alfa
COLORPAINT DISPENSER

Operator Manual

CR6

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 CR6 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.**

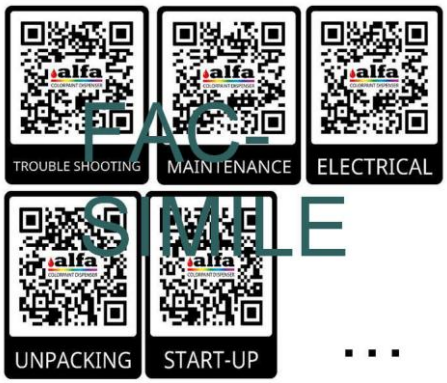
0.1.5. UPDATING THE MANUAL IN CASE OF MODIFICATIONS TO MACHINE

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

0.1.6. OTHER INFORMATION SUPPORTS

Several QR codes are present on the machine.
Each QR code allows accessing a web page containing instructions and/or videos concerning the function shown below the QR code.

Scan the barcode with an application suitable to open its content.



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.

	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.
	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.
	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.

0.3.2. GENERAL SAFETY WARNINGS

	CR6 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.
	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.
	**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.
	**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.
	**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.

	**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.
	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.
	**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.

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 routine maintenance operations, such as canister filling and autocap moisturising.
- TECHNICIAN: an expert operator authorised to access the machine's special diagnostic, calibration, configuration, troubleshooting, and extraordinary maintenance functions.

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 OPERATOR AREA: the area inside the machine, which can be accessed by opening the doors, where ordinary maintenance operations are usually performed; 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 CR6 is a dispenser intended for the production of paint for bodywork and CarRefinishing sectors, able to produce both small quantities (e.g. 50ml) for touch-ups or colour tests, and the quantities required to paint a complete car (max. 1 litre per package).

The machine can be configured with a variable number of circuits and canisters having different capacity, as described in more detail below.
Each circuit can dispense a different product (products for bodyworks).

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

1.1.1. MODELS AND VERSIONS

This dispenser is available in three different configurations:

- CR6 (three modules, for a total of six product dispensing heads and max. 96 total circuits);
- CR4 (two modules, for a total of four product dispensing heads and max. 64 total circuits);
- CR2 (one module, for a total of two product dispensing heads and max. 32 total circuits);

Each dispensing head consists of a rotary turning table where up to 16 independent canisters can be housed. Each dispensing head is equipped with one single dispensing station.

1.1.2. COLORANT TURNING TABLE CONFIGURATIONS

Each turning table can contain a maximum of 16 products and can be made up as follows:

- 16 1.5 l canisters, or
- 16 2.5 l canisters, or
- 12 1.5 l canisters + 4 3 l canisters

Each circuit is equipped with its own 0.25 l/min pump without actuator.
There is always only one actuator for each turning table.

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 CANS WITH CAPACITIES OTHER THAN THOSE PROVIDED (MAX 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

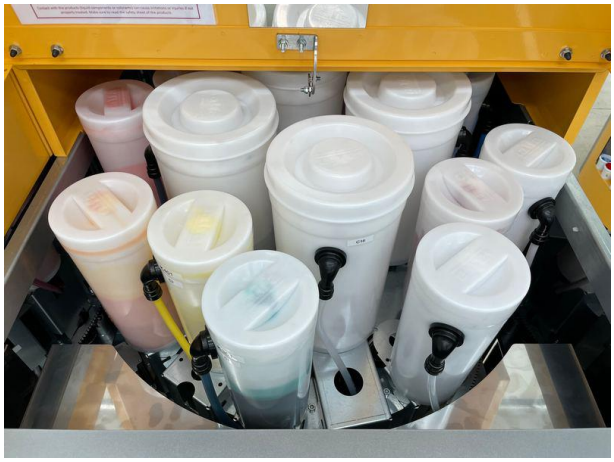
The paragraph describes the main external and internal components of the machine and their function.

1.3.1. MAIN COMPONENTS

1. Colorant group cabinet
2. Colorant group cabinet (extractable)
3. Loading roller conveyor
4. Unloading roller conveyor
5. Lifters
6. Supervisor (User Interface touch screen)
7. Electrical control panels (on the back side)

1.3.2. COLORANT TURNING TABLE

Each dispensing head can house up to 16 product groups. Circuits are placed on a turning table, which allows dispensing from the various circuits sequentially.



Each product group can be equipped with one 1.5, 2.5 or 3 l canister and is provided with its own dispensing unit.

There is only one actuator allowing dispensing and is exclusively coupled with the group opposite to dispensing (in front of the operator). Therefore there is only one dispensing station for each dispensing head, which is the same where circuit recirculation can be executed.

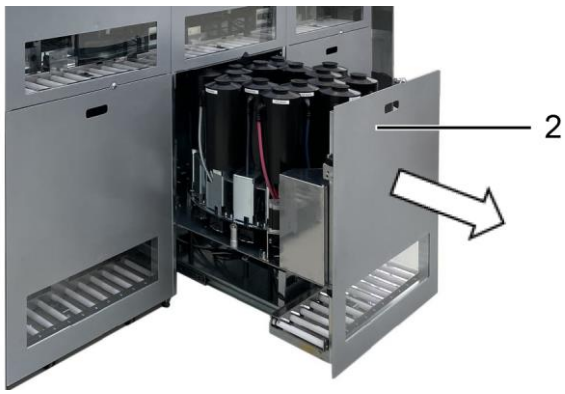
1.3.3. ACCESSING THE GROUPS

The canisters of the groups housed in the upper part of the machine can be accessed by opening the relevant upper cover (1).

To open the cover, it is necessary to unlock the latch using the key supplied.

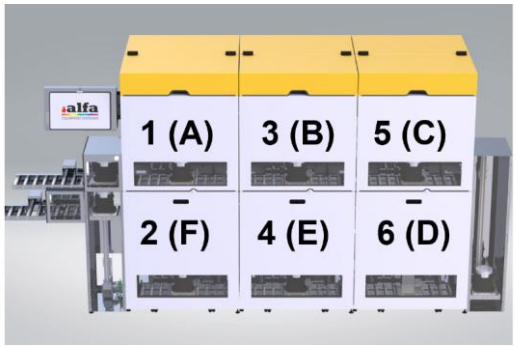
The same key is required to unlock the lower carriages and open them.

The groups in the lower part of the machine, instead, can be accessed by extracting the relevant carriage (2).
The carriages are held in place by a locking system that uses guides and a magnet.



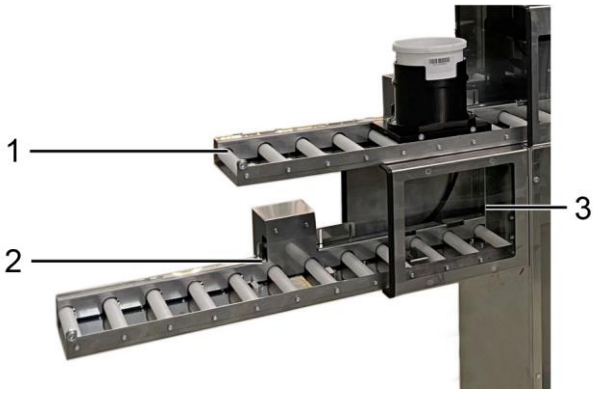
When closing carriage and doors, pay attention to possible risks of crushing.
Extract one carriage at a time: close the open carriage before extracting the adjacent carriage.

By convention, numbering of the dispensing heads (1-6) is that shown in the figure.
The software uses A..F references.



1.3.4. LOADING AND UNLOADING ROLLER CONVEYORS

On the left side of the machine there are can input (1) and output (2) roller conveyors, as well as the output tunnel (3). Cans can be transported in the machine only by using the proper shuttles. The shuttle has to be chosen according to the volume of the can you want to use and is defined during machine configuration.



Manually load the shuttle containing the can on the loading roller conveyor, then send the dispensing start command on Alfa40 software (see chap.4 – “HOW TO PRODUCE A COLOUR”).
The machine will load the shuttle through the motorised roller conveyor and will perform a consistency check between the selected volume and the volume of the can actually loaded.
At the end of the process, the can will be positioned on the output roller conveyor, where it can be manually removed.

1.3.5. AUXILIARY FUNCTIONS

In addition to the colorant turning table, each dispensing head contains a cleaning station (1), a roller conveyor for shuttle movement (2) and an electrical control panel (3) that provides some service functions, as described in more detail below.

The cleaning station is used to clean the dispensing nozzle of each group from possible colorant residues, preventing nozzle drying and clogging.

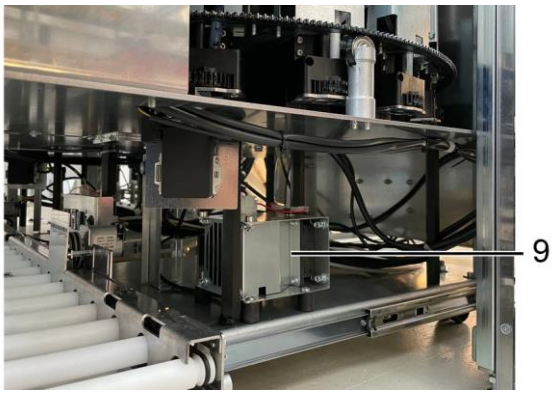
For each dispensing head, the following connections are available:

4. IEC320 type C14 socket for the connection of a scale (max. 100W*);
5. USB-A port for scale connection, through USB-RS232 converter (present only on dispensing head 1);
6. Main switch for dispensing head switching off and IEC320 socket disconnection;

WARNING: dispensing head switch 1 switches off the supervisor as well.

* AC connector - Warning – Connect only to one module and at no more than 100W.

A heater (9) is present in the lower part of carriages. This element is automatically activated when the temperature drops below a programmable threshold, in order to keep the product temperature above the minimum values specified by the manufacturer.



1.3.6. LIFTERS

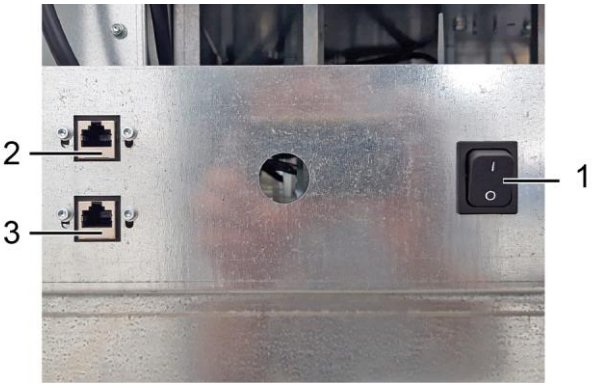
To move the shuttle from upper to lower heads and to the unloading device, two lifters are used, positioned on the left (1) and right (2) sides of the machine.

1.3.7. ELECTRICAL CONTROL PANEL

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

1. On/off Switch
2. “192.168.0.100”: RJ45 socket for direct communication with the machine supervisor (address 192.168.0.100:8080/admin)
3. “192.168.1. ”: RJ45 socket for local Ethernet network connection (product dispensing heads)

In the centre there is the opening for the field wiring connection.



WARNING: After the machine switching off, wait at least 2 minutes before switching it on again (it is necessary to wait the internal controller shut down).

1.3.8. CONTROL INTERFACE

The machine is equipped with a touch display used as User Interface for the operator, on which the machine supervisor software runs.
For details on the functions of the machine supervisor software, refer to chap.4.

