

First Start Manual

Thor



ORIGINAL INSTRUCTION

Code:	
-------	--

Year:	2019
-------	------

Rev.:	02
-------	----

www.alfadispenser.com

3. INSTALLATION

3.1. CHOOSING THE ROOM

The machine must be installed in a manned room, complying with the requirements in chapter 1.

DO NOT INSTALL THE MACHINE OUTDOORS OR ANYWHERE EXPOSED TO WEATHER.

THE EQUIPMENT IS NOT SUITABLE FOR INSTALLATION IN AREAS WHERE WATER SPRAY COULD BE USED.

ONLY INSTALL ON SMOOTH, FLAT AND STEADY FLOOR, ABLE TO SUSTAIN THE MACHINE FULL-LOAD WEIGHT.

THE MACHINE MUST BE POSITIONED ON A HORIZONTAL SURFACE (FLOORING WITH A GRADE BELOW 2%)

INSTALLATION ON INTERMEDIATE FLOOR IS ALLOWED ONLY IF THE REQUIRED LOAD BEARING CAPACITY IS VERIFIED (>1000KG/SQ.M).

INSTALL THE MACHINE AT 5-10 CM FROM THE WALLS, AND ENSURE THAT THE ROOM EASILY ALLOWS YOU TO EASILY OPEN THE SERVICE COMPARTMENTS AND THAT THE CIRCUIT BREAKER CAN BE EASILY ACCESSED.

3.2. PRODUCT LABEL AND ELECTRICAL CONNECTION

Make sure that the system meets the electrical requirements specified on the machine nameplate, then connect the power cable to the socket.

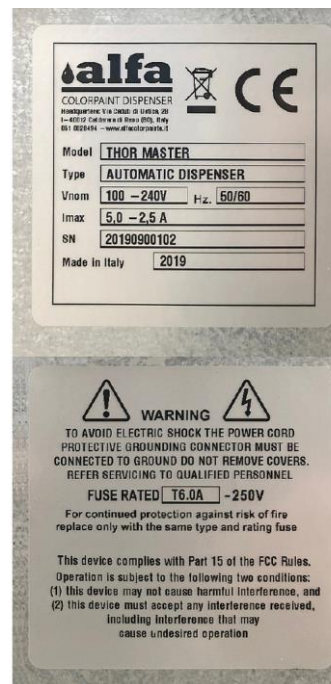
- Model: machine model
- Type: machine type
- Vnom: power supply voltage
- Hz: mains frequency
- Imax: absorbed current*
- SN: serial number
- Made in Italy: year of manufacture
- Fuse Rate: fuse value

The machine is equipped with a detachable power cable for connection to the mains.

Connect the machine to the mains using exclusively the cable supplied.

Always make sure that the voltage output from the mains is compatible with the nameplate specifications.

* maximum absorbed current in case of use of Thor at full load and of AUX sockets (see chap. 1 – ELECTRICAL CONTROL PANEL) with load of 200W.



USE ONLY LISTED DETACHABLE POWER SUPPLY CABLES NOT EXCEEDING 4.6 M. LENGTH, TYPE SVT OR SJT, 3X18 AWG 10 A, WITH GROUND CABLE.

To ensure the correct machine operation and the highest safety level, it is essential that the machine is connected to ground. Make sure that the system is connected to a power supply with an efficient ground.

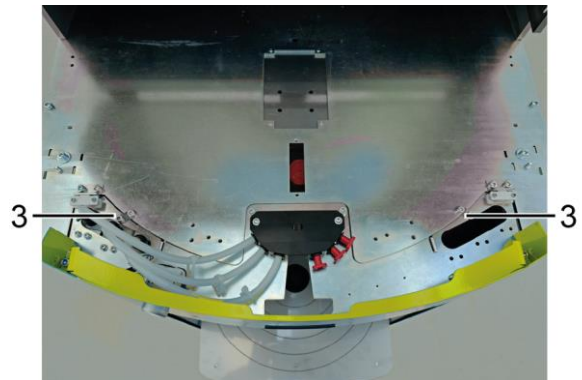


WARNING: ONLY CONNECT THE MACHINE TO ELECTRIC SYSTEMS PROVIDED WITH GROUND CIRCUIT CONNECTION COMPLIANT WITH THE NATIONAL STANDARDS.

