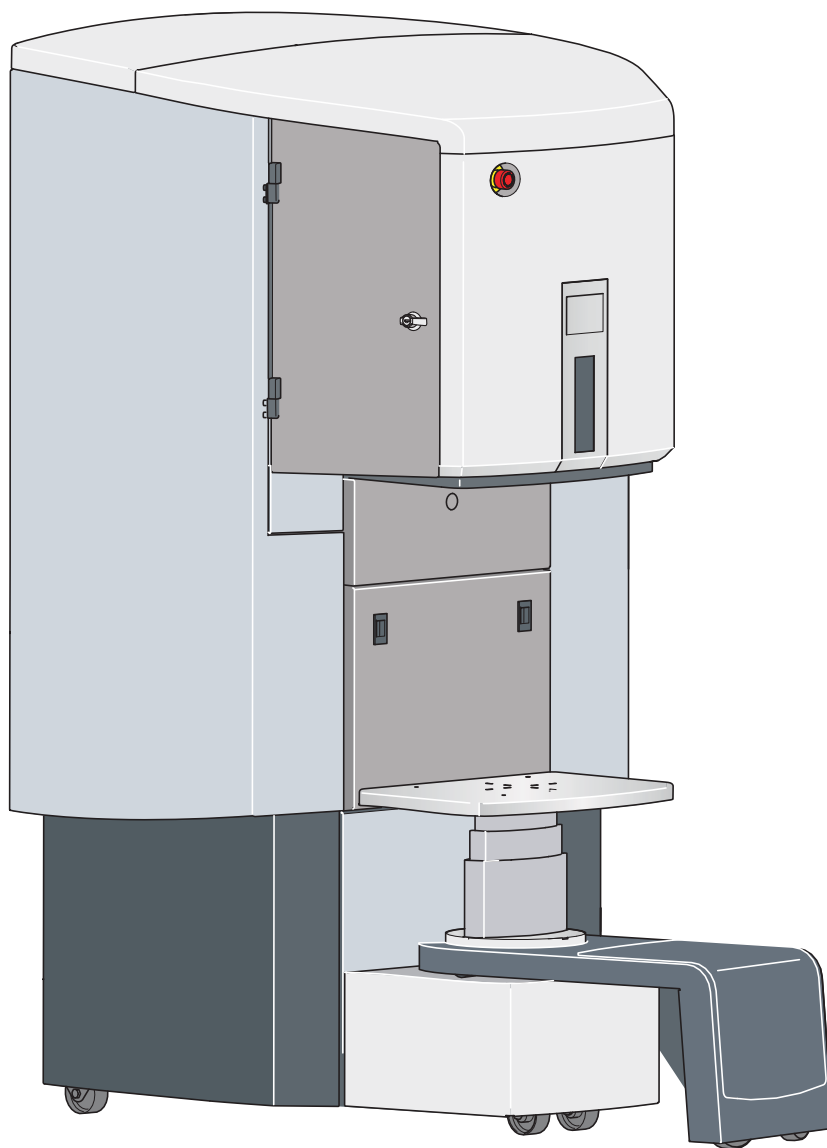


Manual

Harbil HA450 / Harbil HA650



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Table of Contents

1	About this manual	5
1.1	How to work with the manual.....	5
1.2	Record of changes	5
2	Safety	7
2.1	Intended use.....	7
2.2	Liability.....	7
2.2.1	General liability	7
2.2.2	Machine-specific liability	7
2.3	User qualification for installation.....	8
2.4	CE certification	8
2.5	Safety symbols on the machine.....	8
2.6	Safety symbols in the manual.....	9
2.7	Disposal of the machine	9
3	Operator manual	11
3.1	Description.....	11
3.1.1	Overview of the machine	11
3.1.2	Overview of the controls.....	12
3.1.3	Overview of the machine (back).....	13
3.1.4	Type plate: serial number.....	14
3.1.5	Type plate: details	14
3.2	Operation.....	15
3.2.1	General dispensing procedure	15
3.2.2	Place the can.....	15
3.2.3	Move up the can table	16
3.2.4	Move down the can table	16
3.3	Maintenance	16
3.3.1	General cleaning: after every dispensing operation	16
3.3.2	Cleaning of the brush container: daily	16
3.3.3	Cleaning of the switch plate: monthly.....	18
3.3.4	Refilling of a canister	20
3.3.5	Using the emergency stop switch.....	21

4	Installation	23
4.1	Unpack the machine.....	23
4.1.1	Remove the cardboard.....	23
4.1.2	Remove the transport brackets at the front.....	23
4.1.3	Remove the transport brackets at the rear.....	24
4.1.4	Remove the wooden beams.....	24
4.1.5	Remove the plastic protection on the canisters.....	24
4.1.6	Remove the plastic protection from the switchplate	25
4.2	Put the machine in position	25
4.2.1	Move the machine to the final location, with a ramp (optional)	25
4.2.2	Put the machine on the final location	25
4.2.3	Place the step.....	26
4.2.4	Turn the step	26
4.3	Install the computer	26
4.3.1	Open the back cover	26
4.3.2	Install the computer	27
4.4	Turning on the machine.....	27
4.5	First use.....	27
5	Troubleshooting.....	29
5.1	Contact service.....	29
5.2	Audio signals	29
5.3	Error messages and other faults	30
6	Technical data	31
6.1	General specifications	31
6.2	Dimensions and mass	31
6.3	Ambient conditions	32
6.4	Noise level.....	32
6.5	Safety classifications	32
6.6	Electrical specifications	32
6.7	Pump specifications.....	33
6.8	Electrical diagram.....	34

1 About this manual

The manual shows the information necessary to:

- install
- operate
- perform basic maintenance
- correct small problems.

The HA450, the HA650 and all their versions are referred to in the manual as the 'machine'.

This manual contains the original instructions. The original language of the manual is English. All other language versions are translations of the original instructions.

1.1 How to work with the manual

For the safe use of the machine, it is important that you:

- 1 Familiarize yourself with the structure and content.
- 2 Read the safety chapter in detail and make sure you understand all the instructions. See § 2.
- 3 Carry out the actions completely and in the given sequence.

1.2 Record of changes

Edition	Editor	Check	Date	Description
1.0	ES	TB	10/2013	First edition
1.1	EvT	TB	11/2014	Additional procedure and updates

2 Safety



WARNING

Read the manual before you install or use the machine. Failure to do so can result in personal injury, death or property damage.

2.1 Intended use

The machine is designed to dispense colorants into a can. Any other use of the machine is strictly forbidden.