1.4. 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
ROTATING: colorant circuit positioning (only for refill operations)
JAR POSITIONING: movement of roller conveyors and lifters

For further details, refer to the next part of this paragraph and to chapter 4.

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:
- Communication errors
- Motor movement errors (e.g. loss of steps)
- Error on can detection
- Timeout error in roller conveyor transfer
- Errors for open doors or carriages

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:
- Component stirring;
- Component 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.
Colorant circuits are all simultaneously stirred at any rotation of the turning table on which the groups are installed.
The default values of the duration and pause variables of each function are indicated in the following table:

	Stirring	Recirculation
Components	At any turning table rotation and before any colorant recirculation	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”.
Stirring speed is approx. 15 rpm and can not be modified.

1.4.6. WORKING CYCLE

When the colour production input is sent, the machine performs the following work phases:

1. **CAN LOADING ON SHUTTLE**
2. **BARCODE READING AND CONSISTENCY CHECK BETWEEN CAN CAPACITY AND VOLUME TO BE DISPENSED**
3. **COMPONENT DISPENSING (WITH CIRCUIT POSITIONING)**
4. **SHUTTLE TRANSFER TO THE NEXT HEAD AND REPETITION OF POINT 3 IF FORESEEN**
5. **SHUTTLE LOAD IN THE DOWNSTROKE LIFTER AND TRANSFER TO THE LOWER HEADS**
6. **DISPENSING AND TRANSFERS TO THE NEXT HEADS UP TO THE SHUTTLE UNLOADING IN THE UPSTROKE LIFTER**
7. **UNLOADING ROLLER CONVEYOR EJECTION (WITH "FULL UNLOADING" CONTROL)**
8. **RETURN TO STANDBY**

The machine is able to manage several shuttles at the same time, with up to 6 cans in the six dispensing stations in one production cycle.

1.5. TECHNICAL SPECIFICATIONS

1.5.1. ELECTRICAL SPECIFICATIONS

MODEL	CR6	CR4	CR2
Power supply	120-240Vac ±10% 50/60Hz		
Max current (A)	10.0-5.2	7.0-3.2	3.2-2.1
Max. absorbed power* (W)	1200	900	400
Fuses 5X20 mm (2pcs internal)	T10A-250V	T8A-250V	T4A-250V

(*) includes 1 AUX 100W output.

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 UL1450
Airborne noise (2)	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.
Note (2): A-weighted sound pressure level determined during normal use at a distance of 1 m from the surface of the machinery and at a height of 1.60 m from the floor.

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 components lose their rheological characteristics outside the temperature range recommended by the manufacturer. Comply with the specifications of the components used.

1.5.4. DIMENSIONS AND WEIGHTS

MODEL	CR2	CR4	CR6
Height (mm)	1620	1620	1620
Width (mm)	1980	2780	3580
Depth (mm)	880	880	880
Unladen weight (kg)	315	565	815

The unladen weight of every single module, without lifters and without input and output roller conveyors, is approx. 250kg, while the laden weight of each module can exceed 300kg (variable value depending on the circuit configuration and the type of products loaded).

1.5.5. PRODUCTION CAPABILITY AND TECHNICAL SPECIFICATIONS

Net colour sample capacity	50ml to 1l
Canister capacity	1.5, 2.5, 3 litres
Max number of circuits	32 to 96 (according to configuration)
Types of products that can be used	Products for CarRefinishing
Colours that can be dispensed	Infinite
Circuit Capacity/Flow rate (sequential dispensing)	0.25 litres/min
Minimum quantity that can be dispensed	1/1920 fl oz (0.0154 cc)
Product strainer	0.9 mm
Dispensing mode	Sequential on each dispensing head
Output*	100cc in 35 seconds

*Output depends on type of formula and software setup

1.5.6. CONSUMABLE STORAGE

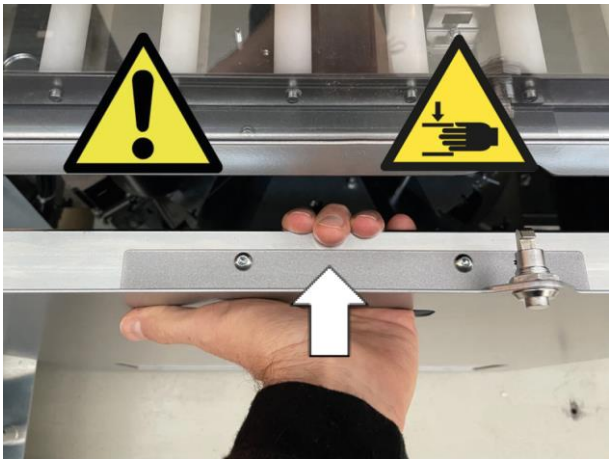
Products	Refer to manufacturer's instructions

1.6. RESIDUAL RISKS AND DANGEROUS AREAS

USER AND MAINTENANCE OPERATOR

The potentially dangerous areas associated with mechanical moving parts:

- Colorant turning table movement: the support base rotation during dispensing or refill operations does not present any risk that is not obvious; however, it is advisable to be careful and not to approach the parts with hands, arms, hair or clothes during operation.
- Circuit canisters: risk of squeezing arms, hands or fingers due to the movement of stirring blade in case of failure or malfunction of door opening sensors. Stirring start is timed by the software and is sudden (excluding when the machine is in diagnostics or refill mode). Do not insert your hands into the canisters. Always shut off the machine prior to performing any necessary interventions.
- Lower carriage extraction: be careful when refitting the carriage. Possible risk of squeezing hands and fingers between the fixed and the mobile parts (figures on the side)



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 intervention that requires the operator to access zones where risks of electric shock are present must be performed with the machine off.

	**REMOTE ASSISTANCE**: **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 PAINTS AND COMPONENTS

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

	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. 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. 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. Therefore, the commitment to do so is a moral and civil duty for every citizen. Illegal disposal of the product by the owner causes the imposition of administrative sanctions as indicated by the law in force. For safe machine packaging and handling it is recommended to use a pallet for CR6, equipped with the necessary fixing points (see para. 2). All handling procedures must be carried out using an industrial truck or a transpallet of right capacity.

1.7.2. FCC

The manufacturer Alfa Srl - Via Farini 4 - 40124 - Bologna – Italy, declares under its own responsibility that the CR6 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:

	**CR6 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**

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

	**CR6 is compliant with the Chinese RoHS standard concerning pollution caused by Electronic Information Products (SJ/T11363-2006, SJ/T11364-2006, SJ/T11365-2006).**

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)
CR6	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 / UKCA DECLARATIONS

CE UKCA	The equipment complies with the following European Directives: 2006/42/EC, 2014/35/EU, 2014/30/EU, 2011/65/EU as well as the relevant English transpositions in force from 2021.

alfa COLORPAINT DISPENSER

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 DESK PRODUCTS

SERIES

CR2, CR4, CR6

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

N° 2006/42/EC	of 17 May 2006 on machinery, replacing Directive 98/37/EC
N° 2014/35/UE	of 26 February 2014 on the harmonisation of the laws of the Member States relating relating to electrical equipment designed for use within certain voltage limits
N° 2014/30/UE	of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility, replacing Directive 2004/108/EC
N° 2011/65/EU	of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (recast), amended by Commission Delegated Directive 2015/863/UE.

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 61010-1	Safety requirements for electrical equipment for measurement, control, and laboratory use
EN 61326-1	EMC requirements - Electrical equipment for measurement, control and laboratory use
EN 61000-3-2	Harmonic current emissions
EN 61000-3-3	Voltage fluctuations and flicker
EN 61000-4-2	Electrostatic discharge immunity
EN 61000-4-3	Immunity to Radio frequency electromagnetic fields
EN 61000-4-4	Immunity to Fast voltage transients on Power AC line and serial data line
EN 61000-4-5	Immunity to surge
EN 61000-4-6	Immunity to conducted disturbances, induced by radio-frequency fields
EN 61000-4-8	Immunity to power frequency magnetic fields
EN 61000-4-11	Immunity to voltage dips, short interruptions and voltage variations

PLACE AND DATE	Calderara di Reno, November 20, 2020	
NAME	Marco ROSSETTI	SIGNATURE
POSITION	CEO	

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: 20

Alfa S.r.l.
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alfa COLORPAINT DISPENSER

DECLARATION OF CONFORMITY

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

SERIES

CR2, CR4, CR6

TO WHICH THIS DECLARATION REFERS, ARE IN CONFORMITY WITH
THE FOLLOWING REGULATIONS:

S.I. 2008 No. 1597	The Supply of Machinery (Safety) Regulations 2008
S.I. 2016 No. 1091	The Electromagnetic Compatibility Regulations 2016
S.I. 2016 No. 1101	The Electrical Equipment (Safety) Regulations 2016
S.I. 2017 No. 1206	The Radio Equipment Regulations 2017
S.I. 2021 No. 422	The Restriction of the Use of Certain HazardousSubstances in Electrical and ElectronicEquipment (Amendment) Regulations 2021

Modified by "The Product Safety and Metrology etc. (Amendment etc.) (EU Exit) Regulations 2019"

AND WITH PARTICULAR REFERENCE TO THE FOLLOWING DELEGATED STANDARDS:

EN 60204-1	Electrical equipment of machines – safety of machinery
EN 61010-1	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, June 30th, 2021	
NAME	Marco ROSSETTI	SIGNATURE
POSITION	CEO	

Person authorised to compile the technical file:
Mr Marco ROSSETTI
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Last two digits of the year in which the UKCA marking was affixed: 21

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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 fumigated wooden pallet covered with 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

The dimensions of the package depend on the machine configuration. For shipment of versions with several modules (CR4 and CR6), each vertical module, containing two turning tables, is packed and shipped separately.
Accessories, spare parts and removable parts are packed separately and placed inside the main packages.

CR6	Module1 (heads 1-2)	Module2 (heads 3-4)	Module3 (heads 5-6)	
Pallet width (mm)	1065			
Pallet depth (mm)	940			
Height on pallet (mm)	1905			
Weight (kg)	392	375	394	
Accessories included	Monitor, printer and kit	Roller conveyors, spare parts and monitor support	Shuttles	

In case of CR2 and CR4, the accessories are arranged differently.

	**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.**

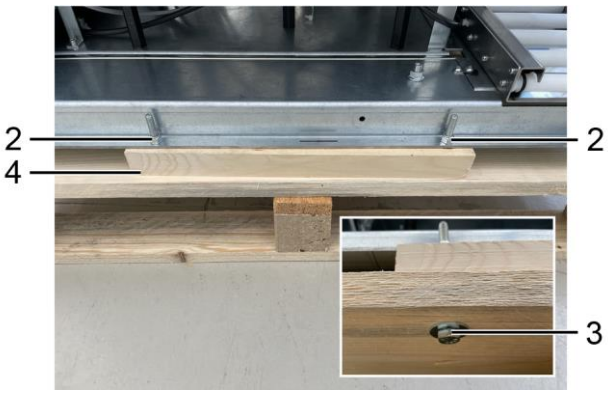
2.2. UNPACKING

The unpacking procedure described in this paragraph is conceptually valid for all the individual packages, regardless of the configuration.

- Using a cutter, carefully remove the straps.
- Lift the wooden cover (1), remove it and place it on the ground close to the machine.
- Slide the cardboard box upwards and remove the internal Pluriball protections of the machine.
- Cover (1) has to be stored undamaged. It can be used as a ramp to unload the machine from the pallet.

To free the machine from the pallet, remove the outer panels and the fixing screws securing the machine to the pallet.
For panel removal, refer to next Chap. 3 – INSTALLATION – PANEL REMOVAL.