3.3. COMMISSIONING - INSTALLATION

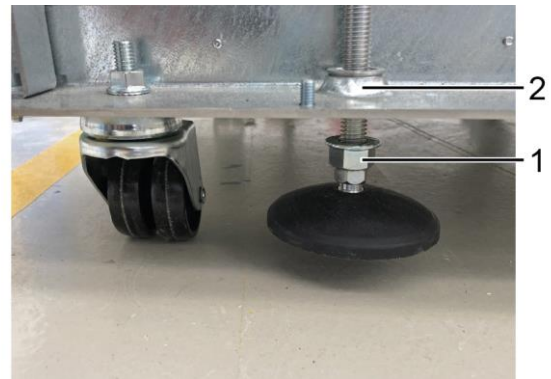
3.3.1. REMOVING THE MECHANICAL AND PARKING RETAINERS

- The semi-finished product carriage is secured to the machine by means of two small brackets. Loosen the screws and the brackets (1) with a 4 mm Allen key.



Once the machine is in the correct position, it must be stabilized on the adjustable supporting feet, acting as follows for each one of the 2 feet:

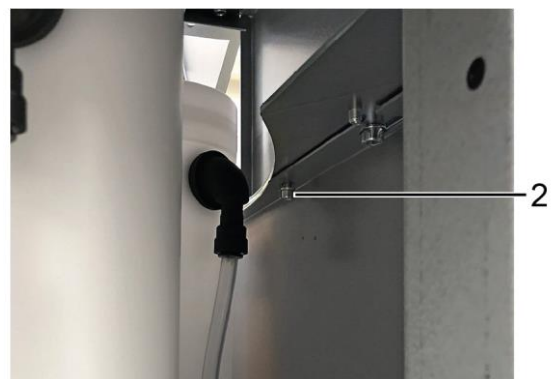
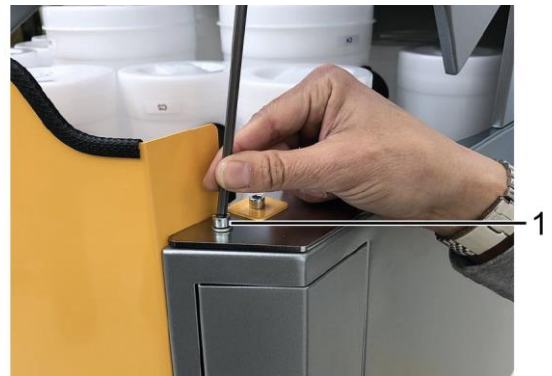
- Work on the nut/recess located at the base of the screw (1) with a 10mm wrench to lower the foot until the nearby wheel is completely lifted. As an alternative, tighten an M12 nut fully home on the insert (2) and work on it to lift or lower the foot using a 19mm wrench.
- Use a spirit level to correct the height of the 2 feet until obtaining a good alignment.
- Use an M12 nut to lock the foot;



3.3.2. UNLOCKING TURNING TABLE

The turning table is fixed to the cabinet by 4 columns that prevent rotation during transport. Unlock the turning table as follows:

- Remove the upper side panels by loosening the M6 TCEI screw (1) with a 5 mm Allen key and the M5 TCEI screw (2) inside the machine with a 4 mm Allen key. To reach the internal screw access from the rear panel. The side panel can then be removed by sliding it towards the back of the machine.



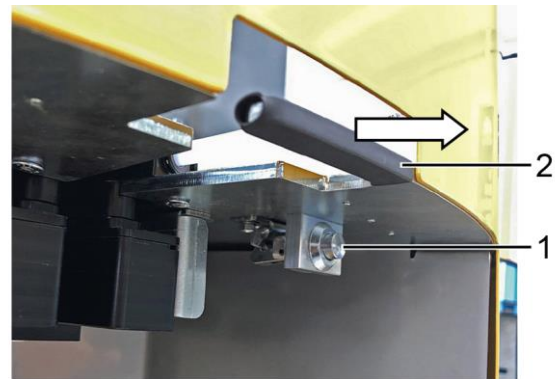
- Remove the 4 columns (3), two on each side of the turning table securing the turning table (4) to the fixed base (5) by loosening the corresponding M5 TCEI screws on top of each column and the M6 TCEI screws under each column.