2.2 Liability

2.2.1 General liability

Our machines and accessories are fully compliant with the CE regulations. Any modification can result in not fulfilling the CE safety requirements and is therefore not allowed. Fast & Fluid Management B.V. will not accept any responsibility in case of modifications to machines and/or accessories.

Fast & Fluid Management B.V. is not liable if you do not follow the rules below:

- The machine is for indoors use only.
- This machine may only be used for commercial settings. The machine is not a household appliance.
- Observe all local safety regulations.
- Mind the minimal requirement of the building structure of the load capacity of the floor.
- Place machine in a well-lit and well ventilated room.
- Install and connect the machine according to the instructions in this manual.
- Connect the machine to a grounded wall socket.
- Do not use extension cords.
- Do not place objects on top of the machine.
- Do not use a damaged machine. When you have doubts, contact your supplier. See § 5.1.
- Keep the machine in good condition. Make sure that defective parts are immediately replaced.
- Replace parts only with original Fast & Fluid Management B.V. spare parts.

All maintenance beyond the scope of this manual must be carried out by a qualified service technician that Fast & Fluid Management B.V. has trained and certified.

2.2.2 Machine-specific liability

This machine is designed to dispense colorants into a can in non-hazardous conditions.

Please consult the health & safety officer of your paint supplier and/or colorant supplier on how to avoid the emergence of hazardous situations like personal harm or the risk for fire and explosion.

- Personal harm should be avoided by strictly following the materials safety data sheets (MSDS) for colorants, (base) paint and brush liquid.
- Do not use flammable liquids in the brush container.
- The use of flammable colorants or colorants that diffuse potential explosive vapors may present fire and explosion risks.

2.3 User qualification for installation

Only install the machine if you have written permission from the supplier of the machine.

2.4 CE certification

The machine is CE certified. This means that the machine complies with the essential requirements concerning safety. The directives that have been taken into consideration in the design are available on www.fast-fluid.com.

2.5 Safety symbols on the machine



Rotating parts hazard



Pinch hazard for your hand



Central earthing point



Pinch hazard for your foot



Read the manual



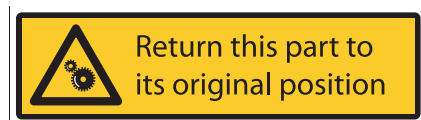
Caution



Electrical hazard



Can table switch up/down



Instruction



On/off

2.6 Safety symbols in the manual



WARNING
Can cause personal injury.



WARNING
Pinch hazard for your foot.



CAUTION
Can cause damage to the machine.



Note
Shows further information.

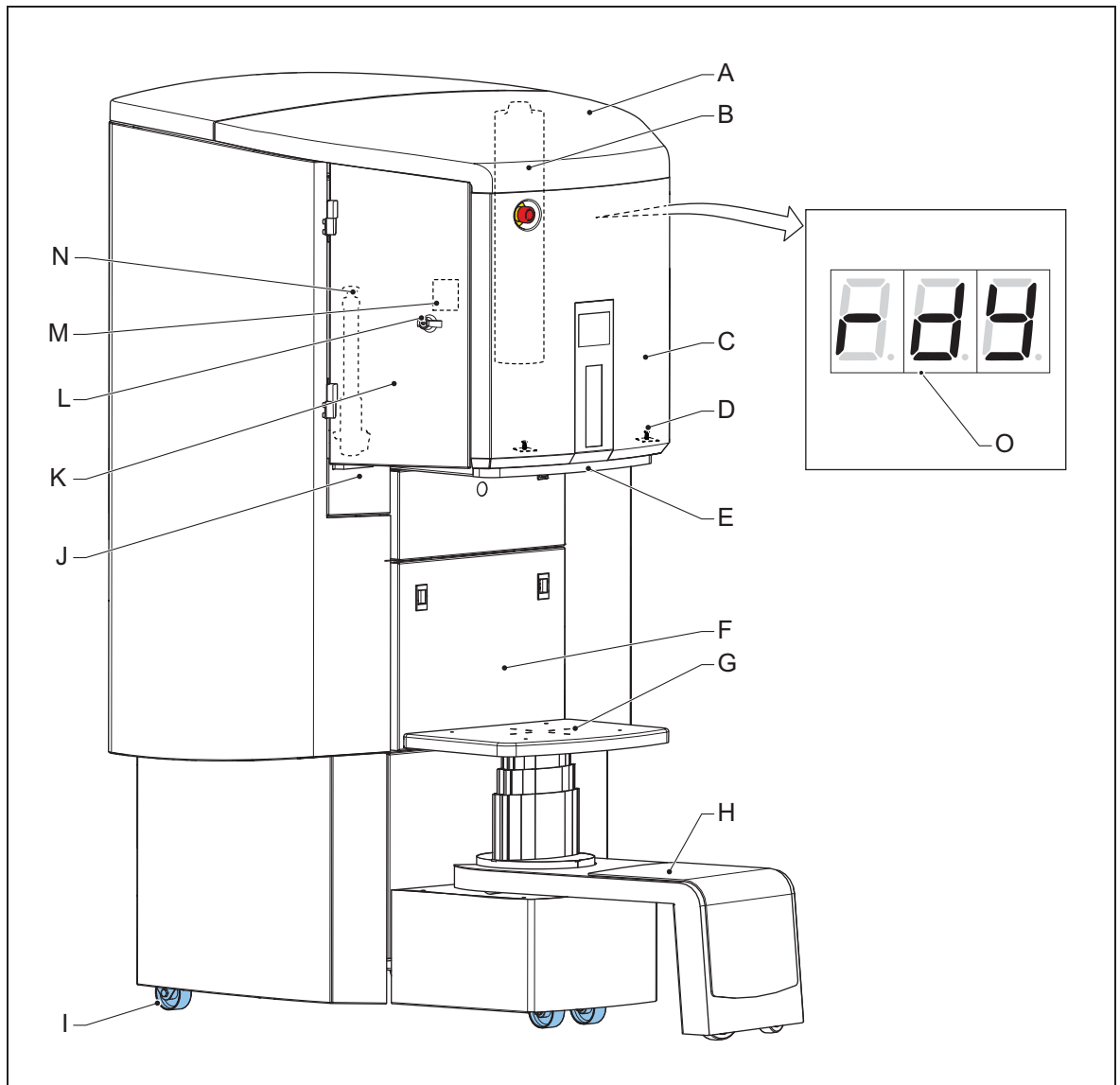
2.7 Disposal of the machine

1. Sort the machine, the accessories and the packaging for environmentally friendly recycling.
2. Do not dispose of the machine into domestic waste. Dispose of the machine according to local regulations.
3. Dispose of the canisters as chemical waste, according to the local regulations.