- Using two 13mm wrenches, block the nut under the pallet (2) and loosen the 2 M8x150 screws (3) securing the base to the pallet.
- Repeat this operation for the two screws on the other side of the pallet.
- Remove the wood spacers that are between the machine and the pallet (4).



- Slowly push the machine off the pallet by letting it slide on the wheels. Use the wooden cover as tilted footboard.

This operation must be performed by at least three operators, keeping the machine from both sides to avoid unbalances, overturning or loss of control during the descent. Check that the footboard does not move when the machine passes from the pallet to it.

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

Refer to chapter 3 – INSTALLATION to complete the installation.

2.3. OPENING PACKAGE AND CHECKING THE CONTENT

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

All the supplied products and accessories are housed inside the packaging.

Make sure all these accessories are provided:

- Supervisor monitor;
- Printer;
- Ethernet cable kit, power cable and fuses;
- Door opening key;
- User's manual;
- Monitor support;
- Input roller conveyor with barcode reader and relevant support;
- Output roller conveyor;
- Output tunnel;
- Spare parts;
- Shuttles;

2.4. MOVING THE MACHINE (CR2 VERSION)

The machine must be moved in full 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 PAINT SPILLING INSIDE THE MACHINE, NEVER MOVE THE MACHINE WITH THE PRODUCT 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.

For bigger movements, it is necessary to use a suitable lifting mean. In this case, proceed as follows:

- Switch the machine off and disconnect all electric connections (power supply, ethernet, etc.);
- remove PC, keyboard, monitor and any other device from the machine bearing surfaces;
- Push the machine on the forks of a forklift truck or a manual lift truck having a suitable capacity, after checking the weight of the configuration in section 1.5.4 of the operator's manual;

EMPTY ALL CANISTERS OR BRING THEM TO MINIMUM LEVEL BEFORE LIFTING AND/OR MOVING THE MACHINE.

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 installation space.

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

Once the movement has been completed, lower the support feet to stabilise the machine and reconnect the electrical circuits. Use a spirit-level to level the machine.

2.5. MOVING THE MACHINE (CR4 AND CR6 VERSIONS)

For small movements, it is possible to lift the support feet and push the machine using its wheels.

If movements are not possible by pushing by hand, the modules that make up CR4 or CR6 must be separated and moved individually.

Refer to chapter 3 – INSTALLATION for instructions on module separation.

Move every single module using suitable means as described in the previous paragraph.

3. INSTALLATION

3.1. CHOOSING THE ROOM

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

EQUIPMENT FOR INDOOR USE. DO NOT INSTALL THE MACHINE OUTDOORS OR ANYWHERE EXPOSED TO WATER OR 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 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 CR6 at full load and one IEC320 socket (see chap.1 – AUXILIARY FUNCTIONS) with load of 100W.

GROUNDING INSTRUCTIONS
This product must be connected to a permanently grounded, metallic system; or a grounding conductor must be wired and connected to the equipment grounding terminal or soldered to the unit.

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

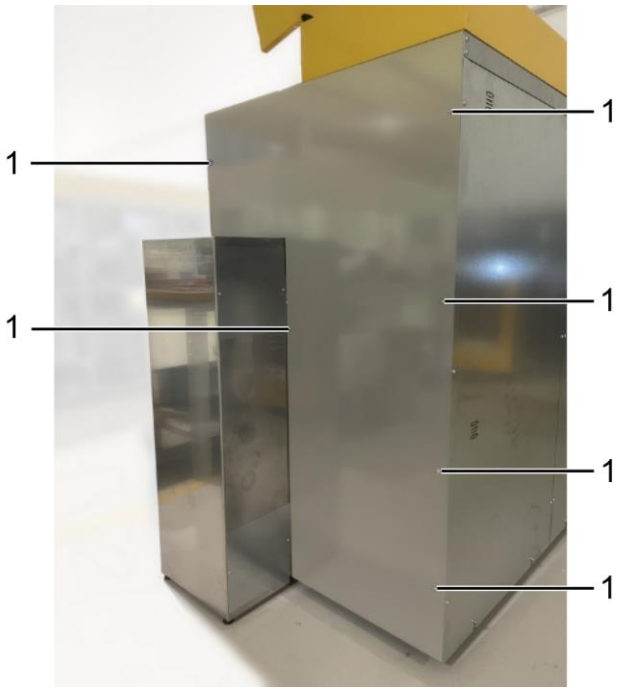
3.3. COMMISSIONING
3.3.1. PANEL DISASSEMBLY

To complete the installation, first disassemble the panels to access all the internal mechanical and electric parts.

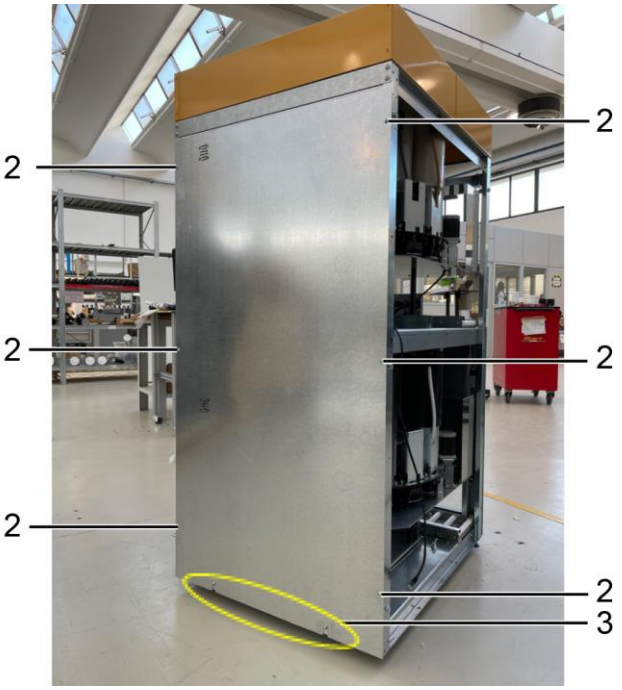
WARNING: all the installation operations described below can be carried out by specialised and authorised technicians only.

For each cabinet present in the machine configuration:

- disassemble the side panel, if any, by unscrewing the 6 fixing screws (1).

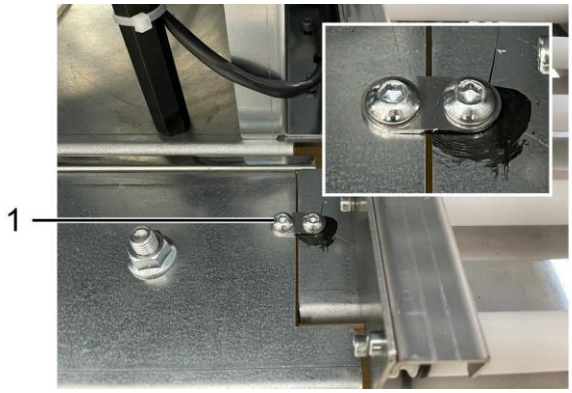


- disassemble the rear panel by removing the 6 fixing screws (2) and loosening the 2 lower support screws (3), without removing them.
- lift the panel to slide it out from the two lower screws.



3.3.2. REMOVING THE MECHANICAL AND PARKING RETAINERS

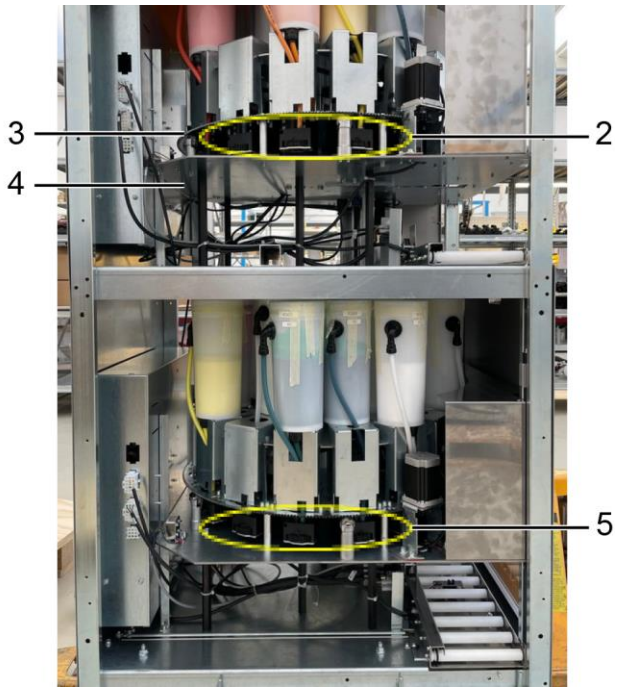
During transport, each carriage is mechanically locked to the cabinet. To release the carriage and allow its opening, remove the screws and brackets (1) using a 4mm Allen wrench.



Each turning table is fixed to the fixed part of the cabinet by 3 or 4 stud bolts that prevent its rotation during transport.

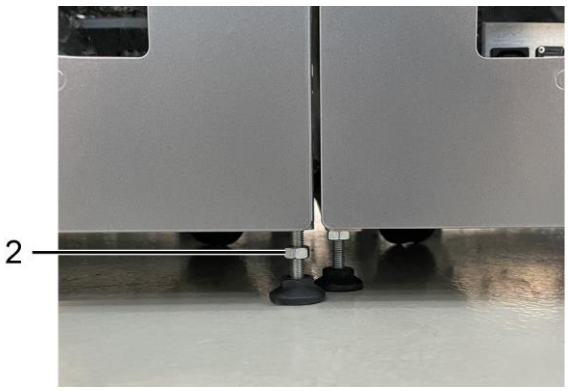
For each module, proceed as follows:

- Remove the stud bolts (2) securing the turning table (3) to the fixed base (4) by loosening the corresponding M6 TCEI screws on top of and under each stud bolt.
- There are 3 or 4 stud bolts for each turning table (usually two for each side).
- Repeat the procedure for the lower group (5).



Once the machine is in the correct position, it must be stabilized on the adjustable supporting feet as follows.
For each of the feet on the front side:

- Work on the nut located on the screw (2) with a 13mm wrench to lower the foot until the nearby wheel is completely lifted.
- Adjust the height of the 2 feet until the roller conveyors are properly aligned.



For CR4 or CR6 versions, lock the modules together using the 8x60 screws already present on the central cabinet:

Insert the final part of the screw into the strut of the adjacent module, then lock the module with the nut supplied.

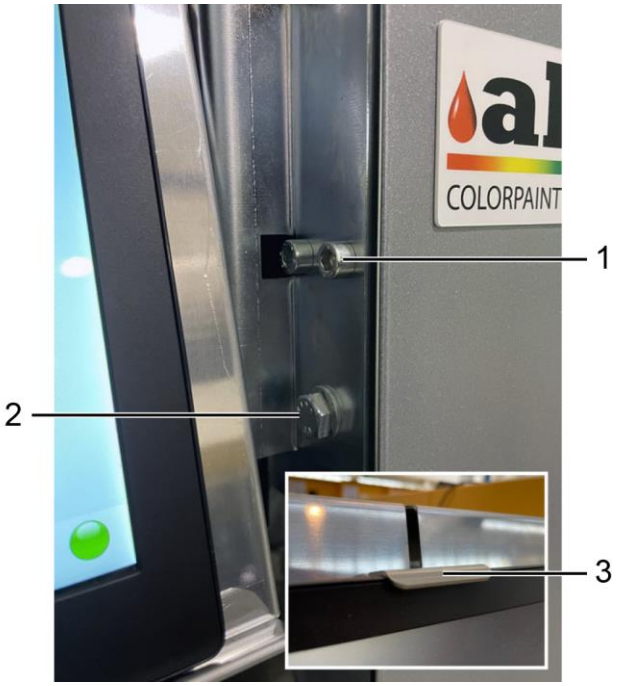
3.3.3. CARRIAGE EXTRACTION

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

- Turn the latch using the proper key (1) and extract the cabinet by pulling the handle (2) firmly.

