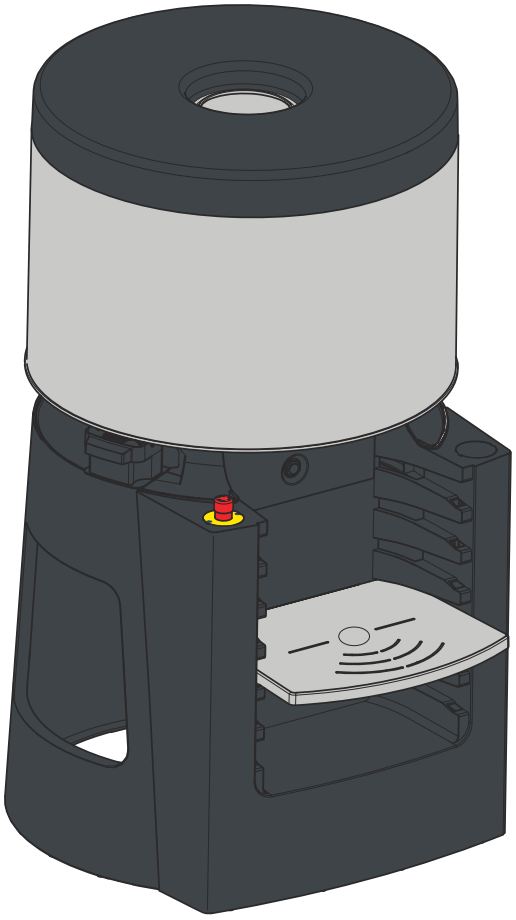
Operating and Safety Manual

TI Element 2 - TI Element 3



Fluid Management®

www.fluidman.com

V001

FAST & FLUID

THE TINTING COMPANY

www.fast-fluid.com

Contents

1 About this manual

The manual shows the information necessary to:

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

The TI Element 2, the TI Element 3 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.

Note:
For the unpacking and installation procedures, refer to the separate installation instruction sheets.

1.1 How to work with the manual

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

1. To familiarize yourself with the structure and content.
2. To read the safety chapter in detail and make sure you understand all the instructions. See *2*.
3. To carry out the actions completely and in the given sequence.

1.2 Record of changes

Edition	Editor	Check	Date	Description
1.0	JM	TB	06/2024	First edition

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 compliant with their market specific safety requirements. For some markets machines need a certification to prove the machine complies with the essential requirements concerning safety. Any modification can result in not fulfilling the market-specific machine safety requirements and is therefore not allowed. Fast & Fluid Management B.V. or Fluid Management Inc. will not accept any responsibility in case of modifications to machines and/or accessories.

Fast & Fluid Management B.V. or Fluid Management Inc. are 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.
- Strictly obey the safety instructions in this manual.
- The machine must be used by a single, trained, operator. Unauthorized people who could reach or touch the machine parts during operation must not be admitted in the nearby area.
- Mind the minimal requirement of the building structure of the load capacity of the floor.
- Place the machine in a well-lit and well-ventilated room.
- Place the machine on a flat, horizontal floor.
- Install and connect the machine according to the instructions in this manual.
- Connect the machine to a grounded wall socket with proper grounding and protection of the electrical circuit (fuse and RCD type and network). See *6.6.1*.
- Do not use extension cords or inadequately rated power cables.
- Make sure that the power cable is freely accessible.
- Do not place objects on top of the machine.
- Keep lids, panels, and covers closed and in place whenever possible.
- Do not use a damaged machine. When you have doubts, contact your supplier. See *5.3*.
- Keep the machine in good condition.
    - Clean the machine at the intervals and when dirty, see *3.3*.
    - Make sure that defective parts are immediately replaced.

- Remove spilled liquids immediately, and unplug the machine in case of large spillages (> 500mL).
- Replace parts only with original Fast & Fluid Management B.V. or Fluid Management Inc. 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. or Fluid Management Inc. has trained and certified.

2.2.2 Machine-specific liability

Note:
Liquids used in the machine such as colorant, (base) paint, spray and brush liquid, are hereafter referred to as 'liquids'.

This machine is designed to dispense liquids into a can in non-hazardous conditions. Manufacturers of laser products shall provide (or see to the provision of) user instructions or an operation manual that contains all relevant safety information including adequate instructions for assembly, maintenance and safe use and description of the classification limitations, if appropriate.
In addition to following the instructions below, please consult the health & safety officer of your liquid supplier and review all applicable product information and safety data sheets to fully understand the risks associated with the use of their products, including how risks of fire and explosion may arise during use.