3 Operator manual

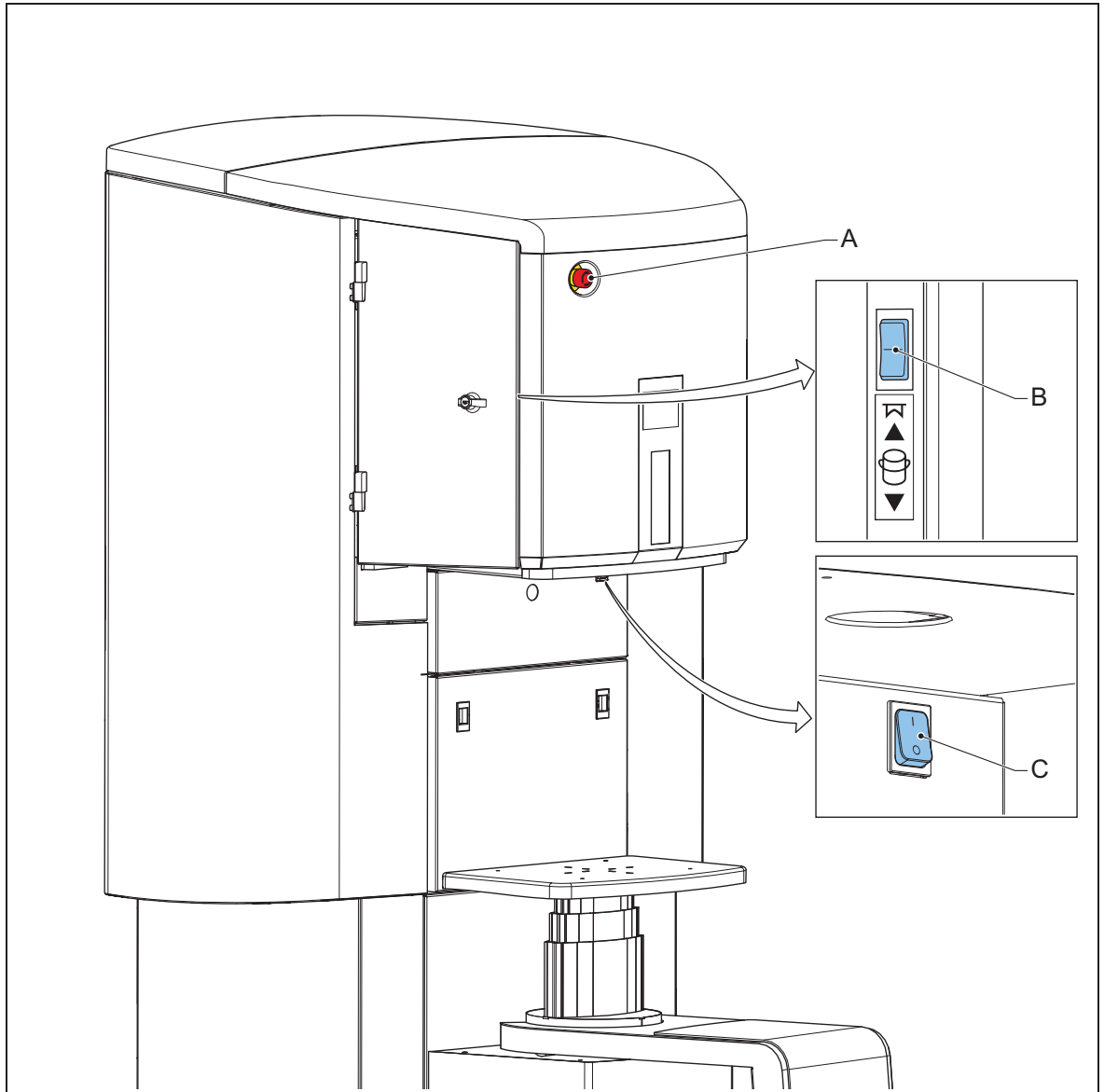
3.1 Description

3.1.1 Overview of the machine



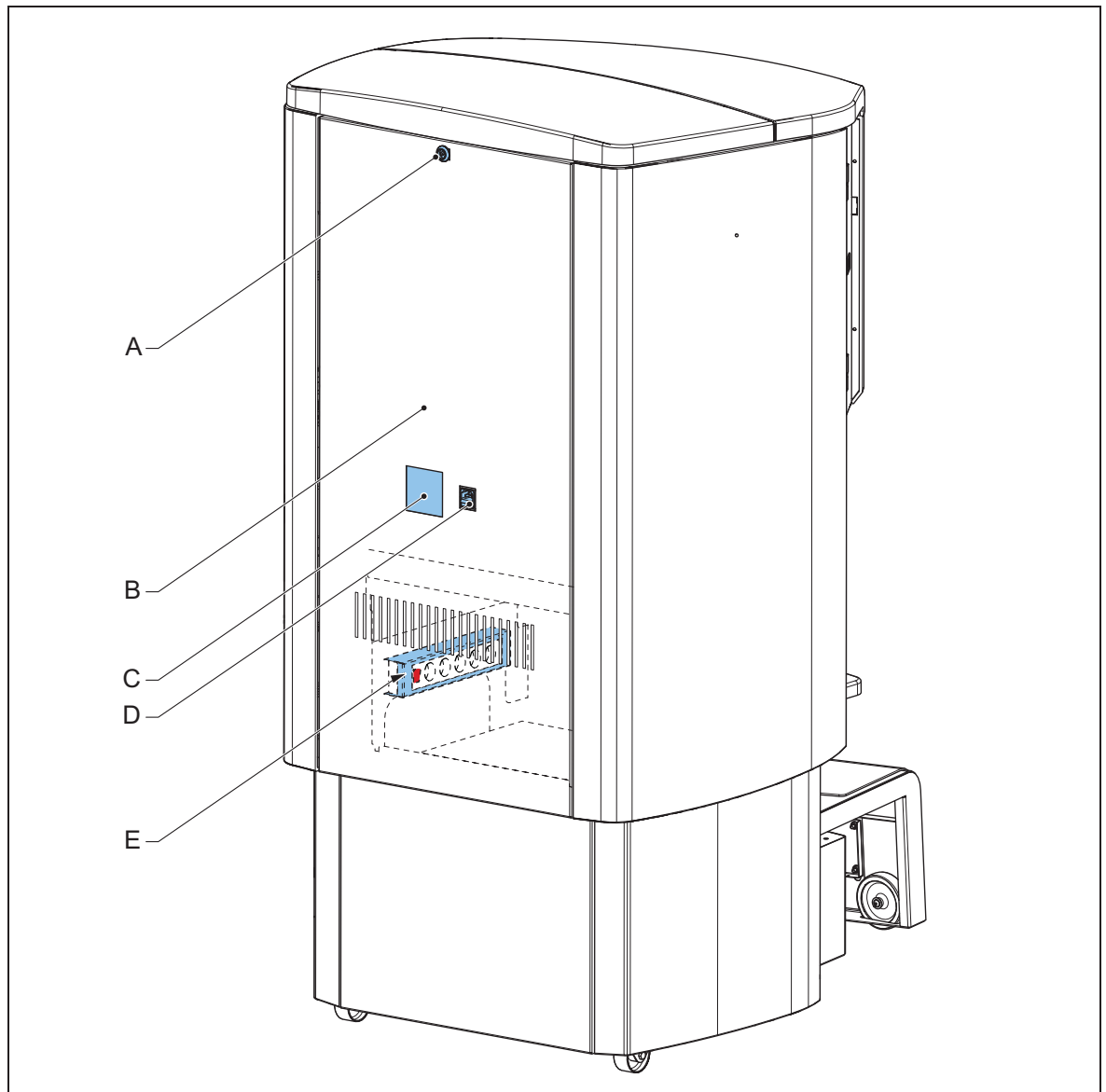
- | | |
|--------------------------------------|---|
| A: Top cover | I: Wheels |
| B: Canister | J: Brush container |
| C: Front door | K: Side door |
| D: Switch | L: Lock |
| E: Switch of the switch plate | M: Lever of the front door |
| F: Computer cover | N: Pump with nozzle |
| G: Can table | O: Display inside the front door |
| H: Step | |

