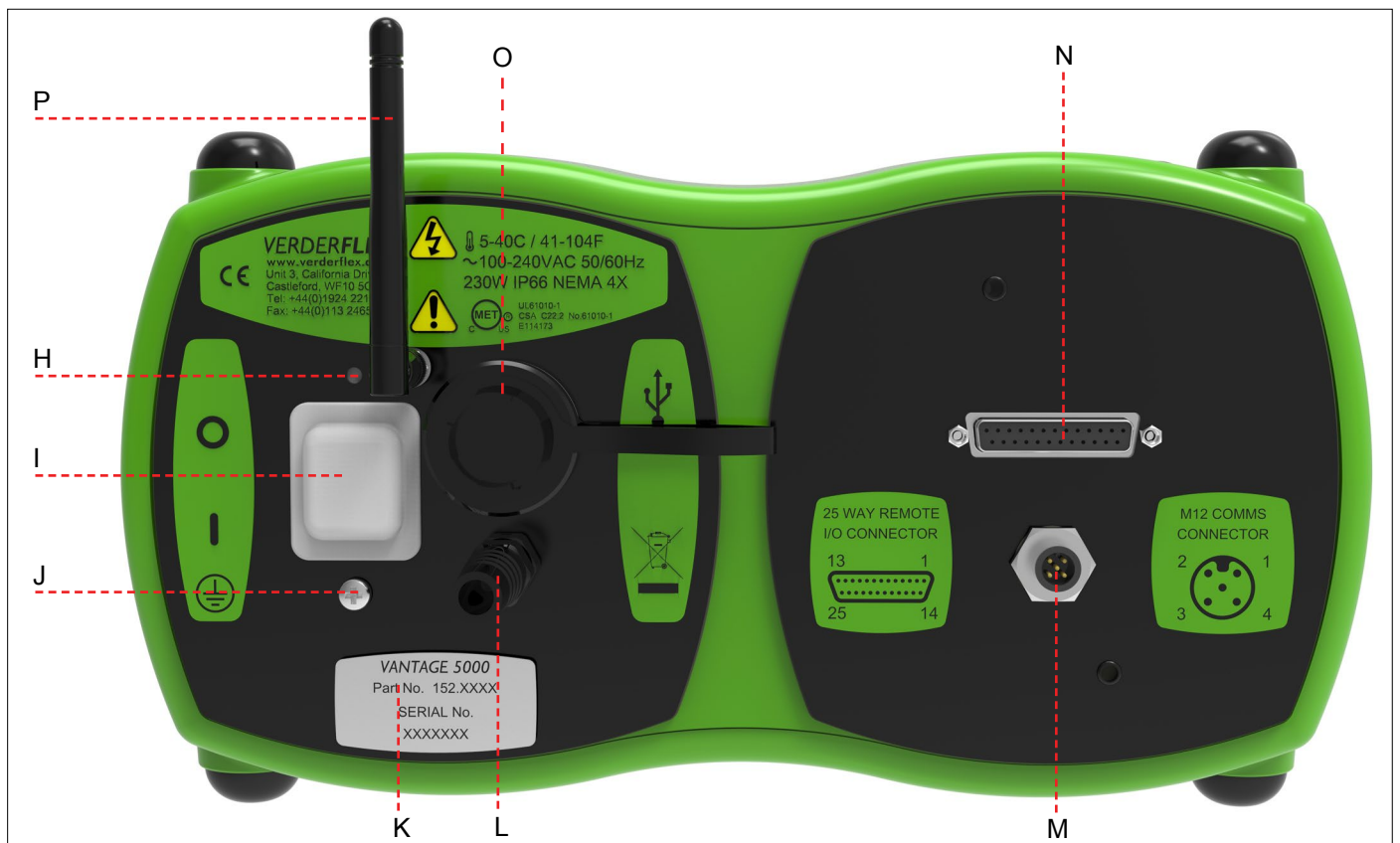


Figure 3 Back of the Pump

4.3 Layout

4.3.1 Vantage 5000 Exploded View - Continuous Tube

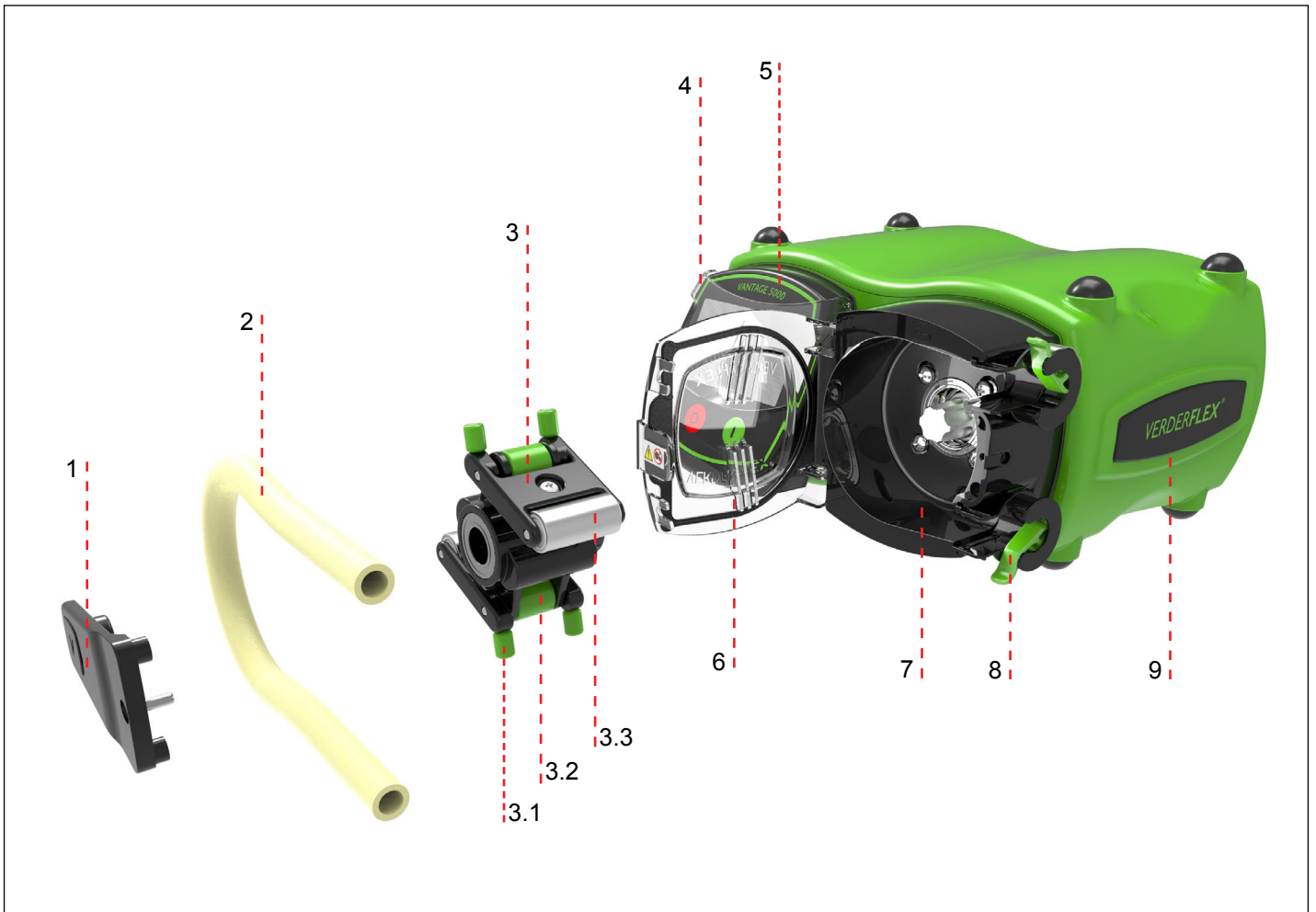


Figure 4 Vantage 5000 Exploded View - Continuous Tube

1	Bearing Strut	3.2	Horizontal Guide Rollers	6	Pump Door
2	Continuous Tube	3.3	Main Rollers	7	Pump Head
3	Rotor Assembly	4	Screen Protector	8	Tube Clamp
3.1	Vertical Guide Rollers	5	Screen Module	9	Pump Body

4.3.2 Vantage 5000 Exploded View - Tube Element

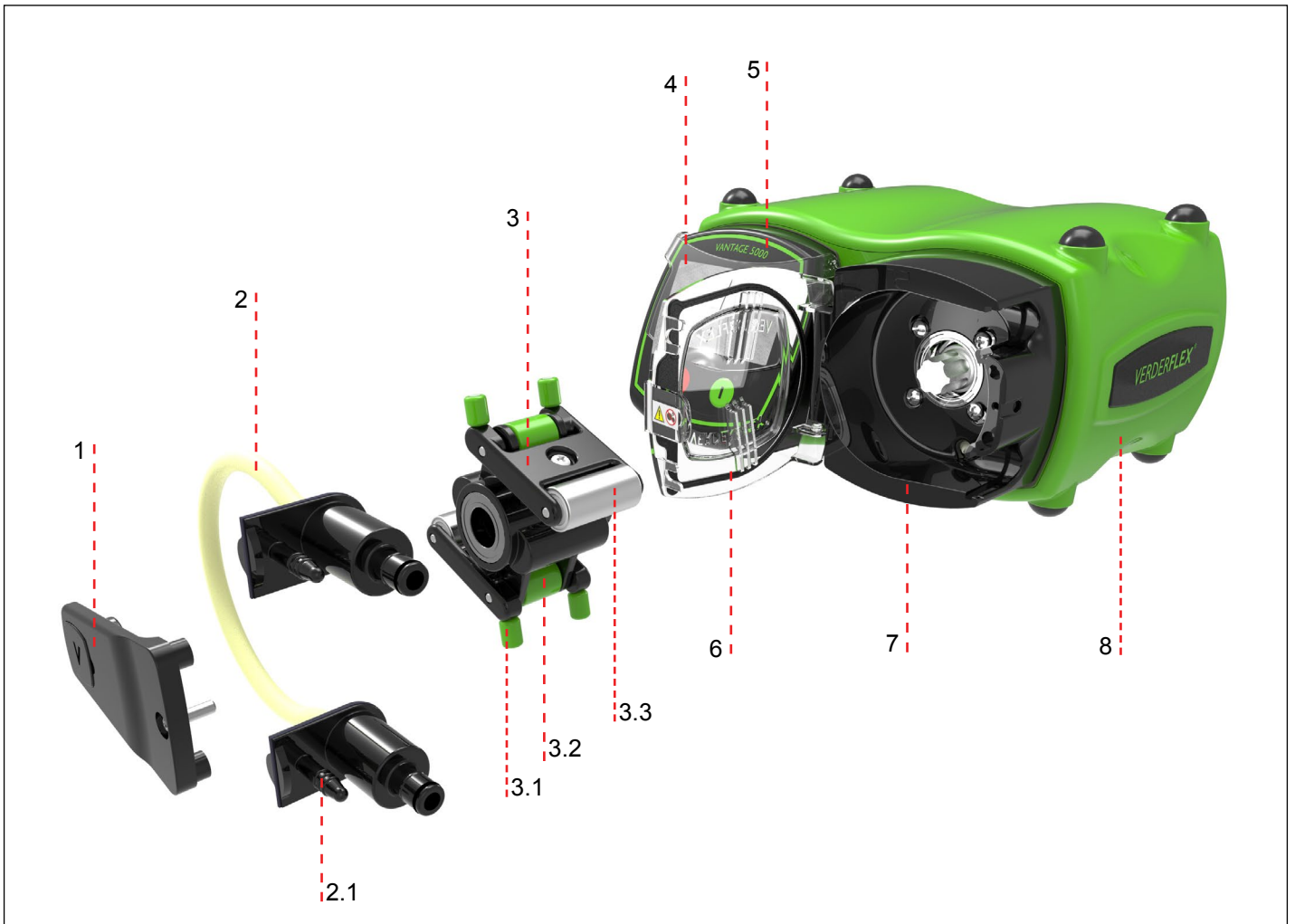


Figure 5 Vantage 5000 Exploded View - Tube Element

1	Bearing Strut	3.1	Vertical Guide Rollers	5	Screen Module
2	Tube Element	3.2	Horizontal Guide Rollers	6	Pump Door
2.1	Drain Port	3.3	Main Rollers	7	Pump Head
3	Rotor Assembly	4	Screen Protector	8	Pump Body

Note

The tube element is supplied with the drain port as shown in Figure 5.

In case of an accidental tube burst, the upper most drain port can be cut and may be used to provide flushing / neutralizing solution. The lower drain port can be used to drain this flushing liquid out from the pump.

If the customer wishes to use this feature, then the tip of the top and bottom drain port should be removed.

Cut 1-2 mm off with the tip to open the port and connect suitable tubing to a banded area.

5 Installation and Connection

CAUTION

Material damage due to unauthorized modification on pump

- ▶ Unauthorized modification will invalidate the warranty.

Note

- ▶ A non-return valve must be installed between the pump and the discharge pipework to prevent sudden release of fluid into the pump head in the event of tube failure.

5.1 Electrical Installation

CAUTION

Failure to follow safe and proper electrical installation practices may result in pump malfunction or dangerous operation

- ▶ Make sure the pump is installed correctly.
- ▶ The pump is supplied with a pre-fitted mains lead which is not a user-replaceable part.
- ▶ The mains lead may have a fuse fitted (country dependant)
- ▶ The fuse should be replaced with an identical fuse in the event of the fuse blowing.
- ▶ The pump is protected by a mechanical overload switch built into the power switch.

5.1.1 Checking the Ambient Conditions

1. Make sure that the operating conditions are as per pump specifications (→ *Appendix A*).
2. Make sure the required ambient conditions are within limits (→ *Appendix A*).

5.1.2 Connecting to a Power Supply

DANGER

Isolate power supply from the pump before performing the installation.

1. The pump must be installed by a qualified individual if it is to be permanently wired in place.
2. The pump must not be used if there is visible damage to the mains cable or plug.
3. The pump must be positioned so that the disconnect device is easily accessible.
4. The pump cable must be free from strain and the pump weight must not be supported by the mains cable.
5. All cabling used to connect to the pump must be 0.75mm² Cross Sectional Area (CSA) minimum.

Wire colours are shown in the following table:

Conductor Name	European Colouring	American Colouring
Live	Brown	Black
Neutral	Blue	White
Earth (Ground)	Green/Yellow	Green

Table 5 Conductor colour coding

Note

We advise customers to consider using a commercial surge suppression system for installations where there is a risk of excessive electrical noise.

5.1.3 Protective Earthing/Grounding

CAUTION

Failure to earth the pump correctly can result in hazardous voltages being present on the pump body

- ▶ The pump is designed to be permanently earthed and **MUST** be connected as such.
- ▶ By default, the earth connection is made through the earth pin on the mains lead.
- ▶ If the mains lead is of a “bare end” type, the earth cable (denoted by a Green/Yellow marking) must be wired to the earth.
- ▶ If an Earth/Ground is unavailable from the mains plug, there is an earthing stud provided on the back of the pump (→ *Figure 3*) and this should be used in place of the earth from the mains plug.

Note

Make sure a ground loop is not created through using both a cable earth and the earthing stud.

If in any doubt, please contact a qualified electrician.

5.1.4 Electrical Isolation

1. The mains plug is the disconnection point for the pump and is used for isolation from the mains.
2. The mains plug should therefore be readily accessible in order to use as a disconnection point.
3. To isolate the pump, the mains plug is to be removed from the wall outlet.

5.2 Installing the Tube

DANGER

- ▶ Isolate power supply from the pump before opening the pump head.

CAUTION

- ▶ Make sure the tube is compatible with the rotor assembly.
- ▶ Before using a new tube assembly, make sure the pump is run in the counter-clockwise direction for 1 minute.

5.2.1 Vantage 5000 Pump Tube Options

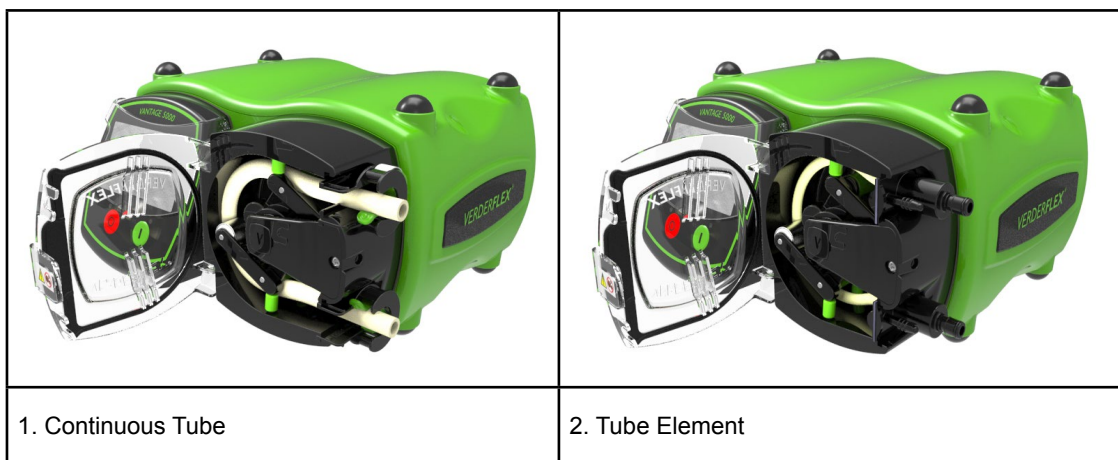


Figure 6 Vantage 5000 Pump Tube Options

Note

The tube element incorporates a drain port as show in *Figure 6 (2. Tube Element)* which must be utilised to prevent build-up of pressurised fluid in the pump head in the event of tube failure. The lower drain port can be used to drain this flushing liquid out from the pump.

If the customer wishes to use this feature, then the tip of the top and bottom drain port should be removed.

Cut 1-2 mm off with the tip to open the port and connect suitable tubing to a banded area.

5.2.2 Installing Continuous Tube

DANGER

- ▶ Isolate power supply from the pump before opening the pump head.

CAUTION

- ▶ Make sure the tube is compatible with the rotor assembly.
- ▶ Before using a new tube assembly, make sure the pump is run in the counter-clockwise direction for 1 minute.

- Ensure the Vantage 5000 pump is turned off using the ON/OFF switch on the back of the pump, if not, the rotor cannot be turned by hand.

1. Open the pump door and push down the tube clamp.

2. Insert the tube.

3. Rotate the rotor assembly using the vertical guide rollers in a counter-clockwise direction.

3. Place the tube behind the vertical guide rollers and continue to turn the rotor assembly in a counter-clockwise direction.

4. When performed correctly the main rollers will compress the tube.

5. Release the tube clamp to lock the tube.

6. Push up the lower tube clamp and insert the tube.

7. Once the tube is in place, close the pump door before switching on the power supply.

8. After the new tube has been run in the counter-clockwise direction for 1 minute by the customer. The pump is then connected to the customers system and the pump can be primed by pressing and holding the green start button. This sets the pump to maximum 100% flow rate until the button is released.