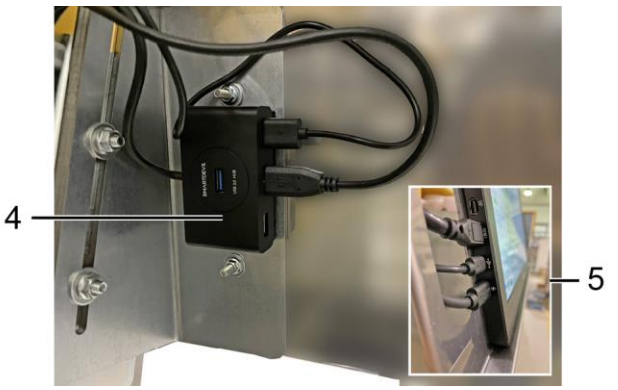
3.3.4. ASSEMBLING THE SUPERVISOR PANEL

- Recover the supervisor panel and the relevant support from the packaging;
- Fix the support to the left cabinet using two M6 TCEI screws (1), with 5mm Allen wrench, and the M8 TE screw (2), with 13mm wrench;
- Lock the supervisor on the support using the metal locking tab (3).



The cables required for electrical connections are already available on board the machine:

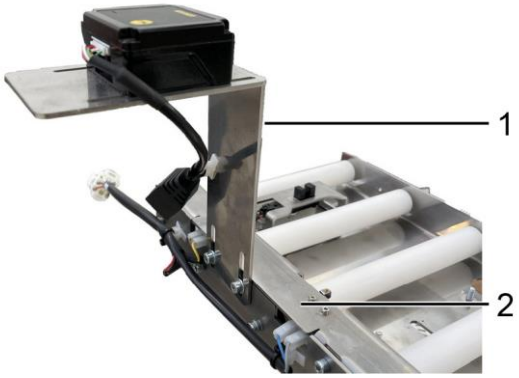
- Fix the USB HUB (4) to the back of the PC panel, then connect the monitor wirings (5):
- HDMI socket from on board the machine.
- Machine USB-C from the HUB;
- USB-C power supply from on board the machine.



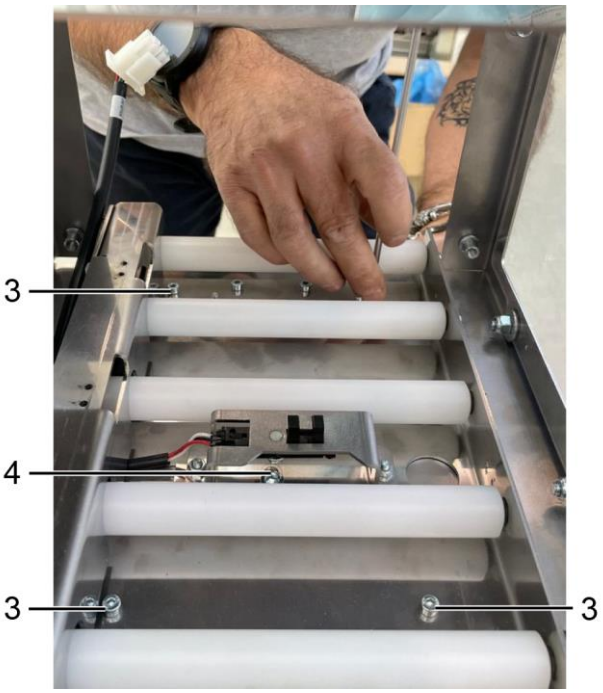
- Finally connect the printer (6) by connecting power supply and USB-B cable from on board the machine.

3.3.5. INPUT AND OUTPUT ROLLER CONVEYOR INSTALLATION

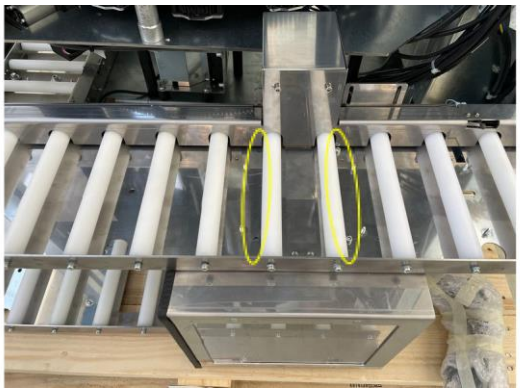
- Recover the input roller conveyor group from the relevant packaging;
- Fit the barcode support (1) on the side guide (2) of the input roller conveyor as shown in the figure;



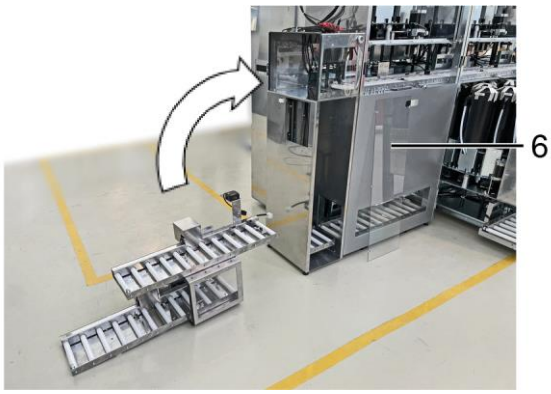
- Fit the output roller conveyor inside the output tunnel using the 6 M4 TCEI screws (3), with 3mm Allen wrench, and the M6 TCEI screw (4), with 5mm Allen wrench.



- Fit the input roller conveyor over the output tunnel using the 4 M4 TCEI screws with 3mm Allen wrench.



- To allow group assembly, remove the plastic panel (6) that closes the left lifter by unscrewing the 6 countersunk head screws with 2.5mm Allen wrench.
- Position the group by inserting the input roller conveyor inside the input tunnel over the lifter.



- Fix the roller conveyor by tightening the 4 TCEI fixing screws on the roller conveyor surface, with 5mm and 3mm Allen wrenches, respectively;
- Tighten the 4 M6 TCEI countersunk head screws of the lifter compartment with a 5mm Allen wrench and the two TE screws with a 10mm wrench.

- Connect the barcode communication cable (7) and the upper roller conveyor wiring (8).

- Connect the lower roller conveyor communication cable to the relevant panel connector (9).
- After connection, cables and connectors must be secured with appropriate retainers or cable ties.
- Refit the previously removed plexiglas panel.

3.3.6. CANISTER OPENING

- Remove the roll on canister lids.

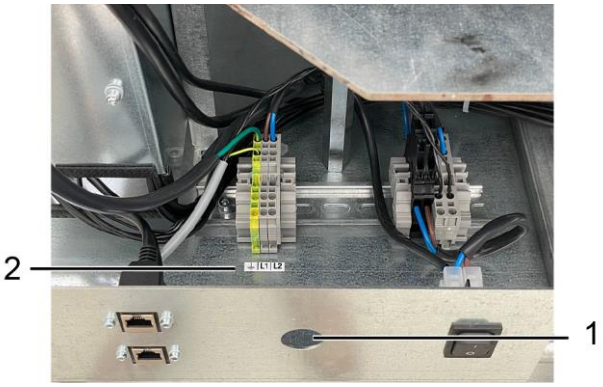
3.3.7. RESTORING ELECTRICAL CONNECTIONS BETWEEN MODULES

In case of CR4 or CR6 configuration, it is necessary to restore electrical connections between the various modules.

- Identify the PW OUT wiring tied inside the modules and connect it to the adjacent module, using the dedicated panel connector on the electrical box: one wiring will act as jumper for the adjacent upper heads and another wiring for the adjacent lower heads.
- After connection, cables and connectors must be secured with appropriate retainers or cable ties.

3.3.8. FIELD WIRING CONNECTION

Remove the lateral panel to access the area with the connection terminals.



- Connect the appropriate conduit (1/2 inch, not supplied) and secure it to the hole (1) with conduit strain relief.
- Connect the appropriate power cables (AWG 14 minimum) to the terminals marked L1 and L2 (2).
- The unit must be grounded: connect the green or green/yellow (AWG 14 minimum) ground cable to the terminal marked by the symbol ⏚.
- Make appropriate wiring connections to the automatic paint/pigment dispenser according to the National Electric Code.

After installation, leave at least 60 cm of free space to access the field wiring compartment.

3.3.9. PANEL REASSEMBLY

When assembly, alignment and connections are complete, close the machine by refitting the outer panels.

- To refit the panels, perform the removal sequence in reverse order (par. 3.3.1) using the same screws and washers, where available.

3.4. SWITCH-ON AND INITIALISATION

- Turn on the machine by turning the on switch to its “I” position.
- When the interface displays the window shown in the figure, the machine is ready to be commissioned and used.

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.

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.

3.5. SWITCH-OFF

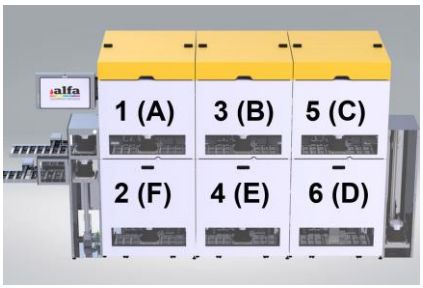
In order to switch off the machine, turn the main switch to its “O” position and disconnect the power cable from the socket.

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 CR6 is provided with a board whose aim, among other things, is to maintain the PC board power supply for the time required to safely shut down the board. 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. PRODUCT LOADING

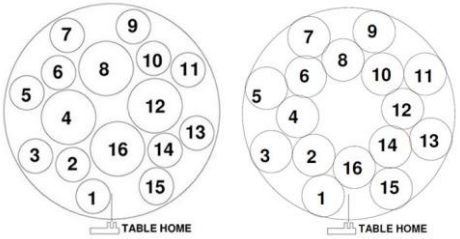
Modules and circuits, when present, are always numbered in sequence as shown in the figure.



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

The position-product association can be viewed by accessing the special machine section through the supervisor.

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



To load the products refer to chapter 5.
WARNING: Do not overfill the canisters.
Then, trigger the circuits and leave them in recirculation mode for the time needed (see chapter 3 - RECIRCULATION).
To see or change the positions associated with each product, please refer to machine configuration (ref. "Software manual").

3.6.2. 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.

3.6.3. SETUP OF CIRCUITS

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

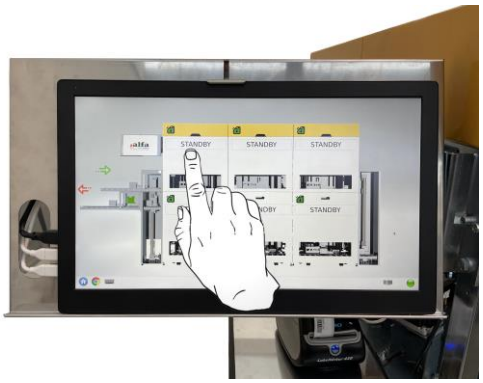
Typically, the machines leave the factory with all circuits already characterised and ready to be used with the colorants of the tinting system specified in the order.
When using dyes that are not yet characterised on a software level, the circuits need to be set up first.