3.3.3. SEMI-FINISHED PRODUCT CARRIAGE EXTRACTION

To extract the base carriage from the cabinet the safety lock has to be released:

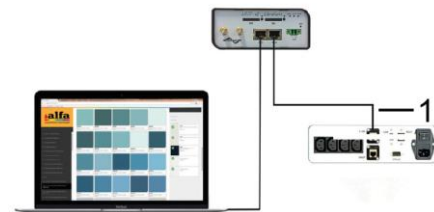
- Press button (1) and extract the cabinet by acting on handle (2).



3.3.4. CONTROL PC INSTALLATION

Connect the PC to a suitable power socket. If AUX sockets available on the Alfa tinting machine are used, check the electrical characteristics on the data plate.

Then connect the PC Ethernet plug to the machine Ethernet socket (or to LTE modem, if any) using the cable supplied with the machine. For the first setup of the machine or to retrieve the DHCP IP address assigned by the network to a machine connected to the LAN, it is necessary to connect to the "0.100" (1) port of the machine.



If an LTE modem router is used, refer to the next paragraph.

Connect the accessories required, such as monitor, mouse, keyboard, and printer if necessary.

DISCLAIMER

Alfa machines are set for local network communication with third party devices and for access to services via internet (alfa-cloud, alfa-service in VPN, etc.) using Ethernet or wireless interfaces.

These systems are NOT designed to be directly used online, as they do not ensure the necessary cyber security protection.

Direct exposure of network interfaces to the internet network without a firewall or similar protection system poses a cyber security risk, that must be avoided with a suitable configuration at the time of installation and for which Alfa srl is not responsible.

3.3.5. CONTROL SOFTWARE

To control the dispenser, Alfa makes the web-based interface called AlfaTint available to all its customers.

In case you wish to apply your own software, Alfa provides a series of calls (API Rest) allowing interfacing the machine with any third-party software.

For more details on the API Rest, please refer to the technical manual or contact Alfa Service Department.

In the following, we will refer to AlfaTint interface commands.



3.3.6. LTE ROUTER MODEM INSTALLATION (OPTIONAL)

LTE modems supplied by Alfa are always configured to provide router-machine communication at the address 192.168.0.100.

In case the router is used, it will be necessary to start VPN connection by using the specially provided certificate and to connect to the router IP by setting the last digits of the IP address to 100 (see technical manual for more detailed information).

Different LTE Routers may be supplied, depending of the destination market of the machine.

With reference to the figure on the side, the upper model (1) is suitable for North American markets (Mexico, USA, Canada), whereas the lower model (2) can be used elsewhere in the world. Further models can be used in specific areas where special type-approval requirements are necessary (e.g. Australia).

- Connect the machine Ethernet 0.100 plug to one of the two Router Ethernet sockets and the PC Ethernet plug to the other Router Ethernet socket;
- Connect the power cable present inside the router box between modem PWR connector and 24Vdc socket available in the internal power supply unit. As an alternative, it is possible to use the power supply unit included in the package, to be directly connected to an external mains socket.
- Screw the antenna supplied (3) to ANT threaded connector;
- Insert a data SIM into SIM1 slot, taking care to previously check that no PIN is enabled (before inserting the SIM into the router, insert the SIM into a telephone and disable the PIN if necessary).

NOTE: In some types of modem, SIM1 slot can be located in the rear part of the modem.



Check that the accessory kit includes:

- Modem
- Network cable
- No. 2 antennae

If necessary the antenna equipped with cable and magnet can be used.



3.4. SWITCH-ON AND INITIALISATION

Connect a PC to the machine Ethernet "0.100" socket using the supplied Ethernet cable, then proceed as described.

- Update the PC network configuration so that the IP address is within the same subnet as that of the machine (see the adjacent example).
- The machine default IP address is 192.168.0.100.
- For more information on how to modify your PC's IP address, contact your IT administrator.
- Turn on the machine by turning the on switch to its "I" position.

MACHINE:

IP: 192.168.0.100
NETMASK: 255.255.255.0

PC:

IP: 192.168.0.XXX
NETMASK: 255.255.255.0

xxx = free subnet address

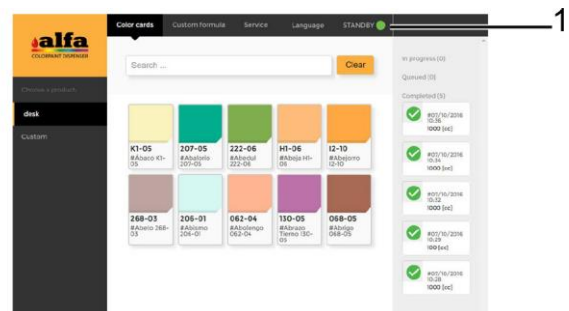
- Open the Alfa TINT control interface on the Internet browser (preferably Chrome or Mozilla Firefox) and enter the address indicated in the figure.
- When the interface displays the window shown in the figure, the machine is ready to be commissioned and used.
- If the window is not displayed, check the Ethernet connection.

