FinnSonic

Käyttö- ja turvaohjeet
Bruks- och skyddsanvisningar
Brugs- og sikkerhedsanvisninger
Operating and safety instructions
Bedienungs- und Sicherheitsanleitung
Bedienings- en veiligheidsvoorschriften
Consignes de securite et instructions de mise en service
Istruzioni d'uso e di sicurezza
Kezelési és biztonsági utasítások
Инструкция по эксплуатации и технике
Kasutus- ja ohutusjuhend

Versa+ 40/IV HDV TD15
model

5130091-08-14
serial no.

FOR SALES AND SERVICE:
TURBEX LTD
UNIT 1, RIVERWEY INDUSTRIAL PARK
NEWMAN LANE, ALTON, HANTS GU34 2QL
TEL: ALTON (01420) 544909 FAX: ALTON (01420) 542264

Turbex

FinnSonic

FinnSonic OY
Parikankatu 8
FIN - 15170 LAHTI FINLAND
www.finnsonic.com

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FinnSonic
Addicted to Cleanliness.

Manufacturer
FinnSonic Oy
FIN-15170 Lahti
www.finnsonic.com
FINLAND

AE44

Model	V031A Versa+ Range			
Code	Versa+ 40/IV HDV TD15			
Serial No.	5130091-8-14			
El. dwg	513009100			
Volts, Freq	480 VAC, 60 Hz			
Power	20 kW	Weight	2400 kg	
Amps	50 A	Year	2014	

FI **Koneessa on arvokilpi, johon on merkitty mm. KONEEN TYYPPI (MODEL) ja SARJANUMERO (SER. NO.).Ilmoita nämä numerot aina, kun otat yhteyttä koneen valmistajaan tai jälleenmyyjään.**

SV **Maskinen är försedd med MODELL och SERIENUMMER. Ange dessa vid kontakt med tillverkaren eller återförsäljaren av maskinen.**

DA **På maskinen er angivet model og serienummer. Oplys disse numre ved kontakt med fabrikken eller importøren.**

EN **The machine is provided with MODEL and SERIAL NUMBERS. Please announce these numbers when contacting the manufacturer or distributor of the machine.**

NL De machine is voorzien van model en serienummer. Gebruik deze aub bij elke vraagstelling aan de fabrikant of invoerder betreffende deze machine.

DE **Die Maschine besitzt eine MODEL- und SERIENNUMMER. Bitte nennen Sie diese Bezeichnungen wenn Sie zu dem Hersteller oder der Vertretung Kontakt aufnehmen.**

FR **La machine est repérée par un NOM DE MODELE et un NUMERO DE SERIE. Pour toute demande concernant cette machine, veuillez indiquer ces références.**

FinnSonic

EC DECLARATION OF CONFORMITY

Manufacturer: **FinnSonic Oy**

Address: Parikankatu, 8
FIN-15170 LAHTI

declares that the machinery

VERSA+40/IV HDV TD15
5130091 - 08 - 14

- **complies with the EC Machine Directive** **2006/42/EC**
- **complies with the EMC Directive** **2004/108/EC**
- **complies LVD Directive** **2006/95/EC**

The technical documentation for the machinery is available from:

Name: Pasi Vähäkuopus

Address: Parikankatu, 8
FIN-15170 LAHTI

Place of issue: **Lahti 17th Mars 2014**

Signature:

Name of authorised representative, title: Timo Laatunen, Production Manager

Risk analysis is based on particularly the following standards; SFS-EN ISO 12100, SFS EN ISO 13849-1:2008, SFS EN 12921-1, A1:2010.

3.1 SAFETY INSTRUCTIONS

NOTE!

BEFORE DOING ANY SERVICE OR MAINTENANCE WORK TO ANY SYSTEM OF THE MACHINE, TAKE INTO CONSIDERATION THE FOLLOWING PRINCIPLES:

ELECTRICAL EQUIPMENT

ONLY QUALIFIED AND EXPERIENCED ELECTRICIANS MAY OPEN THE CONTROL PANELS FOR REPAIR OR MAINTENANCE.
NEVER SWITCH THE SAFETY EQUIPMENT AND/OR SYSTEMS OFF.
LOCK THE MAIN SWITCH IN THE OFF POSITION DURING MAINTENANCE WORK.
ONLY QUALIFIED AND EXPERIENCED PEOPLE MAY CARRY OUT REPROGRAMMING.
NEVER PUT PARTS ONTO THE TRANSDUCER BOXES OR VIBRATING SURFACE, OTHERWISE THE TRANSDUCERS MAY DAMAGE. USE SUITABLE BASKET OR OTHER CONVENIENT METHOD.