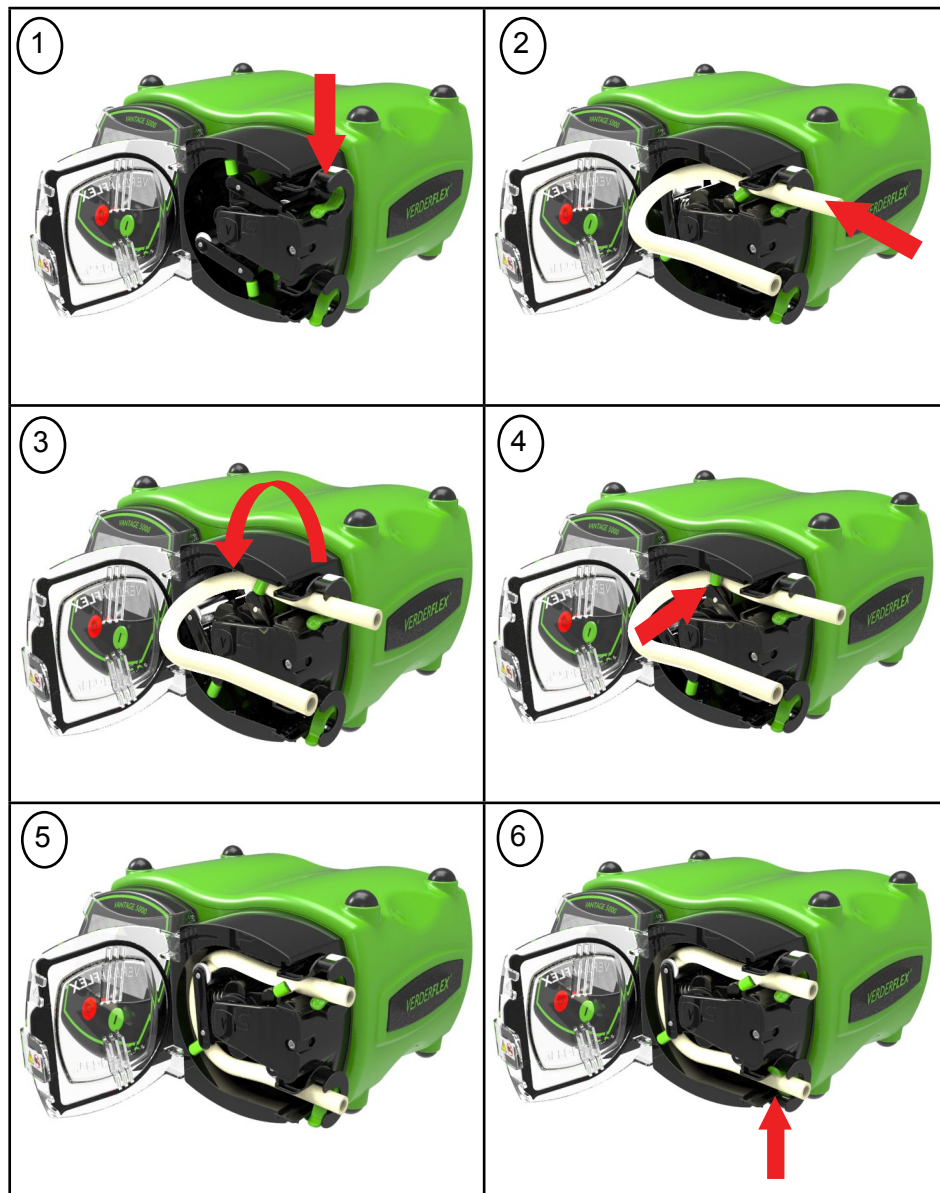


Figure 6.1 Installing Continuous Tube

5.2.3 Installing the Tube Element

DANGER

- ▶ Isolate power supply from the pump before opening the pump head.

CAUTION

- ▶ Make sure the tube is compatible with the rotor assembly.
- ▶ Before using a new tube assembly, make sure the pump is run in the counter-clockwise direction for 1 minute.

Note

The tube element is supplied with the drain port as shown in *Figure 6.2*.

In case of an accidental tube burst, the upper most drain port can be cut and may be used to provide flushing / neutralizing solution. The lower drain port can be used to drain this flushing liquid out from the pump.

If the customer wishes to use this feature, then the tip of the top and bottom drain port should be removed.

Cut 1-2 mm off with the tip to open the port and connect suitable tubing to a banded area.

- Ensure the Vantage 5000 pump is turned off using the ON/OFF switch on the back of the pump, if not, the rotor cannot be turned by hand.

1. Open the pump door.
2. Slide the tube element into the pump head.
3. Rotate the rotor assembly using the vertical guide rollers in a counter-clockwise direction.
4. Place the tube behind the vertical guide rollers and continue to turn the rotor assembly in counter-clockwise direction.
5. When performed correctly the main rollers will compress the tube element.
6. Slide the lower tube element housing into the pump head.
7. Once the tube is in place, close the pump door before switching on the power supply.
8. After the new tube has been run in the counter-clockwise direction for 1 minute by the customer. The pump is then connected to the customers system and the pump can be primed by pressing and holding the green start button. This sets the pump to maximum 100% flow rate until the button is released.

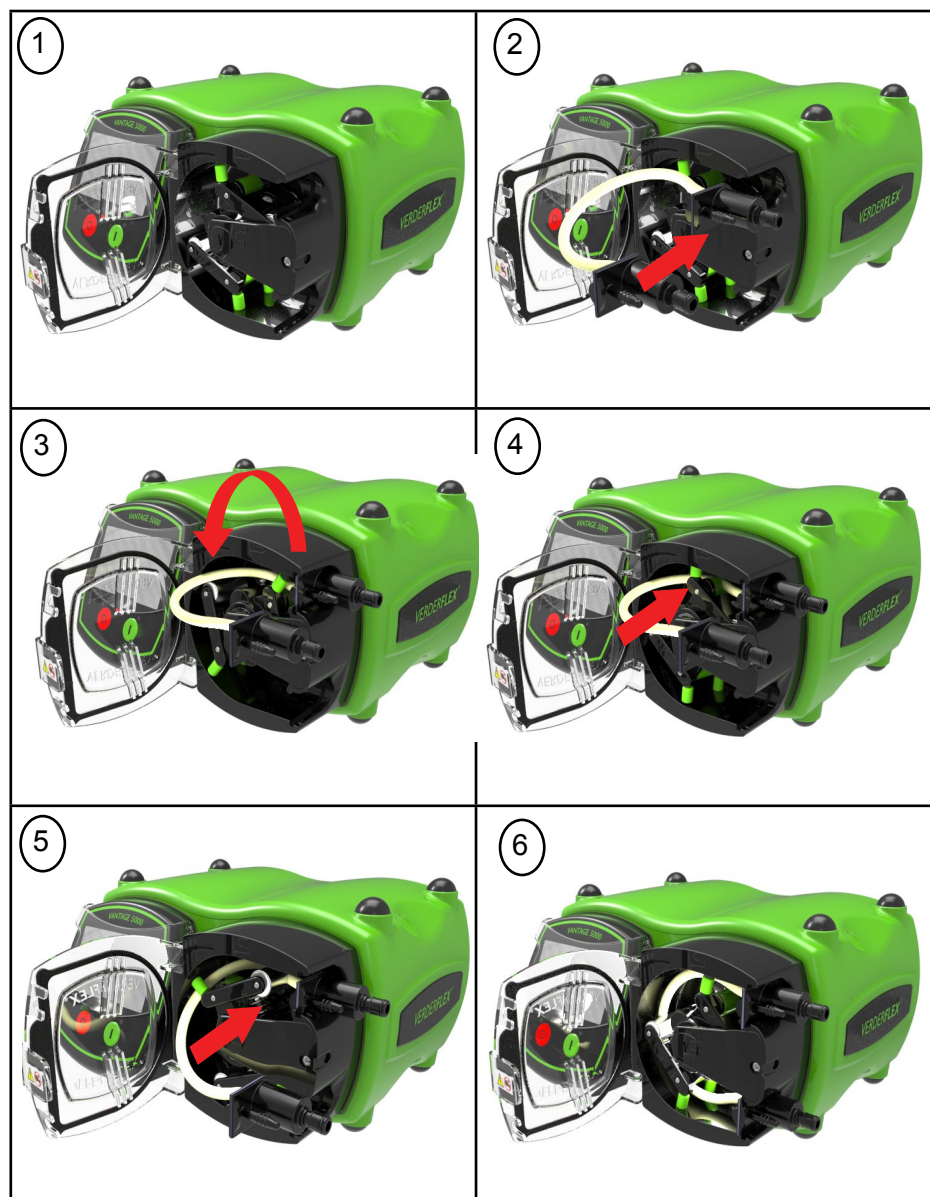



Figure 6.2 Installing the Tube Element

6 User Interface - overview

 This manual is a representation of the features and functions in the Vantage 5000.

CAUTION

- The user must use a suitable stylus or finger to operate the touch screen.







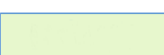



Symbols	Meaning	Examples
	A box with a BLUE outline indicates an editable value	
	A box with a BLUE outline and an arrow indicates a selection from a list	
	A shape filled in DARK GREEN indicates a selectable button	
	A shape coloured LIGHT GREEN indicates read-only value and is there for information	
	A shape coloured 'GREYED OUT' indicates a usually editable field which can no longer be edited due to the current conditions of the pump setup.	

Table 6 Symbols used for software

The following icons are used throughout this document:
































Icons	Definition	Icons	Definition	Icons	Definition	Icons	Definition
	Lock / Unlock		Warning		Remote Control		YES / Accept
	Main Menu		Accept		Logs / History		NO / Cancel
	Start and Maximum 100% Prime Button		Go Back / Cancel		Activate		Delete Characters
	Stop Button		Home		Edit		25Way Remote I/O Connector
	Pumping Direction		Job Files		Import		Real Time Clock Enabled
	Pump Paused		Calibration		Export		Remote Control Enabled
	Information		Settings		Clear Job		Jobs File/Settings File Backed to the USB Drive
	Fault		Users / Pass-codes		Copy		

Table 7 Icons used for software

7 Screen Layout

7.1 Home Screen

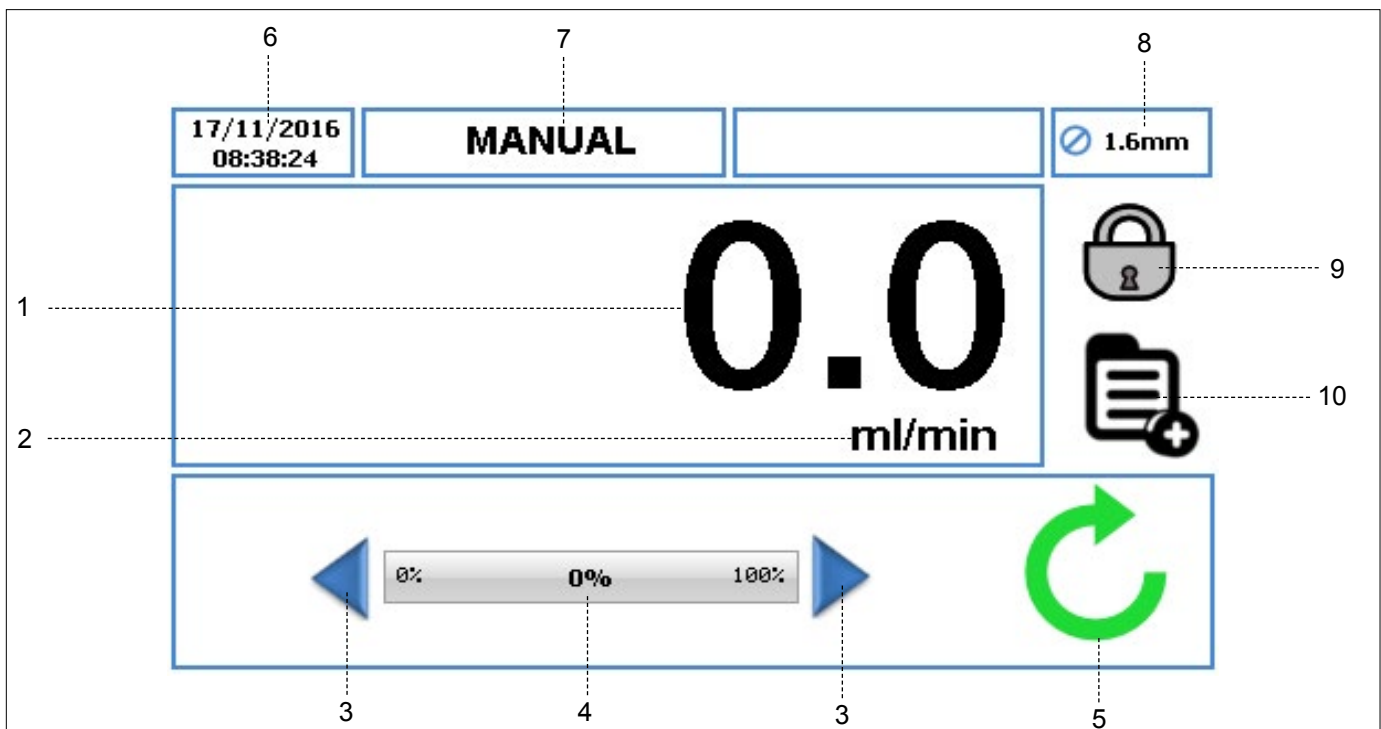





Figure 7 Home Screen

-  When you switch on the pump for the first time the Home Screen will be as per *Figure 7*. Layout of the Home Screen will change depending on how you program and operate the pump unit.
- This screen layout is available when the pump is operated using “MANUAL” Job File only.
1. Displays the flow rate of the pump. The user can change the flow rate in (→ *7.4 Edit Job Files*).
 2. Displays the unit of flow rate. The user can change the units of flow rate in (→ *7.4 Edit Job Files*).
 3. Increment/Decrement arrow will increase/decrease the flow rate **only** in the ‘Manual’ Job File. It can either be pressed once which will increment/decrement the flow rate in steps, or held down, which will gradually increase/decrease the flow rate. It is a temporary change on the Home Screen and does not change the flow rate in the Job File Menu. (→ *7.4 Edit Job Files*).
 4. The flow rate indicator displays the current flow rate as a percentage of the maximum available flow rate for the selected tube size.
 5. Pump Status symbols:
 - a.  Displays the direction of rotation and RPM (if the pump is running). In ‘Manual’ Job File only, the direction of rotation can be changed by touching the symbol on the Home Screen.
 - b.  Indicates the pump is in pause mode, where there is a program active but the pump is temporarily paused.
 6. Displays the current time and date as specified in the (→ *7.6 Settings*). It is a read-only display.
 7. Displays the current Activated Job File. The user can change the name of the Job File in (→ *7.4 Edit Job Files*). It is a read-only display and will be displayed on every screen.
 8. Displays the Tube Size, as defined in the currently activated Job File.
 9. LOCK/UNLOCK
 - a. LOCK touchscreen, when pressed the back-light dims and the screen locks. This avoids accidental key presses.
 - b. UNLOCK touchscreen.
 10. This icon allows the user to access the main menu. (→ *7.2 Main Menu*)

7.2 Main Menu

To access the main menu, touch the icon  as indicated in *Figure 7*, item 10.

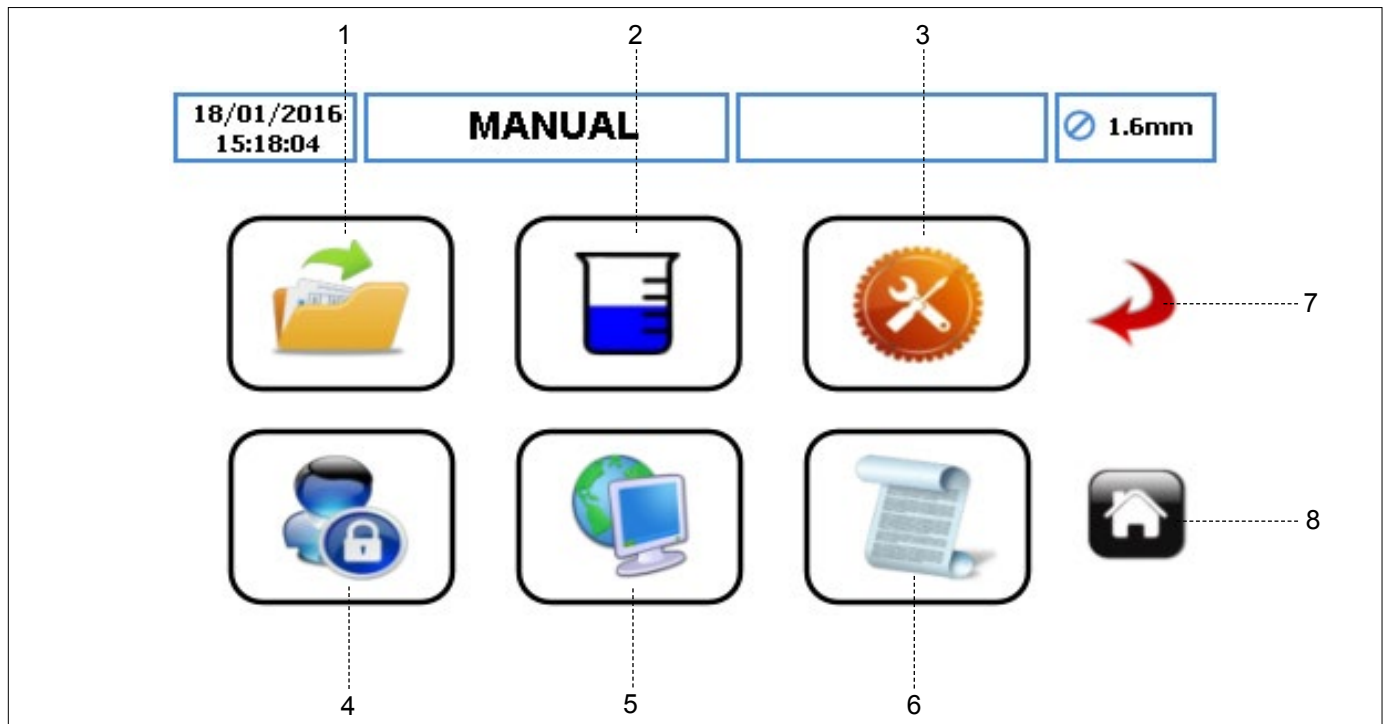



Figure 8 Main Menu

1. JOB FILES – touch the icon to access the Job File Menu.
2. CALIBRATION – touch the icon to access the Calibration Menu.
3. SETTINGS – touch the icon to access the Settings Menu.
4. USERS/PASSCODES – touch the icon to access the Users/ Passcodes Menu.
5. REMOTE CONTROL – touch the icon to access the Remote Control Menu.
6. LOGS/HISTORY – touch the icon to access the Logs/ History Menu.
7. GO BACK/CANCEL – touch the icon to cancel the current action and return to the previous screen.
8. HOME – touch the icon to return to the Home Screen.

7.3 Job Files

To access the Job File Menu, touch the icon  as indicated in *Figure 8*, item 1.

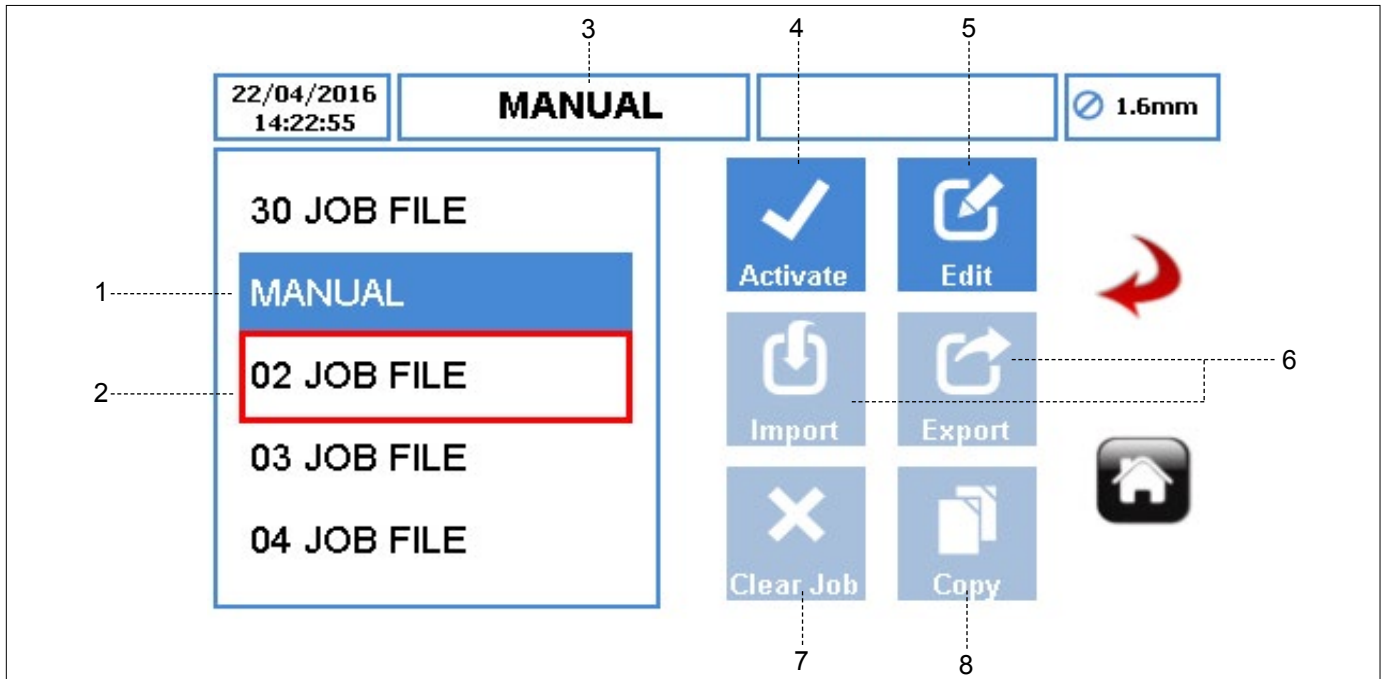


Figure 9 Job Files

Displays the list of Job Files available, the maximum number of Job Files on the pump is 30. These are editable files that can be used to program the pump unit.