192.168.15.100

On top right you can always see the machine (1) status.

Upon switch-on, the machine is in ALERT status (red status indicator).

To use the machine it is necessary to perform a RESET. When the operation is completed, check that the STANDBY status is displayed.



If the machine shows alarm or error warnings, check type of alarm and take the required steps to restore proper operation (see Chapter 8 - Trouble Shooting).

If machine does not switch on, check that power voltage is correct and fuse is not blown.

For further details on malfunction issues, please refer to Chapter 8 "Trouble Shooting".

WARNING: if you are unable to communicate with the machine via the web browser, turn off the machine and contact the manufacturer's technical support service.

3.5. SWITCH-OFF

In order to switch off the machine, turn the main switch to its “O” position and disconnect the power cable from the socket.

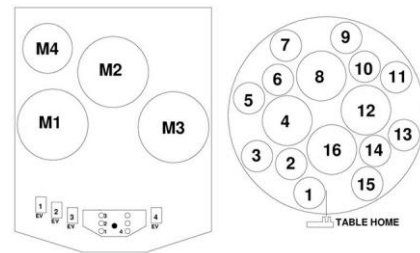
WARNING: in order to disconnect the machine, the operator must not rely exclusively upon the power switch, but must also unplug the machine power cable.

NOTE: The Thor is provided with an integrated board whose aim, among other things, is to maintain the internal 12V power supply for the time required to safely shut down the Linux board (approx. 60 seconds). Any voltage interruptions or dips with a shorter duration do not cause machine switching off by the PC.

3.6. COMMISSIONING - PREPARATION

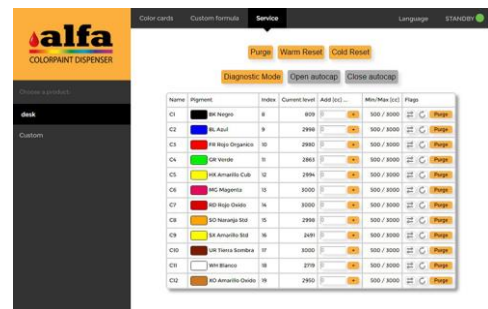
3.6.1. DYE CANISTER LOADING

Each colorant group is matched to a hardware address. By convention, colorant order is as shown in figure below. The canisters are always marked with labels from C1 to Cn, according to the actual number of present circuits.



The position-colorant association can be viewed by accessing the special software section.

Such associations can be modified by qualified TECHNICAL personnel. For further information, refer to the Software manual.



Upon first installation, the technician must set the proper tinting system and fill the tanks according to the proper sequence.

To load the products refer to chapter 5.

WARNING: Do not overfill the tanks.

Then, trigger the circuits and leave them in recirculation mode for the time needed (see chapter 3 - RECIRCULATION).

The tinting system loaded on the machine can be changed, as well as the colorant software indexing. These operations are reserved to authorised technical staff.

To see or change the positions associated with each colorant, please refer to machine configuration (ref. "Software manual").



3.6.2. SEMI-FINISHED PRODUCT LOADING (THOR MASTER VERSION)

The semi-finished products must be loaded in the semi-finished product carriage tanks. Fill as follows:

- Extract the semi-finished product (1) carriage.
- Remove the covers (2) and fill the tanks with the product indicated by the software.

The semi-finished product carriage can have different configurations; the circuit numbers are indicated on the circuits.

WARNING: Do not overfill the tanks.
Refer to paragraph 5 for the correct filling methods.



3.6.3. MOISTURISING FUNCTION

The autocap, if present, includes the components necessary to keep the nozzles humidified in order to prevent or reduce the drying of the products at the nozzle ends.

The system is composed of a distilled water tank built inside the autocap, of a resistance and of a level sensor.

Safety function

A level sensor allows detecting when the level of the liquid inside the tank is low and allows the machine to disable moisturising function until the liquid level is restored. If the level is too low the alarm "TOO LOW WATER LEVEL" will be displayed by the machine.