COMPRESSED AIR SYSTEM

STUDY CAREFULLY THE PNEUMATIC DIAGRAM BEFORE ANY SERVICE WORK.
SWITCH OFF THE PNEUMATICS SYSTEM DURING MAINTENANCE AND REPAIR WORK.
IF NECESSARY, LOCK THE MAIN PNEUMATIC SUPPLY VALVE IN THE OFF POSITION DURING MAINTENANCE.

PIPEWORK

REPAIR ALL LEAKS IMMEDIATELY, AS AND WHEN THEY OCCUR.
BE CAREFUL OF HOT HOSES AND PIPES.
BEFORE ANY SERVICE SHUT OFF NECESSARY VALVES, STOP NECESSARY PUMPS AND RELEASE PRESSURE FROM SYSTEM.

HEAT

BE CAREFUL OF VERY HOT SURFACES IN THE DRYER.
WEAR PROTECTIVE CLOTHING, ESPECIALLY GLOVES, WHEN PLACING BASKETS IN THE DRYER.
BE CAREFUL WITH DRIED PARTS, THEY MAY BE VERY HOT.
THE TANKS AND SPRAY RINSES NORMALLY USE HOT WATER.
REMEMBER ALL TIMES THAT THE MACHINE IS AUTOMATIC.

CHEMICALS

READ AND BE SURE THAT YOU UNDERSTAND THE INSTRUCTIONS FOR USE THAT ACCOMPANY ALL CHEMICALS BEFORE YOU BEGIN TO USE THEM.
PAY SPECIAL ATTENTION WHEN HANDLING ACIDS, ALCALINES AND FLAMMABLE LIQUIDS!
MANY CHEMICALS ARE SUBJECT TO THERMAL DECOMPOSITION IN HIGH TEMPERATURES (WELDING, OVERHEATING ETC.) THEREFORE HAZARDOUS SUBSTANCES MAY BE FORMED.
DO NOT WASH YOUR HANDS IN ULTRASONIC TANKS.
WEAR PROTECTIVE CLOTHING (GLOVES, GOGGLES, ETC.) WHENEVER NECESSARY.
NEVER MOVE EQUIPMENT THAT IS FULL OF LIQUID BECAUSE OF THE OBVIOUS DANGER OF SPILLAGE.
THIS UNIT WAS DESIGNED FOR NON-INFLAMMABLE CLEANING AGENTS ONLY (INCLUDING SOLVENTS) UNLESS OTHERWISE SPECIFICALLY MENTIONED IN THE OPERATING INSTRUCTIONS.
WHEN USING INFLAMMABLE SUBSTANCES, REMEMBER TO KEEP A CLEARLY MARKED FIRE EXTINGUISHER WITHIN REACH AT ALL TIMES.

GASES AND VAPOURS
KEEP COVERS, LIDS AND WINDOWS CLOSED DURING THE CLEANING OPERATION.
KEEP COVERS, LIDS AND WINDOWS CLOSED WHEN THE UNIT IS NOT IN USE.
MAKE SURE THAT THE VENTILATION SYSTEM IS FUNCTIONING PROPERLY.

NOISE
KEEP COVERS AND LIDS CLOSED WHENEVER POSSIBLE.

MOTION
NEVER EVEN ATTEMPT TO ACCESS A MACHINE IN OPERATION OR GO WITHIN REACH OF ANY OF ITS MOVING PARTS.
DO NOT SIT OR STAND ON THE CONVEYORS. DO NOT CLIMB ONTO ANY PART OF THE MACHINE.

COVERS
NEVER USE THE MACHINE WITH THE MAINTENANCE COVERS OPEN.
NEVER SWITCH OFF THE SAFETY EQUIPMENT.

SLIPPING
TO PREVENT SLIPPING ACCIDENTS KEEP THE IMMEDIATE AREA AROUND THE MACHINE CLEAN, TIDY AND WELL AND EVENLY LIGHTED.

FALLING
MAKE SURE THAT LOOSE ITEMS ARE SECURELY FASTENED TO THE HOIST.
DO NOT OVERFILL THE BASKET. OBSERVE MAXIMUM WEIGHT LIMITS.
NEVER GO BENEATH A LOAD.

REPAIR AND MAINTENANCE NEEDS
DO NOT USE EQUIPMENT THAT IS FAULTY.
ADVISE WHOEVER IS RESPONSIBLE THAT THE EQUIPMENT NEEDS REPAIR OR SERVICE.
CLEAN AND MAINTAIN ALL SAFETY AND INSTRUCTION LABELS, SAFETY DEVICES AND PILOT LAMPS OF THE MACHINE. IN CASE A LABEL, SAFETY DEVICE OR LAMP IS DAMAGED INFORM AUTHORIZED PERSON ABOUT THE NEED OF REPAIR OR CONTACT THE FINNSONIC DISTRIBUTOR FOR REPLACEMENT.