Note

'Manual' is a **DEFAULT** Job File and cannot be renamed. This can only be used for simple flow control, with the option to increase or decrease the speed on the home screen.

5. **EDIT ICON** – touch the icon to edit the highlighted Job File. (→ 7.4 *Edit Job Files*)
6. **IMPORT/EXPORT** – imports/exports Job File(s) via the USB.

 **Please see the following page for the description of the items 7 and 8.**

1. **ACTIVATED JOB FILE** – displays the currently active Job File in blue background.
2. **HIGHLIGHTED JOB FILE** – allows the user to activate/edit/import/export/clear or copy the Highlighted Job File. The user can scroll through the available Job File.
3. **JOB FILE NAME** – displays the name of the Activated Job File.
4. **ACTIVATE ICON** – activates the selected Job File and any changes made. If the pump is running, the activate icon will be 'greyed out'. Once a Job File has been activated, the user will be prompted as per *Figure 10*.

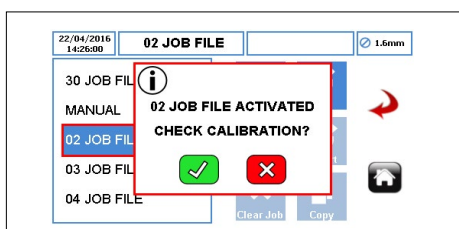



Figure 10 Job File Activated

7.3 Job Files (continued)

To access the Job File Menu, touch the icon  as indicated in Figure 8, item 1.

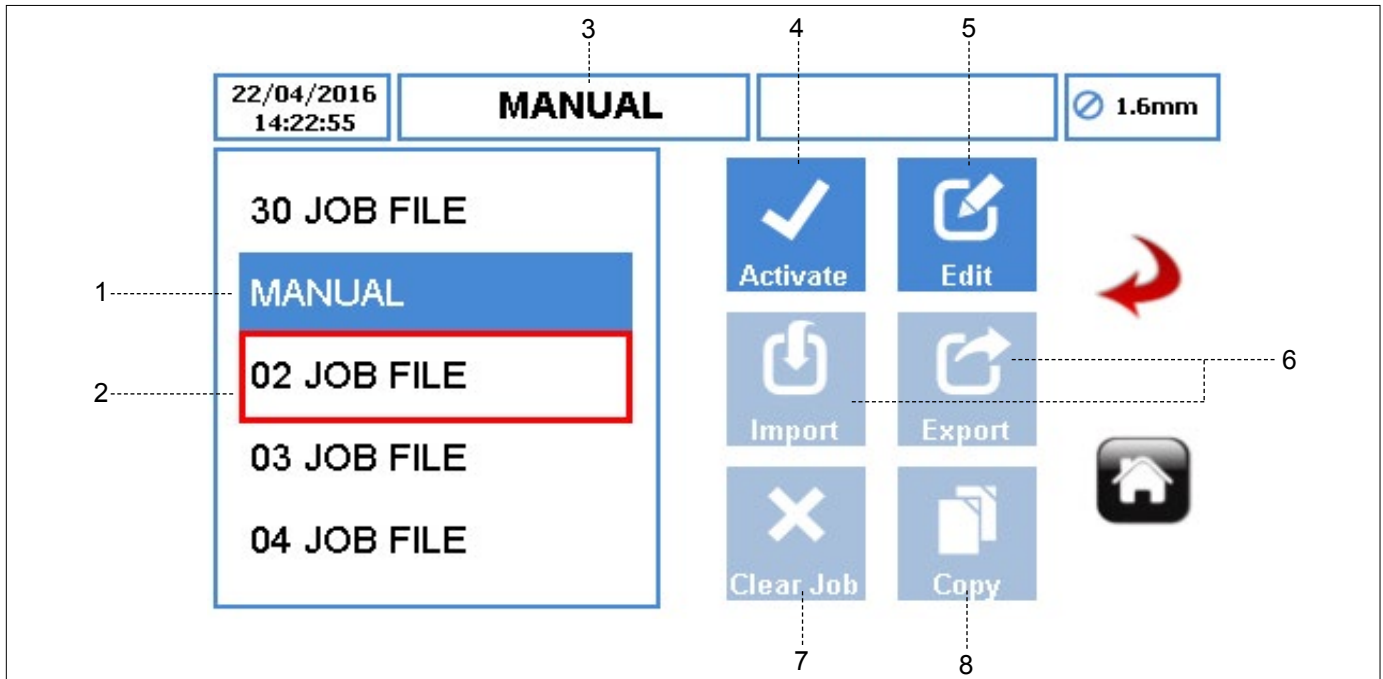


Figure 9 Job Files (continued)

- 7. CLEAR JOB – clears all parameters and calibration data from the Highlighted Job File. When the user selects the icon a window as per Figure 11 will prompt the user to confirm the selection.

The user can start another copy of Job File’s parameters by following the steps listed previously.

 Please see the previous page for the description of the items 1 to 6.

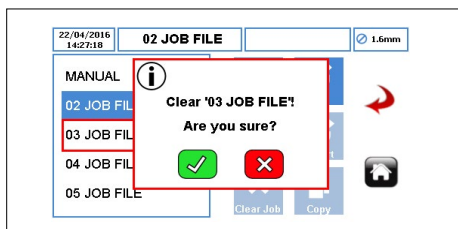



Figure 11 Clear the Job File

- 8. COPY ICON – copies all parameters from an existing Job File (the source) to a Highlighted Job File (the target). Copy icon operates as follows:

- ▶ Highlight the target Job File.
- ▶ Touch the icon  and enter the source Job File from where the user would like to copy the parameters.

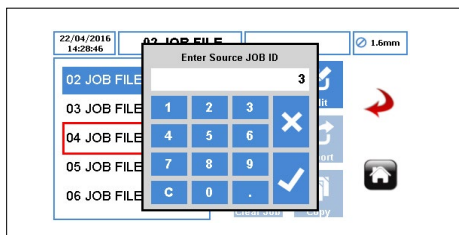



Figure 12 Copying the Job File

- ▶ Press “✓”, all parameters will be copied.
Press “x” will abandon the function.

7.4 Edit Job Files

To edit the Job File, select it and touch the icon  as indicated in *Figure 9*, item 5.

7.4.1 Delivery Setup

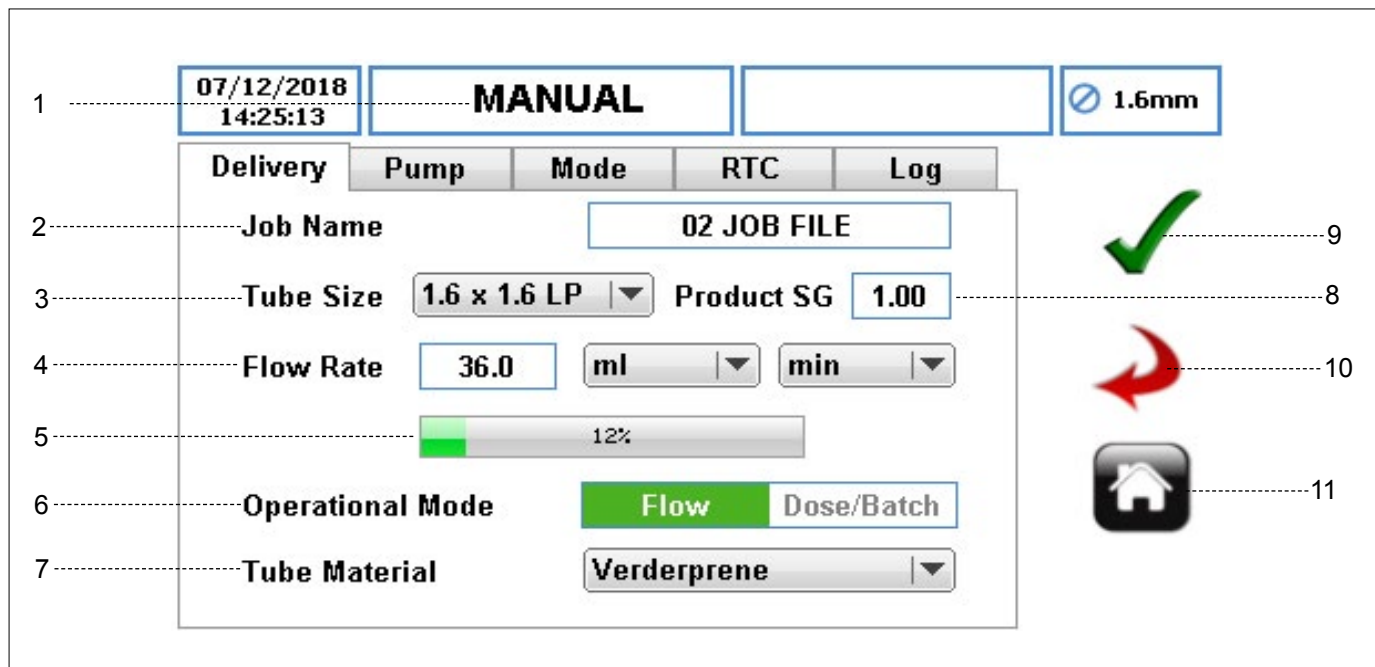


Figure 13 Editing the Job File - Delivery Setup

1. ACTIVATED JOB FILE – displays the currently active Job File.
2. JOB NAME – displays the Highlighted Job File. When pressing edit, the Job File highlighted in red is the file that will be edited from the available Job File as shown in the *Figure 14*.
3. TUBE SIZE – allows you to select the tube size from a drop-down list.
4. FLOW RATE – allows you to set the flow rate, within the limit of selected tube.
 - ▶ UNIT OF FLOW RATE – sets the units of flow rate from a drop-down list:

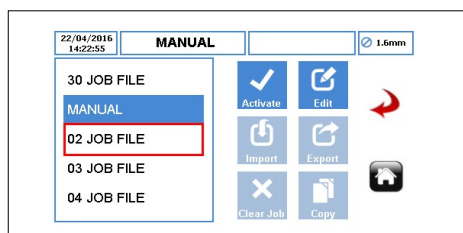


Figure 14 Highlighted Job File

The user can enter a new job name of up to 9 characters when the box is selected.

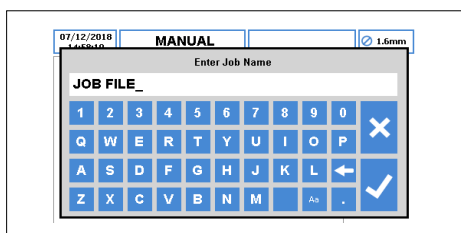



Figure 15 Editing the Job File Name


- a. ml (Millilitre)
- b. Grams
- c. Litres
- d. Pounds
- e. USG (US Gallons)

- ▶ UNIT OF TIME – sets the units of time from a drop-down list:

- a. sec (Second)*
 - b. min (Minute)*
 - c. hr (Hour)**
- * Only for ml (millilitre) and Grams.
 ** Only for Litres, Pounds and USG.

5. FLOW RATE INDICATOR – displays the current flow rate as a percentage of the maximum available flow rate for the selected tube size. It is a read-only value.

 Please see the following page for the description of the items 6 to 11.

 The first 2 digits cannot be edited.

7.4.1 Delivery Setup (continued)

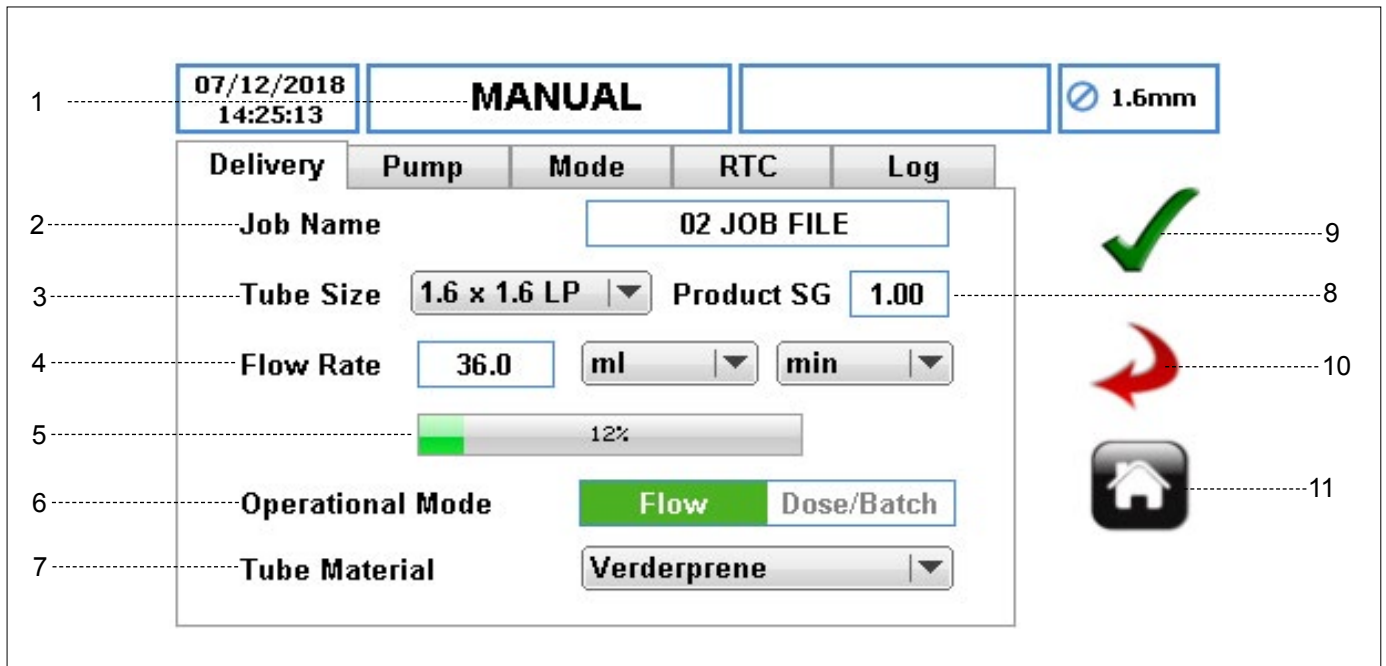


Figure 13 Editing the Job File - Delivery Setup (continued)

6. OPERATIONAL MODE

- a. FLOW MODE – for continuous pumping. It is the default running mode.
- b. DOSE & BATCH MODE – to configure the pump for either dose or batch mode. When the user selects this option, there will be additional parameters available for the user to set up. (→ 7.4.3 Mode Setup)

7. TUBE MATERIAL – selects the tube material from a drop-down list.

- a. Verderprene
- b. Silicone
- c. Viton
- d. Tygon
- e. Other

8. PRODUCT SG (SPECIFIC GRAVITY) – sets the product specific gravity to calculate the calibration factor. The default is 1.00.

9. ACCEPT – accepts all changes within the Job File. Changes made on this screen are not saved until this icon is pressed.

10. GO BACK/CANCEL – cancels any changes and return to the Job File Menu. If the user has made changes, there will be a prompt asking the user if the changes should be saved.

11. HOME – returns the user to the Home Screen. If the user has made changes, there will be a prompt asking if the changes should be saved. The home screen will change depending on how you customize the job files (→ 8 Operational Modes).

7.4.2 Pump Setup

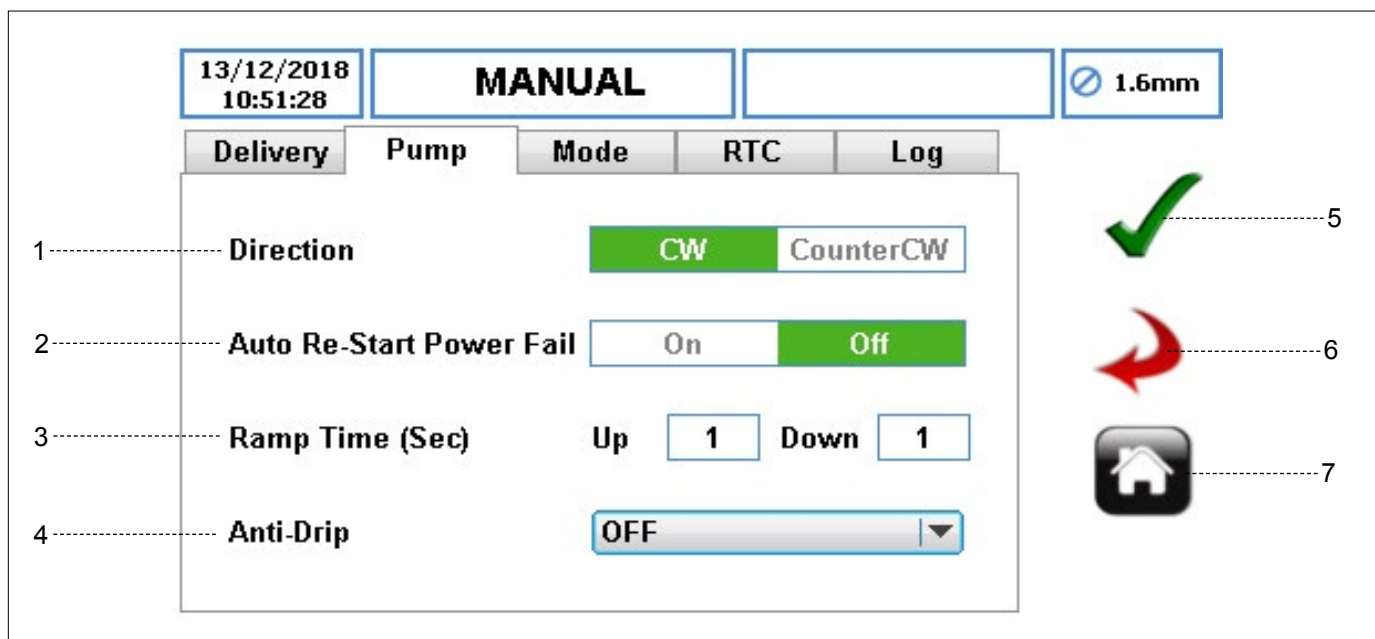


Figure 16 Editing the Job File - Pump Setup

1. DIRECTION – sets the direction of the pump rotation.

Note

The high pressure can only be achieved in the Clockwise (CW) direction. Ensure the Direction is set to CW when using high pressure tubes.

2. AUTO RE-START POWER FAIL – when enabled, the pump will automatically restart after a power interruption.

Note

Should not be used as START/STOP remote control feature. The default is set to OFF.

3. RAMP TIME (SEC) – sets the ramp up and down times in seconds. The default is set to 1, but it can be set to zero.

Note

When activated the ramp down results in an even drop in speed from current pump speed to 0 over the ramp down time.