Operation parameters

The machine periodically activates the resistance according to factory preset power levels and intervals, as shown in the table below.

	Closed autocap	Open autocap
Power	20W x 0.3 (PWM 30%)	20W x 0.3 (PWM 30%)
Repetition interval	200"	60"
Duration	55"	20"

Parameters can be changed by authorised operators (see technical manual and/or software manual).

When switching on the machine, perform the autocap moisturising as described in chapter 6 – AUTOCAP CLEANING AND MOISTURISING.

3.6.4. SEMI-FINISHED PRODUCT CIRCUIT OPENING

Under the tanks there are the relevant pumping units provided with shut-off valves (1). Upon commissioning and before testing the circuits, check that the valves are open.



3.6.5. CIRCUIT TRIGGERING AND RECIRCULATION

Before using the machine, trigger circuits and leave them in recirculation mode.

Once the circuits are full, it is recommended to perform some purge cycles and leave the machine in stand by mode for at least 12 hours, a period of time usually sufficient to remove the residual air from the circuits.

3.6.6. SETUP OF CIRCUITS

The machine is now ready to be initialised or for producing the first sample.

Typically, the machines leave the factory with all circuits already characterised and ready to be used with the colorants of the tinting system specified in the order.

When using dyes that are not yet characterised on a software level, the circuits need to be set up first.

An incorrectly characterized machine can cause significant color production errors. Circuit setup is a procedure reserved for expert technicians so, if necessary, contact Alfa-authorized Technical Service. Circuit setup execution modes are described in the Software Manual.

Once the recirculation and setup stages are completed, the machine is ready for dispensing a test sample and commissioning.

Refer to "How to produce a sample" to perform a test production run.

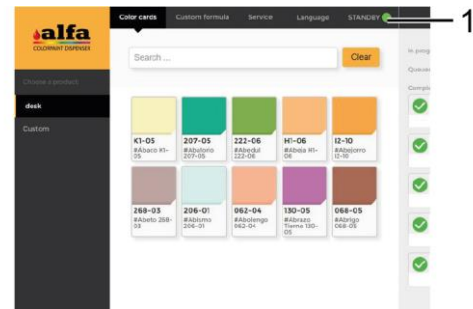
4. HOW TO PRODUCE A COLOUR

4.1. MACHINE STATUSES

On top right of the Alfa TINT software interface you can always see the machine (1) status. Following are the possible machine statuses:

STANDBY: machine ready, waiting for controls
 DISPENSING: dispensing in progress
 RESET: reset in progress
 ALARM: machine error
 DIAGNOSTIC: machine waiting for direct controls

The direct controls are described in the following paragraphs.



4.2. PRODUCTION OF A COLOUR

Once the system is installed, it is possible to start the production. To produce a colour, follow the instructions provided in this paragraph.

4.2.1. ADJUSTMENT OF THE STOOL HEIGHT

Adjust the can lifter height so that the distance between the upper edge of the can to be used and the nozzle is of 2-3cm.

- To modify the height, manually remove the table top (1) and place it in the appropriate height rail (2).



4.2.2. FORMULA SELECTION AND DISPENSING

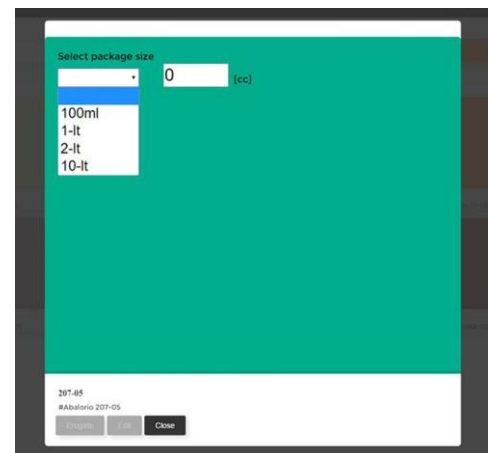
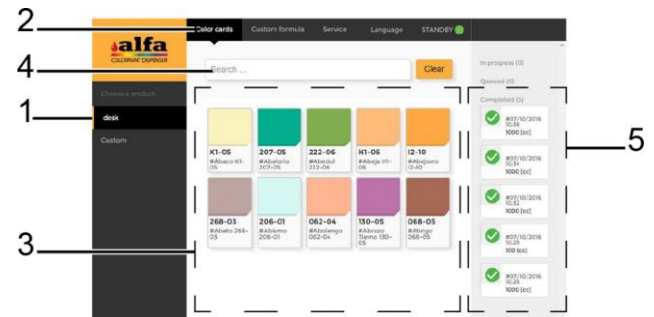
Formulas concerning different types of product (e.g.: washable paints for outdoor use / washable paints for indoor use / quartz /...) can be loaded onto the machine, each one of them characterised by its own set of original formulas. The types of products are listed in the column on the left (1).