DEFECTS IN THE INSTALLATION
INFORM THE AUTHORIZED PERSON IMMEDIATELY ABOUT ANY DEFECTS IN THE INSTALLATION

REPAIR MATERIAL AND WORK
DO NOT RUN THE MACHINE WHILE THERE IS A FAILURE IN THE MACHINE
INFORM THE AUTHORIZED PERSON ABOUT NEED OF SERVICE OR REPAIR
USE ONLY SPECIFIED SPARES AND MATERIALS FOR ANY REPAIR

TRAINING
READ CAREFULLY THROUGH ALL INSTRUCTIONS BEFORE STARTING THE MACHINE

MAKE SURE THAT YOU RECEIVE ADEQUATE TRAINING IN THE USE AND OPERATION OF THE MACHINE.

3.2 SAFETY EQUIPMENT

Your FinnSonic cleaning machine is fitted with four emergency stop buttons. Activating any of these buttons stops all functions of the machine immediately and locks the unit off from the electricity supply, and the pilot lamp EMERGENCY STOP ALARM is lit. Release the emergency stop button and reset the alarm with the EMERGENCY STOP ALARM RESET button before restart.

The dryers are equipped with safety thermostats. When a thermostat is activated the ALARM light is lit. In case of overheat alarm the safety thermostat turns the heating off at the dryer. The alarm can be reset when the dryer has cooled down.

The equipment also features safety windows which stops the transporter when a window is opened. Window alarm is indicated with the ALARM pilot light. The operation of the machine continues automatically after closing all windows.

The main switch is in the electrical control cabinet and can be locked into the OFF position for repair or maintenance.

If any repairs are made to the machine, the main switch must be locked into the OFF position, compressed air switched off and water supply lines closed.

WARNING! In case of danger, the unit must be stopped immediately by activating any of the emergency stop buttons.

3.3 USE OF MACHINERY

Before taking the cleaning line into use, read and study the safety and operation instructions carefully.

In case of emergency, stop the machine by pressing an EMERGENCY STOP button. There are four buttons located as follows:

1. On control cabinet
2. On rear side of machine
3. On loading place
4. On unloading place

3.4 CLEANING PROCESS

STAGE 1, STAGE 2

Ultrasonic cleaning always involves immersion cleaning. Its efficiency is based on high frequency sound vibrations which cause strong cavitation in liquid. Microscopic cavitation bubbles implode on the surface of a component, removing contaminants by means of powerful pressure strokes. Ultrasonic cleaning also affects all holes and channels where there is liquid. The consumption of energy and detergent is low.

Storage tank with oil separation

The storage tank is connected to wash or rinse tank. It expands the bath volume and thus prolongs intervals between bath changes. The storage tank is connected to the treatment tank via over flow weir, allowing the liquid level in treatment tank remain unchanged. Level changes caused by various loads happen in the storage tank. Also, the over flow enables continuous surface skimming in the treatment tank, which helps to keep the bath surface clean. The oil on the surface ends up in the storage tank, for removal with an optional oil separator. The liquid is lead from storage tank back to the treatment tank with a pump and this creates a continuous liquid cycle. To the return cycle can additionally be connected an optional particle filter for removal of impurities. Filtration improves cleaning result and extends bath life.

STAGE 3

Jet turbulation is a cleaning/ rinsing method in which parts are immersed in a detergent. Cleaning/rinsing is enhanced by powerful spray under immersion. Jet turbulation is suitable for water based liquids and AIII class solvents. The machine includes a safety thermostat, which protects the components, machine and chemical against overheating.

STAGE 4

The wash stage can be followed by rinsing components in a separate tank. Rinsing is typically carried out with warm water; alternatively, a spotless rinsing result can be achieved by using deionised water.

A further rinsing effect can be provided by moving parts in the liquid, air bubble agitation or a combination of these techniques.

Liquid consumption can be reduced by using several rinse stages. The rinsing process is carried out by moving parts from the more contaminated liquid (pre-rinse) into a cleaner solution. Rinse water can also be circulated, and it is possible to filter mechanical impurities

and detergent residues from the liquid. Rinse stages are essential in pursuit of an excellent level of cleanliness of your components.

STAGE 5

Drying with hot air prevents the corrosion of cleaned components and is often a precondition for successful production.

The drying temperature depends on the heat tolerance of the components. Too high a temperature can melt or cause discolouration. The drying time depends on the weight and quantity of components to be cleaned, the amount of liquid on parts as well as the drying temperature.

An adjustable airflow guide plate inside the dryer maintains the set temperature level. Fresh air can be let into the tank, if necessary, by lifting the edge of the lid onto the left side of the basket handle. The heating power is adjusted in 2 stages. When the dryer temperature reaches close to the set limit, part of the heating power is switched off. This safety precaution prevents overheating.

STAGE 6: Vacuum drying with infra red heating

Infra red heating is combination of heating power (%) and pressure (kilopascals).