3.1.2 Overview of the controls



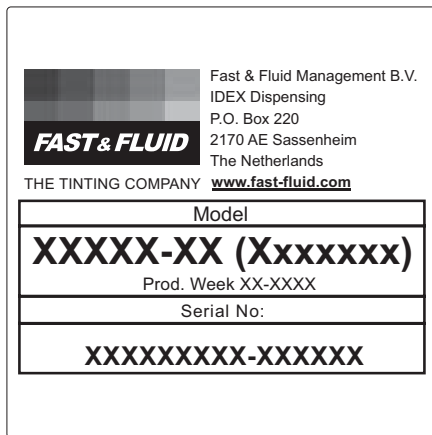
- A: Emergency stop switch
- B: Can table switch
- C: Computer switch

3.1.3 Overview of the machine (back)

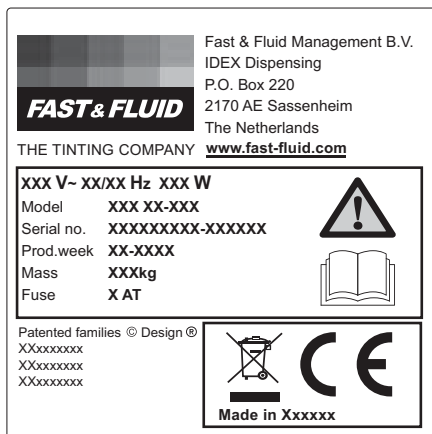


- A: Lock
- B: Back cover
- C: Type plate
- D: Net entry
- E: 5-Way socket

3.1.4 Type plate: serial number



3.1.5 Type plate: details



3.2 Operation



WARNING

Only push the emergency stop switch in the case of a safety emergency.

Make sure that the problem is solved before you reset the emergency stop switch.

When you reset the emergency stop switch, the machine restarts automatically. When the machine is operational, you hear 'beep beep'.



CAUTION

Do not remove the power from the machine. The machine must stir the colorants periodically.



Note

The computer switch only turns the computer on and off.

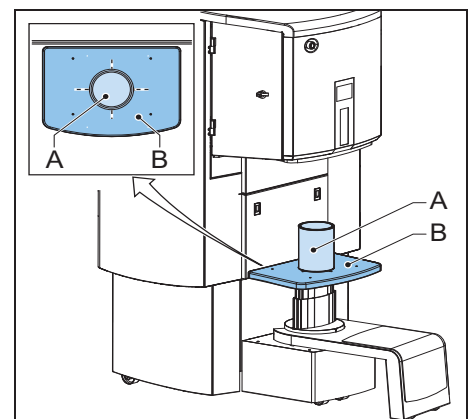
3.2.1 General dispensing procedure

For all the software instructions: see the software documentation.

1. Place the can. See § 3.2.2.
2. Move the can table up. See § 3.2.3.
3. Choose the recipe and dispense. See the software documentation.
4. Move the can table down. See § 3.2.4.
5. Remove the can.

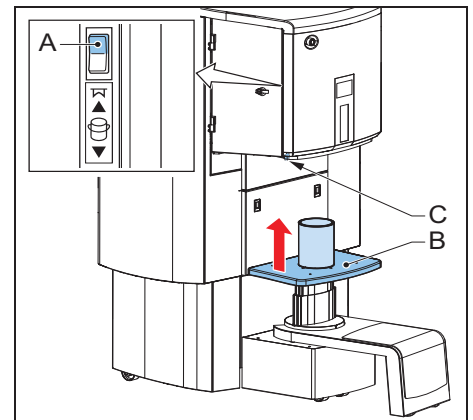
3.2.2 Place the can

1. Place the can (A) at the centre of the mark (B) on the can table.



3.2.3 Move up the can table

1. Push and hold the upper part of the can table switch (A). *The can table (B) moves up and stops when the can is in front of the can sensor (C).*
2. After the can table stops, release the can table switch.



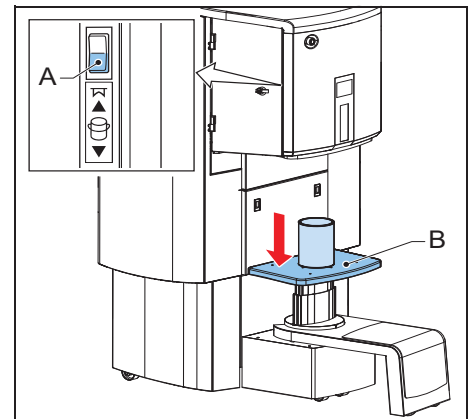
3.2.4 Move down the can table

1. Push and hold the lower part of the can table switch (A). *The can table (B) moves down.*
2. When you can remove the can, release the can table switch. If you hold the can table switch, the can table moves down to a halt.



WARNING

Do not put your foot below the can table.