An incorrectly characterized machine can cause significant color production errors. Circuit setup is a procedure reserved for expert technicians so, if necessary, contact Alfa-authorised 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.

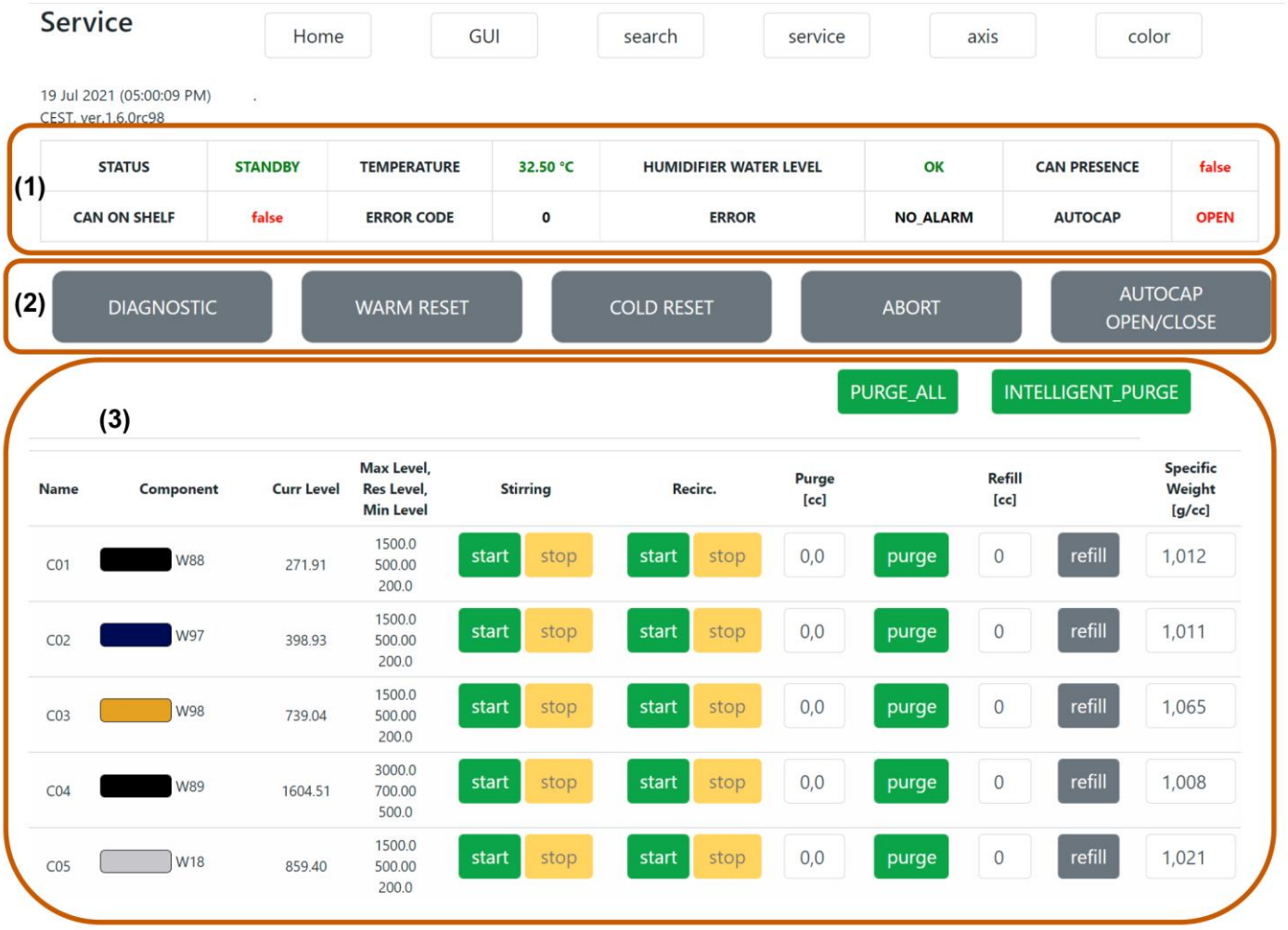
Refer to "How to produce a sample" to perform a test production run.

3.7. ALFA40 SERVICE OVERVIEW

From the machine supervisor, press the synoptic diagram of each dispensing head to access its detailed screen.



The page consists of 3 main sections:



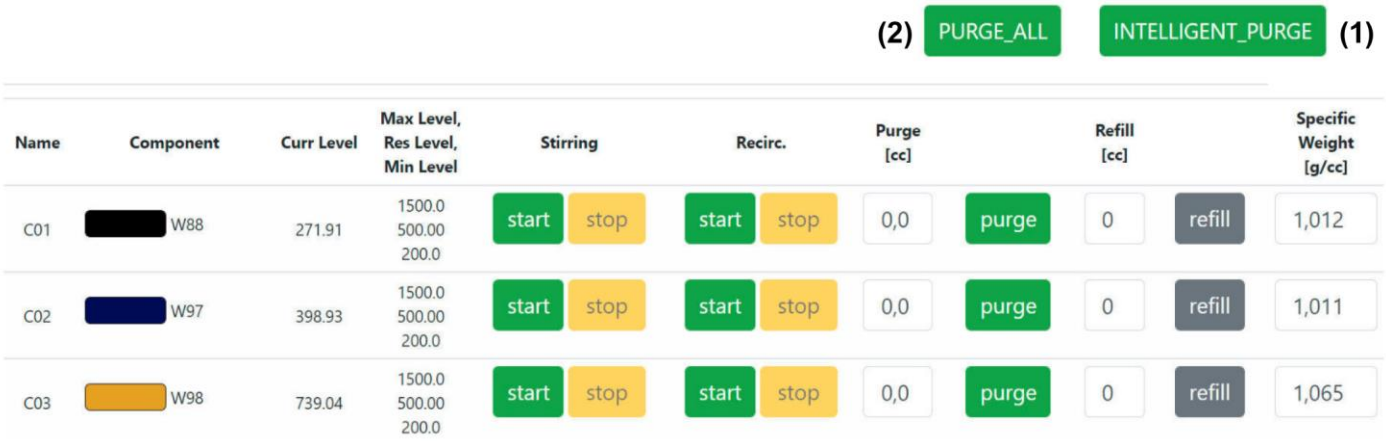
- **Top part (1):** a section is shown with the main dispenser status information;
- **Central part (2)**: there is a list of dispenser maintenance commands.
- **Bottom part (3):** the information about the circuits present on the dispenser with the relevant product levels and service operations are shown;

The **top part** is quite intuitive and shows the status of the machine and the status of some of its parameters or functions.

STATUS	STANDBY	TEMPERATURE	32.50 °C	HUMIDIFIER WATER LEVEL	OK	CAN PRESENCE	false
CAN ON SHELF	false	ERROR CODE	0	ERROR	NO_ALARM	AUTOCAP	OPEN

The **bottom part** refers to the dispensing circuits.

Each line represents one circuit, to which a product is associated, while the columns contain parameters and controls of each circuit, as described in more detail below.



There are also 2 different buttons for the purge cycle: a button to perform the intelligent purge (1) and a button to purge all products (2).

Name	**Description**
NAME	It shows the name of the dispenser circuit. The name "BX" will be displayed for the bases (where X is a number from 1 to 8) while the name "CX" will be displayed for the products.
PIGMENT	A RGB preview of the product and its name will be displayed.
LEVEL	The current level of the product (expressed in CC) is shown.
(MIN, RES)	The values of the minimum and warning level are shown.
STIRRING	There are 2 buttons to start or stop the manual stirring command of the selected circuit*
RECIRC	There are 2 buttons to start or stop the manual recirculation command of the selected circuit.
PURGE	The single purge command of the chosen circuit can be sent. The purge amount is a default value that is set during the machine setup. The value can be increased or decreased by the operator by modifying the value displayed in the appropriate box.
REFILL	The refill command of the chosen circuit can be sent. The quantity of product to be added/removed is expressed in CC. If the dispenser is equipped with a turntable (Thor or CR6 model), the command to rotate the table will be executed to set it to the refill position.
INTELLIGENT PURGE	The button opens the intelligent purge popup described in the previous paragraph.
PURGE ALL	Press the button to start purge operation for all products.

(*) **NOTE**: when the stirring command is given for a circuit, all the circuits of the same dispensing head are stirred, since the function is associated with the rotation of the table.

4. HOW TO PRODUCE A COLOUR

4.1. MACHINE STATUSES

The machine synoptic diagram always shows the status of every single head (1). Following are the possible statuses of each head:

STANDBY: machine ready, waiting for controls
ROTATING: turning table rotation for refill
DISPENSING: dispensing in progress
RESET: reset in progress
ALARM: machine error
DIAGNOSTIC: machine waiting for direct controls
JAR POSITIONING: movement of roller conveyors and lifters

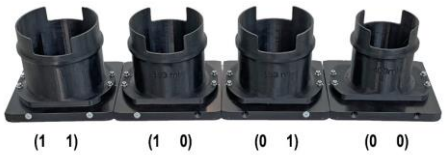
The direct controls are described in the following paragraphs.

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. LOADING SHUTTLES

The machine allows can loading and movement only through suitable shuttles.
Shuttles can be of 4 types to allow using 4 different volumes.
The base of each type of shuttle has two holes that can be closed with screws to configure each shuttle with a unique binary encoding (from 0-0 for the smallest to 1-1 for the largest). The shuttle encoding, and thus its volume, is detected by the software through two microswitches properly positioned inside the loading roller conveyor.



4.2.2. SELECTING FORMULA AND QUANTITY

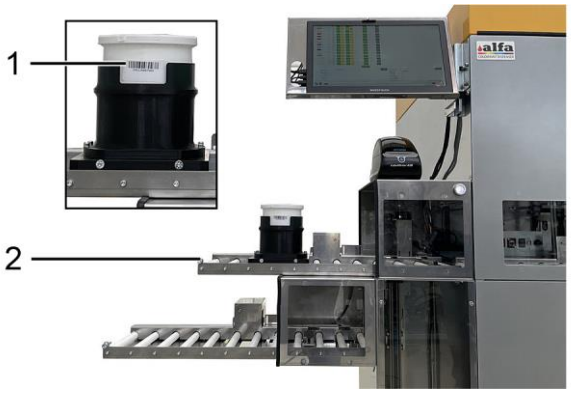
In the customer's software, select the formula to be produced and the quantity, which is sent to the supervisor and matched to a new production order. For details on the use of the supervisor software, refer to the dedicated chapter.
The software produces a barcode label for each can provided for in the order, which will be printed by the printer supplied.
Barcode structure: yymmddxxxyyy, where yy = last two digits of the year, mm = month, dd = day, xxx = order progressive number, yyy = order can progressive number.

4.2.3. LOADING THE SHUTTLE

Apply the barcode labels to the cans with suitable capacity, paying attention that the barcode is fully visible when inserted into the shuttle.

Insert the container of desired volume into the shuttle with capacity greater than or equal to the requested one, paying attention to position the barcode so that it can be fully read in the proper window (1).

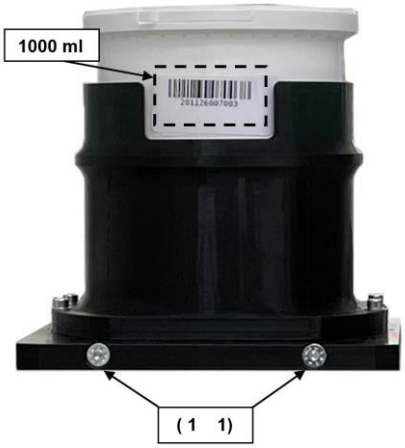
Position the shuttle on the loading roller conveyor (2).