4. ANTI-DRIP – when enabled, the pump will momentary reverse direction after pumping operation, according to the selection. Note this will not function in flow mode. The options are as follows:
 - a. OFF (Default)
 - b. 0.1 rev to 2 rev
5. ACCEPT – accepts all changes within the Job File. Changes made on this screen are not saved until this icon is pressed.
6. GO BACK/CANCEL – cancels any changes and return to the Job File Menu. If the user has made changes, there will be a prompt asking the user if the changes should be saved.
7. HOME – returns the user to the Home Screen. If the user has made changes, there will be a prompt asking if the changes should be saved.

7.4.3 Mode Setup (Batch/Dose Mode)

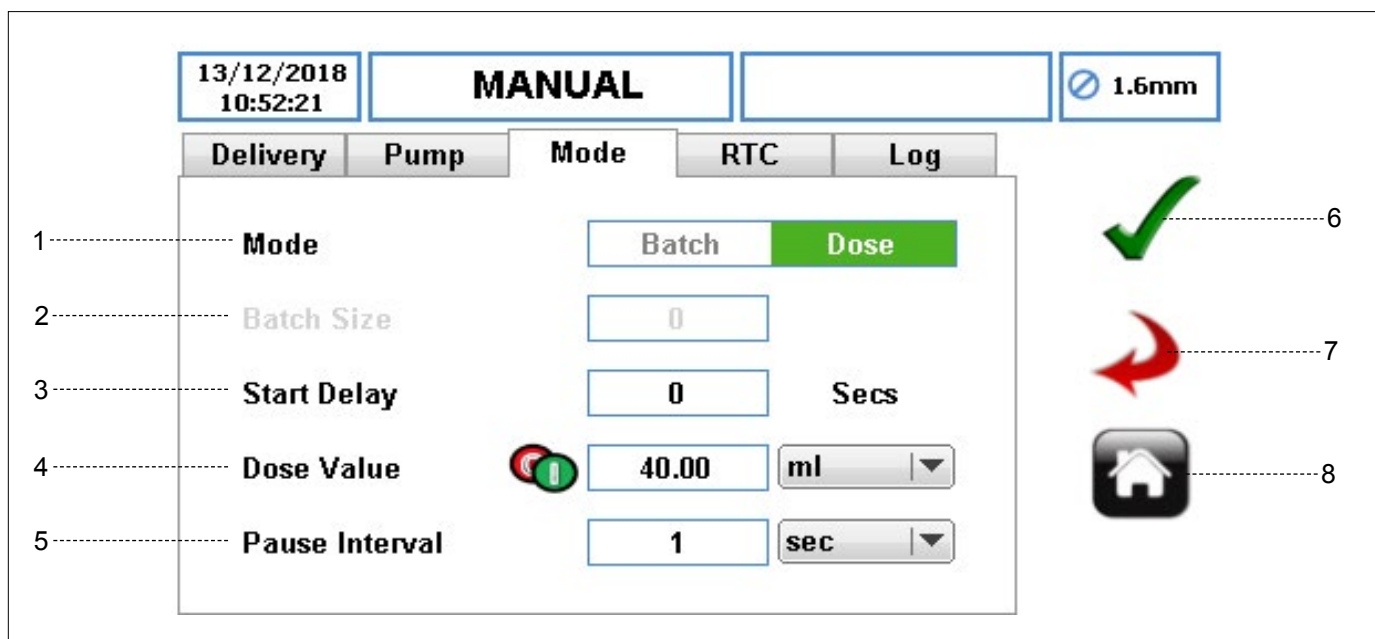


Figure 17 Editing the Job File - Dose/Batch Mode

1. **MODE** – lets the user select either the batch or dose mode, once the ‘Dose/Batch’ icon has been selected as indicated in (→ 7.4.1 Delivery Setup). The dose/batch function will not be available if flow mode is selected in delivery menu.
 2. **BATCH SIZE** – lets the user set the number of doses, if batch mode is selected.
 3. **START DELAY TIMER** – sets the delay in seconds before the dosing/batch starts. The default is zero.
 4. **DOSE VALUE**
 - ▶ **DOSE VALUE** – set the volume to dose using a numeric keypad.
 - ▶ **DOSE VALUE UNITS** – set the unit of the dose value from a drop-down list:
 - a. ml (Millilitre)
 - b. Grams
 - c. Litres
 - d. Pounds
 - e. USG (US Gallons)
 5. **PAUSE INTERVAL**
 - ▶ **PAUSE INTERVAL TIMER** – to set a value of time delay between each dose.

In **batch mode**, a pause interval **MUST** be entered. The default is 1 second.

In **dose mode**, the pause interval is optional. If no time is entered, pressing the **START** button, only one dose will be performed and the pump will be stopped automatically. Where there is a time interval entered, pressing the **START** button will start the dosing after the pause interval has elapsed.
-
- ## Note
-
- If the pause interval is zero, then a single dose will be dispensed.
- ▶ **PAUSE INTERVAL TIMER UNITS** – select unit for pause interval from a drop-down list:
 - a. sec (Second)
 - b. min (Minute)
 - c. hr (Hour)
 6. **ACCEPT** – accepts all changes within the Job File. Changes made on this screen are not saved until this icon is pressed.
 7. **GO BACK/CANCEL** – cancels any changes and return to the Job File Menu. If the user has made changes, there will be a prompt asking the user if the changes should be saved.
 8. **HOME** – returns the user to the Home Screen. If the user has made changes, there will be a prompt asking if the changes should be saved.

7.4.4 Real Time Clock Mode (RTC) Setup

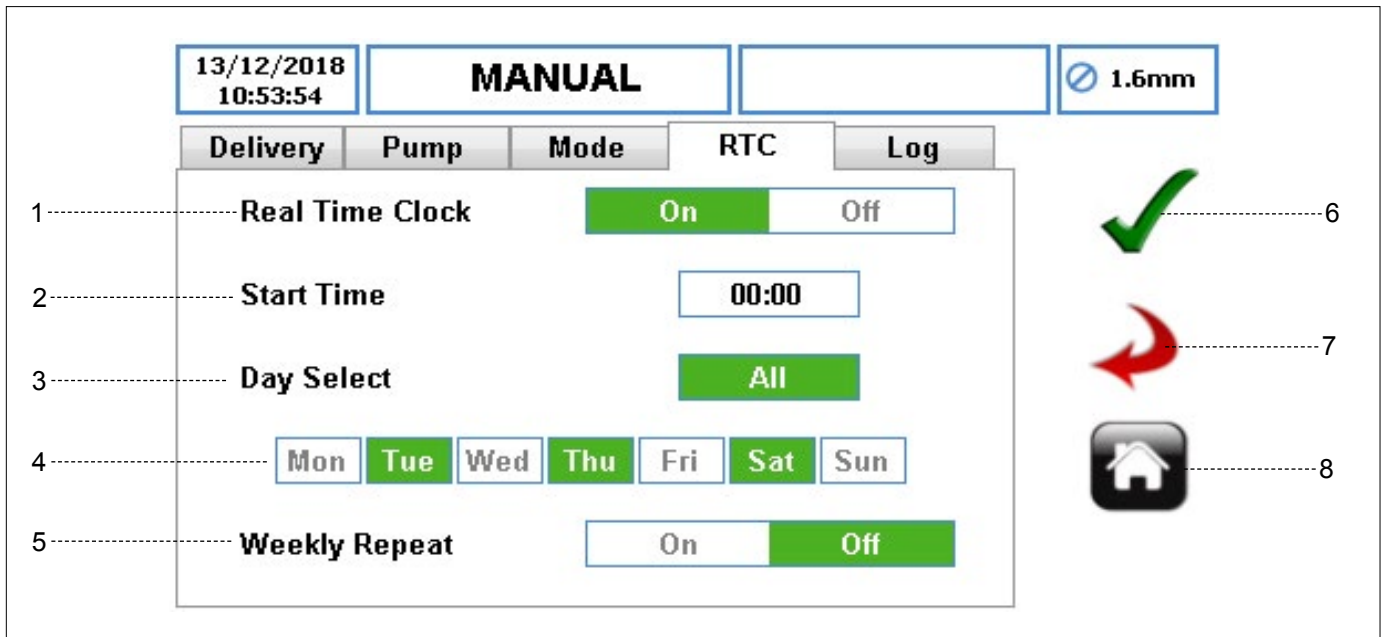


Figure 18 Editing the Job File - RTC Setup

1. REAL TIME CLOCK MODE (RTC) – enables the clock function which lets you schedule dosing functions. If it is switched ON, more parameters will be enabled. If this is switched OFF, the parameters will be 'greyed out'.
The RTC works by using the pump's time and date to trigger the start signal for the pump. It is the user's responsibility to ensure the date and time is set correctly. (→ 7.6 Settings)
2. START TIME – to set the time to start the Job File. The user can only enter one time.
3. DAY SELECT (ALL) – set all days or none for RTC start.
4. DAYS SELECT (SPECIFIC DAYS) – select individual days for RTC start.
5. WEEKLY REPEAT – set weekly repeat ON or OFF as required.
6. ACCEPT – accepts all changes within the selected Job File. Changes made on this screen are not saved until this icon is pressed.
7. GO BACK/CANCEL – cancels any changes and return to the Job File Menu. If the user has made changes, there will be a prompt asking the user if the changes should be saved.
8. HOME – returns the user to the Home Screen. If the user has made changes, there will be a prompt asking if the changes should be saved.

Once the set up is complete, the user must press the START button on the front of the pump to start the dose/ batch mode RTC start. The STOP button can be pressed at any time in which case the pump would no longer start at the allocated time, and will not resume until the START button is pressed again.

7.4.5 Log Setup

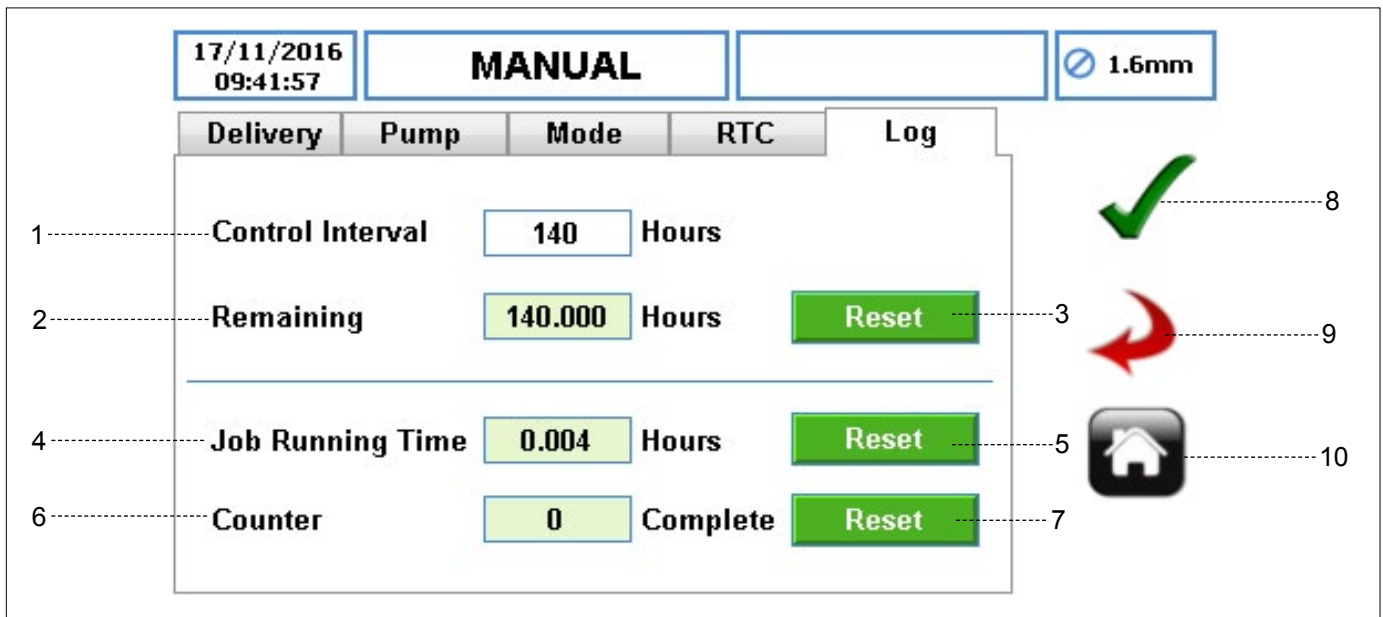


Figure 19 Editing Job File - Log Setup

1. CONTROL INTERVAL – sets a time in hours to trigger the Control interval check. Setting a value of zero will disable this feature. The pump will alert the user once the control interval expires.
2. REMAINING ICON – shows the remaining number of running hours before control interval alarm. It is a read-only value.
3. RESET ICON – resets the remaining number of hours for control interval. Once the icon has been selected, the user will be prompted as per Figure 20.
6. COUNTER – shows the number of doses/batches which have been completed since the Job File was activated. It is a read-only value.
7. RESET ICON – resets the number of doses/batches which have been completed with the selected Job File. Once the icon has been selected, the user will be prompted as per Figure 22.

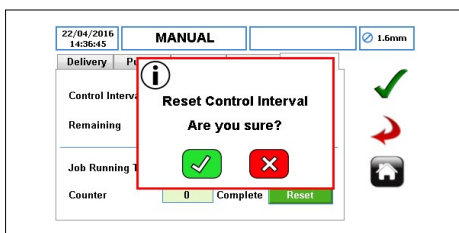


Figure 20 Reset Control Interval

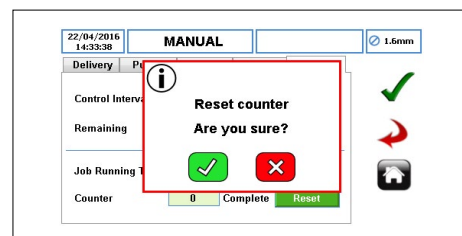


Figure 22 Reset Counter

4. JOB RUNNING TIME – shows the total number of running hours for the Job File. If the Job File is changed, it will reset and start again from zero once reactivated. It is a read-only value.
5. RESET ICON – resets the running hours for the Job File. Once the icon has been selected, the user will be prompted as per Figure 21.
8. ACCEPT – accepts all changes within the Job File. Changes made on this screen are not saved until this icon is pressed.
9. GO BACK/CANCEL – cancels any changes and return to the Job File Menu. If the user has made changes, there will be a prompt asking the user if the changes should be saved.
10. HOME – returns the user to the Home Screen. If the user has made changes, there will be a prompt asking if the changes should be saved.

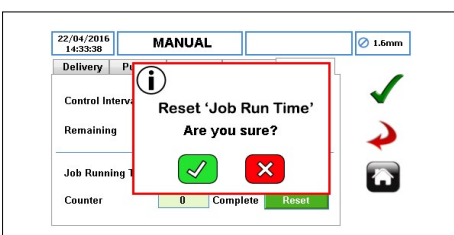



Figure 21 Reset Counter

7.5 Calibration

To access the calibration menu, touch the icon  as indicated in *Figure 8*, item 2.

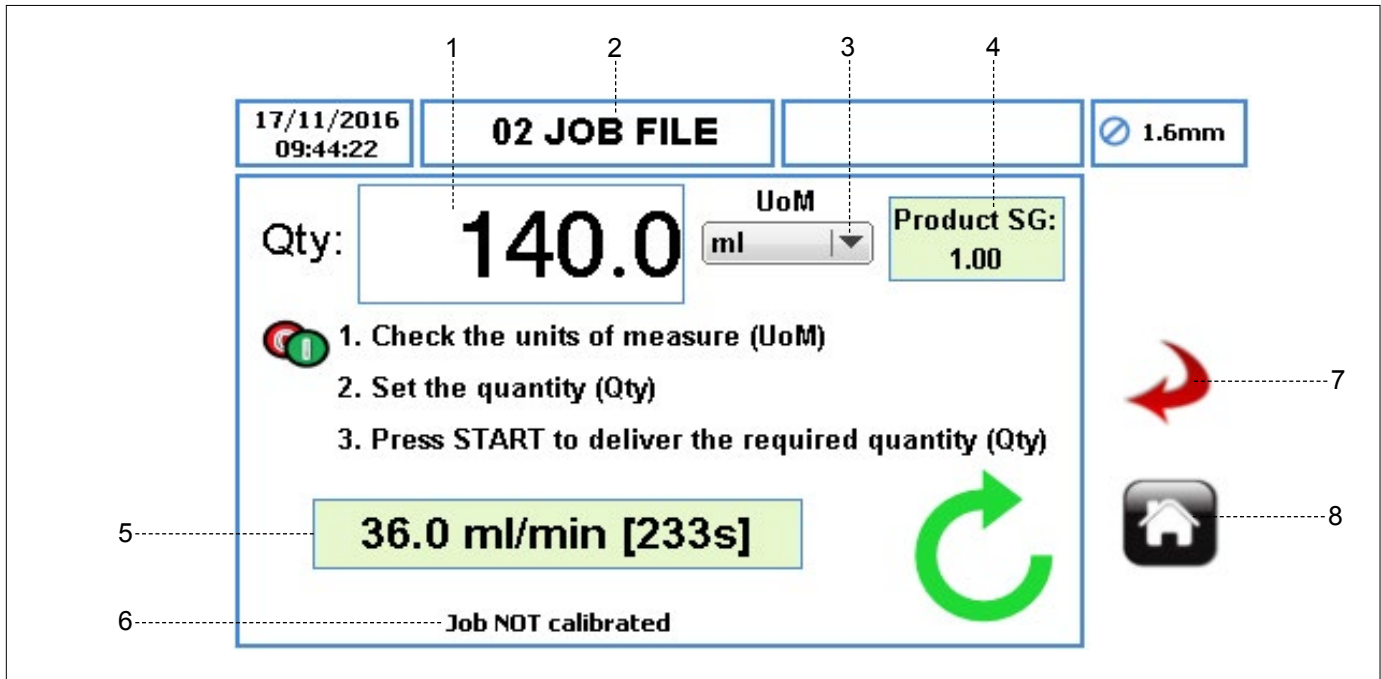


Figure 23 Calibration Menu

1. QUANTITY (QTY) – sets the calibration quantity to be dispensed.
 2. JOB FILE NAME – displays the current Activated Job File for Calibration. It is a read-only display and can only be changed in (→ 7.3 Job Files).
-
- ### Note
-
- The calibration is applicable for the displayed Job File only. The speed control and/or start/stop control must be in HMI mode (→ 7.8 Remote Control).
-
3. UOM (UNIT OF MEASURE) – sets the unit of measure from a drop-down list for the quantity dispensed.
 - a. ml (Millilitre)
 - b. Grams
 - c. Litres
 - d. Pounds
 - e. USG (US Gallons)
 4. PRODUCT SG (SPECIFIC GRAVITY) – displays the product specific gravity from the Activated Job File. It is a read-only value and can only be changed in (→ 7.4.1 Delivery Setup).
 5. FLOW RATE & CALIBRATION TIME INDICATOR
 - ▶ FLOW RATE – displays the flow rate from the Activated Job File. This is a read-only value and can only be changed in (→ 7.4.1 Delivery Setup).
 - ▶ CALIBRATION TIME – displays the estimated time in seconds for the set quantity to be dispensed.
 6. JOB NOT CALIBRATED – will be displayed if NO calibration has been performed for the Activated Job File. When the calibration has been performed, a message will be displayed as follows: “Last calibrated DD/MM/YYYY at HH:MM:SS [x.xx]”.
 7. GO BACK/CANCEL – cancels any changes and return to the Job File Menu. If the user has made changes, there will be a prompt asking the user if the changes should be saved.
 8. HOME – returns the user to the Home Screen. If the user has made changes, there will be a prompt asking if the changes should be saved.

7.5.1 Calibration Procedure

Calibration operates as follows:

- ▶ Set the Unit of Measure to perform the calibration.
- ▶ Select the quantity field (QTY) as per *Figure 24*.

