

Operator Manual

Color Lab



ORIGINAL INSTRUCTION

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0. FOREWORD

0.1. HOW TO USE THE MANUAL

0.1.1. IMPORTANCE OF THE MANUAL

The manual contains instructions and advice for the commissioning and use of the Color Lab product. Before installing and commissioning the system, carefully read this manual in all its parts and in particular the chapters “GENERAL INFORMATION”, “INSTALLATION” and “HOW TO PRODUCE A COLOUR”, paying more attention to the paragraphs related to precautions and safety alerts.

In case problems or difficulties should arise, the TECHNICAL SERVICE SUPPORT of Alfa Srl is always available to provide the right support, advice, explanation and assistance.

Alfa Srl reserves the right to make modifications for improving its own products without prior notification.

The incorrect use of the system can lead to loss of warranty in all its forms and terms.

0.1.2. HOW TO KEEP THE MANUAL

Do not remove, modify, rewrite contents of this manual for any reason.

Keep the manual in a safe place, protected from heat and humidity.

0.1.3. HOW TO CONSULT THE MANUAL

This manual comprises:

- COVER PAGE IDENTIFYING THE TYPE OF PRODUCT
- TABLE OF CONTENTS
- INSTRUCTIONS AND/OR NOTES ON THE PRODUCT

The COVER PAGE identifies the product described in this manual.

Use the CONTENTS to find the list of CHAPTERS and PARAGRAPHS contained in the manual and their subjects.

The INSTRUCTIONS AND/OR NOTES ON THE PRODUCT define the safe working practices and advice on the correct procedures and the skills required to correctly operate and maintain the system.






Some images of this manual having been enclosed for easier identification of the described parts may not be exactly the same as the ones in your System.

0.1.4. SYMBOLS USED IN THE MANUAL

The safety and advice symbols used in this manual are used to draw the reader's attention to warnings concerning safety or indicating good working practices.

The same symbols are also placed on the machine to indicate dangerous areas and refer to the relevant safety notes in the manual.

MEANING OF THE SYMBOLS

	WARNING! GENERAL DANGER
	WARNING! HIGH VOLTAGE
	WARNING! RISK OF CRUSHING.
	WARNING! LASER RADIATION DANGER
	GROUND CABLES THIS SYMBOL INDICATES GROUND REFERENCE POINT.

0.1.5. PROCEDURE FOR UPDATING THE MANUAL IN CASE OF MODIFICATIONS TO MACHINE

If the MACHINE or MANUAL is MODIFIED in any way, an UPDATE could be sent for insertion into the printed Manual.

0.2. INSTRUCTIONS FOR ORIGINAL SPARE PART AND CONSUMABLE ORDER




To provide a fast and efficient service, always specify the following information when ordering replacement and consumable parts:

- **Machine type:** as indicated on nameplate.
- **Serial number:** as indicated on nameplate.
- **Quantity** of each item required.
- **Code** of required part.
- **Description** of required part.







0.3. SAFETY INFORMATION



0.3.1. PRECAUTIONS AND USAGE REGULATIONS

The machine must be positioned in an enclosed area that complies with the environmental requirements set out in the relevant paragraph.

	<p>Do not install the machine in a dusty environment. Do not expose the machine to sources of heat, excessive cold, water, electromagnetic energy, or sources of smoke. The machine must be positioned on perfectly level flooring.</p>
	<p>Always make sure that the power cable is intact and free of any cuts or cracks. In case of cable damage, renew the cable using genuine spare parts.</p>
	<p>The noise level generated by the machine is less than 70 DB (measured at a distance of 1 m and at a height of 1.60 m from the floor). This value can be exceeded in certain work environments. If the noise to which the operator is exposed on a daily basis is presumably greater than 85 DB, effective hearing protections must be used, as required by the 86/188/EEC regulations.</p>

0.3.2. GENERAL SAFETY WARNINGS

	<p>Color Lab is compliant with all the safety requirements of the main European and extra-European Standards and Institutions. Despite that, it is suggested to read carefully the information contained in this chapter and in the next pages since they show the possible dangerous situations and the necessary precautions to take.</p>
	<p>The machine is provided with doors and guards that prevent the operator from getting in contact with mechanical and electrical hazardous parts. A periodical check on the safety devices must be performed according to the instructions provided by this manual. If the safety protection systems are damaged, turn off the machine and call the technical service.</p>
	<p>High voltage parts - Risk of electric shock No high voltage part is accessible from the User area. All the high voltage circuits are contained into enclosed areas and protected by fixed guards. The high-voltage internal parts are accessible to the maintenance operator and are protected against direct contact with dangerous parts by means of IP 2X or higher class protection. Dangerous parts are marked by the symbol indicated on the side.</p>
	<p>Dangerous mechanical parts - Risk of crushing or trapping. Internal moving parts are accessible only to technical personnel. Do not put your hands into the machine working areas. Tie hair to avoid the risk that it can be trapped in the machine. For the same reason, keep away of the machine or avoid wearing any hanging objects such as ties, necklaces, pendants or other similar items.</p>
	<p>High-temperature parts - Risk of scalds The machine includes no components or areas that may reach so high temperature as to become dangerous for the user, the maintenance operator or the technician. The areas where this risk can occur, under faulty conditions, are marked by the symbol indicated on the side.</p>
	<p>Flammable parts - Risk of fire The machine is made from materials which do not propagate fire in order to minimise fire risk. Nevertheless, the machine must be installed in a duly ventilated room, complying with the manufacturer's installation requirements. Never leave materials, fluid or foreign objects that might increase the risk and spread of a fire inside the machine.</p>

	<p>It is forbidden to modify the machine's internal an external protections. Contact Alfa's Technical Support Service if necessary. Alfa Srl shall bear no responsibility for any damage that may arise due to the failure to comply with the above instructions. In the event of a malfunction, contact the manufacturer's technical support service.</p>
	<p>GROUND CONNECTION Ground wire connection point. Always ensure that yellow-green ground leads are duly fastened to the ground point indicated by the symbol on the side. DO NOT REMOVE GROUND CONNECTIONS. In case of lead damage, switch machine off and immediately contact the technical service support.</p>

IF THE EQUIPMENT HAS BEEN USED IN A MANNER NOT SPECIFIED BY THE MANUFACTURER, THE PROTECTION PROVIDED BY THE EQUIPMENT MAY BE IMPAIRED

0.3.3. USERS AND ACCESS LEVELS

The machine has three different user interfaces:

- **USER:** an operator who uses the machine for the purpose of producing a colour sample;
- **MAINTENANCE OPERATOR:** user in charge of performing ordinary maintenance operations, such as canister and tank filling, nozzle cleaning and autocap moisturising. Access to the dedicated software area is protected by a first level password;
- **TECHNICIAN:** an expert operator authorised to access the machine's special diagnostic, calibration, configuration, troubleshooting, and extraordinary maintenance functions. Access on the part of these operators is protected by a second level password.
- **ADMINISTRATOR:** a superuser who's authorised to access the machine's software in order to add or delete users, change user rights, reset passwords, etc.

In order to identify the various areas of intervention, the following definitions must be taken into account:

- **USER AREA:** the area outside the machine that the user accesses in order to produce a colour sample and to perform ordinary maintenance operations;
- **MAINTENANCE AREA:** the area inside the machine, which can be accesses with a key, where ordinary maintenance operations are usually performed (on Color Lab such operations are performed by the MAINTENANCE OPERATOR); extraordinary maintenance operations require the access to the SERVICE AREA and are performed by the TECHNICIAN (replacement of dispensing units, circuits, electric parts);
- SERVICE AREA (FOR USE BY TECHNICIANS):** the internal areas of the machine that can not be accessed using a single key, but with other tools (circuits electrical cabinets);

1. GENERAL INFORMATION

1.1. INTRODUCTION

The Color Lab is a laboratory machine that can be used to produce colour samples in volumes ranging from 100 ml to 1 L.

The machine is equipped with 16 dispensing circuits for colorants and effects, and up to 4 base or semi-finished products, which can be housed inside the bottom cabinet (optional).

The semi-finished product or the empty can is loaded manually by the operator.

It is available either with a cabinet or in the tabletop version.

Thanks to the accuracy and high resolution of the cutting-edge dispensing systems designed and patented by Alfa, the machine can reproduce any colour chart with exceptional precision and absolute repeatability.



Color Lab

1.2. INTENDED AND UNINTENDED USE

The machine is designed to dispense water-based liquid paint into a vessel having a known capacity. Any uses other than those expressly described in this manual are strictly prohibited.

DO NOT USE PAINTS OR COLORANTS NOT APPROVED BY THE MANUFACTURER

DO NOT USE FLAMMABLE LIQUIDS

DO NOT USE VESSELS WITH CAPACITIES LESS THAN 100 ML OR GREATER THAN 1 LITRE

MAKE SURE THAT THE ELECTRICAL SPECIFICATIONS AND USAGE CONDITIONS FORESEEN BY THE MANUFACTURER ARE MET PRIOR TO INSTALLATION (PARA. 1.5).

1.3. DESCRIPTION OF THE MACHINE

The paragraph describes the main external and internal components of the machine and their function.