Drying sequence of vacuum drying:

Step 1: Drying time starts.
Step 2: If the pump is warm enough, it starts to decreases the chamber pressure immediately. If it is cold, there is a pre-heat stage..
Step 3: The vacuum treatment is running for the set time.
Step 4: At the end of the cycle, the pressure is returned to normal atmospheric pressure and the vacuum pump overrun time starts.

3.5 MAIN FEATURES AND ADVANTAGES OF ULTRASONIC CLEANING

Ultrasonic cleaning is always immersion cleaning. It's efficiency is based on high frequency sound vibrations, which cause strong cavitation in liquid. Microscopic cavitation bubbles implode on the surface of a work piece removing contaminants by means of powerful pressure strokes. Ultrasonic cleaning affects all holes and channels where there is liquid. Consumption of energy and detergent is low.

WASHING AGENTS

Use of a detergent will reduce surface tension of water and this intensifies ultrasonic cavitation. It dissolves and binds the dirt which has been loosened by ultrasonic. Select the washing agent according to the contamination to be loosened and the material of the work piece.

Alkaline chemicals:	e.g. grease and oil removal
Neutral chemicals:	cleaning of sensitive materials
Acidic chemicals:	e.g. rust and corrosion removal

Note!
This is general information of washing agents. When it's a question of your machine, always ensure that the hoses, the gasket in the pumps and the filters are applicable to the detergent used!

LIMITATIONS OF ULTRASONIC CLEANING

Ultrasonic cleaning result is not good with soft materials. The machine is not suitable for washing live organisms or plants.
Do not wash hands in the ultrasonic bath!

3.6 FILLING THE TANKS

Connect the water supply hoses to the connections behind the machine.
Make sure that the drain valves are closed.

TANK 1 & STORAGE TANK

- Open the filling valve to fill up the main tank and storage tank.
- Fill up until water level has reached the arrow level in storage tank.
- When correct liquid level is obtained, close the filling valve.

TANK 2

- Open the filling valve and fill up until overflow weir level has been reached.
- When correct liquid level is obtained, close the filling valve.

TANK 3

- Open the filling valve and fill up until overflow weir level has been reached.
- When correct liquid level is obtained, close the filling valve.

TANK 4

- Open the filling valve and fill up until overflow weir level has been reached.
- When correct liquid level is obtained, close the filling valve.

An automatic filling system is possible to take into use after basic filling. See chapter 3.12 AUTOMATIC FILLING

3.7 EMPTYING THE TANKS

Tank draining's and all tank overflows runs into a common wastewater tank, from where the water is automatically pumped further into another wastewater container (Customer supply). An alarm signal from the customers waste tank will generate an alarm which prevents the drain pump operation until the alarm signal is acknowledged and the alarm reset button pressed.

Stop all functions in the tank which will be drained.

STORAGE TANK

Open the drain valve.
Rinse the tank carefully.
Close the drain valve when the tank is empty.

TANK 1

Open the drain valve.
Rinse the tank carefully.
Close the drain valve when the tank is empty.

TANK 2

Open the drain valve.
Rinse the tank carefully.
Close the drain valve when the tank is empty.

TANK 3

Open the drain valve.
Rinse the tank carefully.
Close the drain valve when the tank is empty.

TANK 4

Open the drain valve.
Rinse the tank carefully.
Close the drain valve when the tank is empty.

3.8 HEATING

TANK 1-4 & STORAGE TANK

Check that there is enough liquid in the tank; no liquid level alarms are active. All alarms are shown on the operating interface.

Select the required mode from the operating interface:

Off:	Heating is not in use
Continuous:	Heating is continuously on
Scheduler 1:	Heating starts and stops according to a programmed timer 1

Set the required temperature from the operating interface.

Washing can be started when the temperatures have reached the set values.

The LINE CONTROL switch must be in position 1 to enable heating.

Heating is protected against low liquid level ⇒ heating does not start in case there is low liquid level in the tank.

DRYER 1

1. Check that there is not an overheat alarm in the dryer. All alarms are shown on the operating interface.

Select the required mode on the operating interface:

Off:	Heating is not in use
Continuous:	Heating is continuously on
Runtime:	Heating is on when there are baskets inside the machine and the machine is running

Set the required temperature on the operating interface.

The LINE CONTROL switch must be in position 1 to enable heating.

Dryer heating is protected against overheat ⇒ heating does not start in case the temperature is too high in the dryer. Overheat alarm setting must be set approx. 20-30°C higher than operating temperature in the chamber.

3.9 VACUUM DRYER (dryer 2)

Each washing program contains a setting for heating % and pressure in kilopascals (KPa).

Heating

When the basket is lowered into the vacuum dryer, the heating starts with the programmed power level.
The power level can be set between 5 – 90%.

Power control operates in a 10 second loop, i.e.a 50 % power level means that the heating is on for 5 seconds and off for 5 seconds.