- Personal harm should be avoided by strictly following the materials safety data sheets (MSDS) for liquids. Read and strictly comply with the safety data sheets for all liquids used in this machine.

WARNING:

- The use of flammable liquids or liquids that diffuse potential explosive vapours may present fire and explosion risks. The user is responsible for ensuring there is no build-up of explosive vapours both inside or around the machine.
- Liquids with a flash point equal to or below the Operating Temperature, must not be used in this machine without properly managing environmental temperatures or ventilation.
- Risk of fire and personal injury if the temperature inside the machine when in use (“Operating Temperature”) exceeds the flashpoint of the liquid being used.

- The user is responsible for ensuring that Operating Temperature never exceeds the flashpoint of the liquid in use, or, in the alternative, ensuring that there is no build-up of explosive vapors inside or around the machine.
- The Operating Temperature consists of the Ambient Temperature in the place of operation, plus an additional 15 °C / 27 °F generated by the machine when in use. The Ambient Temperature is determined by factors such as the temperature in the room or space where the machine is being operated, the amount of ventilation in and around the machine, or any other factors in your operating environment affecting temperature.
- In the event Operating Temperature exceeds the flashpoint of the liquid in use, you must take the following measures:

  - reduce the Operating Temperature by taking steps including but not limited to (a) operating the machine in a room or environment with a lower temperature; (b) increasing ventilation in and around the machine; and/or (c) taking any other steps to reduce the Ambient Temperature; and/or
  - select a different liquid with a flashpoint higher than the likely Operating Temperature.
- An operational and environmental assessment is recommended before using flammable liquids in the machine, taking into account all local circumstances including ventilation around the machine, room and machine operating temperature and room size.
- This product is NOT ATEX certified and should not be used in ATEX zone.

2.3 User qualification for installation

Only install the machine when you are a qualified service technician who is trained and certified by Fast & Fluid Management B.V. or Fluid Management Inc.

2.4 Certification

For some markets machines need a certification to prove the machine complies with the essential requirements concerning safety. The directives that have been taken into consideration in the design are available on the website.
If applicable to your market, the machine contains the logo of the certification either as a separate sticker or on the type plate.

Logo	Certification	Website
CE	CE	*www.fast-fluid.com*

2.5 Safety symbols on the machine

	Read the manual
	Moving parts hazard
	Return this part to its original position.

	Warning
	Do not use liquids in this machine with a flash point equal to or below the Operating Temperature.

2.6 Safety symbols in the manual

	**WARNING** Can cause personal injury.
	**CAUTION** Can cause damage to the machine.
	**Note** Shows further information.