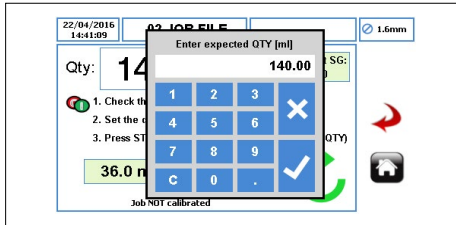


Figure 24 Enter Expected Quantity

- ▶ After the expected quantity is entered, the pump is ready for calibration. Ensure you have suitable measuring equipment to measure the correct dispensed value.
- ▶ Press the START button to start the calibration. The quantity displayed will decrease during the calibration process.
- ▶ Once the pump has delivered the expected quantity, the following message box will appear. Enter the quantity actually delivered as per *Figure 25*.

Note

Be careful to enter the correct dispensed value as this will change pump running speed.

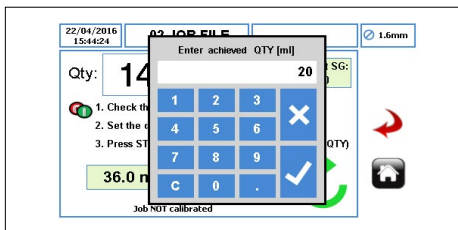


Figure 25 Enter Achieved Quantity

Press “✓” to accept the calibration and the message box will appear as per *Figure 26*.

Press “x” will abandon the calibration and the Job File will not be updated.

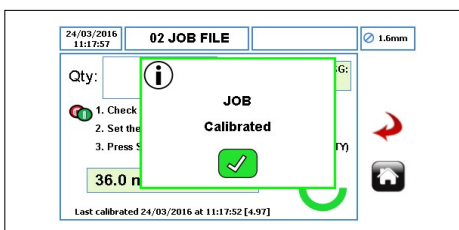



Figure 26 Job Calibrated

The user can start another calibration by following the steps listed previously.

7.6 Settings

To access the settings menu, touch the icon  as indicated in *Figure 8*, item 3.

7.6.1 General

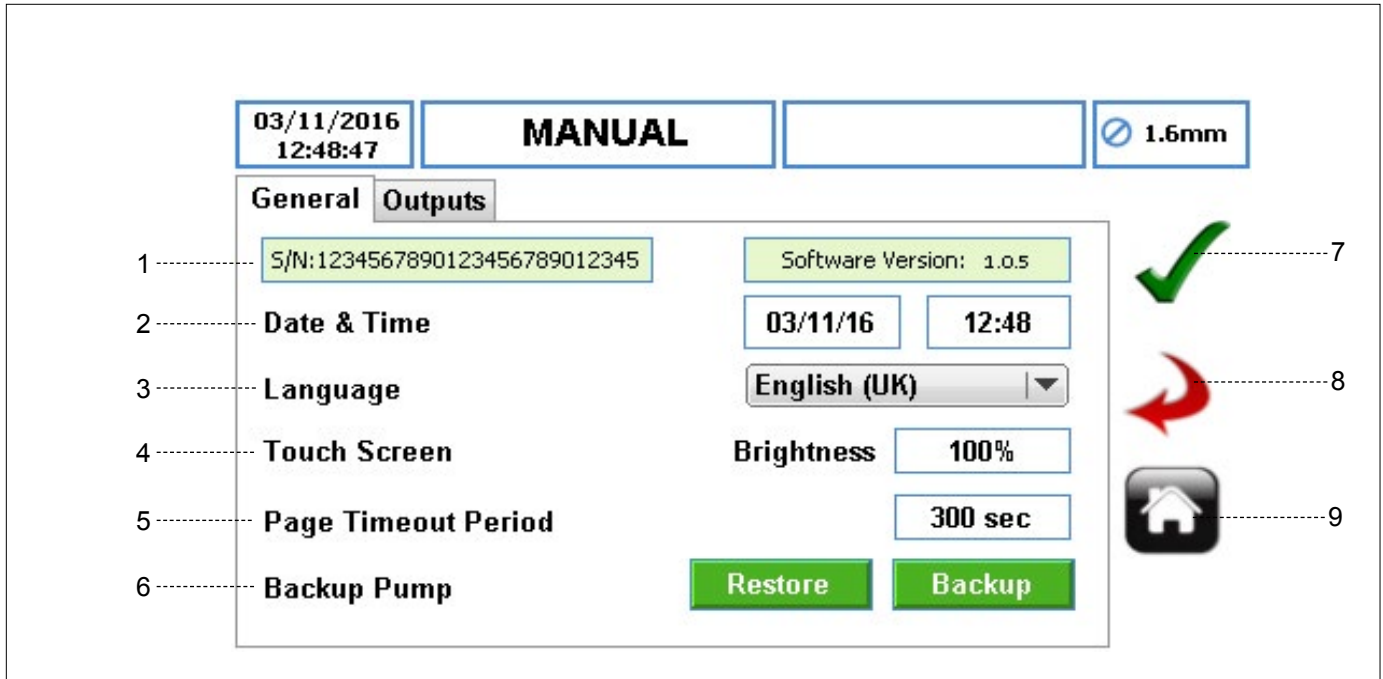


Figure 27 Settings Menu - General Setup

1. SERIAL NO. & SOFTWARE VERSION – displays the serial number and the software version of the pump.
2. DATE AND TIME – set the date and time for the pump.
3. LANGUAGE – set the language for the pump’s software from a drop-down list.
4. TOUCH SCREEN
 - ▶ BRIGHTNESS – adjusts the brightness of the display. The default 100%.
5. PAGE TIMEOUT PERIOD – sets the time in seconds before the screen locks. The default is 300 seconds.
6. BACKUP PUMP – allows the complete pump configuration to be backed up to/from the SD memory card and USB port (please follow the instructions from the additional document → Software Upgrade Vantage 5000). This does not include the log/history (→ 7.9 Logs/History).
7. ACCEPT – accepts all changes within the Job File. Changes made on this screen are not saved until this icon is pressed.
8. GO BACK/CANCEL – cancels any changes and return to the Job File Menu. If the user has made changes, there will be a prompt asking the user if the changes should be saved.
9. HOME – returns the user to the Home Screen. If the user has made changes, there will be a prompt asking if the changes should be saved.

7.6.2 Outputs

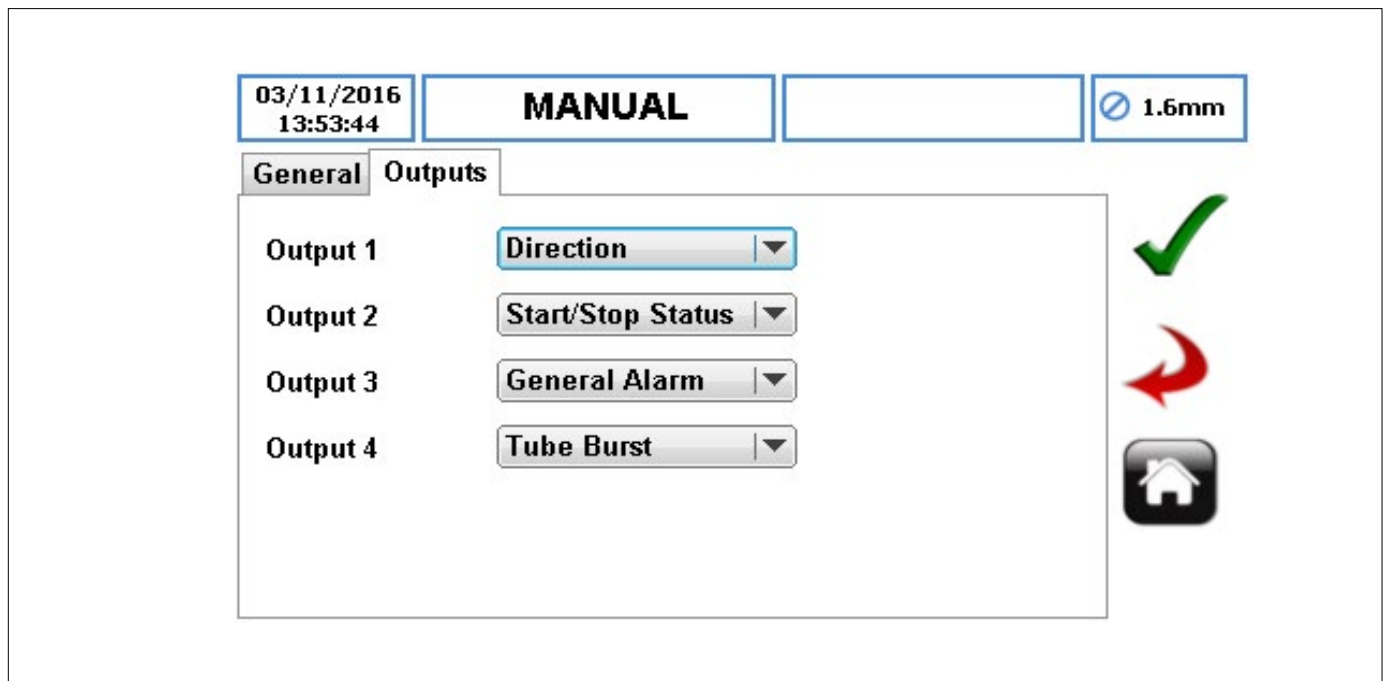



Figure 28 Settings Menu - Outputs Setup (default settings)

 This menu can be used to select various output signals from the pump.

Note

For more information about configuring outputs, see (Vantage 5000 selectable output control functionality and setup).

7.7 Users / Passcodes

7.7.1 Users / Passcodes - an Overview

Access control is DISABLED by default. Access control can be used to restrict access to pump settings for different users. These settings will not affect the START/STOP buttons.


There are 3 levels of access available on the pump:

- ADMIN – allows access to every setting on the pump.
- SUPERVISOR – allows access to limited settings only.
- OPERATOR – allows read-only access to the pump settings.

Access Level	Admin	Supervisor	Operator
Permitted Settings	Full access: <ul style="list-style-type: none"> • Home Screen Functionality • Job Files Menu • Calibration Menu • Settings Menu • Remote Control Menu • Users/Passcodes Menu • Logs/History Menu 	Full access: <ul style="list-style-type: none"> • Home Screen Functionality • Job Files Menu (edit job files and delivery setup, without operational mode) • Calibration Menu • Logs/History Menu 	Read-only access: <ul style="list-style-type: none"> • Home Screen • Log/History Menu
Restricted Settings	N/A	<ul style="list-style-type: none"> • Cannot access Settings Menu • Cannot access Remote Control Menu • Cannot access Users/Passcodes Menu 	<ul style="list-style-type: none"> • Cannot access Job Files Menu • Cannot access Calibration Menu • Cannot access Settings Menu • Cannot access Users/Passcodes Menu • Cannot access Remote Control Menu • Cannot export Logs/History Menu

Table 8 Access Levels

7.7.2 Users / Passcodes Setup

To access the users/passcodes menu, touch the icon  as indicated in *Figure 8*, item 4.

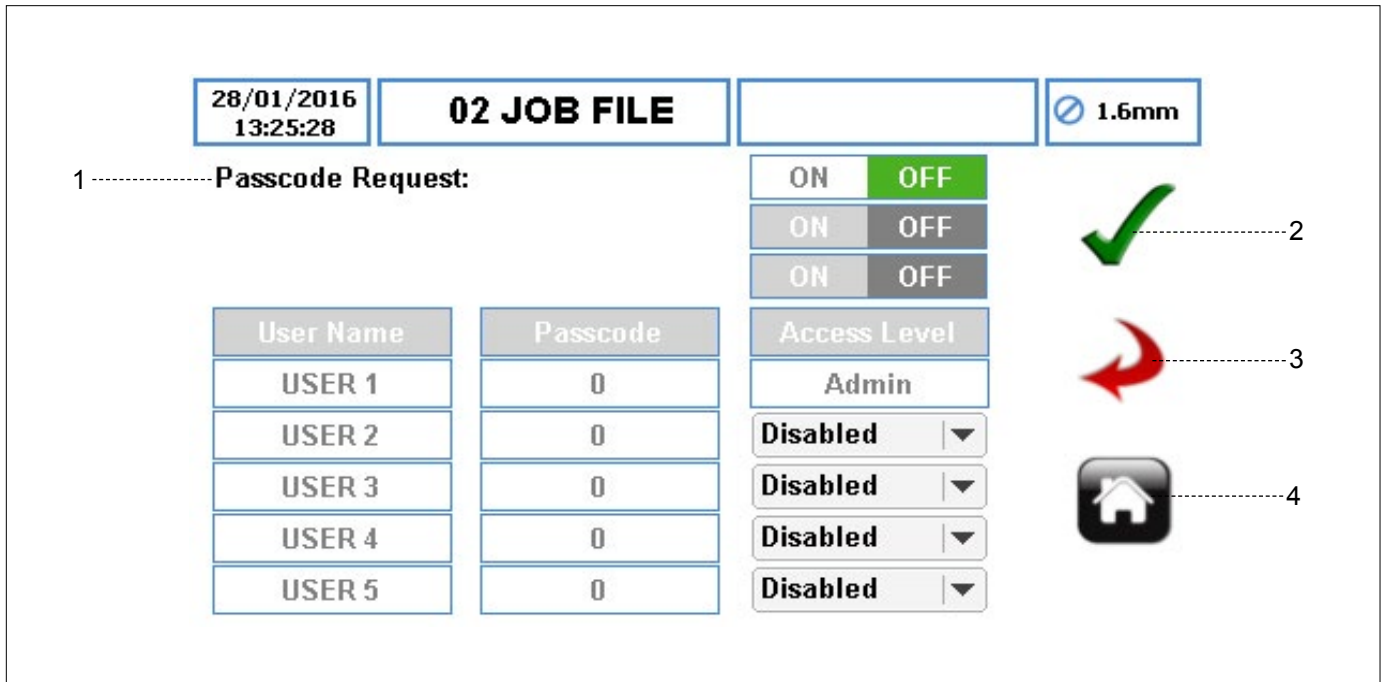


Figure 29 Passcodes Request OFF

1. **PASSCODE REQUEST** – enables the access control settings. When selected ON, an ADMIN passcode must be set. A keypad will appear as per *Figure 30*. If it is selected OFF, all access control will be disabled.
2. **ACCEPT** – accepts all changes within the Job File. Changes made on this screen are not saved until this icon is pressed.
3. **GO BACK/CANCEL** – cancels any changes and return to the Job File Menu. If the user has made changes, there will be a prompt asking the user if the changes should be saved.
4. **HOME** – returns the user to the Home Screen. If the user has made changes, there will be a prompt asking if the changes should be saved.

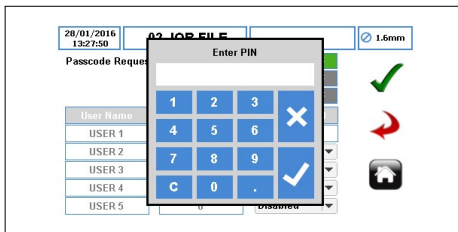


Figure 30 Passcodes Request ON

If the passcode request is set to OFF, the user will be prompted to confirm as per *Figure 31*:

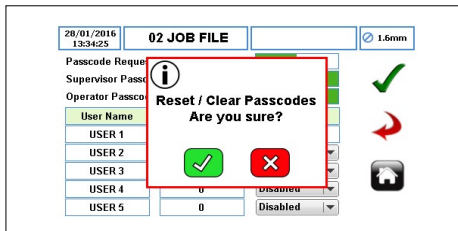


Figure 31 Reset/Clear Passcodes

7.7.3 Passcode Request ON

When the Passcode Request is set to ON, the ADMIN can request to access control of the pump by supervisor or/and operator access level as per Figure 32.

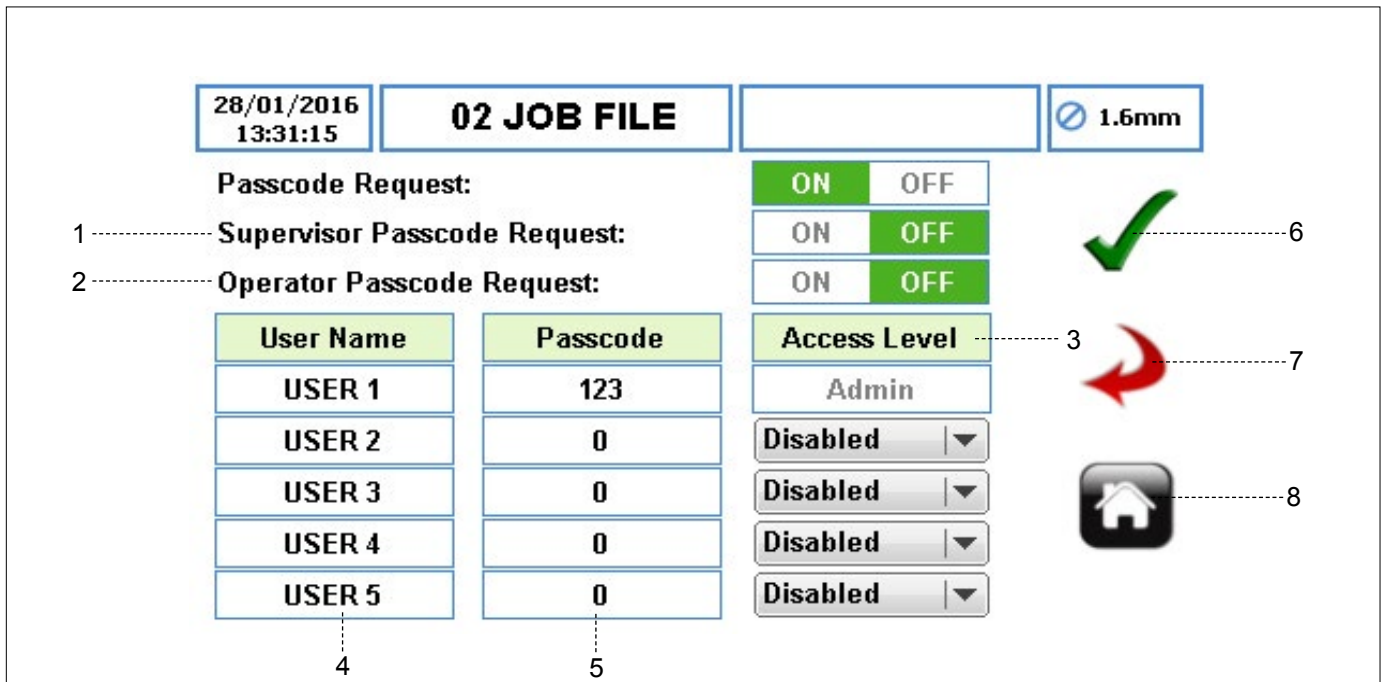


Figure 32 Users / Passcodes Setup

1. SUPERVISOR PASSCODE REQUEST – enables supervisor access level (→ Table 8 Access Levels).
2. OPERATOR PASSCODE REQUEST – enables operator access level (→ Table 8 Access Levels).
3. ACCESS LEVEL - set the access level from a drop-down list. The default access level for the first user name is ADMIN and cannot be change.
4. USER NAME – when the box is selected, a full keyboard will appear allowing the user name to be edited. There are 5 users available.
5. PASSCODE – set the passcode with up to 4 digits.
6. ACCEPT – accepts all changes within the Job File. Changes made on this screen are not saved until this icon is pressed.
7. GO BACK/CANCEL – cancels any changes and return to the Job File Menu. If the user has made changes, there will be a prompt asking the user if the changes should be saved.
8. HOME – returns the user to the Home Screen. If the user has made changes, there will be a prompt asking if the changes should be saved.


Note

Make sure the pump is set with a passcode request ON for supervisor and/or operator. If not, the user will not be able to access pump's main menu from the Home Screen for supervisor and/or operator access level.

7.7.4 Users/Passcodes Log IN

When the pump is set with a passcode request ON (→ 7.7.2 *Users/Passcodes Setup*), the user will be prompted as per *Figure 33*.