If the setting is 90%, that means the heating is on for 9 seconds and 1 second off.

Pressure

When the basket is put into the chamber the dryer lid closes and the vacuum pump starts up.

If the pump has not been run during the last 20 minutes, the pump will run for 8 minutes with the valve shut to heat the pump up, otherwise the pump is immediately ready to decrease the chamber pressure.

The pump draws air from the dryer until the pre-set pressure is reached, and then pump pressure valve is closed and the pump stops.

When the water that comes into the chamber on the components and baskets turns into water vapour, the pressure rises inside the chamber. When the pressure goes 2 KPa over the set level the vacuum pump starts again, the pump valve opens and the pump sucks air again from the chamber until the set level is reached.

After the treatment time has elapsed, the chamber fill valve opens, and the air fills the chamber. When the chamber pressure rises above 80KPa, the dryer lid will open.

3.10 FILTRATION; STORAGE TANK, TANK 1, TANK 2 & TANK 4

Select the filtration mode for each tank on the operating interface:

Off: Filtration is not in use
Continuous: Filtration is continuously on
Continuous/
No treatment: Filtration is continuously on, but it is turned off while treatment is on
Scheduler 2: Filtration starts and stops according to a programmed timer 2
Scheduler 2/
No treatment: Filtration is on according the timer 2 (see previous mode), but it is turned off while treatment is on.

The LINE CONTROL switch must be in position 1 to enable filtration.

Filtration is protected against low liquid level ⇒ filtration does not start in case there is low liquid level in the tank.

The flow rate can be adjusted with valves (see flow diagram). Do not adjust the flow rate too high so that it disturbs the operation of ultrasonic in tank 1.

Change the filters regularly. When the differential pressure over the filter is higher than 1,5 bar change filter. See chapter 4. SERVICE.

NOTE! During automatic filling, filtration is stopped to prevent overfilling in tank 1.

3.11 OIL SKIMMER; STORAGE TANK

Select the oil skimming mode on the operating interface:

Off: Oil skimmer is not in use
Continuous: Oil skimmer is continuously on
Scheduler 2: Oil skimmer starts and stops according to a programmed timer 2

The LINE CONTROL switch must be in position 1 to enable oil skimming.

Oil skimmer is protected against low liquid level ⇒ oil skimming does not start in case there is low liquid level in the tank.

3.12 AUTOMATIC FILLING; TANK 1/STORAGE TANK, TANK 2 and TANK 4

Select the automatic filling function for the tank from the operating interface:

Off: Automatic filling is not in use
On: Automatic filling is in use

The LINE CONTROL switch must be in position 1 to enable automatic filling.

The flow rate can be adjusted with trim valves (see flow diagram).

3.13 ULTRASONIC; TANK 1 & TANK 2

Select the ultrasonic function from the operating interface:

Off: Ultrasonic is not in use
On: Ultrasonic is on during treatment time

Ultrasonic operation is protected against low liquid level ⇒ ultrasonic does not start in case there is low liquid level in the tank.

3.14 ULTRASONIC BOOSTER; TANK 1 & TANK 3

Select the ultrasonic booster function from the operating interface:

Off: Ultrasonic booster is not in use
On: Ultrasonic booster is on during treatment time

Ultrasonic booster changes the ultrasonic power level during the process (5 s high = 125 %, 15 s normal).

3.15 VERTICAL AGITATION; TANK 1-2

Select the agitation function from the operating interface:

Off:	Air agitation is not in use
On:	Air agitation is on during treatment time

3.16 BASKET DUNK AFTER TREATMENT; TANK 1-4

The purpose of basket dunk is to improve the cleaning result by moving the basket up and down in the tank.

Set the basket dunk times from the operating interface.

Setting area is from 0 to 10 times.

Basket dunk is carried out (if selected) after the treatment time.

3.17 AUTO PURGE TIME; TANK 3

To get the rinsing more effective, new tap water is fed into the tank. Excessive water is led to the drain through the weir.

Select the operation mode of purge function from the operating interface:

Beginning of treatment time:
Purge starts simultaneously with treatment time

End of treatment time:
Purge stops simultaneously with treatment time

Purge time works independently regardless treatment time.

Setting area is from 0 s to 200 min 59 s.

The flow rate is adjusted with a trim valve (see flow diagram).

3.18 TREATMENT TIME

In case the treatment time is set longer than 0 s on the operating interface, the basket is lowered into the appropriate tank or dryer for the set time. Otherwise the appropriate stage is skipped.

Setting area is from 0 s to 200 min 59 s.

3.19 DRIPPING TIME

In case the dripping time is set longer than 0 s on the operating interface, the basket is stopped for dripping above the appropriate tank for the set time.

Setting area is from 0 s to 200 min 59 s.

3.20 PNEUMATIC LIDS

The dryer lids are automatically opened and closed during automatic mode.