Start the control interface Alfa TINT on the browser web

- Select the desired product type (1).
- The Color cards tab (2) shows a preview of the available colours (3) and a search bar (4) where to enter the name or code of the desired colour.

The right column (5) shows the chronology of the last dispensing cycles.

- By selecting a colour, the display will show the dispensing window (see figure on the side).
- In the “Select package size” drop-down menu, select the desired volume ensuring that it is consistent with the volume of the can being used.
- Then press “Dispense” to start dispensing or “Edit” to change the formula.
- Before starting the dispensing, the machine will check, by means of a sensor, the actual presence of the can under the nozzle; if this is not the case, the display will show the message "Please Insert Can".
- To add a package with different volume, not present in the drop-down menu, refer to the software manual (Recipes >> Packages).
- During the dispensing, the machine is in DISPENSING status. When the dispensing is completed, if there are no errors, the machine will return in STANDBY mode.



4.2.3. CREATION OF A NEW FORMULA AND CHANGE OF AN EXISTING ONE

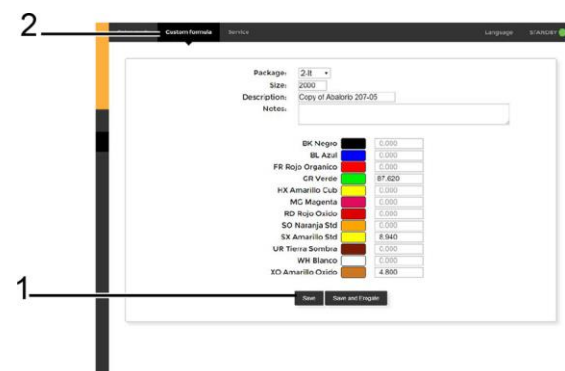
If a formula is modified starting from a laboratory one or if a new formula is created from scratch, this formula is not saved among the laboratory ones but in dedicated and different space (e.g. Custom Formulas).

Once an existing formula has been selected, the Edit control allows accessing the “Custom formula” tab that contains the formula editing functions.

To edit the recipe starting from the selected formula, enter the values in cc of the relevant components.

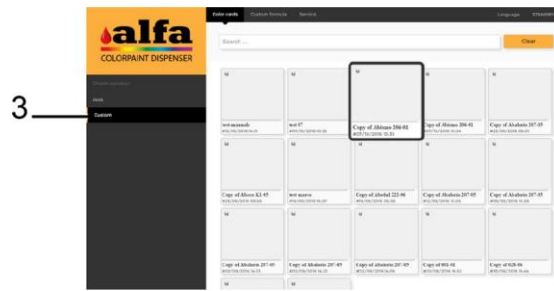
The software offers the possibility to save the formula without activating it, by means of the “Save” control (1) or to save the formula and activate it (“Save and Erogate” control).

The name assigned by default to the modified formula is “Copy of oldformulaname”. The name can be edited together with a field for notes that will be saved with the new formula.



The display mentioned above can be accessed directly even from the initial page by selecting the “Custom formula” tab (2) and can be used to create a new formula. In this case, the default values of the components will be all to zero.

All formulas customized by the operator can be viewed even if they do not have a coloured label, in the “Custom formulas” product menu (3).



At the end of the dispensing, remove the can and close it carefully, then place it in a mixer unit to mix the paint.