The user can access the pump as follows:

- ▶ Touch the icon  to unlock the Home Screen and enter the passcode.

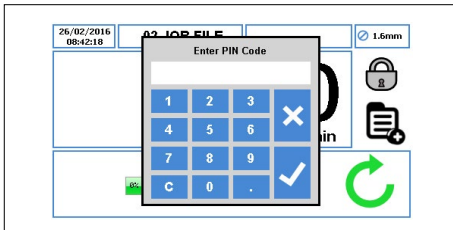


Figure 33 Home Screen - Enter Passcode

- ▶ Press “✓”, the user will have relevant access. (→ 7.7 *Users/Passcodes*)

Press “x” to abandon passcode access.

An incorrect passcode will prompt the user as per *Figure 34*:

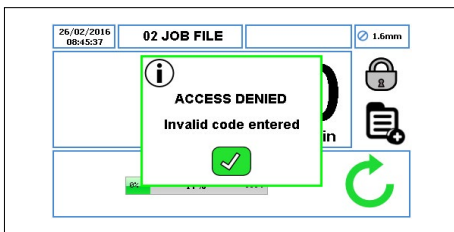



Figure 34 Home Screen - Enter Invalid Passcode

7.8 Remote Control

To access the remote control menu, touch the icon  as indicated in *Figure 8*, item 5.

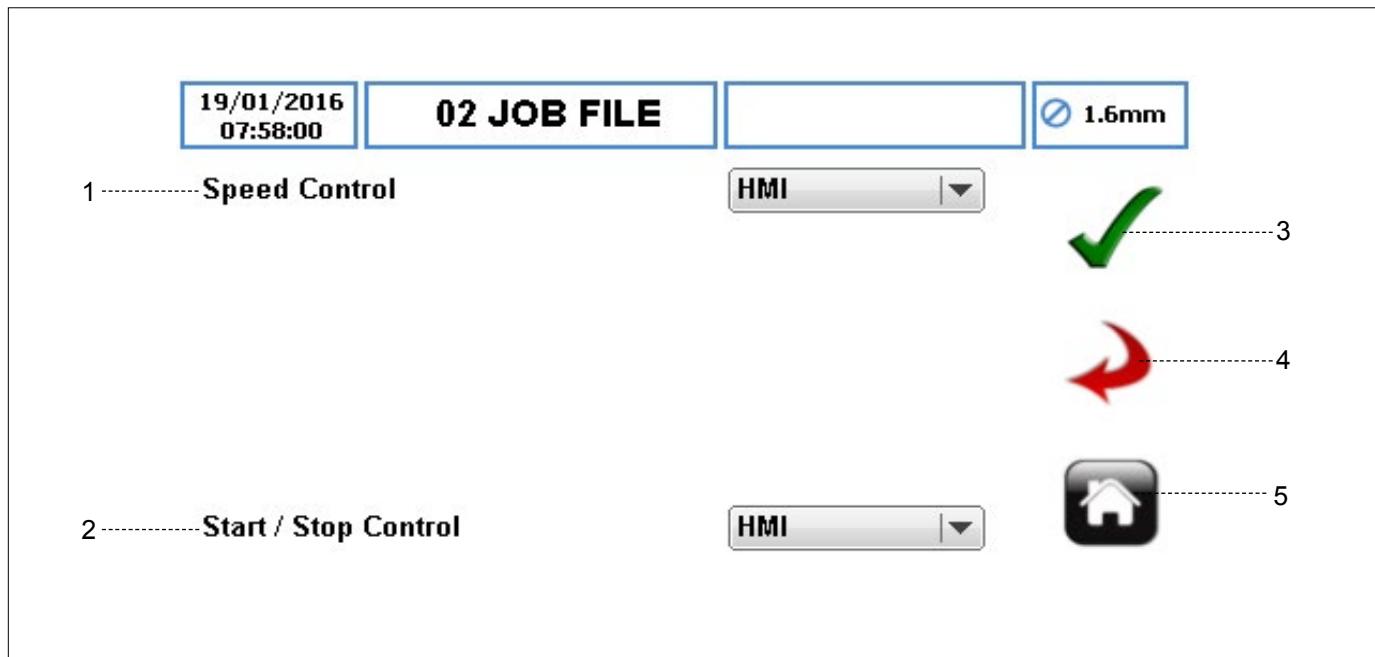


Figure 35 Remote Control Menu

Note

Depending on the pump model, some options for speed control and/or start/stop control may not be selectable. For more information about remote control, see (*Appendix D*).

1. SPEED CONTROL – set the speed control mode from a drop-down list:
 - a. HMI
 - b. 4-20 mA
 - c. 0-10 V
 - d. Proportional Flow Mode
 - e. Fieldbus
 - f. WiFi

2. START/STOP CONTROL – set the start/stop control mode from a drop-down list:
 - a. HMI
 - b. 25 WAY REMOTE I/O CONNECTOR
 - c. Fieldbus
 - d. Fieldbus + 25 WAY REMOTE I/O CONNECTOR
 - e. WiFi

Note

The default for Speed Control and Start/Stop Control will be set to HMI.


3. ACCEPT – accepts all changes within the Job File. Changes made on this screen are not saved until this icon is pressed.
4. GO BACK/CANCEL – cancels any changes and return to the Job File Menu. If the user has made changes, there will be a prompt asking the user if the changes should be saved.
5. HOME – returns the user to the Home Screen. If the user has made changes, there will be a prompt asking if the changes should be saved.

For more information, please refer to the relevant digital control appendices:

Control Mode		Relevant Digital Control Appendices
HMI		Vantage 5000 Operating Manual
4-20 mA		Appendix D
0-10 V		Appendix D
Proportional Flow Mode		Appendix D
Scada/Breakout box		Appendix F
Fieldbus	Modbus	Appendix J
	Profibus	Not available
WiFi		Not available

Table 9 Relevant Digital Control Appendices

7.9 Logs / History

To access the logs/history menu, touch the icon  as indicated in Figure 8, item 6.

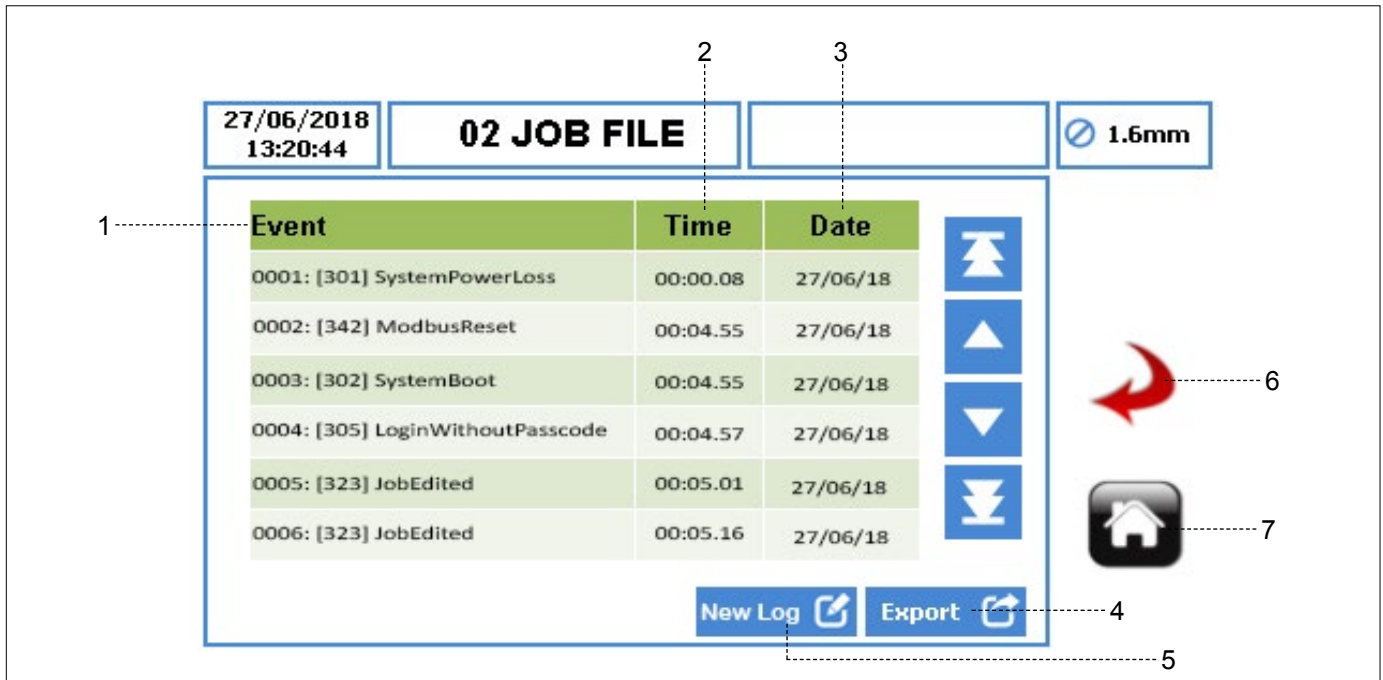


Figure 36 Logs / History Menu

1. EVENT – title of the event that has been recorded.
2. TIME – time the event occurred, in the format HH:MM.SS.
3. DATE – date the event occurred, in the format DD/MM/YY.
4. EXPORT – allows the logs/history of the pump to be exported via the USB port in CSV format for detailed analysis (→ refer to Figure 3 to locate USB Port behind pump).
5. NEW LOG – allows the user to start a new logs/history of the pump.

CAUTION

A new log will delete all the logs/history of the pump. Verder strongly recommend exporting the logs/history file before starting a new log.

6. GO BACK/CANCEL – cancels any changes and return to the Job File Menu. If the user has made changes, there will be a prompt asking the user if the changes should be saved.
7. HOME – returns the user to the Home Screen. If the user has made changes, there will be a prompt asking if the changes should be saved.

8 Operational Modes

8.1 Flow Mode

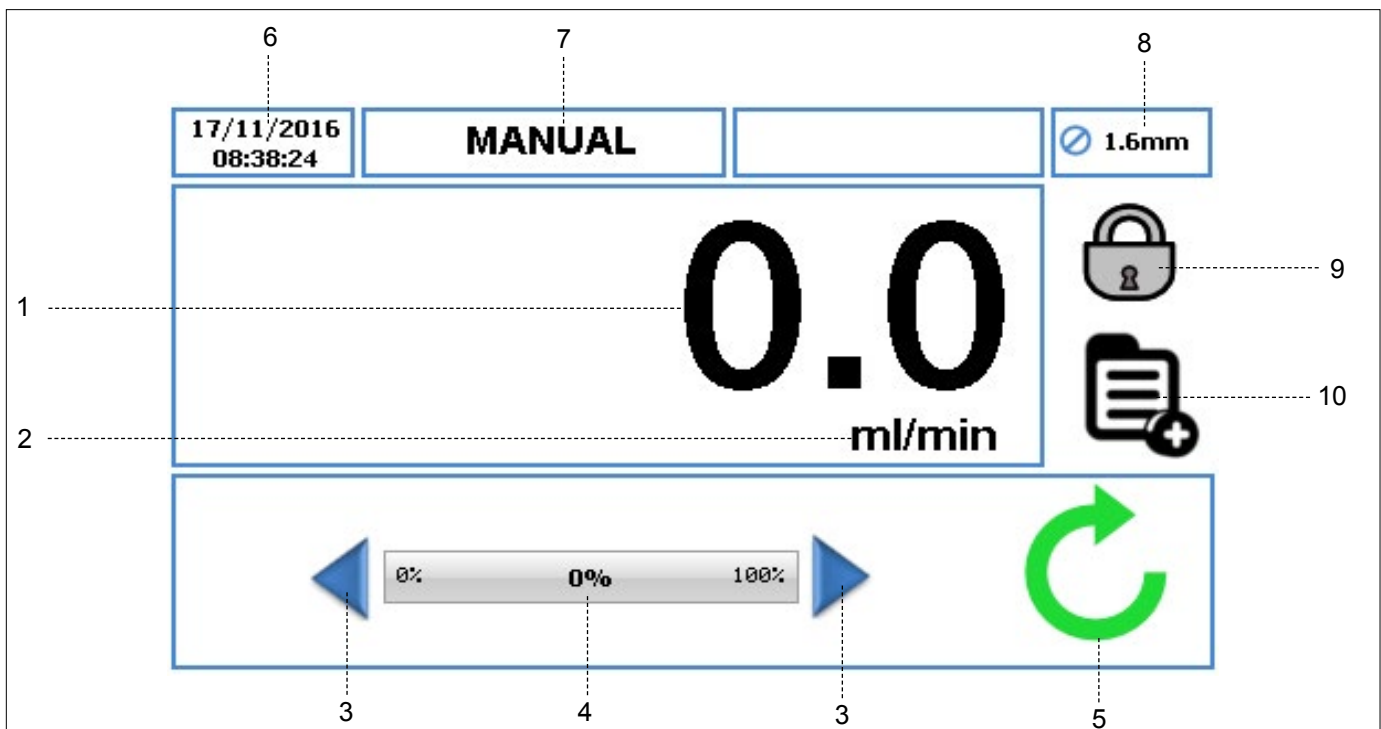






Figure 37 Flow Mode - Home Screen

1. Displays the flow rate of the pump. The user can change the flow rate in (→ 7.4 Edit Job Files).
2. Displays the unit of flow rate. The user can change the units of flow rate in (→ 7.4 Edit Job Files).
3. Increment/Decrement arrow will increase/decrease the flow rate **only** in the 'Manual' Job File. It can either be pressed once which will increment/decrement the flow rate in steps, or held down, which will gradually increase/decrease the flow rate. It is a temporary change on the Home Screen and does not change the flow rate in the Job File Menu. (→ 7.4 Edit Job Files)
Flow rates can be changed only by going into the job file when using editable programs other than "MANUAL".
4. The flow rate indicator displays the current flow rate as a percentage of the maximum available flow rate for the selected tube size.
5. Pump Status symbols:
 - a.  Displays the direction of rotation and RPM (if the pump is running). In 'Manual' Job File only, the direction of rotation can be changed by touching the symbol on the Home Screen.
 - b.  Indicates the pump is in pause mode, where there is a program active but the pump is temporarily paused.
6. Displays the current time and date as specified in the (→ 7.6 Settings). It is a read-only display.
7. Displays the current Activated Job File. The user can change the name of the Job File in (→ 7.4 Edit Job Files). It is a read-only display and will be displayed on every screen.
8. Displays the Tube Size, as defined in the currently activated Job File.
9. LOCK/UNLOCK
 - a. LOCK touchscreen, when pressed the back-light dims and the screen locks. This avoids accidental key presses.
 - b. UNLOCK touchscreen.
10. This icon allows the user to access the main menu. (→ 7.2 Main Menu)

8.1.1 Select the Flow Mode

 The operational Flow Mode is a default running mode.

Follow the steps below to make sure that Flow Mode is selected:

- ▶ Touch the icon  to unlock the screen and select the main menu .

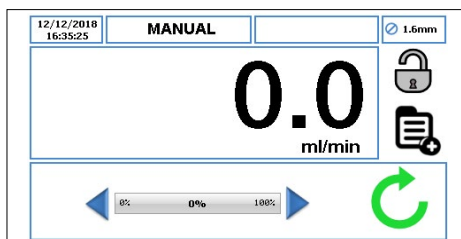


Figure 38 Unlock the Screen and Select the Main Menu

- ▶ To access the Job File Menu, touch the icon .

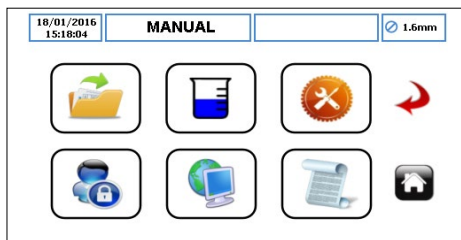



Figure 39 Select the Job File Menu

- ▶ Scroll through the available Job File and highlight the target Job File.
- ▶ To edit the Job File highlighted in red, touch the icon .

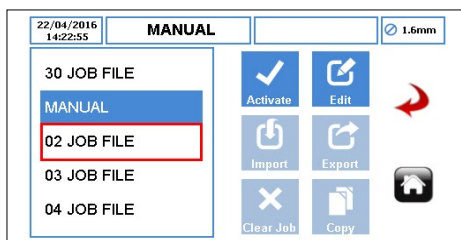


Figure 40 Edit the Highlighted Job File

- ▶ Make sure the Flow Mode is selected as shown in the Figure 41.

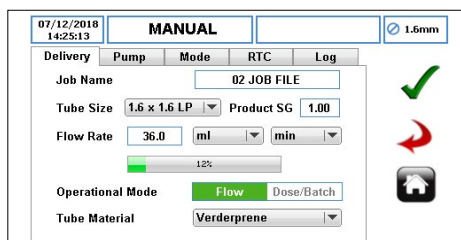



Figure 41 Select the Flow Mode

- ▶ Select  to accept all changes within the Highlighted Job File and the user will be returned to the Job File menu as shown in Figure 42. Changes made on this screen are not saved until this icon is pressed.

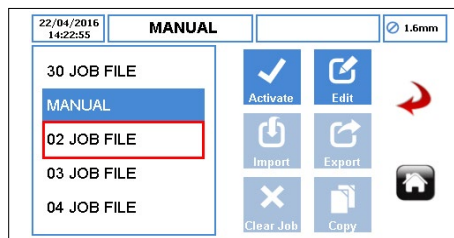



Figure 42 Job File Menu

- ▶ To activate the Highlighted Job File and any changes made, touch the icon . If the pump is running, the activate icon will be 'greyed out'. Once a Job File has been activated, the user will be prompted as per Figure 43.

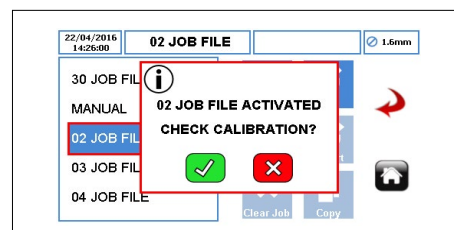


Figure 43 Job File Activated

Note

For more information about this screen, please see (→ 7.4 Edit Job Files).

8.2 Batch Mode

When the pump is set to run in BATCH mode (→ 8.2.1 Select the Batch Mode), the Home Screen will be as per Figure 44.

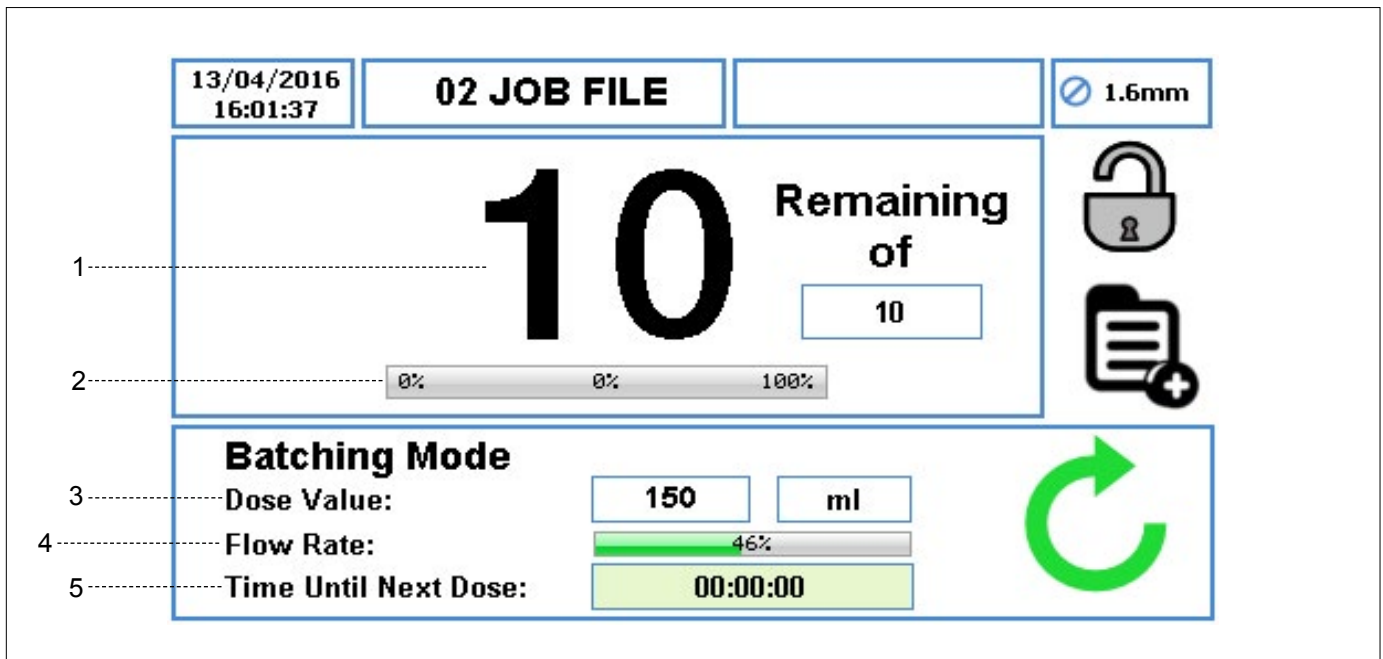


Figure 44 Batch Mode - Home Screen

1. It displays the total number of batches that has been set, also the number of remaining batches counting down during operation.; the flow rate is not shown.
2. The percentage of the current batch progress.
3. The dose value and the unit of measure.
4. The percentage of maximum available flow rate with selected tube size.
5. The time until next dose.