3.21 LOADING CONVEYOR

During automatic drive the loading conveyor starts when a basket is placed onto the loading place.

The loading conveyor moves the basket to the loading station. The conveyor runs for a while each time when a basket is set into the loading station. It stops when a basket has reached the end of the conveyor. After the transporter has moved the basket out from the loading station the conveyor will run again to ensure that the conveyor is empty.

The loading conveyor is equipped with run/hold –switch, which can be used to create a buffer for baskets on the conveyor.

3.22 UNLOADING CONVEYOR

During automatic drive the unloading conveyor starts when a basket is placed onto the unloading place.

The unloading conveyor moves the basket one basket length forwards. The conveyor runs for a set length every time a basket is placed on the unloading place.

The unloading conveyor is equipped with jog –button, which runs the conveyor forward.

3.23 SCHEDULER

There are three schedulers, which are controlling the heating, filtration and oil skimming of the machine. Each scheduler has two programmable timers.

Set the timer according work shifts to save power.

Example (heating): Mon - Fri

06:00 – 16:00

The heating will start at 06:00 and stop at 16:00 (if scheduler mode is selected) on selected days (from Monday to Friday).

3.24 LIGHT TOWER

The machine is equipped with a four colour light tower.

The following colour codes are used in the light tower:

Red:	Machine alarm
Amber:	Machine not in Fault, waiting parts
Green:	Machine is in automatic mode and operating

3.25 PROGRAM MENU

Program menu enables the user to change the program. Program editing is also possible for all programs (totally 10 programs).

For more details see chapter 3.32 CHANGING THE PROGRAM.

3.26 MANUAL MENU

Manual override of all functions is possible by the manual menu. Manual operations are mainly for test and maintenance use.

For more details see chapter 3.34 MANUAL OPERATIONS.

3.27 SERVICE MENU

Service menu is mainly for service and maintenance use.

The following service tasks are available:

ADDRESSES	Enables changing the positioning addresses of the different stages in the machine
DUNKING LEVELS	Enables changing the dunking levels of the different stages in the machine
CHANGE PASSWORD	Enables to change passwords and create new users
SET DATE & TIME	Enables to change the date and time
CHANGE IP SETTINGS	Enables to change IP settings
SET TIME ZONE	Enables to change time zone
LAMP TEST	Enables to test all of the lamps and the buzzer

3.28 INFORMATION MENU

Information menu provides all necessary information about machine function.

The following information is provided in the menu:

TIMES	Shows the operating times during the process
TEMPERATURES	Shows real time information of the temperatures
PRODUCTION	Shows information of the production. The user can reset all information.
PROGRAM	Shows information of the PLC

3.29 CONTROL MENU

Control menu enables to change temperatures and scheduler settings.

HEATING	Enables to change the temperatures in the process and the heating modes
FILTRATION	Enables to change the filtration modes
OIL SKIMMER	Enables to change the skimming mode
FILLING	Enables to change the purge mode, filling modes and filling alarm times
SCHEDULER	Enables to program the timer for heating, filtration and oil skimming

3.30 ALARM MENU

Alarm menu shows information about malfunctions and errors. An in-programmed troubleshooting gives information about the problem source and correction action.

3.31 STARTING OPERATION

Log in and give the correct password on FINNSONIC-page. Turn the control voltage on by turning the LINE CONTROL switch to the START position. The pilot lamp CONTROL is lit.
Reset all alarms.
Set the required operations and operating times on operating interface and select the wash program (if automatic program recognition is not in use)
Place a basket on the loading place. The conveyor will carry the basket into the machine. A popup window will appear to allow the operator to feed in necessary information.
The transporter will automatically carry the basket through all stages to the unloading station.
Unload the basket from unloading place.
In case the washing process must be interrupted for some reason, restart it by turning the LINE CONTROL switch to START position again. Restarting is possible immediately if manual operations have not been done during the stop. If manual operations have been done; see operation instructions in chapter 3.34 MANUAL OPERATION.

3.32 CHANGING THE PROGRAM

Manual selection

Select a new program number (1-10) from the operating interface. Selected program will be used at default for each basket.

Program change is blocked, when the transporter is going to pick up a basket from loading place. When the program has been changed, the CURRENT PROGRAM is the same as the NEW PROGRAM.

Using the EDIT PROGRAM it is possible to edit the programs.

NOTE! It is not possible to edit a program that is already fed into the machine.

3.33 ENDING THE OPERATION

There are two ways to end the operation:

No more baskets are fed into the machine. The machine will finish the process and return to start position.
Logging out from current password level makes the machine finish the process.

Leave the LINE CONTROL switch in the position 1 if heating, filtration or oil skimming is needed after finishing the operating.

Otherwise the LINE CONTROL switch should be turned to 0 position.