4.3. SERVICE ADVANCED FUNCTIONS

The “Service” tab allows accessing useful functions for the diagnosis and maintenance operations. Inside this interface it is possible to send the following direct controls to the machine:

- Purge
- Warm Reset (without movements)
- Cold Reset
- Open Autocap
- Close Autocap
- Start/Stop Recirculate Circuit (2)
- Start/Stop Stirring Circuit (3)
- Purge Circuit (4)
- Refill

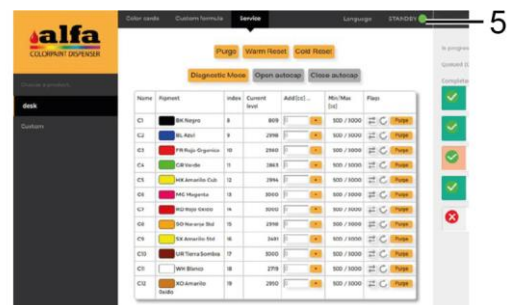
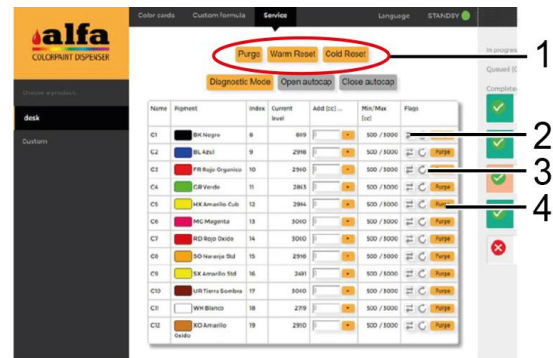
The first three controls (1) are available also with machine in stand-by mode. The other controls are available only after switching the machine to “Diagnostic” (5) by pressing “Diagnostic Mode”.

NOTE: when the stirring command is given for a colorant, all the colorants are stirred, since the stirring function of the colorants on Thor is associated with the rotation of the table.

In diagnostic mode it is also possible to enter the product quantities added during the circuit refill (see chapter 5 – MAINTENANCE).

At the end of the service operations, quit the DIAGNOSTIC mode by starting a Reset.

- Cold Reset: performs a complete reset of the machine by starting all movements to search the photocells.
- Warm Reset: quits the Diagnostic mode by performing only the strictly necessary movements.



4.4. ACCESS TO THE CONFIGURATION ADVANCED FUNCTIONS

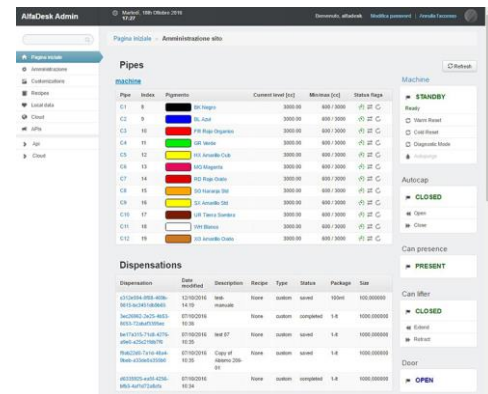
The access to the configuration and diagnostic functions is allowed only to authorised and qualified **TECHNICIANS**.

After the authentication, the specialised **TECHNICIAN** can access the “Admin” interface (figure on the side), from which it is possible to manage the configuration advanced functions, the alarms and the diagnosis.

System administrator can create new users with different credentials and assign customised passwords. It is recommended to carefully store the password since it is not saved anywhere so it cannot be recovered if lost.

If you lose the password, contact system administrator and request a new temporary password.

For further details consult the Software manual.



5. ORDINARY MAINTENANCE AND ADJUSTMENTS

5.1. INTRODUCTION

The following paragraphs describe the circuit top-up operations as well as the instructions for simple adjustments that can be performed by the operator.

Namely:

- Colorant and master tanks top-up

Please refer to Chapter 6 for lubrication and cleaning of the machine.

THE OPERATIONS DESCRIBED IN THIS CHAPTER MAY REQUIRE ACCESS TO DANGEROUS SERVICE AREAS.

ACCESS TO SERVICE AREA IS RESERVED TO TRAINED AND AUTHORISED STAFF (MAINTENANCE OPERATOR, SEE PARA. 0. – USERS AND ACCESS LEVELS).

5.2. TANK AND CANISTER TOP-UP

When the machine indicates that the product reserve level has been reached, it is necessary to top up the relevant canister or tank and then record the top-up operation. In order to perform this operation, proceed as follows:

Colorant group canisters:

Top-up using only the canister in the front part of the machine.

To top-up colorant proceed as follows:

- Open AlfaTint “Service” tab and press REFILL button of the circuit to be topped-up.
- Once the table has completed rotation (if necessary) the circuit will be in the front position and will be ready for top-up.
- Remove the canister lid.
- Fill the canister with the appropriate pigment up to the indicated maximum level (MAX LEVEL).