Note

- ▶ When the pump is running in batch mode, pressing the STOP button, the pump will be temporarily paused as per Figure 45.

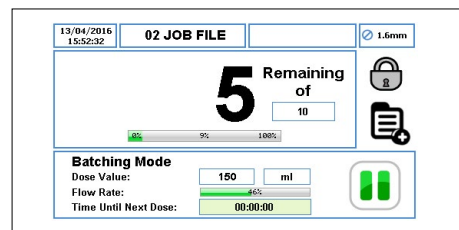


Figure 45 Pause Mode - Home Screen

- ▶ When the pump is running in batch mode, twice pressing the STOP button, the number of batches will be reset as per Figure 46.

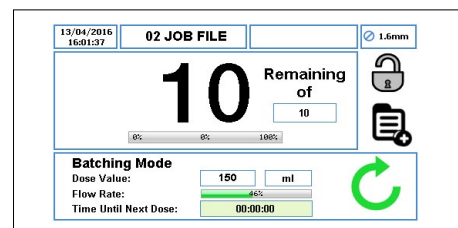




Figure 46 Reset Number of batches - Home Screen

8.2.1 Select the Batch Mode

Follow the steps below for how to select the Batch Mode:

- ▶ Touch the icon  to unlock the screen and select the main menu .

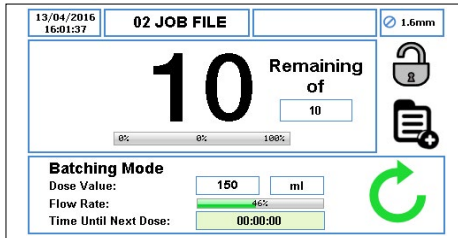


Figure 47 Unlock the Screen and Select the Main Menu

- ▶ To access the Job File Menu, touch the icon .

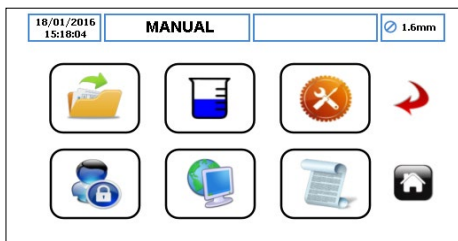



Figure 48 Select the Job File Menu

- ▶ Scroll through the available Job File and highlight the target Job File.
- ▶ To edit the Job File highlighted in red, touch the icon .

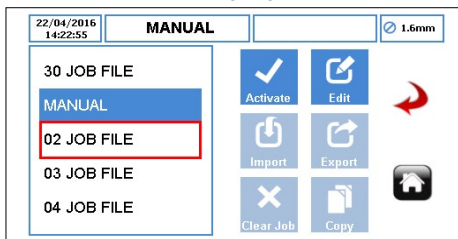


Figure 49 Edit the Highlighted Job File

- ▶ Make sure the Batch/Dose Mode is selected as shown in the Figure 50.

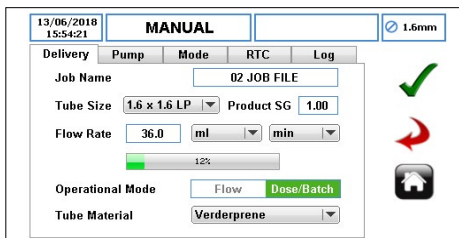


Figure 50 Select the Dose/Batch Mode

Note

For more information, please see (→ 7.4 Edit Job Files).

- ▶ Once the 'Dose/Batch' has been selected, select 'Batch' Mode as per Figure 51.

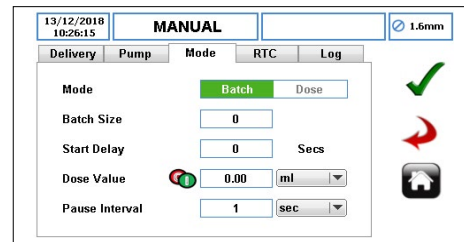


Figure 51 Batch Mode Selected

- ▶ Select the batch size to set the number of doses. A keypad will appear as per Figure 52.

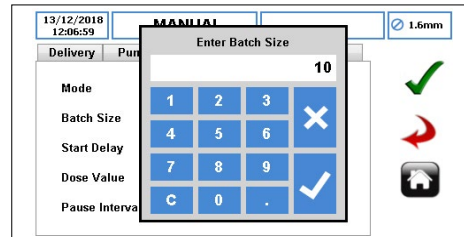


Figure 52 Enter the Batch Size

- ▶ Press "✓", the number of the doses will be displayed in the batch size box as per Figure 53.

Press "x" will abandon the batch size.

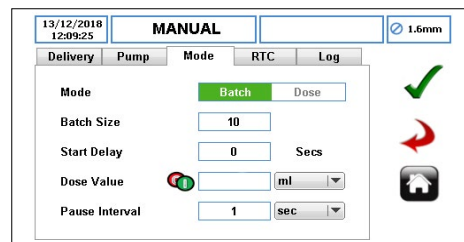



Figure 53 Batch Size Selected

- ▶ Make sure a dose value is setup before selecting  to accept all the changes.

If the dose value is zero, the user will be prompted as per Figure 54.

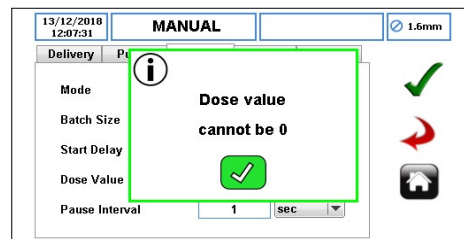


Figure 54 Dose Value Cannot be Zero

8.2.1 Select the Batch Mode (continued)

- ▶ Select the dose value to set the volume of the dose. A keypad will appear as per *Figure 55*.

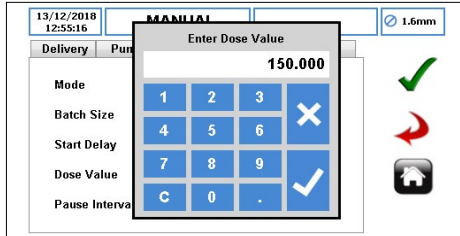


Figure 55 Enter the Dose Value

- ▶ Press “✓”, the volume the dose will be displayed in the dose value box as per *Figure 56*.

Press “x” will abandon the dose value.

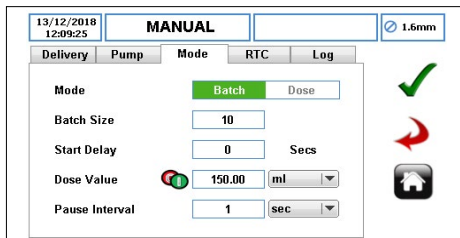




Figure 56 Dose Value Selected

 Make sure the unit of the dose value is set up accordingly.

- ▶ Select  to accept all changes within the Highlighted Job File and the user will be returned to the Job File menu as shown in *Figure 57*. Changes made on this screen are not saved until this icon is pressed.

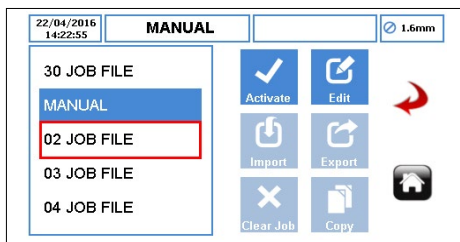



Figure 57 Job File Menu

- ▶ To activate the Highlighted Job File and any changes made, touch the icon . If the pump is running, the activate icon will be ‘greyed out’. Once a Job File has been activated, the user will be prompted as per *Figure 58*.

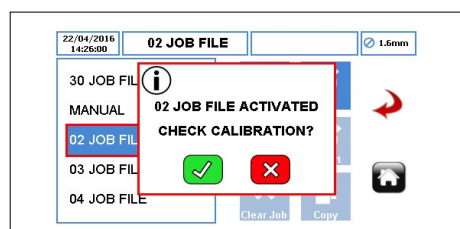


Figure 58 Job File Activated

8.3 Dose Mode

When the pump is set to run in DOSE mode (→ 8.3.1 Select the Dose Mode), the Home Screen will be as per Figure 59.

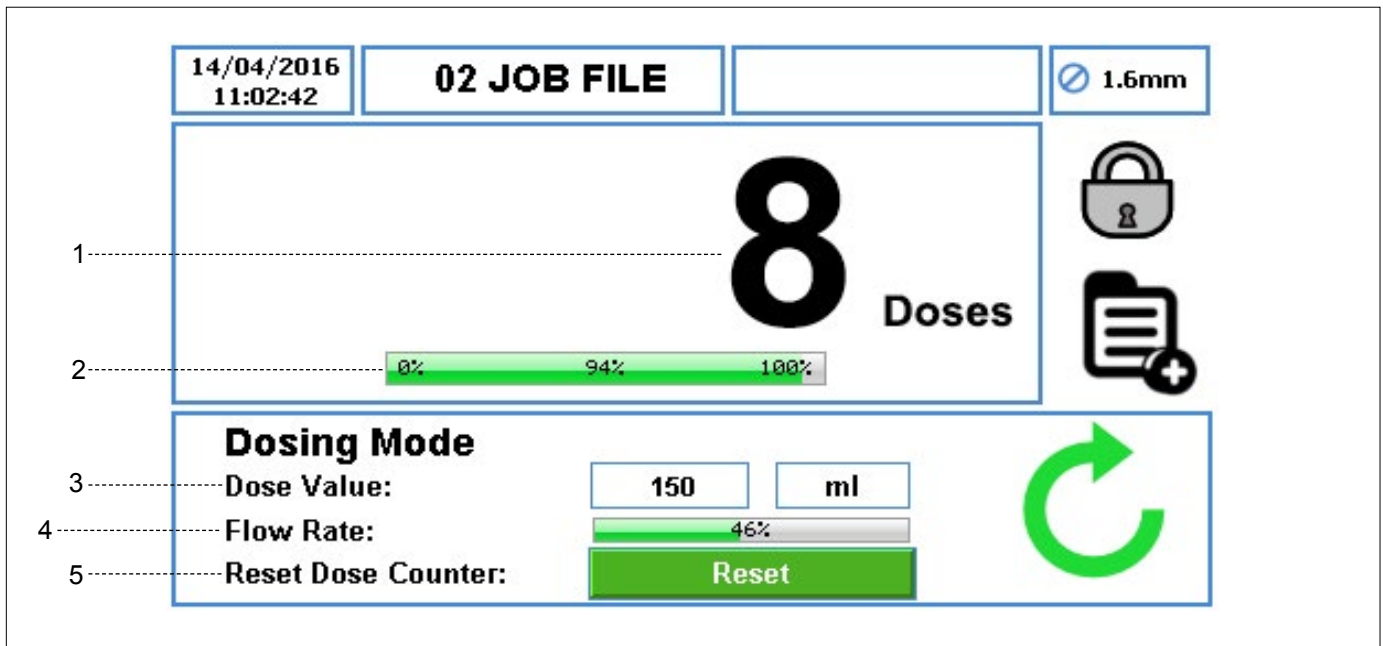



Figure 59 Dose Mode - Home Screen

1. It displays the number of completed doses counting up during operation; the flow rate is not shown.
2. The percentage of the current dose progress.
3. The dose value and the unit of measure.
4. The percentage of maximum available flow rate for the selected tube size.
5. The reset icon resets the dose counter to zero. This can only be pressed if the pump is stopped. When this icon is pressed, the user will be prompted to confirm the selection as per Figure 60.



Figure 60 Reset Dose Counter - Home Screen

Note

When the pump is set to run in DOSE/BATCH mode, with (→ 7.4.4 Real Time Clock (RTC) Setup), the icon  will be shown as per Figure 61.

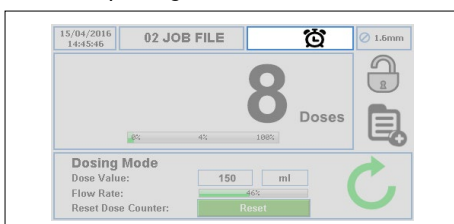


Figure 61 Real Time Clock (RTC) Enabled - Home Screen

Note

- ▶ When the pump is running in dose mode, pressing the STOP button, the pump will be temporarily paused as per Figure 62.

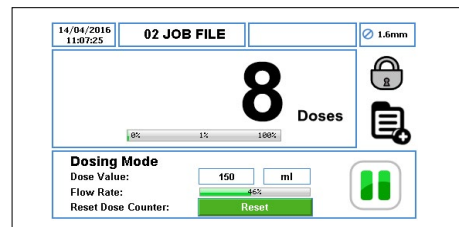


Figure 62 Pause Mode - Home Screen

- ▶ When the pump is running in dose mode, pressing twice the STOP button, the number of completed doses will be reset as per Figure 63.

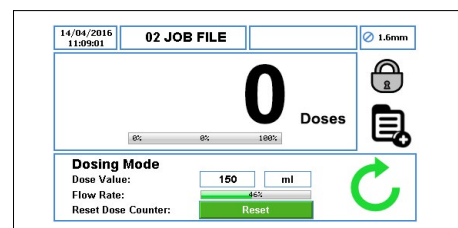


Figure 63 Reset Number of doses - Home Screen

8.3.1 Select the Dose Mode

Follow the steps below for how to select the Dose Mode :

- ▶ Touch the icon to unlock the screen and select the main menu .

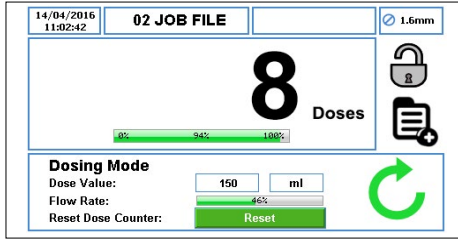


Figure 64 Unlock the Screen and Select the Main Menu

- ▶ To access the Job File Menu, touch the icon .



Figure 65 Select the Job File Menu

- ▶ Scroll through the available Job File and highlight the target Job File.
- ▶ To edit the Job File highlighted in red, touch the icon

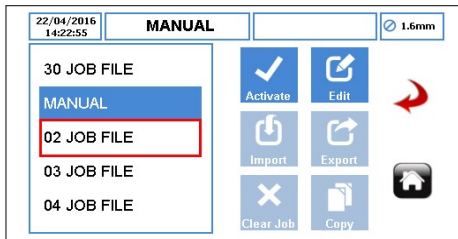


Figure 66 Edit the Highlighted Job File

- ▶ Make sure the Batch/Dose Mode is selected as shown in the Figure 67.

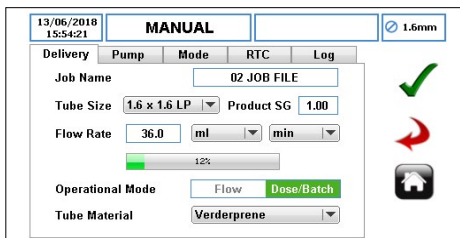


Figure 67 Select the Dose/Batch Mode

Note

For more information, please see (→ 7.4 Edit Job Files).

- ▶ Once the 'Dose/Batch' has been selected, select 'Dose' Mode as per Figure 68.

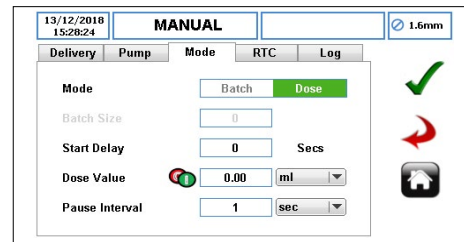


Figure 68 Dose Mode Selected

- ▶ Select the dose value to set the volume of the dose. A keypad will appear as per Figure 69.

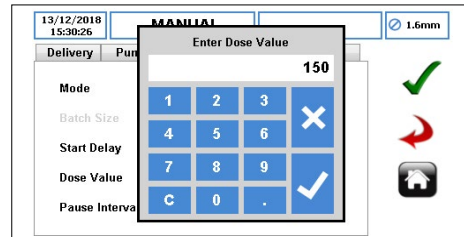


Figure 69 Enter the Dose Value

- ▶ Press "✓", the volume the dose will be displayed in the dose value box as per Figure 70.

Press "x" will abandon the dose value.

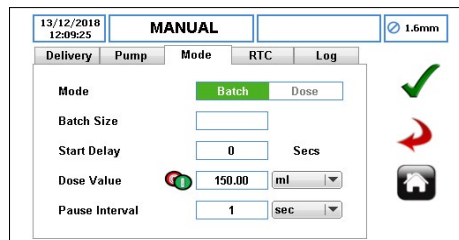


Figure 70 Dose Value Selected

- ▶ Select to accept all changes within the Highlighted Job File and the user will be returned to the Job File menu as shown in Figure 71. Changes made on this screen are not saved until this icon is pressed.

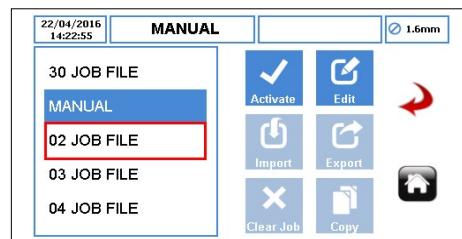


Figure 71 Job File Menu

- ▶ To activate the Highlighted Job File and any changes made, touch the icon . If the pump is running, the activate icon will be 'greyed out'. Once a Job File has been activated, the user will be prompted as per Figure 72.

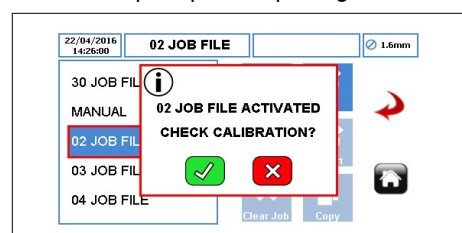


Figure 72 Job File Activated

8.3.2 Memory Dose

Before using the Memory Dose, the user must check that the Job File has been activated as per *Figure 73*. This function does not work in 'Manual' mode.

Memory Dose operates as follows:

- ▶ Select the flow rate, tube size, tube material and 'Dose/ Batch' mode as per *Figure 73*.

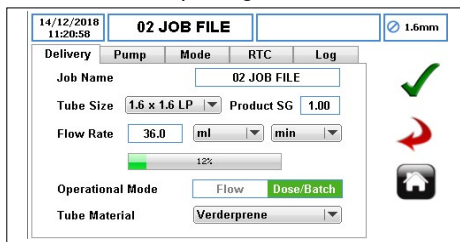


Figure 73 Select the Dose /Batch Mode

- ▶ Once the 'Dose/Batch' has been selected, select 'Dose' Mode as per *Figure 74*.