3.34 MANUAL OPERATION

Manual operations is mainly for test and maintenance use.

MANUAL CONTROL BY THE OPERATING INTERFACE

Turn the LINE CONTROL switch to position 1 and MANUAL DRIVE switch to position 1.

Select desired functions at the operating interface.

When returning to the automatic mode, make sure that all of the manual functions are set to off position and turn the MANUAL DRIVE switch to 0 position and LINE CONTROL switch to position 1.

NOTE! Remember to mark the basket places if the machine is not empty! (This must to be done if the basket places have been changed or an automatic drive reset has been carried out). Baskets must be removed or basket places must be marked manually on the operating interface before turning back to automatic mode. The marking must be done when the MANUAL DRIVE switch is in position 1.

NOTE! The basket must be removed from the transporter before starting automatic drive!

RESET AUTOMATIC DRIVE

Pressing RESET AUTOMATIC DRIVE on the operation interface resets all information in the PLC. Basket positions are reset from the PLC memory.

3.35 ALARMS

In case of an alarm, the ALARM signal lamp is lit and a warning text appears on the operating interface.

Most of the alarms can be reset only if the reason of the malfunction has been cleared. Some alarms will reset automatically, when the malfunction is repaired.

EMERGENCY STOP ALARM

Activating any of the emergency stop buttons stops all functions of the machine and locks the unit off from the electric supply.

The EMERGENCY STOP ALARM light is lit.

Emergency stop alarm must be reset by releasing the pressed stop button and pressing the EMERGENCY STOP ALARM RESET button.

DRYER 1 OVERHEAT ALARM

The temperature in the dryer is higher than the safety thermostat setting.

The ALARM light is lit.

Check the reason for abnormal temperature. Check the heating element contactors and the setting of the thermostat.

The alarm can be reset with the ALARM RESET button, when the dryer has cooled down.

LIFTER DRIVE ALARM

A failure has occurred within the lifter DC-motor drive during operation.

The ALARM light is lit.

Check the malfunction code on the led of the DC-motor drive and find the fault by using the manufacturer's instruction manual.

The alarm is reset from the drive when the DC-motor is driven into the opposite direction with manual drive commands.

Please note that the basket positions must be marked after manually driving the lifter, see MANUAL OPERATION.

TRANSPORTER DRIVE ALARM

A failure has occurred within the transporter DC-motor drive during operation.

The ALARM light is lit.

Check the malfunction code on the led of the DC-motor drive and find the fault by using the manufacturer's instruction manual.

The alarm is reset from the drive when the DC-motor is driven into the opposite direction with manual drive commands.

Please note that the basket positions must be marked after manually driving the transporter, see "MANUAL OPERATION".

UNLOAD PLACE ALARM

The unloading place is not empty.

The ALARM light is lit.

Check if there is a basket on the unloading place or the photocell is damaged. Remove possible basket out from the unloading area.

Press ALARM RESET button to reset the alarm.

WINDOW ALARM

One of the windows is open.

The ALARM light is lit.

The operation of the machine continues automatically from the stop point after closing the window.

The alarm is reset automatically when the windows are closed.

TANK 1 LOW LEVEL ALARM

Liquid level in the tank is too low.

The ALARM light is lit.

Check the reason for the alarm and correct the liquid level.

Press ALARM RESET button to reset the alarm.

TANK 2 LOW LEVEL ALARM

Liquid level in the tank is too low.

The ALARM light is lit.

Check the reason for the alarm and correct the liquid level.

Press ALARM RESET button to reset the alarm.

TANK 3 LOW LEVEL ALARM

Liquid level in the tank is too low.

The ALARM light is lit.

Check the reason for the alarm and correct the liquid level.

Press ALARM RESET button to reset the alarm.

TANK 4 LOW LEVEL ALARM

Liquid level in the tank is too low.

The ALARM light is lit.

Check the reason for the alarm and correct the liquid level.

Press ALARM RESET button to reset the alarm.

STORAGE TANK LOW LEVEL ALARM

Liquid level in the tank is too low.

The ALARM light is lit.

Check the reason for the alarm and correct the liquid level.

Press ALARM RESET button to reset the alarm.

HOMING ALARM

The transporter and lifter position must be initialized by a reference run.

The ALARM light is lit.

Turn the machine to manual mode and move first lifter to upmost position, and then move transporter to leftmost position. Automatic drive can be started after reference run has been completed.

The alarm is reset automatically when the positions have been initialized.

MOTOR ALARM

One of the motor circuit breakers has tripped.

The ALARM light is lit.

Check the reason for the alarm and reset the motor circuit breaker in the control cabinet.

The alarm is reset automatically when the motor circuit breaker has been reset.

UNLOADING CONVEYOR ALARM

The unloading conveyor was not able to clear the unloading station.

The ALARM light is lit.

Check if there is a basket or the photo cell is damaged.