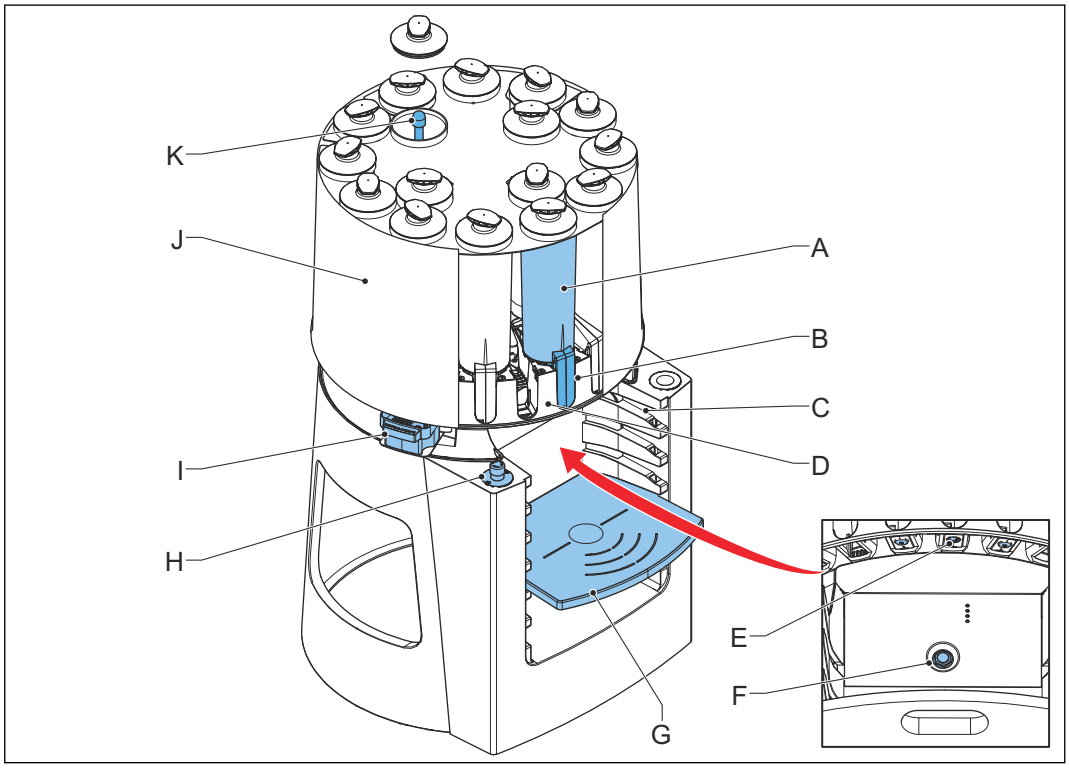
2.7 Disposal of the machine

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

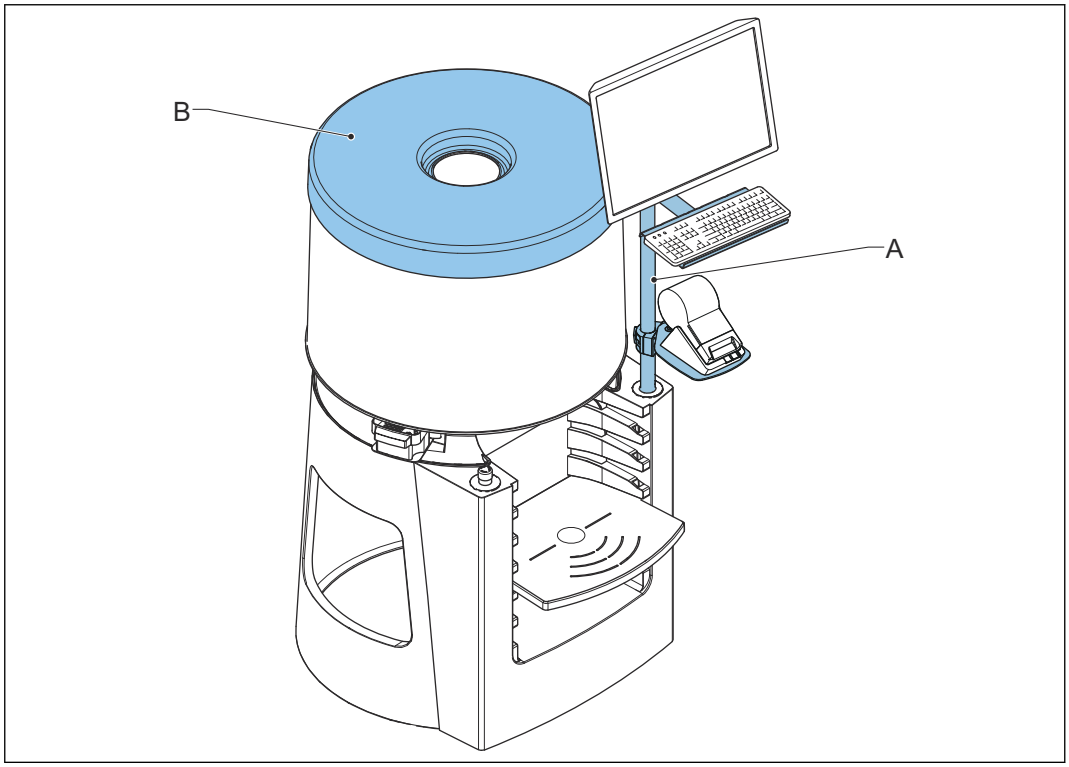
3.1 Description

3.1.1 Overview of the machine



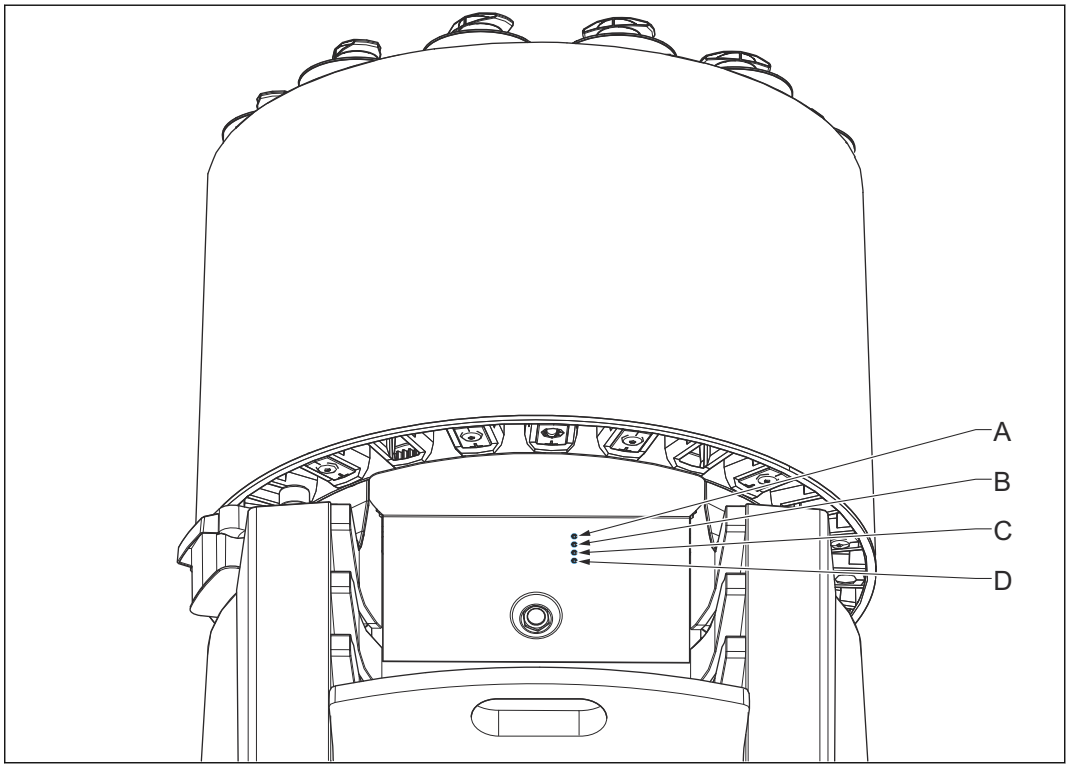
A	Canister	G	Can table
B	Pump	H	Emergency stop switch
C	Slot (for the can table)	I	Brush unit
D	Turntable	J	Wrap
E	Nozzle	K	Agitator (part of the stirring mechanism)
F	Can sensor		

3.1.2 Overview of the available optional parts



A Monitor Keyboard arm B Top cover

3.1.3 Overview of the available LEDs

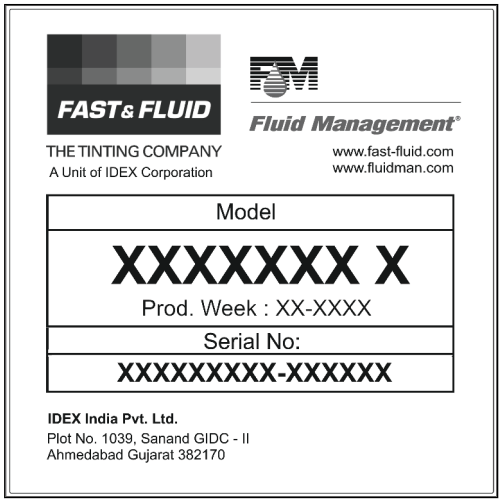


Item	LED color	Function
A	Red	Valve status
B	Blue	Turntable status
C	Green	Gripper status
D	RGB	Machine status