3.3 Maintenance

3.3.1 General cleaning: after every dispensing operation

1. Clean the machine with a cloth and remove all spilled colorant or other liquid.



CAUTION

Do not use cleaning agents based on organic solvents to clean painted or plastic parts of the machine.

3.3.2 Cleaning of the brush container: daily

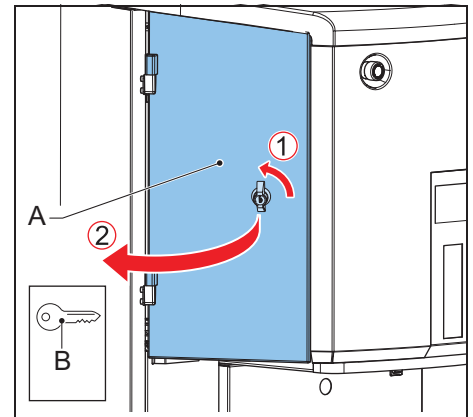


CAUTION

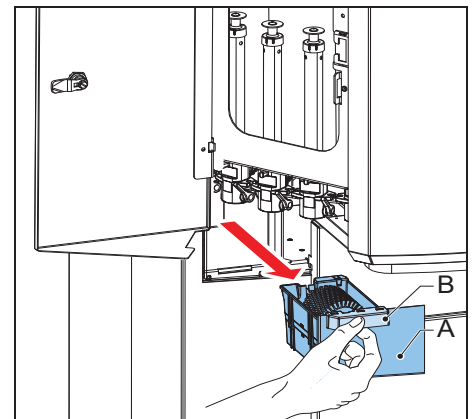
If you do not clean these items daily, severe pollution will occur.

Open the side door

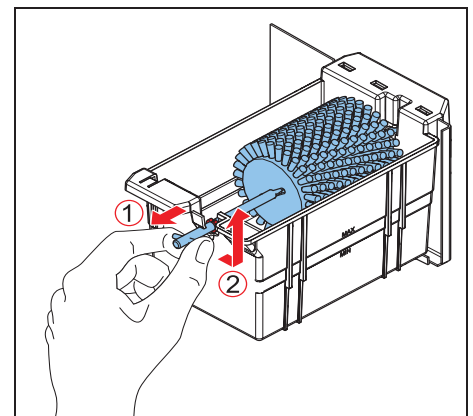
1. Unlock the side door (A). Use the key (B).
2. Open the side door.

**Remove the brush container**

1. Remove the brush container. Use the handle.

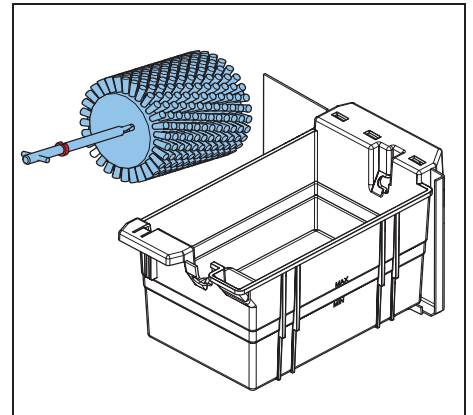
**Remove the brush**

1. Remove the brush from the brush container.



Clean the brush container

1. Remove the liquid from the brush container. For the disposal of the liquid, follow the local regulations.



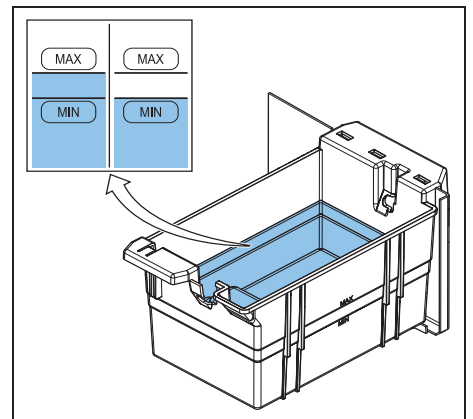
Fill the brush container

1. Fill the brush container with the liquid that your paint supplier indicates. The level of the liquid must be between the "MIN" and "MAX" mark.



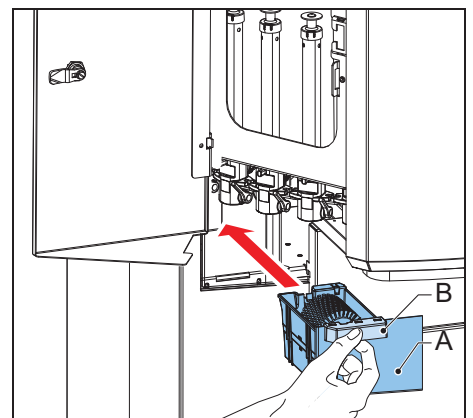
WARNING

Do not put flammable liquids in the brush container.



Put back the brush container

1. Put back the brush container.
2. Close the side door.
3. Lock the side door.

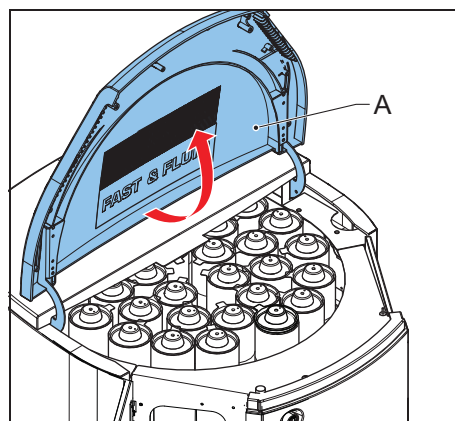


3.3.3 Cleaning of the switch plate: monthly

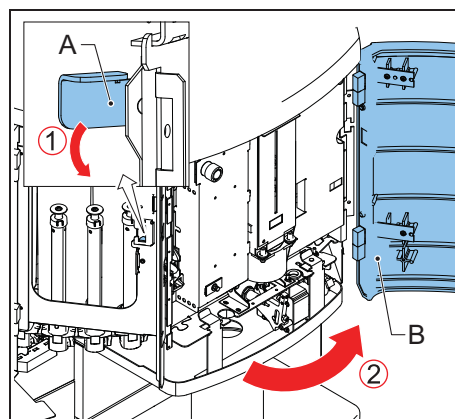
Open the covers

1. Open the side door. See § 3.3.2.

2. Open the top cover (A).

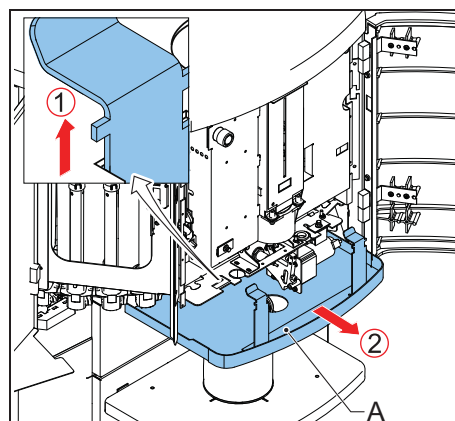


3. Unlock the front door (B). Push down the lever (A).
4. Open the front door.



Remove the switch plate

1. Remove the switch plate (A).
 - a. Lift the switch plate from the switch plate switches.
 - b. Pull out the switch plate.