1.3.1. EXTERNAL COMPONENTS

OVERVIEW OF MAIN ELEMENTS

1. Dye units
2. Electrical control panel
3. Colour sample support arm
4. Support cabinet (optional)
5. Semi-finished products or base circuits
6. Autocap



Machine with cabinet and rails

1.3.1.1. DYE UNITS

The machine can house up to 16 colorant groups.

The circuits are all the same, fastened to colorant support base through one knob, bolted below the surface, and are facing toward a single dispensing point (dispensing nozzle). From the electrical point of view, they are connected to the machine by means of a single connector located on the rear side of the group.

Each unit contains a 1.5 litre tank, and is equipped with its own colorant reserve alarm system.

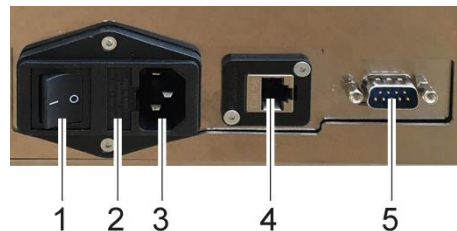


External view of the Colorant Circuits

1.3.1.2. ELECTRICAL CONTROL PANEL

It is located on the rear side of the machine and provides the main electrical connections of the system.

1. On/off Switch
2. Fuse holder 5x20mm T4A 250Vac
3. Standard CT-120 Power Socket 100-240Vac
4. Ethernet Port RJ45
5. Port RS-232 (for scale)



Electrical connections

1.3.1.3.CAN SUPPORT ARM

The machine produces colour samples in volumes ranging from 100cc to 1 litre.

The support arm (1) can be positioned at different heights in order to accommodate cans of appropriate volumes, based on the quantity to be dispensed.

The handle facilitates the extraction and the correct positioning of the can in the dispensing position.



1.3.1.4.SUPPORT CABINET (OPTIONAL)

The machine can be supplied on a cabinet equipped with two front doors. The cabinet can contain two trays for base and Titanium and filler semi-finished products.

1.3.2. INTERIOR COMPONENTS - OVERVIEW

1. Trays with housing for masters (optional)
2. Base or semi-finished product tanks
3. Autocap
- 4.

1.3.2.1.SEMI-FINISHED PRODUCTS OR BASE TANK PULL-OUT TRAY

The cabinet can contain 2 trays capable of accommodating up to 4 stainless steel tanks of 22 litres each (1), which are suitable for containing bases or semi-finished products.

The trays are equipped with wheels and handles (2) in order to facilitate their extraction from the cabinet and circuit refilling.



1.3.2.2.SEMI-FINISHED PRODUCTS OR BASE TANK

Each tank is fastened to a swivelling mount equipped with a warning level detection.

Under the tank, fixed onto it, there is a shut-off tap with built-in strainer and pumping unit, which is equipped with a delivery tap.

Extractable, low profile dripping trays can be housed underneath the tanks.

1.3.2.3. AUTOCAP

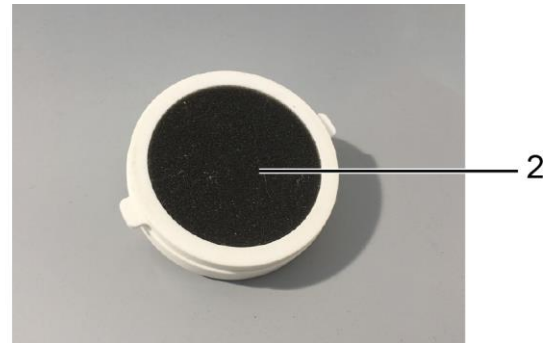
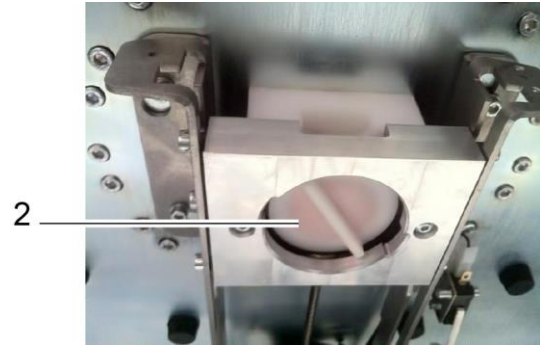
This unit normally keeps the area under the dispensing nozzles moist and sealed to reduce any drying issues.

An automatic moisturising system ensures a constant and optimal moisturising in the dispensing area sealed with a hermetic O-ring gasket (see also chapter 3 – HUMIDIFIER).

The unit is electronically controlled: it is opened a few seconds before dispensing, and immediately closed after dispensing is completed.

The Autocap can take two different statuses, corresponding to two different positions: CLOSED (moisturising) and OPEN (dispensing/maintenance).

A small sponge (2) placed inside the autocap cover (1) is used to accumulate moisture produced by the humidifier and collect any drops of product trickled from the nozzle.



1.4. MACHINE STATUSES AND WORK CYCLE

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

For further details, refer to the next part of this paragraph.

1.4.1. SWITCH-ON - RESET

Upon switch-on, system runs a reset routine and sets to stand-by, thereby allowing the operator to use the Software control interface and set production of one or several colour samples.

1.4.2. OPERATOR INTERFACE AND MAINTENANCE INTERFACE

The machine use and maintenance are managed by means of web interfaces. Refer to chapter 3 – INSTALLATION – for the machine initialisation operations and to chapter 4 – HOW TO PRODUCE A COLOUR - for a description of the basic functions. For a description of the low level functions, refer to the "software manual".

1.4.3. ALARMS

The interface installed on the machine, which can be viewed using a Web Browser (e.g. Google Chrome), shows in real time any critical machine alarms requiring immediate operator intervention and preventing the use of the machine, as well as non-critical alarms, reminding the operator of (even not immediately) required service operation(s).

Critical alarms include:

- Failed autocap opening or closing
- Communication errors
- Motor movement errors (e.g. loss of steps)
- Error on can detection

Non-critical alarms include:

- Colorant quantity below the warning level
- Colorant quantity below the minimum level*

*: this alarm does not prevent the use of the machine unless a formula is set that requires a colorant volume higher than the available one (see paragraph 5 for further details).

1.4.4. STAND-BY

When the machine is not in use, it performs some activities required for a trouble-free operation. These activities include:

- Colorant stirring;
- Master stirring;
- Master recirculation;
- Colorant recirculation;

1.4.5. PRODUCT STIRRING AND RECIRCULATION

The product stirring and recirculation functions are carried out cyclically on all circuits, at regular intervals that can be programmed via software.

The default values of the duration and pause variables of each function are indicated in the following table:

	Stirring	Recirculation
Colorants	30" every 30'	1' every 30'
Bases or Semi-finished products	30" every 30'	1' every 30'

The parameters can be set independently for each circuit of the machine by accessing the ADMIN interface (see chap. 4 - ACCESS TO THE CONFIGURATION ADVANCED FUNCTIONS and the "software manual").

Upon commissioning, the installing TECHNICIAN must adjust stirring and recirculation parameters depending on the recommended settings for every installed product. Access to programmable functions is described in the "Software manual".

Every single product is stirred after dispensing. This further stirring cycle resets the relevant timer for "stirring pause". Stirring speed is approx. 15 rpm and can not be modified.

1.4.6. WORKING CYCLE

User selects the colour and presses production start, then the machine checks that the vessel is present under the dispensing nozzle, and then runs the following work stages:

1. **AUTOCAP OPENING**
2. **PAINT DISPENSING**
3. **AUTOCAP CLOSING**
4. **RETURN TO STANDBY.**

NOTE: the machine does not check whether the vessel capacity is suitable for the amount to be dispensed!

1.4.7. ERRORS

Certain machine errors can occur during use, such as a mechanical component's failure to move (e.g. autocap) or a circuit malfunction.

These errors are promptly signalled by the Interface (in the machine administration alarms application) and cause the current work cycle to be cancelled.

1.5. TECHNICAL SPECIFICATIONS

1.5.1. ELECTRICAL SPECIFICATIONS

Power supply	100-240Vac 50-60Hz
Max current	3.0÷1.7A
Absorbed power	400W max
Fuses 5X20 mm	T3.15A-250V Q.ty 2pcs
Working noise (*)	Lower than 70 dB (A)

(*) A-weighted sound pressure level determined during normal use to 1 m distance far from the surface of the machinery and to 1.60 m height from the floor.

1.5.2. EQUIPMENT CLASSIFICATION AND REFERENCE STANDARDS

Overvoltage category	II See note (1)
Protection classification	IP 20
Class of equipment	I
Reference standards	IEC 61010-1 IEC EN 61326-1
Airborne noise (*)	Lower than 70 dB (A)

Note (1):

The equipment is protected for overvoltage up to 1500V. For power lines subjected to transients with peaks of voltage greater than 1500V, the use of external suitable protection devices is recommended.

1.5.3. OPERATING CONDITIONS

Operating temperature (*)	+5 ÷ +35°C
Relative humidity	30% ÷ 90% without condensate
Storage temperature	-25 ÷ +55°C
Altitude	2000 m

(*) The products (colorants and semi-finished products) lose their rheological characteristics outside the temperature range of 15÷ +35°C.