Press ALARM RESET button to reset the alarm.

DRYER 1 LID ALARM

The pneumatic cylinder of the dryer lid doesn't move or the limit switches are not functioning.

The ALARM light is lit.

Check the switches and the air pressure of the pneumatic system. Window alarm prevents the movement of the lid if a window is open.

The alarm is reset automatically when the limit switches are functioning.

DRYER 2 LID ALARM

The pneumatic cylinder of the dryer lid doesn't move or the limit switches are not functioning.

The ALARM light is lit.

Check the switches and the air pressure of the pneumatic system. Window alarm prevents the movement of the lid if a window is open.

The alarm is reset automatically when the limit switches are functioning.

DRYER 2 VACUUM ALARM

The vacuum pump in dryer 2 has not been able to create the desired vacuum in the drying chamber during the five minutes maximum runtime.

The ALARM light is lit.

The vacuum pump stops.

Check the vacuum pump and the drying chamber for air leaks. Check that the pump valve and chamber fill valves close properly.

The alarm is reset with alarm reset button.

TANK 1 COMMUNICATION ALARM

There is a communication failure between PLC and the tank.

The ALARM light is lit.

Check power supply and connections.

Press ALARM RESET button to reset the alarm.

TANK 2 COMMUNICATION ALARM

There is a communication failure between PLC and the tank.

The ALARM light is lit.

Check power supply and connections.

Press ALARM RESET button to reset the alarm.

TANK 3 COMMUNICATION ALARM

There is a communication failure between PLC and the tank.

The ALARM light is lit.

Check power supply and connections.

Press ALARM RESET button to reset the alarm.

TANK 4 COMMUNICATION ALARM

There is a communication failure between PLC and the tank.

The ALARM light is lit.

Check power supply and connections.

Press ALARM RESET button to reset the alarm.

DRYER 1 COMMUNICATION ALARM

There is a communication failure between PLC and the tank.

The ALARM light is lit.

Check power supply and connections.

Press ALARM RESET button to reset the alarm.

STORAGE TANK COMMUNICATION ALARM

There is a communication failure between PLC and the tank.

The ALARM light is lit.

Check power supply and connections.

Press ALARM RESET button to reset the alarm.

STORAGE TANK OVERFILL ALARM

Liquid level in the tank is too high.

The ALARM light is lit.

Check the reason for the alarm and correct the liquid level.

Press ALARM RESET button to reset the alarm.

TANK 2 OVERFILL LEVEL ALARM

Liquid level in the tank is too high.

The ALARM light is lit.

Check the reason for the alarm and correct the liquid level.

Press ALARM RESET button to reset the alarm.

TANK 4 OVERFILL ALARM

Liquid level in the tank is too high.

The ALARM light is lit.

Check the reason for the alarm and correct the liquid level.

Press ALARM RESET button to reset the alarm.

WASTE WATER TANK OVERFILL ALARM

Liquid level in the waste water tank is too high.

The ALARM light is lit.

Check the reason for the alarm and correct the liquid level.

Press ALARM RESET button to reset the alarm.

CUSTOMER WASTE WATER TANK OVERFILL ALARM

Liquid level in the customer waste water tank is too high.

The ALARM light is lit.

Check the reason for the alarm and correct the liquid level.

Press ALARM RESET button to reset the alarm.

TANK 4 CONDUCTIVITY ALARM

The conductivity is above the setpoint 20uS.

The ALARM light is lit.

Check the conductivity level and the alarm setpoint.

The alarm is reset automatically when the conductivity is below setpoint.

3.37 TROUBLESHOOTING

The following situations may cause an audible or/and visual alarm:

control voltage is off
⇒ turn control voltage on by using the LINE CONTROL switch

level alarm in a tank
⇒ add/remove liquid to the tank

emergency stop button pressed
⇒ release the emergency stop button and reset by pressing EMERGENCY STOP ALARM RESET button

power failure
⇒ start according to the instructions given in chapter 3.31 STARTING OPERATION

transporter malfunction
⇒ in case the malfunction can't be reset, press the ALARM RESET button continuously a moment and move the transporter to the start position by using the manual mode
⇒ in case the pulse encoder reading is incorrect adjust the encoder according instructions, see chapter 4. SERVICE.

automatic drive does not start
⇒ check the positions of the control switches
⇒ check the lifter and transporter position
⇒ check for alarms
⇒ check manual switch position
⇒ check password level

All the alarms can be reset only if the reason of the malfunction has been cleared. See chapter 3.35 ALARMS.

3.38 PASSWORDS

Model:	VERSA+ 40/IV HDV TD15
Serial number:	5130091-8-14

Passwords on the operating interface:

Operator	1111
Maintenance	2222
Administrator	3333

These passwords are preset at FINNSONIC and Administrator level users may change them.

UPDATE

USER 1111

ENGINEER 2222