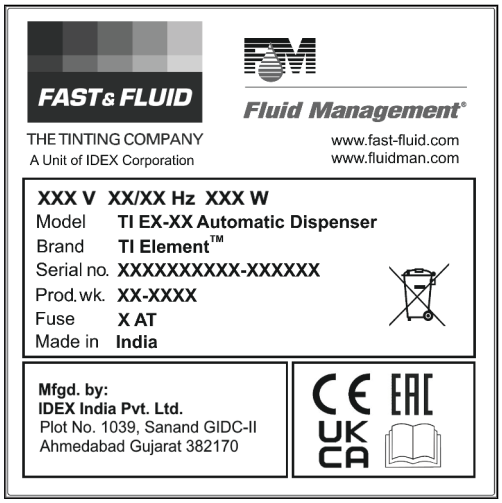
RGB LED

LED color	Function
Green	Machine connected to TINTELLIGENCE
Red	Machine not connected to TINTELLIGENCE

3.1.4 Type plate: serial number



3.1.5 Type plate: details



3.2 Operation

WARNING:
Do not place objects on top of the machine.

CAUTION:
Do not remove the power from the machine. See *4.1*. The machine must stir the colorants periodically.

3.2.1 General dispensing procedure

For all the dispense software instructions: see the dispense software documentation.

1. Place the can table in the correct slots for the correct height. See *3.2.2*.
2. Place the can. See *3.2.2*.
3. Choose the recipe and dispense. See the dispense software documentation.
4. Remove the can.