1.5.4. DIMENSIONS AND WEIGHT

Height	750 mm
Height with cabinet	1540 mm
Width	800 mm
Depth	800 mm
Weight with cabinet (empty) excluding masters	190 Kg
Weight with cabinet (fully loaded) excluding masters	approximately 220 Kg
Master tray weight (empty)	

1.5.5. PRODUCTION CAPABILITY AND TECHNICAL SPECIFICATIONS

Net colour sample capacity	From 100 ml (0.4 fl oz) to 1 L (4 fl oz)
Minimum vessel dimensions	Ø 69 mm, 69 mm high
Colorant canister capacity	1.5 litres
Stainless steel tank capacity	22 litres
Max. number of colorant circuits	16
Max. number of semi-finished product circuits	4
Types of colorants that can be used	Water-based
Colours that can be dispensed	Infinite
Semi-finished product flow rate	0.28 litres/min
Colorant flow rate	0.076 litres/min
Minimum quantity that can be dispensed	1/2304 fl oz (0.012 cc)
Semi-finished product strainer	0.8 mm
Colorant strainer	0.9 mm
Dispensing mode	Simultaneous
Output (*)	100cc in 35 seconds

(*) Output depends on type of formula and software setup.

1.5.6. CONSUMABLE STORAGE

Colorants and semi-finished products	Refer to manufacturer's instructions
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1.6. RESIDUAL RISKS AND DANGEROUS AREAS

USER AND MAINTENANCE OPERATOR

The potentially dangerous areas associated with mechanical moving parts are described below:

- autocap system: risk of entrapment for the hands, fingers, hair and/or clothing due to autocap opening/closing movement.
- Movement of the loading arm; its movement in manual configuration does not pose any risks that are not already obvious; its movement in "automatic arm" configuration poses a slight risk of crushing between the arm and the tunnel vertical right wall.
- paint tanks: risk of squeezing arms, hands or fingers due to the movement of stirring blade. The stirring cycle activation is timed by the software and may occur unexpectedly. Do not insert your hands into the base or colorant tanks. Always shut off the machine prior to performing any necessary interventions.

TECHNICIAN: The authorised technician can remove the machine fixed protections and access the internal parts containing live electrical components.

- Electrical panel area: risk of electric shock.

Any interventions that require the operator to access zones where risks of electrical shock are present must be performed with the machine off.



REMOTE SERVICE: The machine may also be remotely activated via Personal Computer or Smart device. Pay maximum attention during access to dangerous areas.

1.6.1. CONTACT WITH COLORANTS OR BASES

Always beware of any product leaks from the machine or circuits during production, as well as during cleaning and maintenance operations.

Contact with the products (colorants or bases) can cause irritations or injuries if not properly treated.

In case of need always refer to the safety sheet of the concerned liquid, available at the colorant manufacturer.

1.6.2. GENERAL FIRST AID MEASURES

In the event of eye contact: remove contact lenses, if present. Immediately rinse the eyes with running water for at least 15 minutes, holding the eyelids open. Consult a physician immediately.


In the case of skin contact: remove the contaminated garments. Wash the skin thoroughly with soap and water.

Ingestion: immediately consult a physician and show them the can, label or material safety data sheet. Keep the person warm and relaxed. Do not induce vomiting.

1.7. CERTIFICATIONS


1.7.1. END OF LIFE TREATMENT - WEEE DIRECTIVE

This product complies with the Standard 2012/19/EU on the waste of electric and electronic equipment which abrogate Standard 2002/96/EC.

	<p>The symbol on the equipment or on the package indicates that the equipment must not be disposed of as general waste at the end of its operating life but must be disposed of in a collection point specific for electric and electronic equipment organised by the Public Administration.</p> <p>The user desiring to dispose of this equipment may also contact the manufacturer and receive further information for a correct separate collection of the equipment at the end of its operating life.</p> <p>A correct separate collection for subsequent recycling of decommissioned equipment, treatment and environmentally compatible disposal, helps avoiding possible negative effects on the environment and on human health and promotes recycling of the materials making up the product.</p> <p>Therefore, the commitment to do so is a moral and civil duty for every citizen.</p> <p>Illegal disposal of the product by the owner causes the imposition of administrative sanctions as indicated by the law in force.</p> <p>For safe machine packaging and handling it is recommended to use a pallet for Color Lab, equipped with the necessary fixing points (see para. 2).</p> <p>All handling procedures must be carried out using an industrial truck or a transpallet of right capacity.</p>
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1.7.2. FCC

The manufacturer Alfa Srl - Via Santa Chiara 2 - 40137 - Bologna – Italy, declares under its own responsibility that the Color Lab system is compliant with the main international standards and regulations and in particular that: For the equipment supplied with power at 100-120V, 60 Hz, Alfa declare that:

	<p>Color Lab complies with part 15 of the FCC regulations, Sub-chapters A and B - sections 15.107 (b) (e) and 15.109 (b) (g) - for Class A digital devices</p>
---	---

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.


1.7.3. ROHS CHINA DECLARATION

	<p>Color Lab is compliant with the Chinese RoHS standard concerning pollution caused by Electronic Information Products (SJ/T11363-2006, SJ/T11364-2006, SJ/T11365-2006).</p>
---	--

Part Name	Toxic or Harmful Substances or Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent chromium (Cr VI)	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)
Color Lab	O	O	O	O	O	O

O: Indicates that this toxic or harmful substance contained in all the homogeneous materials for this part is below the limit required by the SJ/T11363-2006 regulation.
 X: Indicates that this toxic or harmful substance contained in at least one of the homogeneous materials used for this part is above the limit required by the SJ/T11363-2006 regulation.

1.7.4. EC DECLARATIONS

	The equipment complies with the following European Directives: 2006/42/EC, 2014/35/EU, 2014/30/EU, 2011/65/EU.
--	--



DECLARATION OF 'CE' CONFORMITY

The manufacturer **Alfa Srl** - Via Caduti di Ustica, 28 - 40012 Calderara di Reno - Bologna - Italy,
 DECLARES UNDER SOLE RESPONSABILITY THAT THE PRODUCTS

DISPENSER

MODEL

COLOR LAB

TO WHICH THIS DECLARATION REFERS, ARE IN CONFORMITY WITH
 THE FOLLOWING EUROPEAN UNION DIRECTIVES:

N° 2006/42/EC	of 17 May 2006 on machinery, and amending Directive 95/16/EC
N° 2006/95/EC	of 12 December 2006 on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits
N° 2004/108/EC	of 15 December 2004 on the approximation of the laws of the Member States relating to electromagnetic compatibility and repealing Directive 89/336/EEC
N° 2011/65/EU	of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (recast), replacing Dir. 2002/95/EC

AND WITH PARTICULAR REFERENCE TO THE FOLLOWING IEC STANDARDS:

EN ISO12100	Safety of machinery - General principles for design - Risk assessment
EN 60204-1	Electrical equipment of machines – safety of machinery
IEC 61010	Safety requirements for electrical equipment for measurement, control, and laboratory use
EN 61326-1	EMC requirements - Electrical equipment for measurement, control and laboratory use

PLACE AND DATE Calderara di Reno, October 30, 2015
 NAME Marco ROSSETTI SIGNATURE
 POSITION President

Person authorised to compile the technical file:
 Mr Marco ROSSETTI
 Via Caduti di Ustica 28 - Calderara di Reno (BO) - Italy

Last two digits of the year in which the CE marking was affixed: 15

Alfa S.r.l.
 Headquarters: Via Caduti di Ustica, 28 I-40012 - Calderara di Reno (BO), Italy
 Tel. +39 (0)51 0828494 Fax +39 (0)51 0823283
 Registered Office: Via Santa Chiara, 21- 40137 - Bologna, Italy
 VAT: IT-03364471205 - REA BO: 513367 - Shared Capital € 500.000,00 f.p.
 Website: www.alfadispenser.com - E-mail: info@alfadispenser.com - Certified e-mail: alfa14srl@legalmail.it

2. UNPACKING




2.1. GENERAL RECOMMENDATIONS

The machine is delivered on a wooden pallet covered with corner protectors and triple wall cardboard in order to avoid any risk of damage during transport.

All the accessories supplied are contained in the same wooden case.

2.1.1. DIMENSIONS OF THE PACKAGE

Height on pallet	1730 mm
Pallet width	930 mm
Pallet depth	930 mm
Weight (empty)	280 Kg

	WARNING: DO NOT PERFORM ANY OPERATION BEFORE CAREFULLY READING THE WHOLE OPERATOR'S MANUAL.
	WARNING: HANDLE WITH A DOUBLE FORK-LIFT TRUCK, TRANSPALLET OR SIMILAR DEVICE WITH A CAPACITY OF AT LEAST 500KG.
	NOTE: NEVER DISPOSE OF THE MACHINE PACKAGING IN THE ENVIRONMENT AFTER UNPACKING. TAKE IT TO THE SPECIFIC COLLECTION POINT.

2.2. UNPACKING

- Using a cutter, carefully remove the strappings. Next:
 - in the case of the machine with a cabinet: pull the cardboard upwards and remove the internal protections (polyethylene corner protectors).
 - in the case of the tabletop machine: cut the cardboard and remove the internal protections (polyethylene corner protectors).