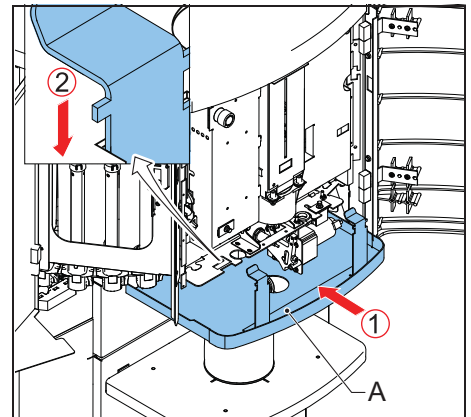


Clean the switch plate

1. Clean the switch plate. Use a cleaning cloth with a non-organic cleaning liquid.

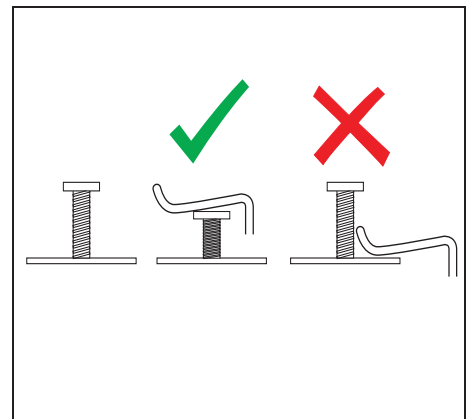
Put back the switch plate

1. Put back the switch plate (A).
 - a. Slide in the switch plate.
 - b. Move down the switch plate until it makes contact with the switch plate switches. *The switch plate is deactivated.*



Examine the switches of the switch plate

1. Make sure that the switch plate makes good contact with the switches of the switch plate. *Otherwise the switch plate is activated.*



3.3.4 Refilling of a canister



WARNING

Check the material safety data sheet (MSDS) of the colorants for the personal protection measures that are required for handling the colorant.



CAUTION

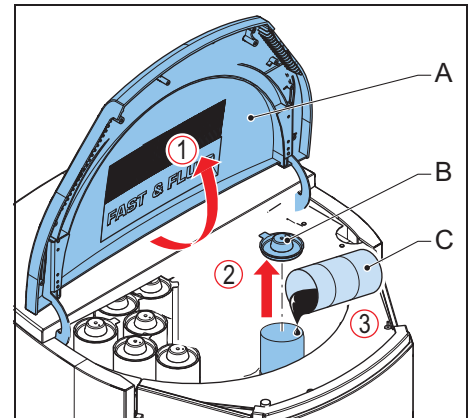
Make sure that the colorant level in the canister is correct. If a canister is empty, this can cause an inaccurate dispensing and/or a recipe fault.



Note

The software checks the level of colorant in each canister. The software on the machine shows when you need to refill a canister.

1. In the software, activate the fill canister option.
2. Open the top cover (A).
3. Remove the lid of the canister (B).
4. Add the colorant (C). Do not spill.



3.3.5 Using the emergency stop switch

1. Push the emergency stop switch (A). The machine stops immediately.



CAUTION

Only push the emergency stop switch in the case of a safety emergency. Do not use the emergency stop switch as an on/off function!

2. Solve the problem as quickly as possible.



CAUTION

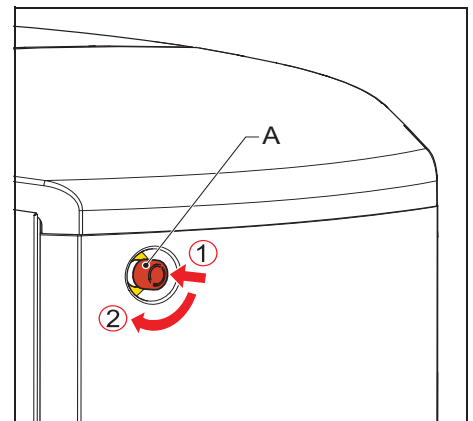
When the machine is shut down, the stirring mechanism, which is necessary to keep the colorant in optimal condition, is also shut down.

3. Reset the emergency stop switch by turning the emergency stop switch. The machine restarts automatically.



Note

After the reset, the machine is operational when you hear two 'beeps'.

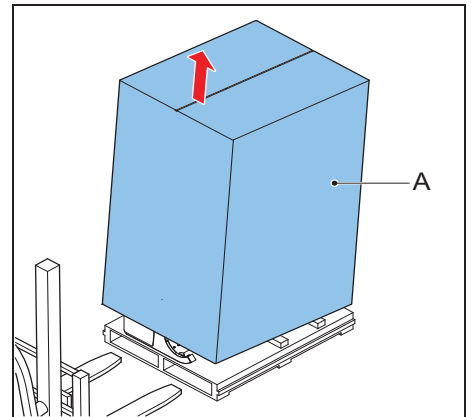


4 Installation

4.1 Unpack the machine

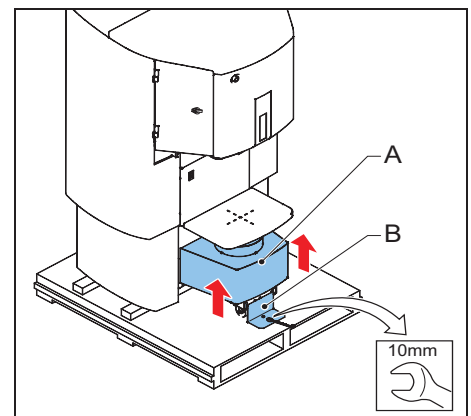
4.1.1 Remove the cardboard

1. Remove the cardboard (A) and the plastic from the outside of the machine.



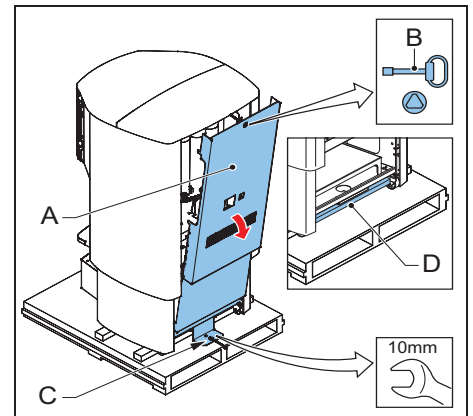
4.1.2 Remove the transport brackets at the front