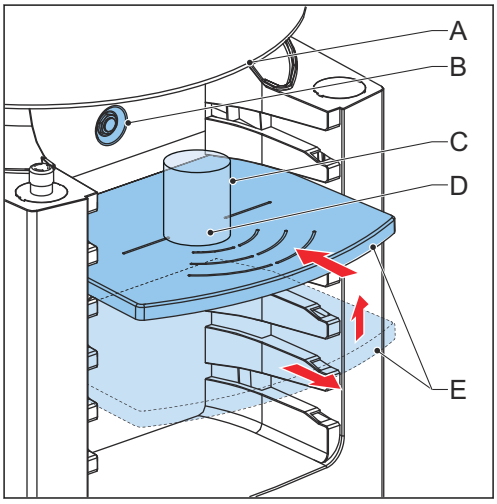
3.2.2 Placing a can

1. Check the height of the can.

Note:
The correct height of the can table depends on the height of the can.

2. Place the can table (E) in the correct slots for the correct height.

CAUTION:
Make sure that the can table is secure.



3. Place the can (C) at the center of the mark (D) on the can table.

CAUTION:
Make sure that the can does not touch the turntable (A). Keep enough free space.

Note:
Make sure that the can sensor (B) is able to detect the can.

3.3 Maintenance

3.3.1 General cleaning: daily

1. Clean the machine with a damp cleaning cloth and remove all spilled colorant or other fluids.

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

Note:

- Remove spilled colorant and other fluids as soon as possible.
- Do not drain spilled colorant or other fluids in the sink. Observe the local regulations.

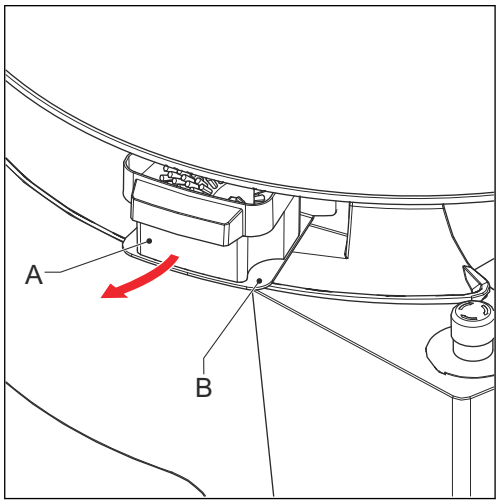
2. When the brush is too dirty and does not clean the nozzle of the canister, rinse and clean the brush. See *3.3.2*.
3. When the nozzles are too dirty, clean the nozzles individually with a damp cloth. See *3.3.3*.

3.3.2 Cleaning the brush unit: daily

- The brush unit removes the excess colorant from the nozzles.
- The brush unit consists of a brush container and a removable brush that rotates.
- The brush unit is installed in a bracket with a magnetic snap connection.

Note:
If you do not clean these items daily, mistinting might occur.

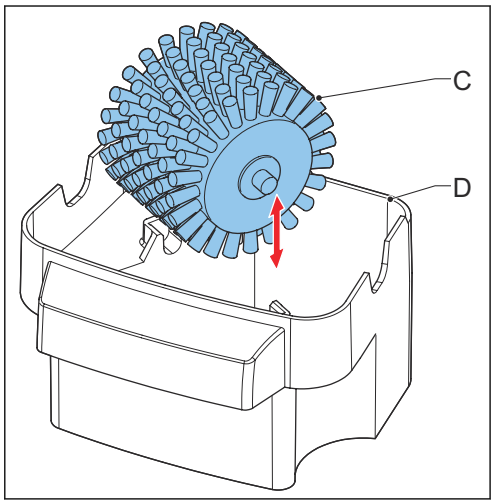
1. Pull the brush unit (A) gently from the bracket (B) to release the magnetic lock.



2. Remove the rotary brush (C) from the brush container (D).
3. Remove the fluids from the brush container.

Note:
For the disposal of the fluids, follow the local regulations.

4. Rinse and clean the rotary brush.
5. Place the rotary brush back in the brush container.

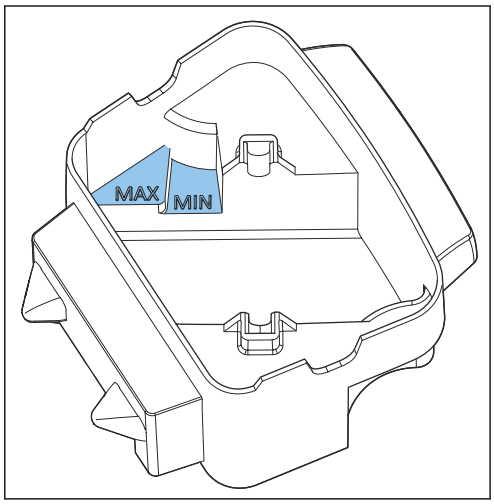


6. Fill the brush container with fluid. This fluid must be a water-based cleaning agent.

WARNING:
For liquids being used in the machine, see *2.2.2*.