2.2.1. COLOR LAB COMPLETE WITH MASTER CABINET

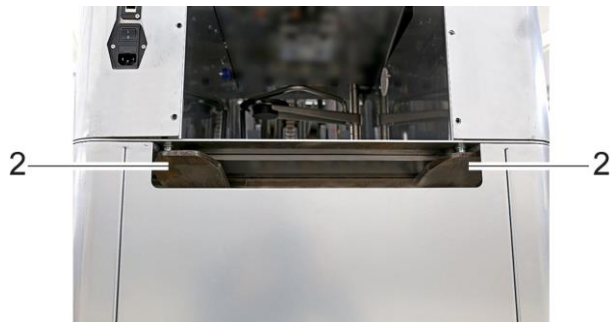
- Follow the instructions below
- Open the doors of the cabinet and extract the tank support trays (if present), which initially come disconnected.



- After loosening the nuts present on the internal surface and holding the corresponding nut under the pallet with a 17 mm wrench, remove the 2 M10x20 screws securing the machine to the pallet (1).



- Using a lift truck with tilting forks, insert the forks into the cabinet and lift the machine. The position of the forks is illustrated in the adjacent image (2), shown from the back of the machine.
- Be careful not to damage the pipes and cables present in the lower compartment!



LIFT THE MACHINE CAREFULLY, TAKING CARE TO MAKE SURE THAT IT IS GRIPPED PROPERLY AND IS NOT AT RISK OF TIPPING OVER

- Handle the machine using the fork lift truck and position it in the required installation space.

Place the machine on a surface suitable for sustaining its weight or on perfectly smooth and level flooring.



2.2.2. COLOR LAB TABLETOP VERSION

- Lift machine from pallet using a fork lift truck as described below.
- Insert the forks beneath the lower surface and lift the machine.
- Be careful not to damage the support feet.
- Once the machine has been positioned in the appropriate spot, adjust the support feet at the front (and at the rear for the tabletop version) so that the machine is properly levelled.
- Use a spirit-level to check levelling.

2.3. OPENING PACKAGE AND CHECKING THE CONTENT

After unpacking, make sure all parts are in place and that the machine does not show any internal or external damage or evident fault.

The supplied accessories are housed in a well-visible position.

Make sure all these accessories are provided:

- Power cable;
- Ethernet cable;
- User's manual;
- Spare fuse kit;
- Autocap sponge kit.



2.4. MOVING THE MACHINE

Color Lab must only be moved under conditions of maximum safety.

In order to move the machine with the cabinet, it is possible to raise the support feet and use the dedicated wheels.

IN ORDER TO AVOID THE RISK OF PAINTING SPILLS INSIDE THE MACHINE, NEVER MOVE THE MACHINE WITH THE COLORANT CIRCUITS FULL.

BEWARE OF ANY STEPS OR IRREGULARITIES IN THE FLOORING/TERRAIN THAT COULD RESULT IN SUDDEN STOPPAGES, AS THESE COULD CAUSE MACHINE TO BECOME UNBALANCED. ALWAYS PROCEED AT A LOW SPEED WITH TWO PEOPLE HANDLING THE MACHINE AT ALL TIMES.

In order to lift the machine, proceed as follows:

- Shut off the machine;
- Disconnect the hydraulic and electrical circuits described in section 2.5, and make sure that the hydraulic valves are closed in order to avoid leaking of the paint inside the pipes;
- Extract the trays from the cabinet;
- Lift the machine using a forklift with tilted forks, following the procedure described in paragraph 2.2.1.
- Once the movement has been completed, lower the support feet to stabilise the machine and reconnect the previously disconnected circuits.

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.

  	
<small>COLORPAINT DISPENSER Headquarters: Via Caduti di Ustica 28 I-40012 Calderara di Reno (BO) Italy 051 0828494 - www.alfacolorpaints.it</small>	
Model	COLOR LAB
Type	AUTOMATIC DISPENSER
V nom~	100-240V Hz. 50/60
Imax ~	3.0-1.7A
SN	20150200102
Made in Italy	2015
 WARNING 	
<small>TO AVOID ELECTRIC SHOCK THE POWER CORD PROTECTIVE GROUNDING CONNECTOR MUST BE CONNECTED TO GROUND DO NOT REMOVE COVERS. REFER SERVICING TO QUALIFIED PERSONNEL</small>	
FUSE RATED T3.15 A - 250V	
<small>For continued protection against risk of fire replace only with the same type and rating fuse</small>	



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.

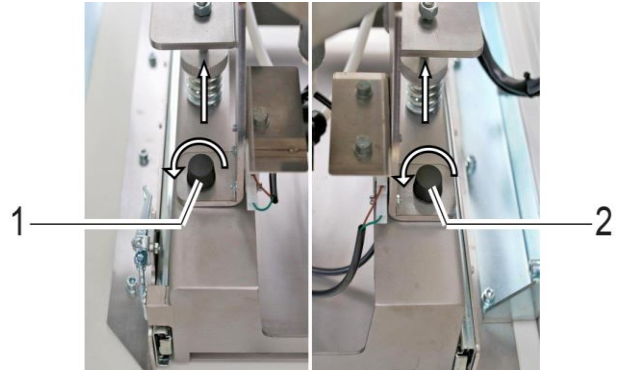
3.3. REMOVING THE MECHANICAL RETAINERS

Some mechanical retainers prevent movement of machine components to avoid damage during transport. After unpacking and before commissioning, remove all mechanical retainers as follows:

3.3.1. DYE TANK RETAINER REMOVAL

Tanks are fastened to the lower pull-out tank by means of screwed knobs.

- Remove the knob retaining the left tank (1) and right tank (2), so as to enable master reserve detection system.



3.3.2. MASTER TANK RETAINER REMOVAL

During transport, canister supports are fastened to the pump unit underneath.

- Each colorant group is fastened by means of the screw (4).
- Remove all retaining screws (4) from colorant groups, using a 4 mm Allen wrench.
- Remove also the polyurethane protection between the canisters.

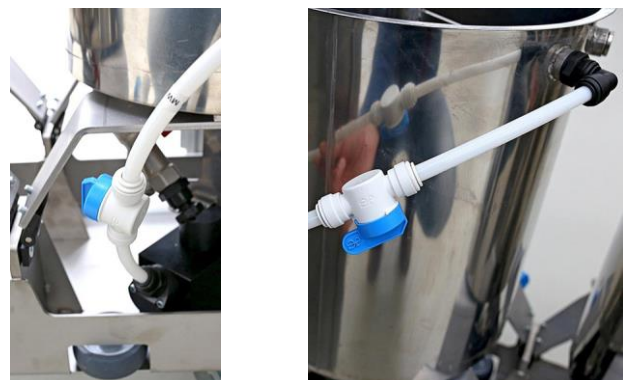
To make access to units easier, it is recommended to remove the upper panel located on machine back side, and refit it once the operation has been completed.



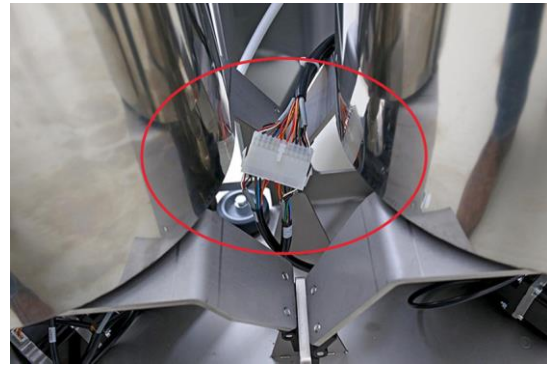
3.3.3. CONNECTING THE MASTER CIRCUITS

If the machine is equipped with master circuits, the installation must be completed by performing the electrical and hydraulic connections for the pull-out trays.

There are two semi-finished product circuits for each tray, with a maximum of two trays in the machine. Each circuit consists of a delivery pipe (identified by an "M") and a recirculation pipe (identified by an "R"). Connect each pipe to the relevant circuit, then make sure that the relevant valves (4) are open.



Finally, connect the electrical component using the dedicated connector.



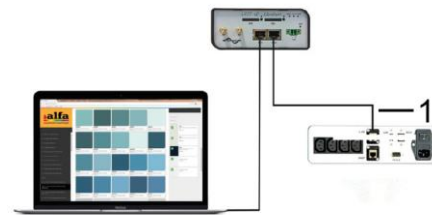
After having completed the above operations, reposition the trays inside the cabinet and lock them in place by engaging the wheel brakes.

Close the doors when finished.

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.

Operator Manual – Color Lab

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:

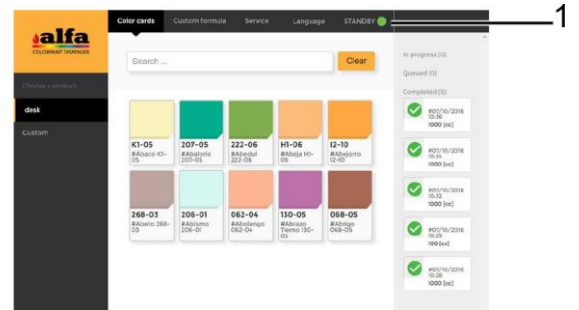
IP: 192.168.0.XXX
NETMASK: 255.255.255.0

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.