1. Lift the cover (A).
2. Unscrew the transport bracket (B) and remove it.

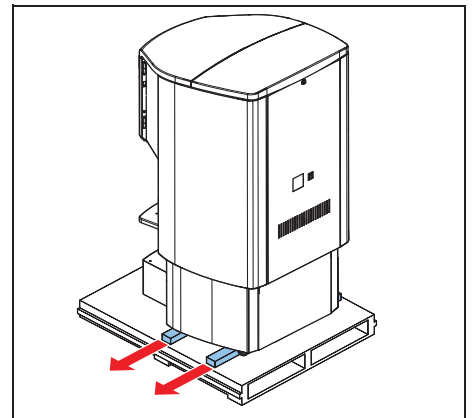


4.1.3 Remove the transport brackets at the rear

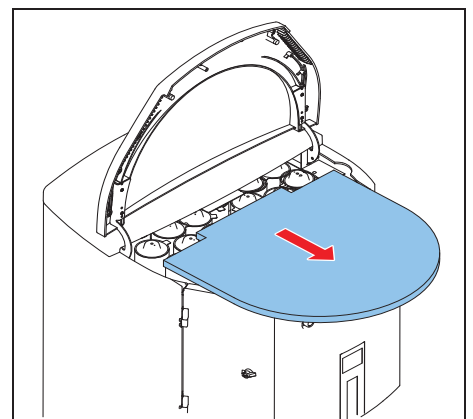
1. Open the back cover (A). Use the key (B).
2. Remove the back cover. Let the back cover move towards you. Then lift the cover.
3. Unscrew the transport brackets (C) and (D) and remove them.

**4.1.4 Remove the wooden beams**

1. Remove the wooden beams.

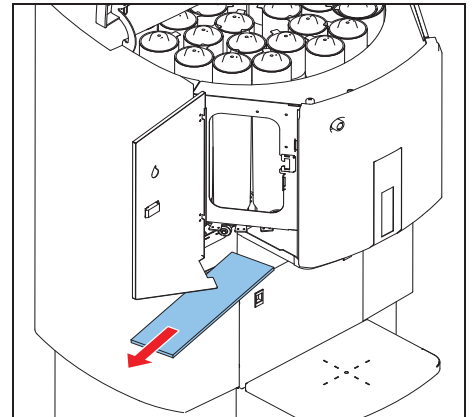
**4.1.5 Remove the plastic protection on the canisters**

1. Remove the blue tape and open the top cover.
2. Remove the plastic protection.



4.1.6 Remove the plastic protection from the switchplate

1. Open the side door. See § 3.3.2.
2. Remove the plastic protection from the switchplate.



4.2 Put the machine in position

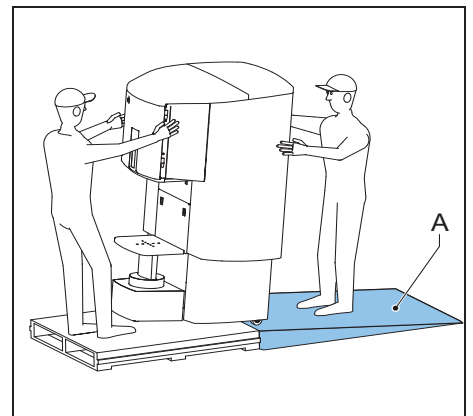
4.2.1 Move the machine to the final location, with a ramp (optional)

1. Place the ramp (A).
2. Move the machine from the pallet on to the ground.
3. Move the machine to the final location.
4. Connect the power cable to the net entry.



CAUTION

Do not connect the power cable to the wall socket.



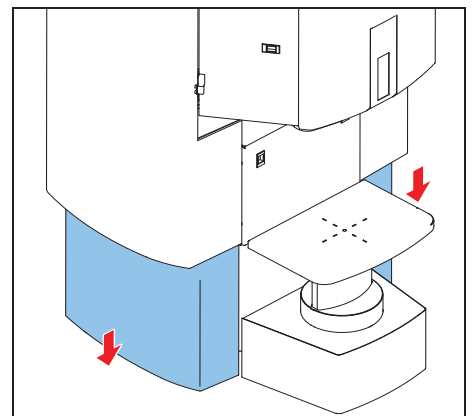
4.2.2 Put the machine on the final location

1. Slide down the side panel to hide the wheels.



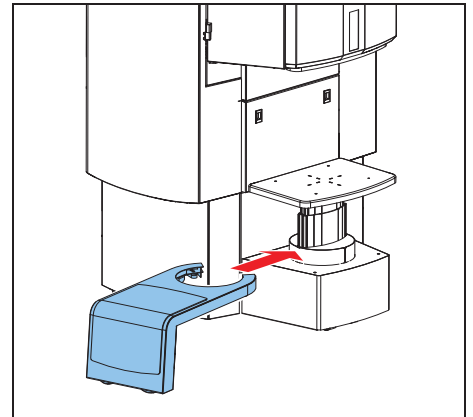
CAUTION

Do not remove the side panel to prevent damage.



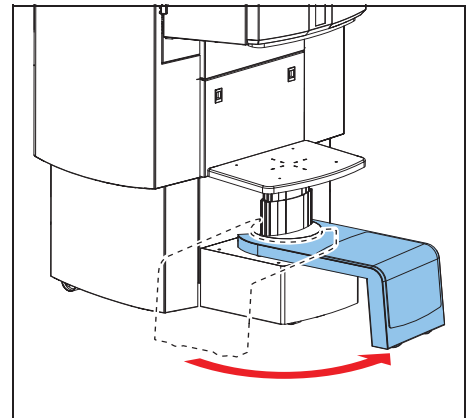
4.2.3 Place the step

1. Place the step from the left side under the can table.



4.2.4 Turn the step

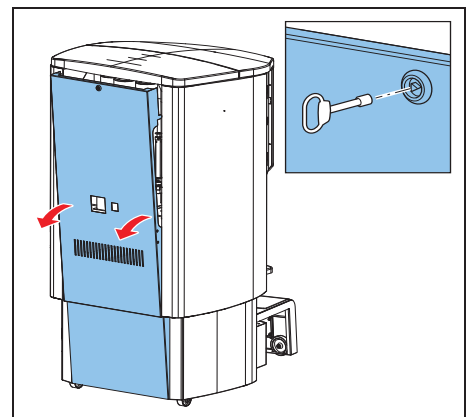
1. Turn the step to the front.