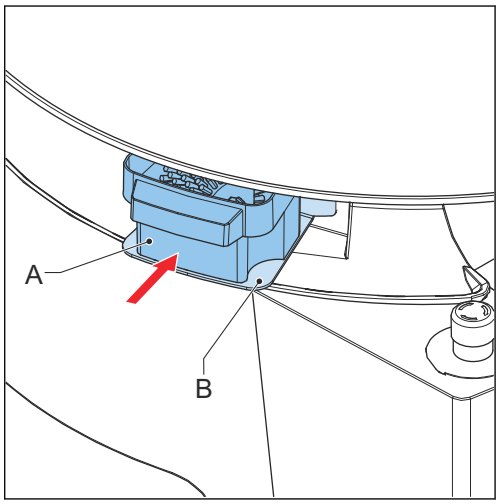
Note:

- Do not exceed the maximum filling height (MAX).
- The optimum fluid level depends on the type of colorant that is used.



7. Slide the brush unit (A) back in the bracket (B).

Note:
The brush unit is properly connected to the bracket when you feel a magnetic snap-fit. Make sure you feel a snap-fit.

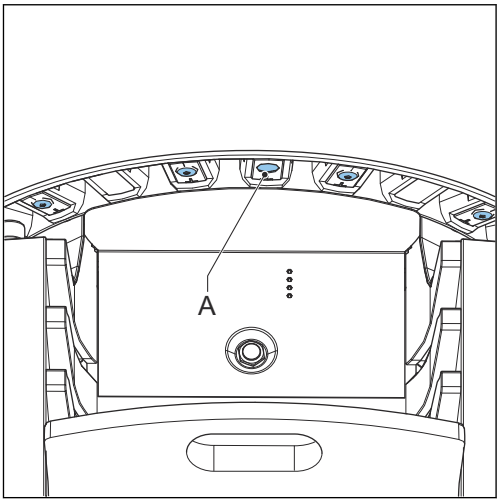


3.3.3 Cleaning the nozzles: daily

1. Examine the nozzle (A) for contamination.
2. If necessary, clean the nozzle.

   Use a clean cloth, with a non-organic cleaning liquid.

WARNING:
Do not clean the nozzles when the turntable moves.



3.3.4 Refilling 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, it can cause an inaccurate dispensing and/or a recipe fault.

Note:
The dispense software checks the level of colorant in each canister. The dispense software shows when you need to refill a canister.

1. In the dispense software, start the fill canister command.

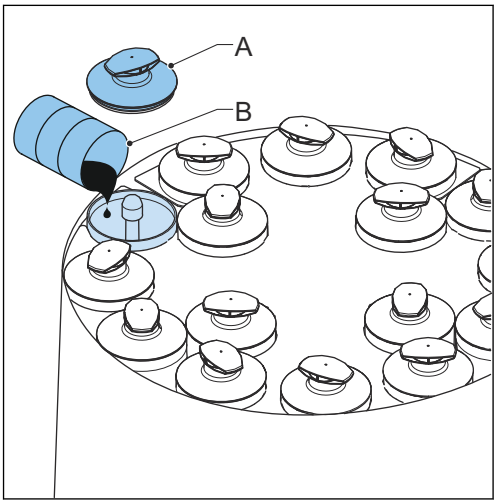
Note:
The fill canister command of the dispense software controls the motor of the turntable. The turntable turns the empty canister to the front.

2. Remove the lid (A) from the canister.
3. Follow the instructions on the display.
4. Add the correct colorant (B). Do not spill.

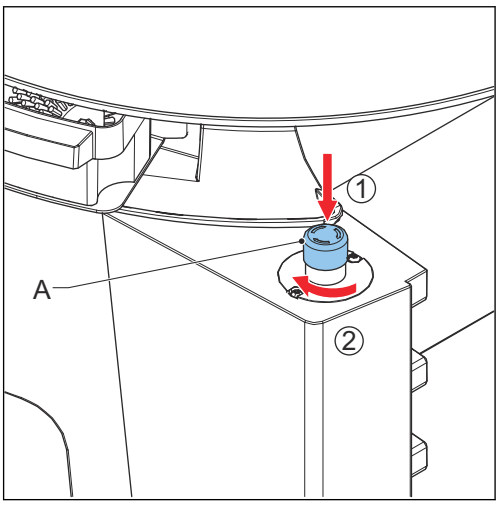
CAUTION:

- Do not fill the canister to the brim. Leave at least 2.5 cm (1 inch) unfilled.
- Do not pour the colorant on the agitator.