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 STAND-BY 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

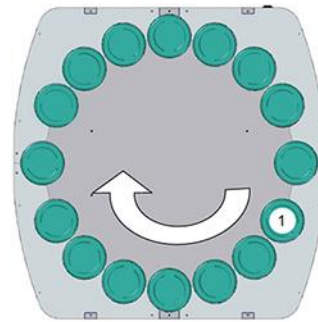
In order to switch off the machine, turn the main switch to its “O” position and disconnect the power cable from the socket.

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.

3.6. COMMISSIONING - PREPARATION

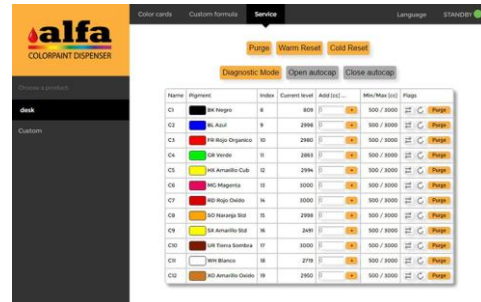
3.6.1. DYE CANISTER LOADING

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").



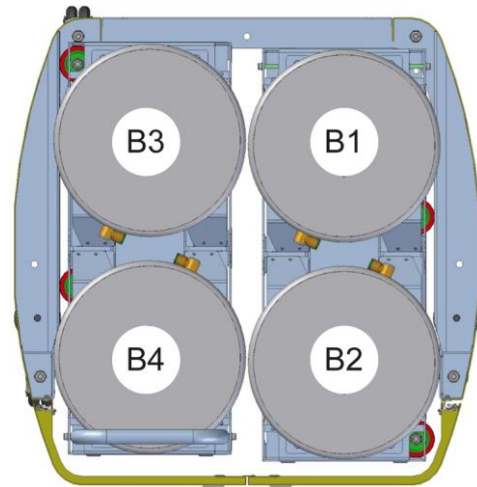
3.6.2. SEMI-FINISHED PRODUCT LOADING

The semi-finished products must be loaded into the 22-litre stainless steel tanks present in the lower part of the machine.

- Fill as follows:
- Open the machine front doors and extract the master trays (after disengaging the wheel brakes).
- Position any washable containers or collection sheets to be used underneath the tanks.
- Remove the covers and fill the tanks with the product indicated by the software.

WARNING: Tank capacity is 22 litres each. Do not overfill the tanks. Refer to paragraph 5.2 for the correct filling methods). If you accidentally spill some product outside of the tank, remove and clean the relevant removable collector tanks.

- The standard configuration requires the use of neutral paint in the left tank and white paint in the right tank.



Acknowledge loading of colorants and masters through the software

3.6.3. HUMIDIFIER

The humidifier unit, if any, is used to produce vapour inside the autocap in order to keep nozzles moistened. It works both with closed and open autocap, preventing or reducing product drying on nozzle terminal parts.

The system is composed of a distilled water tank that must be periodically filled, a pump and a vaporiser.

Safety function

A level sensor allows detecting when the tank is empty and allows the machine to disable moisturising function until the liquid level is restored. At software level no alarms or errors are shown.

Operation intervals

The machine periodically activates the humidifier according to factory preset and programmed timings, as shown in the table below.

Time in seconds	Closed autocap	Open autocap
Vapour dispensing	1	2
Repetition interval	1200	30

Intervals are parametrised and 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.

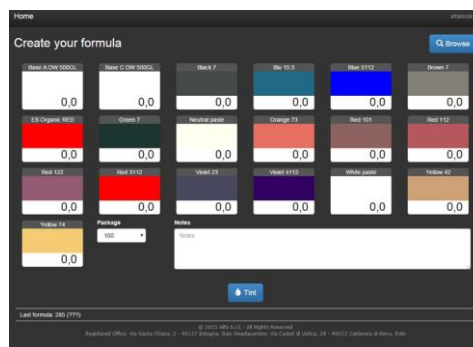


3.6.5. SWITCH-ON AND INSPECTION

After completing the above steps, the machine can be switched on using the main switch located on the back panel (see para. 1.4.2). Remove covers and fill the tanks with the product indicated by the software.

Once the boot process has been completed, after about one minute it will be possible to access the machine as described under point 3.4.

If the machine is not experiencing any errors or malfunctions, the screen shown in the figure will be displayed (run Lab application).



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".

3.6.6. CIRCUIT TRIGGERING AND RECIRCULATION

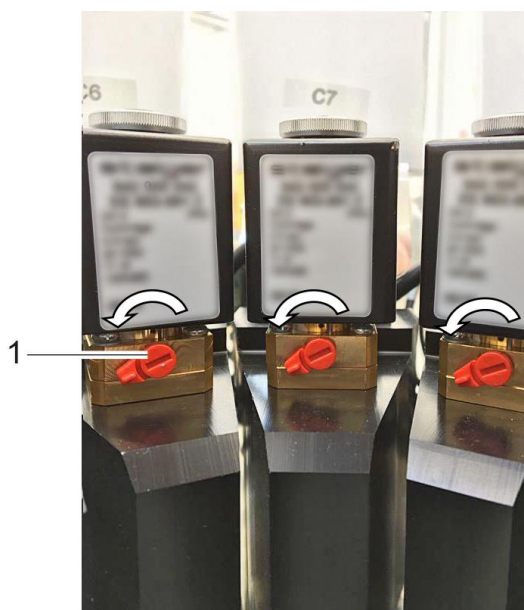
Before using the machine, trigger circuits and leave them in recirculation mode for at least 12 hours.

To remove air from the colorant circuit pump, it is recommended to manually drive the valve of each circuit and wait that the colorant, thanks to the head pressure, fills the pump until it spills out of the relevant nozzle.

Therefore it is recommended, in this order, to:

- Open the autocap;
- Position a container with proper capacity under the dispensing nozzle;
- Remove canister lids;
- Open valves (1) of the colorant circuit to be triggered;

At the end of the operation, close the valves, clean the nozzle with a dry and clean cloth taking care not to cross contaminate the nozzles, and close the autocap again.



Finally, it is recommended to leave the machine in stand by mode for at least 12 hours, a period of time usually sufficient to remove residual air from circuits.

3.6.7. 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.

3.6.8. USING THE SCALE

If a scale needs to be interfaced with the machine, use the RS-232 port on the back panel.

The machine is compatible with Mettler-Toledo scales with the SICS protocol.

Connect the scale serial cable to the PC, then position the scale under the dispensing nozzle.

RS- 232 configuration parameters for the Mettler scale:

```
HOST
9600
8/NO
STOP 1/B
SYNCHRO OFF
FLR-TX:CR
```

See the software manual for more information regarding the functions for managing the readings.

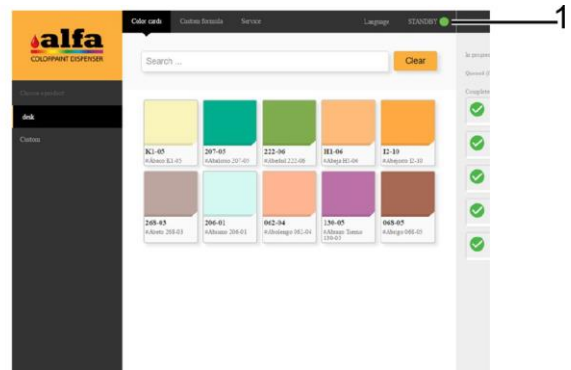
4. HOW TO PRODUCE A COLOUR

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
- POSITIONING: can lifter positioning (only for versions with automatic can lifter)

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. FORMULA SELECTION AND DISPENSING

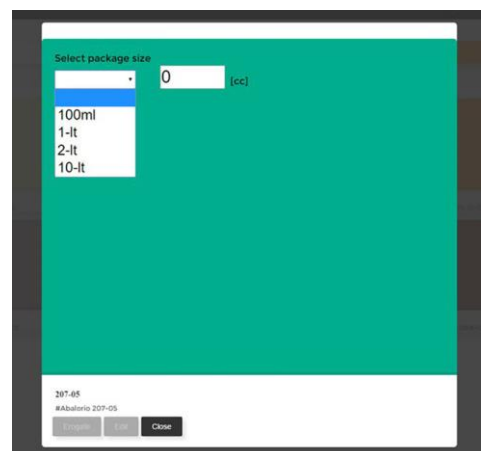
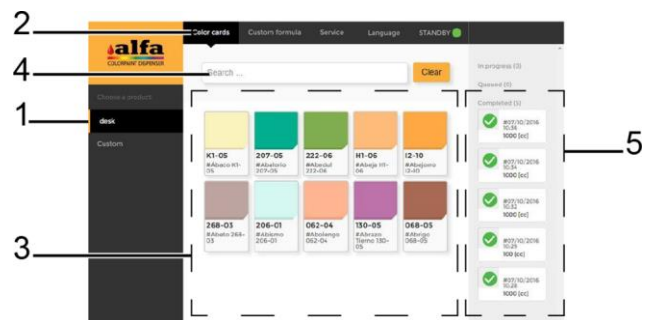
Formulas concerning different types of product (e.g.: washable paints for outdoor use / washable paints for indoor use / quartz / ...) can be loaded onto the machine, each one of them characterised by its own set of original formulas. The types of products are listed in the column on the left (1).

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.



4.2.2. 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.