At the beginning of the process, the supervisor software carries out a consistency check between the volume expected from the production order (barcode reading) and the volume of the can (loaded shuttle code reading).

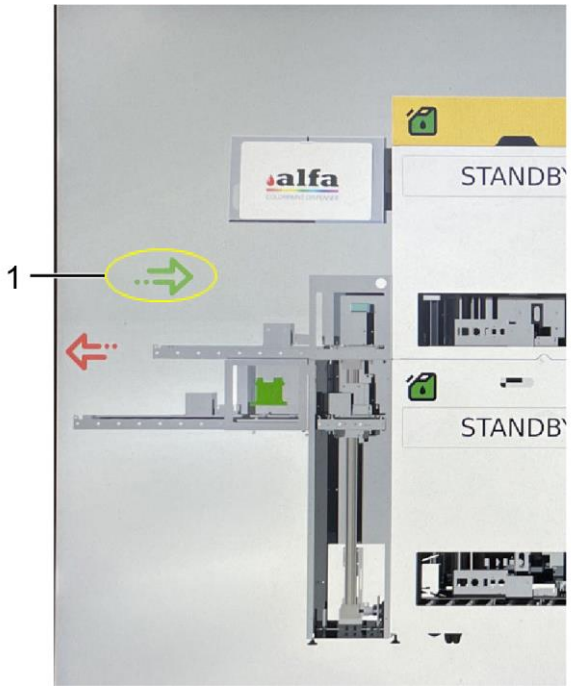
Capacities can be customised according to the specific needs of the customer, as in the example below.

Code	Volume
0-0	400 ml
0-1	650 ml
1-0	850 ml
1-1	1000 ml



4.2.4. STARTING THE PRODUCTION PROCESS

To start the production process, press the “green arrow” button (1).



Wait for process completion, then remove the shuttle from the output roller conveyor.

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:

- Product canister top-up

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

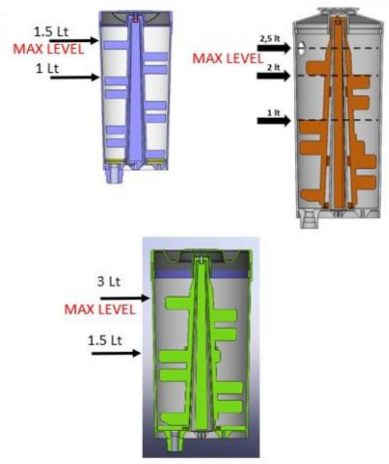
THE OPERATIONS DESCRIBED IN THIS CHAPTER MAY REQUIRE ACCESS TO DANGEROUS SERVICE AREAS.
ACCESS TO SERVICE AREA IS RESERVED TO TRAINED AND AUTHORISED STAFF (MAINTENANCE OPERATOR, SEE PARA. 0. – USERS AND ACCESS LEVELS).

5.2. CANISTER TOPPING UP

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

Top-up using only the canister in the front part of the machine.
To top-up a product, proceed as follows:

- Access the Service page in Alfa40 by pressing the synoptic panel of the dispensing head to be topped up (for details, see chap. 3 – ALFA40 SERVICE OVERVIEW);
- 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.
- When the machine status switches to DIAGNOSTIC, open the upper cover or the carriage of the turning table that houses the circuit to be topped up;
- Remove the canister lid.
- Fill the canister with the appropriate pigment without exceeding the indicated maximum level (MAX LEVEL).
- Record the operation (see next paragraph);
- In the software, select the next circuit and repeat the operations described above for each circuit to be topped up.
- To quit Service mode, close all doors and carriages, then perform a Cold Reset operation.



NOTE: The cross element can be used to support a container when you leave it to drain. Do not overfill beyond the recommended level.
Remove the can before refilling another circuit and before closing the cover and/or carriage.

WARNING: Do not manually force the turning table rotation. Use the software controls and wait that the machine performs the necessary rotation.

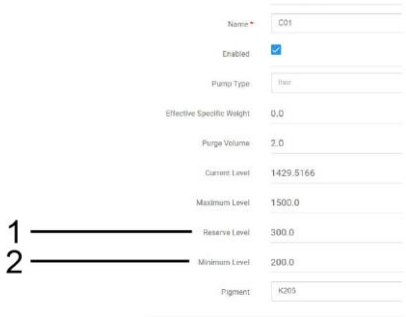
5.3. RECORDING THE OPERATION

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

- Press REFILL button of the circuit topped-up;
- In the "Refill [cc]" field enter the volume in cc of the product supplied in the circuit, then press REFILL again;

5.4. MINIMUM AND RESERVE LEVEL

For each circuit it is possible to define a warning level and a minimum level (that can be checked via software).
If the volume of product contained in the circuit is lower than the warning level (1), the systems displays an alarm but allows dispensing.
If the volume is lower than the minimum level (2) calculated by the software, the system triggers an alarm and prevents dispensing of that colorant 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 products of the formula is not sufficient, the system requires the operator to select another formula.

5.5. ADJUSTING MINIMUM LEVELS

CR6 is not provided with minimum level sensors. Levels are only software controlled.
To change the parameters, access the Service page, then press HOME, Machine Data, Pipe.

5.6. PRODUCT DISPOSAL

During maintenance or repair, it may be necessary to empty the circuits from the products they contain.

Products 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. ORDINARY MAINTENANCE AND CLEANING

6.1. SCHEDULED MAINTENANCE

The following table indicates the scheduled maintenance recommended by Alfa.

SERVICE OPERATION	INTERVAL
Lubrication	none
Cleaning Loading and unloading	weekly
Purge	daily
Machine external cleaning	monthly
Machine internal cleaning	monthly
Strainer cleaning	every 12 months
Changing fuses	If needed
Functional check of door and trolley sensors	weekly

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).

	**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.**
	**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.**
	**ALWAYS TURN OFF THE MACHINE BEFORE PROCEEDING TO MAINTENANCE AND CLEANING.**
	**IT IS STRICTLY FORBIDDEN TO REMOVE COVERS AND SYSTEM PROTECTIONS.**

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 circuit nozzles, where required)

Thin tip tool or 2.5 mm flat screwdriver (for possible cleaning of master nozzles, if any)

2.5 mm Allen wrench (to disassemble panels, where required)

20 mm open wrench

Funnel (for humidifier top-up, if any)

6.3. LUBRICATION

The machine requires no scheduled lubrication by the MAINTENANCE OPERATOR.
However, it is advisable that the machine is overhauled on a yearly basis by a specialised TECHNICIAN, who can perform scheduled maintenance operations, including table lubrication in the bearings area.
Only the TECHNICAL personnel is authorised to remove the machine protections. For more details, refer to the Technical Manual.

6.4. ROLLER CONVEYOR CLEANING

Periodically use a vacuum cleaner to remove dust and dirt from loading and unloading roller conveyors.
If necessary, repeat the operation on roller conveyors that can be accessed inside the lower carriages.

Refer to the recommendations in the following para. 6.8.

6.5. CLEANING GROUP MAINTENANCE

The group cleaning kits are located in an area that cannot be accessed by the operator. Their maintenance is part of the activities reserved to Service.

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.
Product unloading during purge is done into a can, which must be properly moved below the dispensing centre of the head involved by using the software manual controls, as described below.

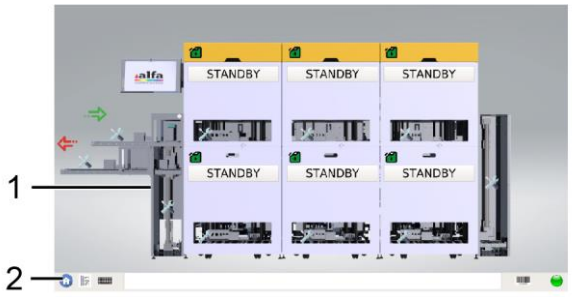
To force a machine purge command, proceed as follows:

- Access the Service interface (see Chapter 3 - ALFA40 SERVICE OVERVIEW);
- Insert a shuttle with purge can on the loading roller conveyor;
- Use manual controls to move the shuttle under the head dispensing centre, operating as described in the next paragraph;
- 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;
- At the end of the cycle, eject the can using the manual controls.

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 pigment from all the circuits present on the machine (“PURGE ALL”).

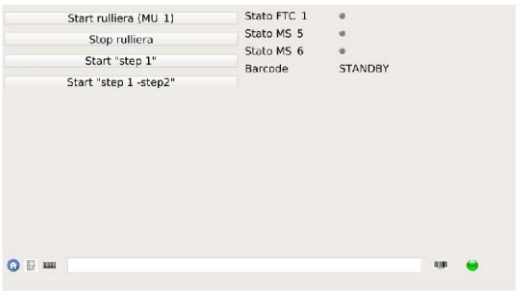
6.7. MANUAL CONTROLS

Access to controls is carried out through the supervisor synoptic panel.
Press the open wrench symbols (1) to access the manual control page of the relevant machine section.
Press the “Home” symbol (2) to go back to home screen.



Input roller conveyor

1. START ROLLER CONVEYOR = starts the roller conveyor;
2. STOP ROLLER CONVEYOR = stops the roller conveyor;
3. START STEP 1 = starts the roller conveyor and stops when the shuttle reaches the input photocell;
4. START STEP 1– STEP 2 = starts the roller conveyor and stops when the shuttle reaches the “Dispensing Jar” dosing roller conveyor photocell, on the first dispensing head.

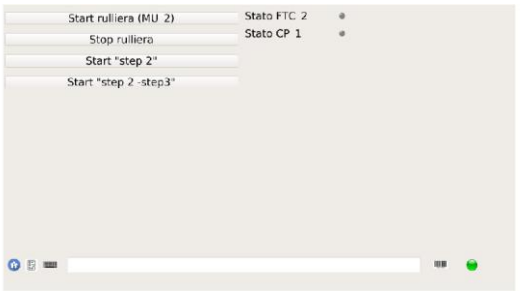


On the right side there are some status indicators related to the sensors of this section: input photocell (FTC1) and the two shuttle binary encoding reading microswitches (MS5-MS6).

Dispensing head

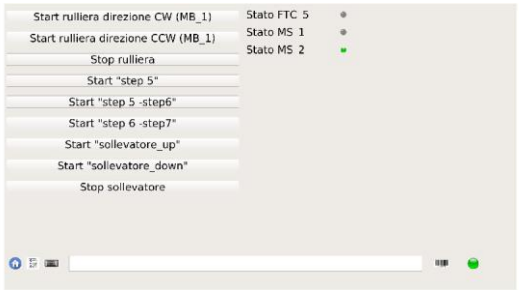
Each dispensing head has the same interface, with the following controls:

5. START ROLLER CONVEYOR = starts the roller conveyor;
6. STOP ROLLER CONVEYOR = stops the roller conveyor;
7. START STEP 2 = starts the roller conveyor and stops when the shuttle reaches the dispensing photocell of the head;
8. START STEP 2 – STEP 3 = starts the roller conveyor and stops when the shuttle reaches the “Dispensing Jar” dosing roller conveyor photocell, on the next dispensing head.



On the right side there are some status indicators related to the sensors of this section: dispensing photocell (FTC 2) and can presence sensor (CP);
The controls are conceptually the same for each dispensing head.