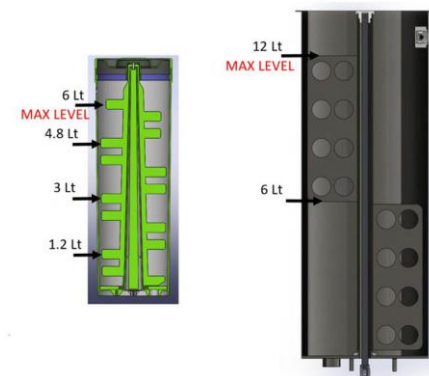
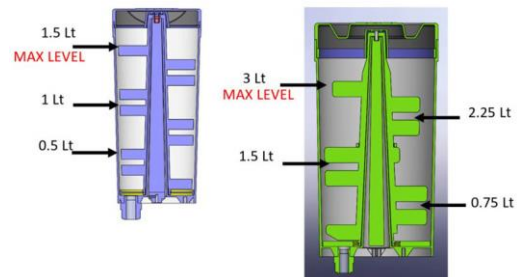
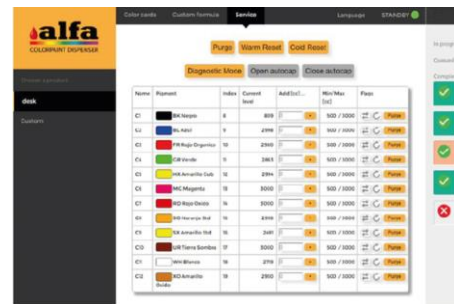
NOTE: The cross element can be used to support a container when you leave it to drain. Do not overfill beyond the recommended level.

Base and semi-finished product tanks:

To top-up semi-finished product circuits, if any, proceed as follows:

- Extract the base/semi-finished product carriage from the Thor cabinet.
- Remove the cover of the tank/tanks to be topped up.
- Top up the circuits using the suitable product. Do not overfill beyond the level indicated by the end of the stirring blade (MAX LEVEL).

At the end of the top-up operations, close the lids of the filled circuits and refit the carriage inside the cabinet, then record the just carried out operation in the software (see next paragraph).



5.3. RECORDING THE OPERATION

After each top-up operation it is necessary to record in the software the product added quantity:

- Access the “Service” section and then “Diagnostic Mode”;
- In the “Add [cc]” field enter the volume in cc of the product supplied in the circuit, then press “+”.
- Repeat this operation for each topped-up circuit.
- Perform a reset to quit the DIAGNOSTIC mode.



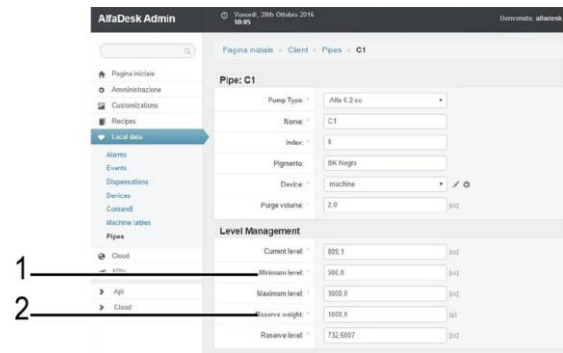
5.4. MINIMUM AND RESERVE LEVEL

For each circuit it is possible to define a reserve level (that can be checked by means of the hardware sensor) and a minimum level (that can be checked via software).

If the product volume is lower than the reserve level (1) detected by the sensor, the system shows an alarm.

If the volume is lower than the minimum level (2) calculated by the software, the system disables the circuit and does not supply that product until the circuit is topped-up.

Every time a dispensing control is sent, the software calculates if the volume of each product in the machine is sufficient to perform the formula so that the residual volume is not lower than the minimum set one. In case even only one of the components of the formula is not sufficient, the system requires the operator to select another formula.



5.5. ADJUSTING MINIMUM LEVELS

Thor is not provided with minimum level sensors. Levels are only software controlled.

5.6. PRODUCT DISPOSAL

During the maintenance or repair interventions it may be necessary to empty canisters and tanks from the paints contained in the circuits.

Colorants and base must be disposed of in suitable collector tanks to be treated and disposed of in a suitable way.

It is forbidden to release the products in the environment or in the public sewers.