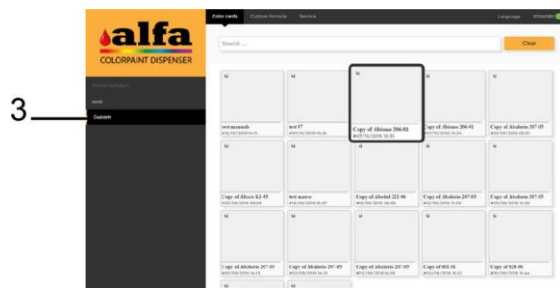
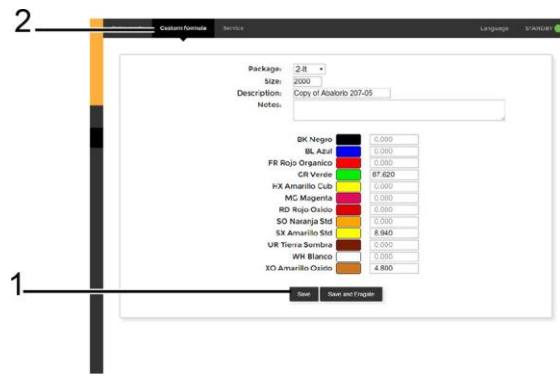
To edit the recipe starting from the selected formula, enter the values in cc of the relevant components.

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. COLOUR SAMPLE STIRRING

The colour sample must be properly stirred before use.

The colour sample must be properly stirred before use.

After having securely closed the container or standard package (e.g. of 100cc), stir it thoroughly for a few minutes before using the paint sample.

- On the side is the sample just after production and not stirred (on the left) and then the same sample after proper stirring (on the right).

When finished using the product, close the container securely and dispose of it at an appropriate waste collection point.



4.4. 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)



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”.

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.



4.5. ACCESS TO THE CONFIGURATION ADVANCED FUNCTIONS

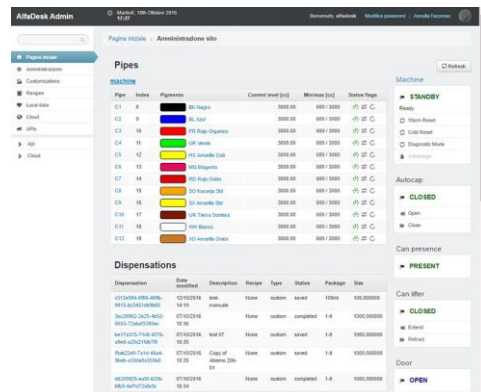
The access to the configuration and diagnostic functions is allowed only to authorised and qualified TECHNICIANS.

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
- Adjust minimum levels;

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. COLORANT AND MASTER TANKS 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:

Canisters:

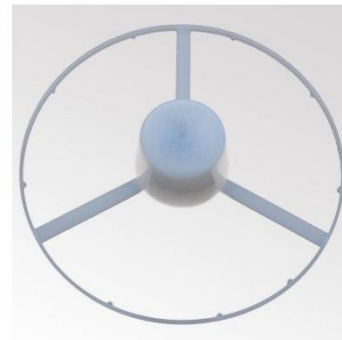
- Remove the cover of the canister/canisters to be topped up.
- Fill the canister with the appropriate pigment up to the indicated maximum level (MAX LEVEL).

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

Tanks:

- 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 covers of the filled tanks and the machine doors, 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.



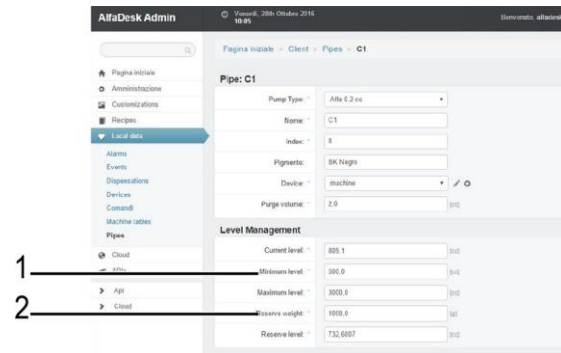
5.4. MINIMUM AND RESERVE LEVEL

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

5.5.1. ADJUSTING COLORANT RESERVE

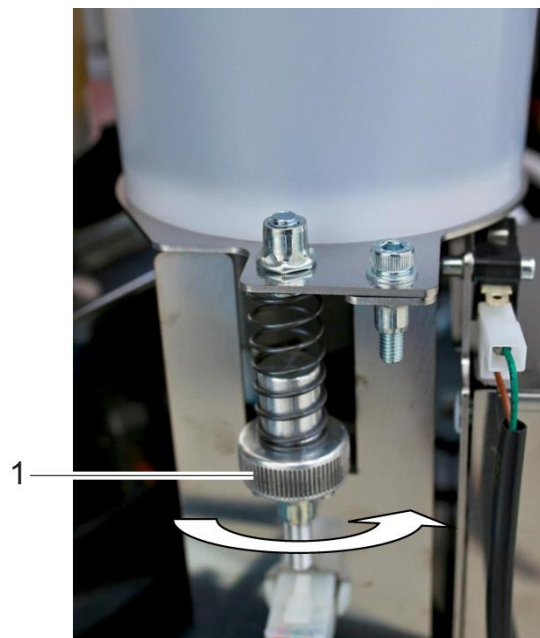
Colorant tanks feature a gravimetric level detection system.

A spring is compressed by the force exerted by the weight of the canister above, thus causing a microswitch to close and signal the presence of colorant inside the tank.

“Colorant reserve” alarm is displayed when spring release causes microswitch to switch. A spring preload adjustment system allows adjustment of the alarm trigger threshold.

To adjust the warning level, it is advised to proceed as follows:

- Remove the machine external panels enclosing the colorant groups.
- Fill the canister with the colorant to the level considered to be the one at which alarm must trigger;
- Tighten spring preload pin so that the system offers the least resistance possible to the spring (lower spring), so that the microswitch is pressed;
- Progressively loosen the preload pin until you hear the mechanical switching of the microswitch, stopping the rotation upon switching.
- Lock preload pin screw with a lock nut to prevent accidental misplacing.
- Reinstall the external panels that cover the machine platform and colorant groups.



5.5.2. ADJUSTING BASE RESERVE

Master tanks, like colorant tanks, are equipped with a gravimetric level detection system.

The alarm system and adjustment procedure are similar to those described for the colorant circuit.

To adjust the warning level, it is advised to proceed as follows:

- Access tank by removing the relevant machine tray.
- Fill the tank with the paint to the level considered to be the one at which alarm must trigger;
- Tighten spring preload pin (1) so that the system offers the least resistance possible to the spring (lower spring), and the microswitch is pressed;
- Progressively loosen the preload pin until you hear the mechanical switching of the microswitch, stopping the rotation upon switching.
- Lock preload pin screw with lock nut (2) to prevent accidental misplacing.
- Refit tank inside the machine.



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.

6. LUBRICATION AND CLEANING





6.1. SCHEDULED MAINTENANCE

The following table indicates the scheduled maintenance recommended by Alfa.

SERVICE OPERATION	INTERVAL
Lubrication	none
Autocap cleaning and moisturising	weekly
Nozzle cleaning + Purge	daily
Machine external cleaning	monthly
Machine internal cleaning	monthly
Strainer cleaning	every 12 months
Changing fuses	If needed

This chapter describes the service operations required at regular intervals to ensure machine trouble-free operation.

OPERATIONS DESCRIBED IN THIS CHAPTER 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).

	<p>TO ENSURE CORRECT AND TROUBLE-FREE MACHINE OPERATION, IT IS NECESSARY TO PERIODICALLY CARRY OUT THE MAINTENANCE OPERATIONS BELOW AS PER THE MANUFACTURER'S INSTRUCTIONS.</p>
	<p>IF THE MAINTENANCE OPERATIONS ARE NOT CARRIED OUT IN ACCORDANCE WITH THE INSTRUCTIONS PROVIDED, ALFA SHALL NOT BE HELD LIABLE IN ANY WAY FOR ANY MACHINE PROBLEMS AND MALFUNCTIONS.</p>
	<p>ALWAYS TURN OFF THE MACHINE BEFORE PROCEEDING TO MAINTENANCE AND CLEANING.</p>
	<p>IT IS STRICTLY FORBIDDEN TO REMOVE COVERS AND SYSTEM PROTECTIONS.</p>

6.2. SERVICE EQUIPMENT

Below is a list of the required equipment for the service operations.

Blotting paper, clean cloth/sponge



Plastic spatula



Thin metal wire or clip (to clean colorant nozzles)



Thin tip tool or 2.5 mm flat screwdriver (for cleaning master nozzles)



22 mm open wrench



Funnel (for humidifier top-up)



6.3. LUBRICATION

In terms of ordinary maintenance, the machine requires no scheduled lubrication by the MAINTENANCE OPERATOR.

6.4. AUTOCAP CLEANING AND MOISTURISING

Humidifier level refilling (if any)

Regularly check, through the inspection window (1), the level of liquid present in the tank (2).

If the level is low, refill by loosening the red cap (3) and adding distilled water.

After refilling, remember to screw the cap again to prevent evaporation phenomena.



The minimum level is shown by the “MIN” line (1).

REFILL WITH DISTILLED WATER ONLY

Never exceed “MAX” level (2).