Right lifter



1. START ROLLER CONVEYOR IN CW DIRECTION = starts the roller conveyor clockwise (load inside the lifter);
2. START ROLLER CONVEYOR IN CCW DIRECTION = starts the roller conveyor counter-clockwise (unload from the lifter);
3. STOP ROLLER CONVEYOR = stops the roller conveyor;
4. START STEP 5 = moves the shuttle from the upstream head to inside the lifter by activating the roller conveyors of the lifter and of the upstream head. The roller conveyor stops when the shuttle reaches the photocell inside the lifter (positioned at the top).
5. START STEP 5 – STEP 6 = starts the lifter to move the shuttle to low position.
6. START STEP 6 – STEP 7 = moves the shuttle from the lifter to the downstream dispensing head by activating the roller conveyors of the lifter and of the downstream head. The roller conveyor starts and stops when the shuttle reaches the “Dispensing Jar” dosing roller conveyor photocell, on the next dispensing head.
7. START LIFTER UP = moves the lifter upwards until the end-of-travel position or until the manual stop control is pressed;
8. START LIFTER DOWN = moves the lifter downwards until the end-of-travel position or until the manual stop control is pressed
9. STOP LIFTER = stops the lifter movement.

On the right side there are some status indicators related to the sensors of this section: roller conveyor photocell (FTC5) and the two upper (MS1) and lower (MS2) position microswitches.

Left lifter

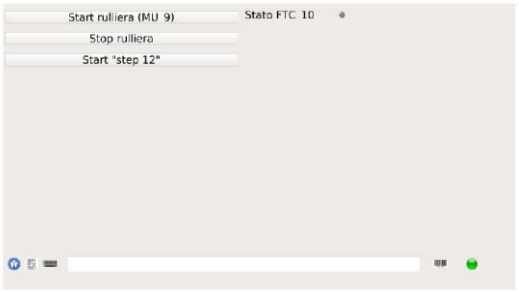
1. START ROLLER CONVEYOR = starts the roller conveyor (shuttle unloading direction only);
2. STOP ROLLER CONVEYOR = stops the roller conveyor;
3. START LIFTER UP = moves the lifter upwards until the end-of-travel position or until the manual stop control is pressed;
4. START LIFTER DOWN = moves the lifter downwards until the end-of-travel position or until the manual stop control is pressed
5. STOP LIFTER = stops the lifter movement.

At the end of the lifter upstroke, the shuttle unloading on the output roller conveyor is performed, too.

On the right side there are some status indicators related to the sensors of this section: roller conveyor photocell (FTC9) and the two upper (MS4) and lower position (MS3) microswitches.

Output roller conveyor

1. START ROLLER CONVEYOR = starts the roller conveyor;
2. STOP ROLLER CONVEYOR = stops the roller conveyor;
3. START STEP 12 = starts the roller conveyor for a defined time and then automatically stops.



On the right side there are some status indicators related to the sensors of this section: input photocell (FTC10).

6.8. 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.

6.9. 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.

6.10. COMPONENT SPILLING

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.

DO NOT USE SOLVENTS OR ABRASIVE PRODUCTS Drain and wash the vessels in a suitable washing circuit for collecting colorant waste (DO NOT RELEASE IN THE ENVIRONMENT NOR IN THE CIVIL SEWER SYSTEM).

6.11. 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.**

6.12. CHECK OF THE CORRECT OPERATION OF THE DOOR CONTROL SENSORS

Periodically, at least once a week, check the correct operation of the door opening and trolley extraction sensors. To carry out the check:

- open the upper door;
- check that the Alfa40 software detects the ALARM status, thus preventing the dispensing of a formula;
- close the door and reset the error;
- extract the trolley, checking again that the machine sets to ALARM status.

If an ALARM status is not detected, interrupt the production activities and contact the Service.

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 code	Error detected	Error description	Resolution of the problem
2	EEPROM_COLOR_CIRC_PARAM_CRC_FAULT	Circuit parameter CRC fault	Check for the absence of parameters in the case of MMT replacement. Load the bases/colorants circuit parameters onto the new MMT board
3	EEPROM_CALIB_CURVES_PARAM_CRC_FAULT	Calibration curve parameter CRC fault	Check for the absence of parameters in the case of MMT replacement. Load the calibration parameters onto the new MMT board
5	EEPROM_SLAVES_EN_PARAM_CRC_FAULT	Slave configuration CRC fault	Check for the absence of parameters in the case of MMT replacement. Load the SLAVE configurations onto the new MMT board
8	EEPROM_HUM_20_PARAM_CRC_FAULT	Humidifier 2.0 parameter CRC fault	Check for the absence of parameters in the case of MMT replacement. Load Humidifier 2.0 parameters onto the new MMT board
9	EEPROM_CIRCUIT_PUMP_TYPES_CRC_FAULT	Pump type CRC fault for each circuit	Check for the absence of parameters in the case of MMT replacement. Load the types of pumps onto the new MMT board
10	USER_INTERRUPT	Machine operation Software interruption	HALT has been pressed or ABORT has been sent
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
346	TINTING_PUMP_RESET_ERROR	Tinting Pump reset procedure duration time-out	Verify the integrity of the Pump motor, of connectors, the connection on the MMT board
347	TINTING_VALVE_RESET_ERROR	Tinting Valve reset procedure duration time-out	Verify the integrity of the Valve motor, of connectors, the connection on the MMT board
348	TINTING_TABLE_RESET_ERROR	Tinting Table reset procedure duration time-out	Verify the integrity of the Table motor, of connectors, the connection on the MMT board
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.
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" (Base or Colorant) circuit must dispense but is erroneously Disabled	Load the Slave configurations onto the new MMT board.
534	TINTING_VALVE_HOME_POS_ERROR	Error in the HOMING procedure of the Tinting Valve	Verify the correct operation of the 2 photocells and the correct movement of the stepper

Error code	Error detected	Error description	Resolution of the problem
535	TINTING_TABLE_HOME_POS_ERROR	Error in the HOMING procedure of the Tinting Turning Table	Verify the correct operation of the photocell, that there is at least one flag on the table and the correct movement of the stepper
584	TINTING_VALVE_HOME_BACK_ERROR	Engagement error of one of the 2 photocells during Valve HOMING	Check operation of each Valve photocell, Valve stepper motor wiring and metal nameplate alignment
633	TINTING_PUMP_POS0_READ_LIGHT_ERROR	Tinting Pump Home photocell NOT engaged at the end of pump step movement, or never engaged within an undefined time or number of steps, or NOT engaged during Tinting Table movement	Check Home photocell and Stepper operation
634	TINTING_VALVE_1_POS0_READ_LIGHT_ERROR	Valve HOME photocell NOT engaged during Tinting Table movement or at the end of Homing procedure, or CLOSED valve during Dispensing	Verify Valve and Stepper HOME photocell operation
733	TINTING_PUMP_OVERCURRENT_ERROR	Overcurrent on a Tinting Pump stepper motor driver jumper	Verify wirings and operation of Pump L6482H driver on MMT board
734	TINTING_VALVE_OVERCURRENT_ERROR	Overcurrent on a Tinting Valve stepper motor driver jumper	Verify wirings and operation of Valve L6482H driver on MMT board
735	TINTING_TABLE_OVERCURRENT_ERROR	Overcurrent on a Tinting Table stepper motor driver jumper	Verify wirings and operation of Table L6482H driver on MMT board
738	DOSING_ROLLER_OVERCURRENT_ERROR	Current circulating in the Dosing Roller Conveyor is higher than the threshold set in the MMT board driver, or overtemperature detected on the driver	Check the connection and wiring of the Dosing Roller Conveyor on the output reserved on MMT board
739	INPUT_ROLLER_OVERCURRENT_ERROR	Current circulating in the Input Roller Conveyor is higher than the threshold set in the MMT board driver, or overtemperature detected on the driver	Check the connection and wiring of the Input Roller Conveyor on the output reserved on MMT board
740	UNLOAD_LIFTER_ROLLER_OVERCURRENT_ERROR	Current circulating in the Unloading Roller Conveyor is higher than the threshold set in the MMT board driver, or overtemperature detected on the driver	Check the connection and wiring of the Unloading Roller Conveyor on the output reserved on MMT board
792	TINTING_PUMP_SOFTWARE_ERROR	Logic error in the Tinting Pump process statuses (including the Valve) or in the received formula parameters	Check the sent formula parameters, if the problem persists request a Tinting Firmware update
793	TINTING_TABLE_SOFTWARE_ERROR	Logic error in the Tinting Table process statuses	Request a Tinting Firmware update
795	ROLLER_SOFTWARE_ERROR	Logic error in the process statuses of the Roller Conveyors and Lifters	Request a Firmware update

Error code	Error detected	Error description	Resolution of the problem
842	ROLLER_DRV_OVER_CURR_TEMP_ERROR	Overcurrent or overtemperature in the driver that controls the Loading or Unloading Lifter or in the Loading Lifter Roller Conveyor of the MMT board	Check the connection and wiring of the Loading or Unloading Lifter or Loading Lifter Roller Conveyor on the MMT board
896	HUMIDIFIER_20_PARAM_ERROR	Error during machine RESET in parameter correctness check of Humidifier 2.0	Check the correctness of parameters sent with “DIAG_SETUP_HUMIDIFIER_TEMPERATURE_PROCESSES” command.
898	TEMPERATURE_ERROR	Error in Temperature measurement	Check connection of HUTTS Temperature Sensor housing board with MMT board. If the problem persists, replace the board and/or the connection cable
899	TEMPERATURE_TOO_LOW	Temperature on board the machine too Low	Check Heater operation
907	TINTING_TIMEOUT_TABLE_MOVE_ERROR	Time-out expired during Table Homing, or in positioning to one circuit	Verify Table stepper motor wirings, the Table characteristic parameters sent with the “UPDATE_TINTING_TABLE_SETTINGS” command, and operation of Table photocell
908	TINTING_TABLE_SEARCH_POSITION_REFERENCE_ERROR	The reference mark found in the Table HOMING differs from the theoretical value set by a quantity in steps greater than the tolerance set	Verify that there is a reference mark on the Table, that the Table characteristic parameters are correct and operation of Table photocell
909	TINTING_LACK_OF_CIRCUITS_POSITION_ERROR	A circuit that needs to be cleaned is not enabled, or a circuit to be positioned is not present in the positional table	Check that the circuit has been enabled and that a Self-learning has been correctly performed
911	TINTING_SELF_LEARNING_PROCEDURE_ERROR	Tinting Table Self-Learning procedure error: at the start the Table is not on the Reference mark, or the Table photocell is not engaged, or the number of circuits found is > 16, or the number of circuits found in one rotation direction is different from the other	A Reset must be successfully completed before performing Self Learning. Check Tinting Table photocell operation
912	TINTING_BAD_PUMP_PARAM_ERROR	Tinting Pump characteristic parameters are incorrect	Verify the set parameters and send the command to set the Pump parameters “UPDATE_TINTING_PUMP_SETTINGS” again
913	TINTING_BAD_TABLE_PARAM_ERROR	Tinting Table characteristic parameters are incorrect	Verify the set parameters and send the command to set the Table parameters “UPDATE_TINTING_TABLE_SETTINGS” again
914	EEPROM_PUMP_PARAM_CRC_FAULT	Tinting Pump parameter CRC fault	Possible absence of Pump parameters. In case of MM board replacement, load the Tinting Pump parameters with “UPDATE_TINTING_PUMP_SETTINGS” command
915	EEPROM_TABLE_PARAM_CRC_FAULT	Tinting table parameter CRC fault	Possible absence of Pump parameters. In case of MMT board replacement, load the Tinting Pump parameters with “UPDATE_TINTING_TABLE_SETTINGS” command