4.3 Install the computer

4.3.1 Open the back cover

1. Open the back cover. See § 4.1.3
2. Remove the back cover.

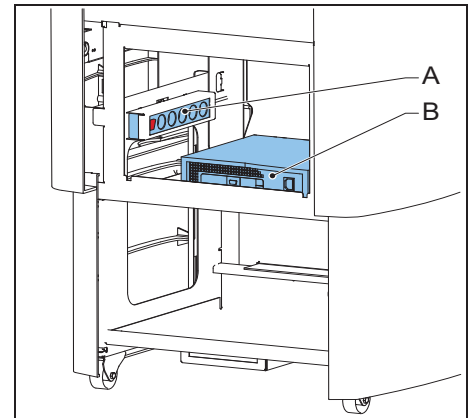


4.3.2 Install the computer

**Note**

Usually, the computer already has the correct software and drivers installed. If not, see the instructions in the installation manuals of your software provider.

1. Put the computer in the machine.
2. Connect the power cables of the computer and the screen to the 5-way socket (A).
3. Connect an USB cable between the computer and the power board (B).
4. Connect the keyboard, the mouse and the screen to the computer.



4.4 Turning on the machine

1. Connect the power cable to the wall socket. When the machine is operational, you hear two 'beeps'.
2. Make sure that the emergency stop switch is reset. See § 3.3.5.
3. Set the computer switch to 'ON'.

4.5 First use

1. Fill the brush container. See § 3.3.2.
2. Fill the canisters correctly. See § 3.3.4.
3. Purge the canister. Use the purge command in the software. See the software documentation.
4. Do step 3 again for all canisters.

**Note**

First the air will come out of the nozzle. When the output is continuous, the tube is filled.

5 Troubleshooting

5.1 Contact service

1. Find the type plate on the rear of the machine. See § 3.1.5.
2. Take a note of the model number and the serial number of the machine.
3. Contact your supplier or manufacturer.
See www.fast-fluid.com.

5.2 Audio signals



Note

See the column *Possible solution* to solve the problem. When the problem persists, contact service. See § 5.1.

Problem	Possible cause	Solution
••• --- ••• SOS signal during the stirring.	The agitation motor is malfunctioning, a cable is broken or the power board is malfunctioning.	Contact service. See § 5.1.
---- > 1 long interrupted beep (continuously 1 sec. on, 1 sec off)	Stirring function cannot start because the top cover is open.	Close the top cover.
••••• 5 short beeps	A valve timeout occurred.	Restart the machine.
•• 2 short beeps	The machine initializes.	-
----- > 1 long uninterrupted beep	The side door is open during the dispense.	Close the door.
	The front door is open during the dispense.	Close the door.
	The brush container is missing.	Put back the brush container.
	The switch plate is activated.	Examine the switches of the switch plate. Deactivate the switch plate. See § 3.3.3.
	The can makes contact with the switch plate.	Move down the can table. See § 3.2.4.
• 1 short beep	The top cover is open when the machine starts to dispense, or when the can table moves.	Close the top cover.

5.3 Error messages and other faults



Note

For all error messages on the computer: see the help topic in the dispense software.



Note

See the column *Possible solution* to solve the problem. When the problem persists, contact service. See § 5.1.

Problem	Possible cause	Possible solution
Main power supply is present but the machine does not work.	The emergency stop switch is active.	Reset the emergency stop switch. See § 3.3.5.
	A fuse is broken.	Contact service. See § 5.1.
Display shows E01	The machine is not initialized.	Restart the machine.
Display shows E02	The side door is open.	Close the door.
	The front door is open.	Close the door.
	The brush container is missing.	Put back the brush container.
Display shows E43	The pump is blocked or a motor, cable, or sensor failure occurred.	Restart the machine.
Display shows E44	A pump (motor / cable) or sensor failure occurred.	Restart the machine.
Display shows E49	The can is missing.	Place the can.
Display shows E63	The switch plate is activated.	Examine the switches of the switch plate. Deactivate the switch plate. See § 3.3.3.
Display shows E72	The top cover is open.	Close the top cover.
All other E - errors	-	Restart the machine.

6 Technical data

6.1 General specifications

Parameter	Specification	
	HA450	HA650
Number of canisters (max.)	32	36
Dispensing	Sequential	
Pump type	Harbil piston pump	
Cleaning system	Automatic	
Materials used are suitable for	Water-, universal- and solvent-based colorants	
Canister sizes [L]	2, 3, 6, 10	2, 3, 6, 10, 20
Pump capacity [oz]	1, 2, 5, 10	
Maximal can height [cm] for low, standard, and high model respectively	42, 46, 62	
Can table dimensions [cm]	44 x 31	

6.2 Dimensions and mass

Parameter	Specification	
	HA450	HA650
Dimensions, height x width x depth [cm]	151 / 171 x 88 x 96	151 / 171 x 115 x 125
Packed dimensions (height x width x depth) [cm]	193 x 117 x 98	192 x 148 x 126
Mass incl. packaging [kg]	± 290	± 420
Mass filled machine [kg]	450	860
Required load capacity of the floor [kg]	1800	3440

6.3 Ambient conditions

Parameter	Specification
Temperature [°C]	+15 to +40
Transportation temperature empty canisters [°C]	+25 to +55
Altitude above sea level [m], operational	-10 to 2000
Altitude above sea level [m], out of operation	-10 to 12000
Maximum relative humidity [RH], without condensation [%]	90

6.4 Noise level

Parameter	Specification
Maximum noise level [dB(A)]	< 65

6.5 Safety classifications

Parameter	Specification
IP (Ingress Protection) classification	32
EMC (ElectroMagnetic Compliancy) classification	Class B
Overvoltage classification	Class II

6.6 Electrical specifications

Parameter	Specification
Power consumption, maximum [W]	500
Maximum leakage current [mA]	3.5
Country specific net cables	European
Voltage [V]	230 ± 10%
Frequency [Hz]	50 / 60
Fuse specifications [A]	10

6.7 Pump specifications

Parameter	Specification			
Pump capacity [oz]	1	2	5	10
Resolution [ml/step]	0.002	0.004	0.010	0.020
Maximum flow speed ¹ [L/min]	0.2	0.4	0.8-1	1.5-2
Minimum dispense [ml]	0.05	0.08	0.15	0.30
Nozzle diameter Small-Large [mm]	2 & 4	2 & 4	2 & 4	6

1. Depending on the colorant

6.8 Electrical diagram