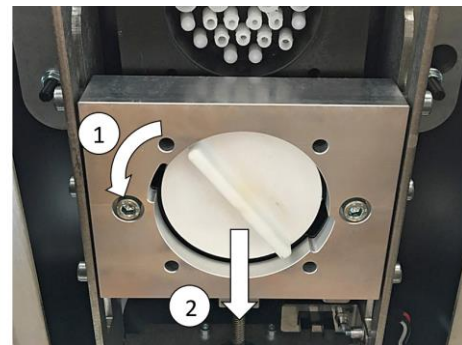


During refilling, it is recommended to use a funnel to prevent the risk of water spilling outside the tank. In case of accidental water spillage during refilling, thoroughly dry the wet parts with blotting paper.

Autocap sponge cleaning

It is recommended to periodically clean the sponge present inside the autocap cover, as described below:

- Remove the autocap lower protection loosening the two screws by a quarter of a turn;
- Open the autocap;
- Loosen sponge holder cap in the lower part of the autocap system (1) and remove it from its seat (2);
- Remove the sponge and wash it using running water;
- Refit the sponge to its original position.
- Close the autocap and refit the protection previously removed.



6.5. NOZZLE CLEANING

It is recommended to periodically make sure nozzles are free of scale, deposits or colorants settled and dried up. **WARNING:** The problem might be made worse by insufficient moisturising of the autocap unit.

Visually inspect nozzles every day, before starting up the machine.

If needed, clean the dispensing nozzles using a tool with a thin metal tip to remove any dry residues from the outlet channel.

Pay attention so that any removed colorant residue will not enter into contact with the nearby nozzles during cleaning, since it could contaminate the dispensing nozzles of other colorant circuits.

After this procedure, always perform a purge cycle (see the following paragraph).

6.6. PURGE

This function consists in dispensing a small quantity of product from one or several circuits, so as to ensure proper cleaning of the dispensing circuits and prevent settling or drying out issues that could compromise machine operation. During purge, products are unloaded into a can, which must be properly placed under the dispensing nozzle.

From the diagnostics interface, the MAINTENANCE OPERATOR can execute the command to purge the individual circuit, as well as an automatic purging operation, which dispenses a small amount of colorant from all the circuits present on the machine.

To force a machine purge command, proceed as follows:

- Access the Service interface (see Chapter 5 and access “Diagnostic Mode”);
- Place a can under the dispensing nozzle;
- Start the purge cycle by pressing the relevant control (“Purge”);
- Wait for the machine to complete the cycle, and check to make sure that no alarms have been generated;
- When the cycle is completed, remove the previously-positioned can.
- Reset the machine.

6.7. EXTERNAL CLEANING

The machine requires no special precautions for cleaning.

Clean external surfaces using a cloth wetted with water, degreaser, or denatured alcohol at 90%.

Do not use solvents or abrasive products.

Do not use water jets to clean the machine.

6.8. INTERNAL CLEANING

- Use a spatula to remove any dry residues from the surfaces.
- Clean machine inside by vacuuming dust and dirt. If needed, use a brush.
- Clean any surfaces that could not be cleaned with the above-described methods using a cloth (or blotting paper) wetted with water.

Be careful not to damage the electric parts and in particular the optic forks of the machine.

6.8.1. SPILLING OF COLORANTS OR PAINTS

Colorant or paint may be spilled during normal use or topping-up.

The best way to clean residues is to remove the dry product with a spatula.

Should you need to clean parts from liquid colorant spilling, use blotting paper, sponges or dry cloths, trying to remove as much product as possible without using water.

It is recommended not to use water or other liquids to rinse.

6.8.2. COLLECTOR TANKS BENEATH THE MASTERS

Collector tanks or sheets may be added under the pull-out tray of the base tanks.

If required, change tanks or sheets with clean elements and throw away or clean up the removed elements, taking suitable precautions to dispose of the waste.

Using tanks is recommended during maintenance such as filter cleaning operations.

DO NOT USE SOLVENTS OR ABRASIVE PRODUCTS

Drain and wash the vessels in a suitable washing circuit for collecting dye waste (DO NOT RELEASE IN THE ENVIRONMENT NOR IN THE CIVIL SEWER SYSTEM).

6.8.3. SEMI-FINISHED PRODUCT CIRCUIT FILTER

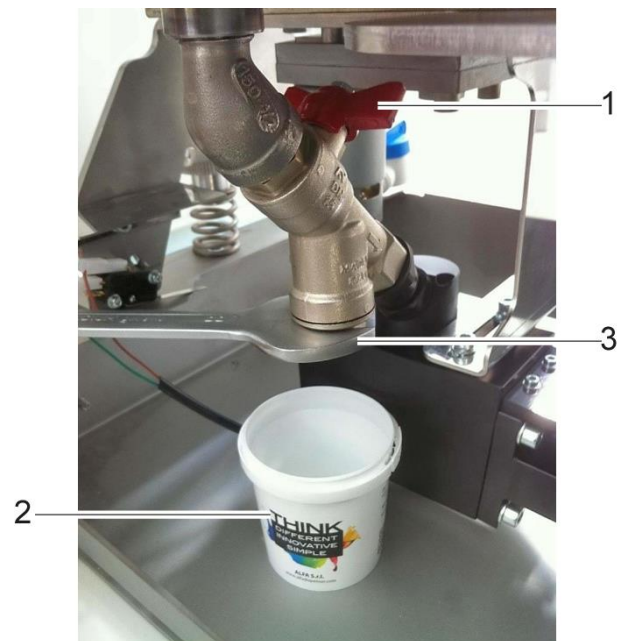
Upstream of the dispensing pumps, at the outlet of the tanks, there can be a combined valve including a tap and a filter.

It is recommended to periodically clean the filter, since during use it tends to hold all impurities of the products.

Have this operation performed by qualified TECHNICIANS. For filter cleaning, contact technical service every 12 months.

Clean filter as follows:

- Close tap upstream of filter (1);
- Set a vessel under the filter bottom end (2);
- Loosen the filter holder cap using a 22 mm wrench (3);
- Remove filter and flush with fresh water to clean it;
- Refit filter and its screw cap, then work tap to open the circuit;



NOTE: A properly positioned can will prevent the product in the filtering compartment from falling and contaminating the surfaces below.

6.9. REPLACING THE FUSES

In case of mains malfunction or problems, the safety fuses could blow and cut power.

Fuses are located in the fuse holder built in the plug with switch on the back panel (see chapter 1 - ELECTRICAL CONTROL PANEL)

To change it, remove power plug and open fuse holder using a flat screwdriver to prise it open.

Lift the fuse holder until it can be manually removed.



USE ONLY FUSES OF THE SAME TYPE AND THE NOMINAL RATING SHOWN IN THE PRODUCT LABEL (SEE PARA. 3.2).

Fuse requirements:

EU - IEC 60127 Approval

US - UL248-1 and UL248-14 Approval



WARNING

THE FUSE MUST BE REPLACED WHEN THE MACHINE IS SWITCHED OFF AND THE POWER CABLE IS UNPLUGGED FROM THE MAINS.

7. EXTRAORDINARY MAINTENANCE

The extraordinary maintenance operations require access to the service areas and area reserved for specialised technicians.

ALWAYS ENTRUST THE SPECIAL MAINTENANCE INTERVENTIONS TO AN AUTHORISED SUPPORT CENTRE.

THE MACHINE POWER CABLE MUST BE UNPLUGGED FROM THE MAINS BEFORE ACCESSING THE SERVICE AREA AND BEFORE PERFORMING ANY REPLACEMENT/REPAIR OPERATIONS. IT IS ALSO RECOMMENDED TO POSITION THE CABLE SO THAT THE PLUG IS ALWAYS VISIBLE TO THE OPERATOR DURING THE COURSE OF THE MAINTENANCE INTERVENTION.

ALFA SHALL BEAR NO RESPONSIBILITY FOR ANY MACHINE MALFUNCTIONS OR PROBLEMS THAT MAY ARISE DUE TO THE OMISSION OR INCORRECT EXECUTION OF THE MAINTENANCE OPERATIONS.