Error code	Error detected	Error description	Resolution of the problem
916	TINTING_BAD_PERIPH_PARAM_ERROR	Incorrect parameters in peripheral setting command	Verify the set parameters and send the command to set the Peripheral units again
917	EEPROM_CLEAN_PARAM_CRC_FAULT	Tinting cleaning parameter CRC fault	Possible absence of Brush parameters. In case of MMT board replacement, load the Brush parameters with “UPDATE_TINTING_CLEANING_SETTINGS” command
918	TINTING_PUMP_PHOTO_HOME_READ_DARK_ERROR_ST	The Tinting Pump Home photocell is engaged while it should not be engaged during HOMING, or during Recirculation or Dispensing when the circuit is already engaged	Verify Pump and Pump Stepper Home photocell operation
919	TINTING_PUMP_PHOTO_INGR_READ_LIGHT_ERROR	Tinting Pump Coupling photocell is in a wrong state: engaged while it should not be engaged or vice-versa.	Verify Pump and Pump Stepper coupling photocell operation. Verify the Pump characteristic parameters sent with the specific command
920	TINTING_TABLE_TEST_ERROR	Tinting Table test failed: the starting position is NOT on the reference mark, or no circuit has been detected, or the number of detected circuits is > 16, or the position of at least one detected circuit in one direction differs from that in the opposite direction by a quantity in steps > than the set threshold, or the position of at least one detected circuit differs from that obtained in the Self-Learning by a quantity > than the set threshold, or the map of detected circuits differs from that configured by software	Perform a Reset and try the Table Test again, verify the operation of the Tinting Table photocell, check the consistency between the circuits present on the Table and those configured in the software, try again to perform Self Learning, increase the tolerance on the positions of the Table by sending the Table Parameter configuration command again
922	TINTING_BASES_CARRIAGE_ERROR	Product carriage off-position when the machine is NOT in Diagnostic mode	Replace the carriage into its position. Verify carriage microswitch wiring on MMT board
923	TINTING_PANEL_TABLE_ERROR	Open panel for Refill on the Tinting Table when the machine is NOT in Diagnostic mode, or it is in Diagnostic mode and you want to activate operations involving the movement of something that is NOT the Rotation of the Tinting Table	Close the panel. Verify panel microswitch wiring on MMT board
924	TINTING_BRUSH_OPEN_LOAD_ERROR	No load at output reserved to Brush of MMT board	Check the connection and wiring of the Brush on the output reserved on MMT board
925	TINTING_BRUSH_OVERCURRENT_THERMAL_ERROR	Current circulating in the Brush is higher than the threshold set in the MMT board driver, or overtemperature detected on the driver	Check the connection and wiring of the brush on the output reserved on MMT board
930	TINTING_AIR_HEATER_OPEN_LOAD_ERROR	No load at output reserved to Air Heater on MMT board	Verify the connection and wiring of the Air Heater on the MMT board

Error code	Error detected	Error description	Resolution of the problem
931	TINTING_AIR_HEATER_OVERCURRENT_THERMAL_ERROR	Current circulating in the Air Heater is higher than the threshold set in the MMT board driver, or overtemperature detected on the driver	Verify the connections and wiring of the Air Heater on the MMT board
932	TINTING_GENERIC24V_OPEN_LOAD_ERROR_ST	No load at output reserved to Brush Motor of MMT board	Verify the connection and wiring of the Brush Motor on the MMT board
933	TINTING_GENERIC24V_OVERCURRENT_THERMAL_ERROR	Current circulating in the Brush Motor is higher than the threshold set in the MMT board driver, or overtemperature detected on the driver	Verify the connections and wiring of the Brush Motor on the MMT board
934	TINTING_PUMP_MOTOR_THERMAL_SHUTDOWN_ERROR	Tinting Pump stepper motor controller internal overtemperature	Shut off the machine, wait some minutes and turn in on again. If the problem persists, verify the electric connections with the Pump stepper motor. If the problem persists, replace the MMT board
935	TINTING_VALVE_MOTOR_THERMAL_SHUTDOWN_ERROR	Tinting Valve stepper motor controller internal overtemperature	Shut off the machine, wait some minutes and turn in on again. If the problem persists, verify the electric connections with the Valve stepper motor. If the problem persists, replace the MMT board
936	TINTING_TABLE_MOTOR_THERMAL_SHUTDOWN_ERROR	Tinting Table stepper motor controller internal overtemperature	Shut off the machine, wait some minutes and turn in on again. If the problem persists, verify the electric connections with the Table stepper motor. If the problem persists, replace the MMT board
937	TINTING_PUMP_MOTOR_UNDER_VOLTAGE_ERROR	Tinting Pump stepper motor controller gate control voltage too low	Verify the electric connections with the Pump stepper motor. If the problem persists, replace the MMT board
938	TINTING_VALVE_MOTOR_UNDER_VOLTAGE_ERROR	Tinting Valve stepper motor controller gate control voltage too low	Verify the electric connections with the Valve stepper motor. If the problem persists, replace the MMT board
939	TINTING_TABLE_MOTOR_UNDER_VOLTAGE_ERROR	Tinting Table stepper motor controller gate control voltage too low	Verify the electric connections with the Table stepper motor. If the problem persists, replace the MMT board
940	EEPROM_TINTING_COLORANTS_STEPS_POSITION_CRC_FAULT	CRC fault of positional table of the circuits on the Tinting Table stored on the MMT board EEPROM	Perform Tinting Table Self-Learning. If the problem persists, replace the MMT board
941	TINTING_TABLE_PHOTO_READ_LIGHT_ERROR	The Tinting Table photocell is not engaged when it should be engaged in various machine processes	Verify Tinting Table Photocell operation
942	TINTING_TABLE_MOVE_ERROR,	Generic error in Tinting Table movement, or in Refill the Table moved without engaging any circuit	Verify Tinting Table Photocell operation
943	TINTING_VALVE_2_READ_DARK_ERROR	Valve closed before High Resolution Dosing	Check operation of the 2 Valve photocells and the Valve stepper motor wiring
944	TINTING_VALVE_2_READ_LIGHT_ERROR	In Valve HOMING the Open Valve photocell has not engaged, or in Recirculation, in Valve opening movement before refilling, it has not engaged, or during dosing it has not engaged	Check operation of the 2 Valve photocells and the Valve stepper motor wiring
945	TINTING_PUMP_PHOTO_INGR_READ_DARK_ERROR	The Tinting Pump engagement photocell has not been engaged after movement for engagement of a circuit at the beginning of Recirculation or of a Dosing	Check operation and wiring of the engagement photocell

Error code	Error detected	Error description	Resolution of the problem
946	TINTING_BRUSH_READ_LIGHT_ERROR	The Brush HOME photocell is not engaged during movements for machine Reset, or during a Tinting Table movement, or during a Cleaning process	Check operation of photocell, brush DC motor and the motor wiring on MMT board
947	TINTING_BAD_PARAM_CLEAN_ERROR	The Cleaning process parameters are incorrect as found during machine Reset	Check Cleaning process parameters and, if necessary, send them again with “DIAG_COLORANT_ACTIVATION_CLEANING” command
948	EEPROM_TEST_ERROR	EEPROM operation test performed at Machine reset failed	Try again and, if the problem persists, replace the MMT board
984-1007	C”X”_TURN_TABLE_MISCMATCH_POSITION_ERROR, where “X” = 1..24	The circuits detected at the end of the Tinting Table Homing do not coincide with those found by the Self-Learning and stored in the MMT board EEPROM, or the positional tables of at least one circuit found in the two directions by the Self-Learning differ by a quantity in steps > of the tolerance set in the Table parameter configuration command, or the positional table of at least one circuit found by the Self-Learning differs from the theoretical value of a quantity in steps > of the tolerance set in the Table parameter configuration command, or incorrect matching between the positional table found in the Self-Learning and the colorant configuration set in the software	Verify Tinting Table photocell operation. Repeat the Self-Learning procedure, verify that the circuits physically present on the Table coincide with those set in the software configuration page, increase the Tolerance on the positions of the circuits and postpone the Tinting Table parameter setting command
1035	ROLLER_TIMEOUT_MOVE_ERROR	The movement of the Roller Conveyor or Lifter has not been performed within the specified Timeout	Verify the operation of the photocell controlling the end of movement
1036	DOSING_ROLLER_OPEN_LOAD_ERROR	No load on the output that controls the Dosing Roller Conveyor	Verify the connection and wiring of the Dispensing Roller Conveyor Motor on the MMT board
1037	INPUT_ROLLER_OPEN_LOAD_ERROR	No load on the output that controls the Input Roller Conveyor	Verify the connection and wiring of the Input Roller Conveyor Motor on the MMT board
1038	UNLOAD_LIFTER_ROLLER_OPEN_LOAD_ERROR	No load on the output that controls the Unloading Lifter Roller Conveyor	Verify the connection and wiring of the Unloading Lifter Roller Conveyor Motor on the MMT board
1040-1063	C”X”_ TINTING_VALVE_HOME_BACK_ERROR, where “X” = 1..24	The Open Valve photocell is not engaged when it should be engaged in Dosing and Recirculation processes that involve “x” circuit	Check operation of Open Valve photocell and its connection to the MMT board
1064-1087	C”X”_ TINTING_VALVE_1_POS0_READ_LIGHT_ERROR, where “X” = 1..24	The valve HOME photocell is not engaged when it should be engaged in Dosing and Recirculation processes that involve “x” circuit	Check operation of Valve HOME photocell and its connection to the MMT board

Error code	Error detected	Error description	Resolution of the problem
1088-1111	C"X"_ TINTING_PUMP_PHOTO_INGR_READ_ LIGHT_ERROR, where "X" = 1..24	The Tinting Pump Coupling photocell is in a wrong status: it is not engaged when it should be engaged in Dosing and Recirculation processes that involve "x" circuit	Verify Pump and Pump Stepper coupling photocell operation. Verify the Pump characteristic parameters sent with the specific command
1112-1135	C"X"_ TINTING_PUMP_PHOTO_INGR_READ_ DARK_ERROR, where "X" = 1..24	The Tinting Pump Coupling photocell is in a wrong status: it is engaged when it should not be engaged in Dosing and Recirculation processes that involve "x" circuit	Verify Pump and Pump Stepper coupling photocell operation. Verify the Pump characteristic parameters sent with the specific command
1136-1159	C"X"_ TINTING_VALVE_2_READ_LIGHT_ERR OR, where "X" = 1..24	In Recirculation or Dosing processes that involve the "x" circuit, the Open Valve photocell is not engaged when it should be engaged	Check operation of the Open Valve photocell and the Valve stepper motor wiring
1160-1183	C"X"_ TINTING_VALVE_2_READ_DARK_ERR OR, where "X" = 1..24	Valve closed before Dosing that involves the High Resolution "x" circuit	Check operation of the 2 Valve photocells and the Valve stepper motor wiring
1184-1207	C"X"_ TINTING_TABLE_VALVE_MOVE_ERRO R, where "X" = 1..24	The Tinting Table photocell is no longer engaged during a process in which Valve movement occurs when the "x" circuit is engaged	Check positioning and hardness of the valve selector of the "x" circuit engaged
1000	SCALE NOT RESPONDING	The scale is not connected to the machine	Connect a scale to calibrate it, or disable the scale Device within machine configuration in Admin mode

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