5. Place the lid back on the canister.



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

Note:
For the unpacking and installation procedures, refer to the separate installation instruction sheets.

4.1 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 released.
3. Set the computer switch to 'ON'.
4. Run the dispense software.

4.2 First use

1. Fill and place the brush unit. See *3.3.2*.
2. Fill the canisters correctly. See *3.3.4*.
3. Flush all air out of the pumps. See *4.3*.

4.3 Flushing the air out of the pump

Note:
Before the first use it is important that all air is removed from all individual pumps.

1. Flush the air out of the pump:
   - Use the air flushing command in the dispense software.
   - If the dispense software does have an air flushing command option or is not able to flush the air out of the pump automatically, dispense 120 ml / 3 oz. Repeat the action until all air is out of the pump.

5 Troubleshooting

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

5.1 General troubleshooting procedure

1. Try to solve the problem with the information in this manual. See *5.2*.
2. If it is not possible to solve the problem with the information in this manual, contact service. See *5.3*.

5.2 Troubleshooting guide

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*.
The machine has a failure and does not respond correctly to the request from the dispense software.	The failure could be mechanically or electronically.	Disconnect then reconnect the power cable of the machine then restart the machine. If the machine still has a failure, contact service. See *5.3*.

5.3 Contact service

1. Find the type plate on the plate next to the emergency stop switch. 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* (Fast & Fluid Management Europe and Asia) or *www.fluidman.com* (Fluid management, U.S.A.).

6 Technical data

6.1 General specifications

Parameter	Specification	
	Metric standard	Imperial standard
Model	Element 2, Element 3	
Number of canisters	Up to 32	
Dispensing	Sequential	
Movement	Bi-directional	
Pump type	Piston pump	
Cleaning system	Rotary brush	
Suitable for	Water and universal colorants	
Canister size [L - USgal]	1.3, 2.3, 4.6	0.343, 0.608, 1.215
Resolution [mL/step - fl oz/step]	0.003, 0.005, 0.007	± 0.0001, 0.00017, 0.000240
Maximum flow rate [L/min. - USgal/min.]	0.2, 0.3, 0.5	0.053, 0.079, 0.132
Minimum dispensing [mL - fl oz]	0.05, 0.04, 0.03	0.0017, 0.0014, 0.0010
Nozzle diameter [mm - in]	2, 5	0.079, 0.197

6.2 Dimensions and mass

6.2.1 Element 2

Parameter	Specification	
	Metric standard	Imperial standard
Dimensions, height x width x depth [cm - in]	124 x 72 x 85	48.82 x 28.35 x 33.46
Packed dimensions, height x width x depth [cm - in]	115 x 76 x 76	45.28 x 29.92 x 29.92
Mass incl. packaging [kg - lbs]	90	198.416
Mass filled machine (max.) [kg - lbs]	175	385.809
Minimum requirement of load capacity of the floor according to EN 61010-1:2010 [N - lbf]	5	1.1240
Filling height of the canister [cm - in]	120	47.2
Maximum can height [cm - in]	47	18.5
Can table dimensions, width x depth [cm - in]	42 x 34	16.54 x 13.39

6.2.2 Element 3

Parameter	Specification	
	Metric standard	Imperial standard
Dimensions, height x width x depth [cm - in]	124 x 79 x 94	48.82 x 31.10 x 37.01
Packed dimensions, height x width x depth [cm - in]	115 x 85 x 85	45.28 x 33.46 x 33.46
Mass incl. packaging [kg - lbs]	145	319.670
Mass filled machine (max.) [kg - lbs]	215	473.994
Minimum requirement of load capacity of the floor according to EN 61010-1:2010 [N - lbf]	6	1.3489
Filling height of the canister [cm - in]	120	47.2
Maximum can height [cm - in]	47	18.5
Can table dimensions, width x depth [cm - in]	42 x 34	16.54 x 13.39

6.3 Ambient conditions

Parameter	Specification	
	Metric standard	Imperial standard
Ambient temperature [°C - °F]	+10 to +35	+50 to +95
Altitude above sea level, operational [m - ft]	-10 to 2000	-33 to 6562
Altitude above sea level, out of operation [m - ft]	-10 to 12000	-33 to 39370
Maximum Relative Humidity, without condensation [RH]	90%	