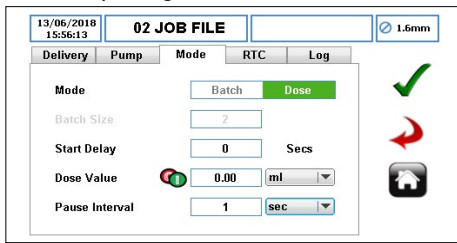


Figure 74 Select the Dose Mode

- ▶ Select the dose value. A keypad will appear as per *Figure 75*.

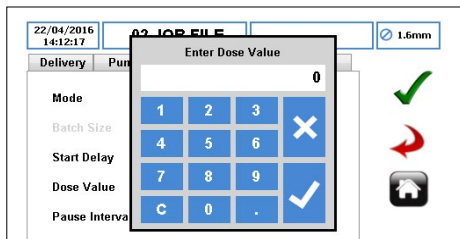


Figure 75 Select the Dose Value

- ▶ Set the value to zero (do not press "✓") and press the START button, the pump will start to dispense. When the required quantity of product has been dispensed, press the STOP button and the Memory Dose Value will be displayed as per *Figure 76*:

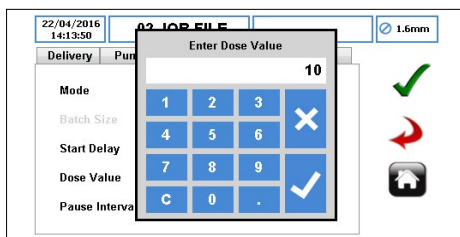


Figure 76 Memory Dose Displayed

- ▶ Press "✓", the value of Memory Dose will be displayed in the dose value box as per *Figure 77*.

Press "x" will abandon the Memory Dose.

The user can start another Memory Dose by following the steps listed previously.

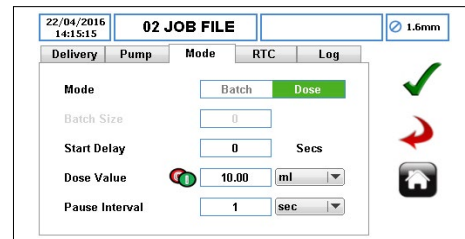


Figure 77 Memory Dose

Note

Memory dosing is saved in the job that was activated to request memory dosing in the first place. The saved values are only transferable to another job file if you perform a job 'copy' action.

9 Vantage 5000 Software Update Process

Note

For more information about Vantage 5000 software update process, refer to the additional document (Vantage 5000 Software Upgrade).

10 System Reset Procedure

CAUTION

A system reset will delete all existing information on the pump and should only be used when necessary. It will not be possible to recover previously saved job information once the system reset has been carried out.

Verder strongly recommend backing up job files/system settings in case it is necessary to perform a system reset.

Note

For more information about Vantage 5000 system reset procedure, refer to the additional document (Vantage 5000 Software Upgrade).

11 Vantage 5000 Screen Calibration

The Vantage 5000 allows for touchscreen calibration.

Users will be prompted for screen calibration when:

- the software has been updated (→ [9 Vantage 5000 software update process](#))
 - the system reset has been carried out (→ [10 System Reset Procedure](#))
-

Note

For more information about Vantage 5000 screen calibration, refer to the additional document (Vantage 5000 Software Upgrade).

12 Inspection, Maintenance and Repairs

DANGER


Risk of injury due to running pump!

- ▶ Do not carry out any repair/maintenance work on a pump in operation.
- ▶ Follow the safety procedures for handling the product being pumped. If the tube has ruptured, the pump head and rotor assembly may be contaminated and/or the pump head may be pressurized.
- ▶ Decontaminate before handling as per local safety regulations.
- ▶ Appropriate measures must be taken to relieve any pressure build up.

Risk of electrocution!


- ▶ Have all electrical work carried out only by qualified electricians.

12.1 Inspections

 The inspection intervals depend on the pump operating cycle.

1. Check at appropriate intervals:
 - Normal operating conditions unchanged
2. For trouble-free operation, always ensure the following:
 - No leaks
 - No unusual running noises or vibrations
 - Tube in position

12.2 Maintenance

 These pumps are generally maintenance free and any work should normally be limited to periodic inspections and cleaning; these may be more frequent in dusty, humid and/or hot conditions.

The pump motor is lubricated for life and should not require attention. Rotor assembly components will wear and may need replacing. Pump tubing will not last forever; establish suitable tube replacement schedule to prevent inconvenient tube failure.

The Vantage 5000 contains no user serviceable parts and is factory sealed to confirm integrity. Pump warranty will be invalidated if the seal is broken.

12.2.1 Cleaning the Pump Head

1. Clean the tube burst detector whenever a tube is being replaced.

CAUTION

Tube burst detector is an optical sensor used for detecting fluid in the tube chamber and requires periodic cleaning.

2. Clean contaminants from the pump head.
3. Clean the tube carefully to remove chemicals.
4. Clean the sensor surface area and the inner rim of the pump head chamber.

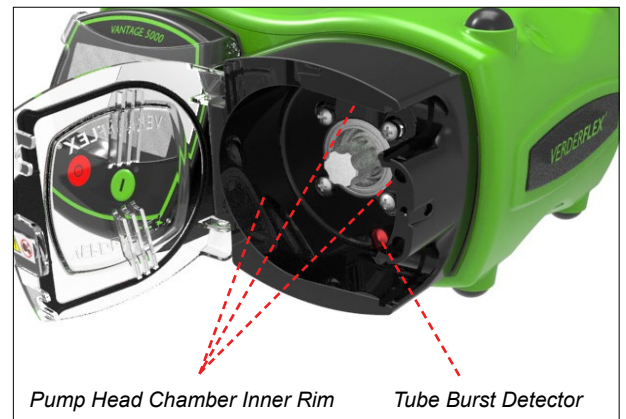


Figure 78 Tube Burst Detector

5. Recommended Cleaning Procedure
Gently wipe the screen, pump housing and pump head with a 70% IPA (Isopropanol / Propan-2-ol) solution applied on a clean lint free cloth and allow to evaporate in a well-ventilated area. Accumulated dirt may require more than one application to remove.

12.2.2 Maintenance Schedule

NOTE

Control interval can be used to help with planned preventive maintenance (PPM). (→ 7.4.5 Log Setup)

Task	Frequency	Action
Check pump for leaks and damage	<ul style="list-style-type: none"> – Before pump start up – Daily visual inspection – Scheduled intervals during operation 	<ul style="list-style-type: none"> ▶ Repair leaks and damage before operating the pump ▶ Replace components as necessary. Clean up any spillage.
Check pump for unusual temperatures or noise in operation	<ul style="list-style-type: none"> – Daily visual inspection – Scheduled intervals during operation 	<ul style="list-style-type: none"> ▶ Check pump for damage. Replace worn components.
Replace tube element	<ul style="list-style-type: none"> – After inspection when required – When flow has dropped by 25% of original value – When the tube is burst/damaged – In line with user defined planned preventive maintenance (PPM) intervals 	<ul style="list-style-type: none"> ▶ Replace tube (→ <i>Appendix B</i>) ▶ Clean the surface of the tube burst sensor. (→ <i>Figure 78 Tube Burst Detector</i>)
Check pump head and rotor assembly	<ul style="list-style-type: none"> – Annually – On replacing the tube 	<ul style="list-style-type: none"> ▶ Worn and damaged surfaces give rise to premature tube failure ▶ Replace worn components. ▶ Check bearing play and function.

Table 10 Maintenance Schedule

12.3 Repairs

There are no user serviceable parts inside the pump.
Repairs can only be carried out by the manufacturer or authorised service centre.


12.3.1 Returning the Pump to the Service Centre

- ▶ Completely emptied and decontaminated.
- ▶ Pump cooled down.
- ▶ Tube removed.

Obtain prior authorisation and returns advice number (for tracking purposes) before return of the pump.

- ▶ Enclose a completed return of goods form when returning pumps or components to the manufacturer.

12.4 Ordering Spare Parts

 For trouble free replacement in the event of faults, we recommend keeping spare parts available on site.

The following information is mandatory when ordering spare parts (→ Name plate):

- Pump model
- Year of manufacture
- Part number / Description of part required
- Serial number
- Quantity

13 Troubleshooting

13.1 Pump Malfunctions

If malfunctions occur which are not specified in the following table or cannot be traced back to the specified causes, please consult the manufacturer.

Possible malfunctions are identified and respective cause and solution are listed in the table.

Problem	Cause	Solution
Low Flow / Low Discharge Pressure	Ratio of inner diameter/wall thickness too large for the application (tube too 'soft').	Use thicker wall tube with the same inner diameter. This will require a different rotor assembly.
		Run pump slower with larger inner diameter tube.
	Viscosity too high.	Run the pump slower.
		Use thicker wall tube. This will require a different rotor assembly. Revise pipework.
	Suction lift too high, resulting in tube not fully returning to fully round.	Use thicker wall tube with the same inner diameter. This will require a different rotor assembly.
		Suction line too long or linear diameter too small. Revise pipework.
	Tube wall thickness does not match the specifications of the rotor assembly.	Purchase appropriate rotor assembly or change tube wall thickness.
	Discharge pressure too high, causing excessive backflow.	Rotor assembly will discharge more pressure in the clockwise direction.
		Reduce discharge pressure. Revise pipework.
	Using non-standard tubing.	Use Verderflex approved genuine tubing.
Tube blockage.	Check tube for obstructions.	
Pump needs calibrating for application.	Perform calibration under application conditions.	
Tube walks through pump head	Tube not installed correctly.	Check installation of tube.
	Tube wall thickness does not match the specifications of the rotor assembly.	Purchase appropriate rotor assembly or change tube wall thickness.
Premature tube failure	Tube wall thickness does not match the specifications of the rotor assembly.	Purchase appropriate rotor assembly or change tube wall thickness.
Excessive noise	Tube wall thickness does not match the specifications of the rotor assembly.	Purchase appropriate rotor assembly or change tube wall thickness.
Tube Burst Not Detected	Contamination of the optical sensor.	Clean contamination from the surface of the tube burst sensor. (→ Figure 78 Tube Burst Detector)

Table 11 Pump Troubleshooting List (continued)

13.1 Pump Malfunctions (continued)



Problem	Cause	Solution
Touch screen display is not responding or there is inaccurate selection of screen icons.	Screen calibration issues - If screen calibration is not carried out correctly, the pump screen will appear to be unresponsive to the touch commands.	Reset screen calibration. (→ 11.3 Resetting the Screen Calibration)
Cannot clear job.	The active job cannot be cleared.	Activate a different job, then move the red rectangle over the job to be cleared and press clear job.
The flow rate percentage bar appears inaccurate.	The percentage bar shown for the flow rate is adjusted according to the calibration value.	Check the calibration value for the job you are using by activating the job then entering the calibration menu. See the value in square brackets at the bottom of the calibration menu screen which is by default set to [1.00] unless a calibration has been performed. Each job has its own unique calibration value.
The dose or flow rate from some jobs appears inaccurate.	Each job has its own unique calibration which can be seen in square brackets [1.00] at the bottom of the calibration screen for the 'active' job.	Re-calibrate if required or use "Clear Job" to clear all parameters and calibration data from the highlighted Job File. (→ 7.3 Job Files)
Rear 25 way-D type connector interface is not responding.	Remote control menu not setup correctly.	Change remote control menu settings. (→ 7.8 Remote Control) Check that the icon  is visible at the top of the screen.
	Auto/Manual signal not set on the 25 way D connector.	Check that the icon  is visible in the information bar at the top of the screen.
	Wiring issue.	Refer to (→ APPENDIX E _25 WAY Remote IO Connector)
USB not ready message when using Backup or Restore functions.	The USB stick is not being correctly recognised.	Turn the power to the pump off then on again, enter the settings menu, then insert the USB stick, wait 30 seconds and then press backup or restore. If this fails, then use a different manufacturer of USB stick.
Unexpected behaviour occurred after changing settings.	Undefined or illegal operation.	Change pump settings back to known good settings and re-test. Change flow rate or activate a job.
Unexpected behaviour occurred from which the unit will not recover	Potential software confusion.	Power the unit off and on again. If the unit does not recover, reset the unit to factory default. (refer to → 10 System Reset Procedure).
A pumps software functionality is slightly different from another pump.	Different software version.	For the software version of the pump, (refer to → 7.6 Settings). For software upgrade, (please follow the instructions from the additional document → Software Upgrade Vantage 5000).
Unit not functional.	Various.	Turn OFF the Vantage 5000 pump using the ON/OFF switch on the back of the pump and then turn it ON again.
	Power not applied.	Check power switch on the rear is turned on. Check mains power is present.
	Black or white screen after power is switched on. Potential software or memory issue.	Update the software of the pump to the latest version, refer to the instructions from the additional document (→ Software Upgrade Vantage 5000) Contact distributor if problem persists.
Cannot communicate with the Vantage 5000 over Modbus.	Incorrect remote control menu settings .	Correct the Modbus® setting in the remote menu. Check that the icon is visible at the top of the screen.
	Incorrect address (device ID)	Correct the Modbus® address in the remote control menu.

Table 11 Pump Troubleshooting List (continued)

13.1 Pump Malfunctions (continued)

Problem	Cause	Solution
Cannot communicate with the Vantage 5000 over Modbus®	Communications failure	<p>Check if the Tx and Rx LED on your communication module are blinking.</p> <p>Possible wiring error follow the diagram in the Modbus® appendix. The A/B wire may be swapped.</p> <p>Larger networks can require lower baud rates dependent upon the length of the cable.</p> <p>Compare the Modbus® frame against the example given in the Appendix J - Modbus® RTU. Check for correct device ID, function number and starting address.</p> <p>Debug using a Modbus® scanner and using the examples given in the Appendix J - Modbus® RTU.</p>
	Modbus® timeout period reached	<p>Modbus® will time out if no communications are detected within 30 seconds.</p> <p>The actual timeout occurs after a further 10 seconds. The unit will then revert to failsafe settings. Unit may require a stop then start signal to continue.</p>
	Communications error after Modbus® timeout	<p>A communications delay is present after a Modbus® communications timeout occurs. Often 30 seconds.</p>
	Noise or error on Modbus®	<p>Improve network installation.</p> <p>Use good quality screened twisted pair Modbus® cable. Use the correct termination method defined in the Appendix J - Modbus® RTU.</p> <p>On the Modbus® wiring ensure signal 0 volt line is connected to the correct pin on the Vantage 5000 and connected to the protective ground (protective Earth) at only one point in the Modbus system.</p> <p>The cables shield should be connected to protective ground (protective Earth) via the method stated in the "Modbus® over Serial Line Specification and Implementation Guide".</p>

Table 11 Pump Troubleshooting List

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15 Declaration of Conformity



<p>Description Verderflex Vantage 5000</p> <p>Conformity VERDER Ltd., declares that when the pump is used as a stand-alone pump it complies with:</p> <ul style="list-style-type: none"> • Machinery Directive (2006/42/EC) • Electro-Magnetic Compatibility Directive (2014/30/EU) • Low Voltage Directive (2014/35/EU) <p>Standards VERDER Ltd., declares that the pump is conformance with the following harmonised standards and directives:</p> <ul style="list-style-type: none"> • Safety of Machinery-Electrical equipment of machines (BS EN 60204-1) • Safety requirements for electrical equipment for measurement, control and laboratory use (BS EN 61010-1) • Safety of machinery-Basic concepts, general principals of design (BS EN ISO 12100-1 and BS EN ISO 12100-2) • Degrees of protection provided by enclosures (IP code) (BS EN 60529) • Electromagnetic compatibility (EMC). Generic standards. Immunity for residential, commercial and light-industrial environments (BS EN 61000-6-1) • Electromagnetic compatibility (EMC). Generic standards. Emission standard for residential, commercial and light-industrial environments (BS EN 61000-6-3) 		
Manufacturer		VERDER Ltd. Unit 3 California Drive Castleford WF10 5QH UK
Date: 01/ 10/ 2020	Company stamp / signature:  Anthony Beckwith Head of Development/Construction	Company stamp / signature:  Paul Storr Head of Quality

Table 12 Declaration of Conformity

16 Declaration of Incorporation



<p>Description Verderflex Vantage 5000</p> <p>Incorporation VERDER Ltd., declares that if the pump is to be installed into a machine or is to be assembled with other machines for installations in accordance with the Machinery Directive (2006/42/EC), it shall not be put into service until the relevant machinery has been declared in conformity.</p> <p>Standards VERDER Ltd., declares the following harmonised standards have been applied and fulfilled:</p> <ul style="list-style-type: none"> • Safety of Machinery (BS EN ISO 12100) • Safety of Machinery – Electrical Equipment of Machines (BS EN 60204-1) <p>We hereby declare the technical documentation is compiled in accordance with Annex VII(B) of the Directive.</p>		
<p>Manufacturer</p>	<p>VERDER Ltd. Unit 3 California Drive Castleford WF10 5QH UK</p>	
<p>Date: 01/ 10/ 2020</p>	<p>Company stamp / signature:</p>  <p>Anthony Beckwith Head of Development/Construction</p>	<p>Company stamp / signature:</p>  <p>Paul Storr Head of Quality</p>

Table 13 Declaration of Incorporation

17 Trademarks

VERDERFLEX® is a registered trademark of Verder International B.V. No permission is granted to use any Verder, trademarks or trade names included in this document without the prior written agreement of Verder International B.V.

Modbus® is a registered trademark of Schneider electric USA, INC.

Tri-clamp® is a registered trademark of Alfa Laval Corporate AB.

Hypalon® is a registered trademark of RSCC Wire & Cable LLC.

Profibus® is a registered trademark of PROFIBUS Nutzerorganisation e.V.

Appendix

1 Pump Specifications

1.1 Specification Ratings

Size	Value
Operating temperature	+5 °C to +40 °C (41°F to 104 °F)
Storage temperature	-40 °C to +70 °C (-40°F to 158 °F)
Humidity (non-condensing)	long-term ≤ 80 %
Maximum altitude	Setup height above sea level ≤ 2000 m (6560 ft)
Power consumption	<230 W
Supply voltage	100-240 VAC 50/60 Hz <230 W
Maximum voltage fluctuation	+/-10% of nominal voltage. A well regulated electrical mains supply is required along with cable connections conforming to the best practice of noise immunity
Installation category (overvoltage category)	II
Pollution degree	2
IP	IP66 to BS EN 60529. Equivalent to NEMA 4X as per NEMA 250 *(indoor use - protect from prolonged UV exposure)
dB rating	<70dB(A) @ 1.0m*
Control ratio	4000:1
Maximum speed	400 rpm

Table 1 Specification Ratings

* Sound pressure level is measured by the responsible body at both operators position in normal use and at whatever point 1.0m from the enclosure of the equipment that has the highest sound pressure rating.


1.2 Rotor Options

Rotor Options	Tube Bore (mm)	Tube Type
LP 1.6WT Tube, Lower Pressure	1.6	Continuous Tubing; Tube Assemblies
	3.2	
	4.0	
	4.8	
	6.4	
LP 2.4WT Tube, Lower Pressure	8.0	Continuous Tubing; Tube Assemblies
	3.2	
	4.8	
	6.4	
MP 2.4WT Tube, 4 BAR Pressure	8.0	Tube Assemblies
	9.6	
HP 3.2WT Tube, 7 BAR Pressure**	3.2	Tube Assemblies

Table 2 Rotor Options

** Before using a new tube assembly, make sure the pump is run in the counter-clockwise direction for 1 minute.

1.3 Tube Options


 For safety reasons we do not recommend pumping liquids greater than 80°C (176°F). The following criteria are important when selecting a tube:

- Chemical resistance
- Food grade quality
- Tube life
- Physical compatibility

Type	Feature
Verderprene	General purpose tubing
Silicone	High sterility tubing
Other	Others

Table 3 Verderflex Tube Variants

1.4 UL Classification Remark (applicable for USA and Canadian Market Only)

 These pumps are UL classified exclusively for public water treatment facilities. Products installed at public water treatment facilities are considered to be used in high flow applications only.