ONCE THE REPAIR INTERVENTION HAS BEEN COMPLETED:

- **RESTORE ALL THE ELECTRICAL CONNECTIONS**
- **RESTORE ALL THE GROUNDING CONNECTIONS**
- **REINSTALL ALL THE REMOVED PROTECTION DEVICES**
- **PLUG THE MACHINE TO THE MAINS**
- **PERFORM A FUNCTIONAL CHECK BY FOLLOWING THE PROCEDURE DESCRIBED IN PARAGRAPH 3.4 AND CHAPTER 4**

8. TROUBLE SHOOTING

ERROR CODES	ERROR DETECTED	ERROR DESCRIPTION	PROBLEM RESOLUTION
1	TIMERMG_TEST_FAILED	Timer operation test failure	Test failure means that the program on the MAB board has stopped working. Restart the program
2	EEPROM_COLOR_CIRC_PARAM_CRC_FAULT	Circuit parameter CRC fault	Check for the absence of parameters in the case of MAB replacement. Load the master/colorant circuit parameters onto the new MAB board
3	EEPROM_CALIB_CURVES_PARAM_CRC_FAULT	Calibration curve parameter CRC fault	Check for the absence of parameters in the case of MAB replacement. Load the calibration parameters onto the new MAB board
5	EEPROM_SLAVES_EN_PARAM_CRC_FAULT	Slave configuration CRC fault	Check for the absence of parameters in the case of MAB replacement. Load the SLAVE configurations onto the new MAB board
10	USER_INTERRUPT	Machine operation Software interruption	HALT has been pressed
11-18	TIMEOUT_COM_MAB_ACT "X", where "X" = 1..8	"X" BASE slave communication time-out (detected on the MAB side)	Check the SCCB power supply wiring and replace it if damaged. Check the RS485 communication connector, and visually check the board hardware. If damaged, replace the "X" BASE slave board
19-34	TIMEOUT_COM_MAB_ACT "X", where "X" = 1..16	"X" COLORANT slave communication time-out (detected on the MAB side)	Check the SCCB power supply wiring and replace it if damaged. Check the RS485 communication connector, and visually check the board hardware. If damaged, replace the "X" COLORANT slave board
51	AUTOCAP_IDX	Slave AUTOCAP communication time-out (detected on the MAB side)	Check the SCCB power supply wiring and replace it if damaged. Check the RS485 communication connector, and visually check the board hardware. If damaged, replace the AUTOCAP slave board
59	TIMEOUT_COM_MAB_MGB	MAB-MGB Communication time-out	Check MAB and MGB power supply wiring and replace it if damaged. Check the SERIAL communication connectors, and visually check the hardware of the 2 boards
61-68	B"X"_BASE_TOUT_ERROR, where "X" = 1..8	"X" BASE slave communication time-out (detected on the SLAVE side)	Check the SCCB power supply wiring and replace it if damaged. Check the RS485 communication connector, and visually check the board hardware. If damaged, replace the "X" BASE slave board
69-82	C"X"_COLOR_TOUT_ERROR, where "X" = 1..16	"X" COLORANT slave communication time-out (detected on the SLAVE side)	Check the SCCB power supply wiring and replace it if damaged. Check the RS485 communication connector, and visually check the board hardware. If damaged, replace the "X" COLORANT slave board
101	AUTOCAP_TOUT_ERROR	AUTOCAP slave communication time-out (detected on the SLAVE side)	Check the SCCB power supply wiring and replace it if damaged. Check the RS485 communication connector, and visually check the board hardware. If damaged, replace the AUTOCAP slave board
201	RESET_TIMEOUT	RESET process time-out	The RESET process was NOT completed within the maximum set time. Check for a mechanical jam in the dispenser and eliminate it if possible
202	TIMEOUT_SUPPLY_START	Time-out at Dispensing start	Dispensing did NOT start within the maximum set time. Check for a mechanical jam in the dispenser and eliminate it if possible
203	TIMEOUT_SUPPLY_FAILED	Dispensing duration time-out	Dispensing did not end within the maximum set time. The formula is too long, or check for a mechanical jam in the dispenser and eliminate it if possible

ERROR CODES	ERROR DETECTED	ERROR DESCRIPTION	PROBLEM RESOLUTION
301-308	B"X"_BASE_RESET_ERROR, where "X" = 1..8	"X" BASE slave reset procedure duration time-out	Verify the cleanliness and positioning of the photocell mounted on the "X" BASE, then clean or reattach the sensor. Verify the integrity of the "flag", the pusher, the motor, and the connectors, and replace the parts or the entire unit if any mechanical wear or damage is found. If the communication is present but an electronic type problem remains, replace the SCCB board.
309-324	C"X"_COLOR_RESET_ERROR, where "X"=1..16	"X" COLORANT slave reset procedure duration time-out	Verify the cleanliness and positioning of the photocell mounted on the "X" COLORANT, then clean or reattach the sensor. Verify the integrity of the "flag", the pusher, the motor, and the connectors, and replace the parts or the entire unit if any mechanical wear or damage is found. If the communication is present but an electronic type problem remains, replace the SCCB board.
342	AUTOCAP_HOMING_ERROR	Loss of steps: deviation upon the detection of slave AUTOCAP HOME position	Verify the cleanliness of the mechanical parts and sensors, and remove any residues if necessary. Verify the integrity of the motor and replace it if deterioration is encountered. If any mechanical parts are damaged or jammed, remove or change the mechanical parts in question. Verify the electrical connections and change them if damaged. Check the photocell sensors and reposition them or change them if damaged.
351-358	B"X"_DATA_SUPPLY_FAILED, where "X" = 1..8	Invalid table parameters	Check for consistency errors between the tables and the circuit installed on the machine. Verify the proper installation of the calibration tables in the Machine menu.
359-374	C"X"_DATA_SUPPLY_FAILED, where "X" = 1..16	Invalid table parameters	Check for consistency errors between the tables and the circuit installed on the machine. Verify the proper installation of the calibration tables in the Machine menu.
401-408	B"X"_SUPPLY_CALC_ERROR, where "X" = 1..8	In CONTINUOUS dispensing the Number of steps of the "X" BASE to carry out is NOT a multiple of a whole stroke	Check for consistency errors between the tables and the circuit installed on the machine. Verify the proper installation of the calibration tables in the Machine menu.
409-424	C"X"_SUPPLY_CALC_ERROR, where "X" = 1..16	In CONTINUOUS dispensing the Number of steps of the "X" COLORANT to carry out is NOT a multiple of a whole stroke	Check for consistency errors between the tables and the circuit installed on the machine. Verify the proper installation of the calibration tables in the Machine menu.
451-475	DISABLED_REQUIRED_CIRCUIT_"X"_ERROR, where "X" = 0..24	"X" Slave must dispense but is erroneously Disabled	Load the Slave configurations onto the new MAB board.
501-508	B"X"_COLOR_HOME_POS_ERROR, where "X"=1..8	Error in the HOMING procedure of the "X" BASE	Check the correct operation of the photocell and the correct movement of the "X" BASE stepper
509-524	C"X"_COLOR_HOME_POS_ERROR, where "X"=1..16	Error in the HOMING procedure of the "X" COLORANT	Check the correct operation of the photocell and the correct movement of the "X" COLORANT stepper
551-558	B"X"_COLOR_HOME_BACK_ERROR, where "X" = 1..8	Loss of steps error in "X" BASE Dispensing	Decrease the dispensing speed
559-574	C"X"_COLOR_HOME_BACK_ERROR, where "X" = 1..16	Loss of steps error in "X" COLORANT Dispensing	Decrease the dispensing speed

ERROR CODES	ERROR DETECTED	ERROR DESCRIPTION	PROBLEM RESOLUTION
601-608	B"X" _COLOR_POS0_READ_LIGHT_ER ROR, where "X" = 1..8	At the end of the movement from HOME position to POS0 the photocell is NOT engaged in the "X" BASE	Check photocell and stepper operation
609-624	C"X" _COLOR_POS0_READ_LIGHT_ER ROR, where "X" = 1..16	At the end of the movement from HOME position to POS0 the photocell is NOT engaged in the "X" COLORANT	Check photocell and stepper operation
651-658	B"X" _COLOR_END_STROKE_READ_D ARK_ERROR, where "X" = 1..8	At the end of the dosing stroke the photocell is engaged in "X" BASE	Check photocell and stepper operation
659-674	C"X" _ COLOR_END_STROKE_READ_DARK_ ERROR, where "X" = 1..16	At the end of the dosing stroke the photocell is engaged in "X" COLORANT	Check photocell and stepper operation
701-708	B_"X" _OVERCURRENT_ERROR, where "X" = 1..8	"X" BASE stepper motor overcurrent	Check wirings, stepper operation
709-724	C_"X" _OVERCURRENT_ERROR, where "X" = 1..16	"X" COLORANT stepper motor overcurrent	Check wirings, stepper operation
751-758	B"X" _SOFTWARE_ERROR, where "X" = 1..8	Logic error in the process statuses on "X" BASE	Replace electronic board, if the problem persists request a Firmware update
759-774	C"X" _SOFTWARE_ERROR, where "X" = 1..16	Logic error in the process statuses on "X" COLORANT	Replace electronic board, if the problem persists request a Firmware update
791	AUTOCAP_SOFTWARE_ERROR	Logic error in the process statuses on AUTOCAP	Replace electronic board, if the problem persists request a Firmware update
801-808	B"X" _COLOR_DRV_OVER_CURR_TEM P_ERROR, where "X" = 1..8	"X" BASE Stepper motor overtemperature	Check wirings, stepper operation
809-824	C"X" _COLOR_DRV_OVER_CURR_TEM P_ERROR, where "X" = 1..16	"X" COLORANT Stepper motor overtemperature	Check wirings, stepper operation
841	AUTOCAP_DRV_OVER_CURR_TEMP _ERR	AUTOCAP Stepper motor overtemperature	Check wirings, stepper operation
851-858	B"X" _COLOR_OPEN_LOAD_ERROR, where "X" = 1..8	Load missing in "X" BASE Stepper	Check wirings, stepper operation
859-874	C"X" _COLOR_OPEN_LOAD_ERROR, where "X" = 1..16	Load missing in "X" COLORANT Stepper	Check wirings, stepper operation
891	AUTOCAP_OPEN_LOAD_ERR	Load missing in AUTOCAP Stepper	Check wirings, stepper operation



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