6.4 Noise level

Parameter	Specification
Maximum noise level [dB(A)]	< 70

6.5 Safety classifications

Parameter	Specification
IP (Ingress Protection) classification	32
EMC (ElectroMagnetic Compatibility) classification	Class B

6.6 Electrical specifications

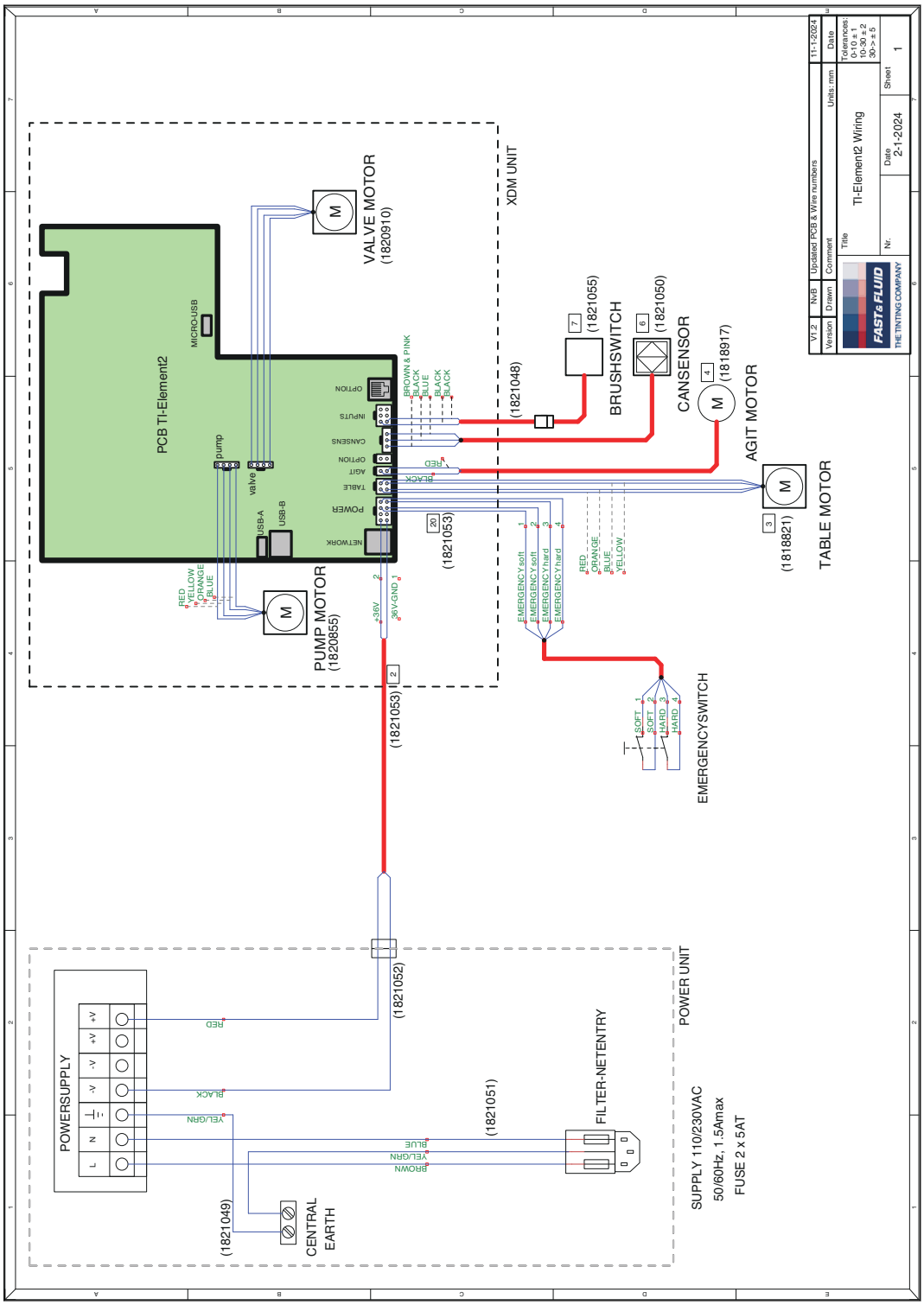
6.6.1 Power supply

Parameter	Specification
Maximum power consumption [W]	150
Voltage [V AC]	110~230
Voltage [Hz]	50 / 60
Maximum leakage current [mA]	3.5
AC inlet	IEC320/C14
Required line and safety protection	• 16A fuse • Network system TN, TT
Short circuit current rating [A]	1720

6.6.2 Machine

Parameter	Specification
Maximum power consumption [W]	75
Voltage [V DC]	24

6.7 Electrical diagram



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