

D-MOTION SINGLE COLOR G4

MANUAL

DIGITAL PIEZO DOD INKJET

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D-MOTION SINGLE COLOR G4 | DIGITAL PIEZO DOD INKJET

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IDENTIFICATION

D-MOTION SINGLE COLOR G4 | DIGITAL PIEZO DOD INKJET



Manufacturer

AMACO GmbH
Dornbirner Str. 19
6890 Lustenau / Austria
www.amaco-solutions.com

Model

D-MOTION SINGLE COLOR G4

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All rights reserved.

Exclusion of liability

We have checked the contents of this document for compliance with the hardware / software described. Nevertheless, deviations can not be ruled out, so we assume no liability for the complete agreement. The information in this publication is reviewed regularly and necessary corrections are included in subsequent editions. Suggestions for improvement are welcomed.

AMACO reserves the right to make technical changes without prior notice.

TECHNICAL DATA

D-MOTION SINGLE COLOR G4 | DIGITAL PIEZO DOD INKJET

MODEL	D-MOTION 15	D-MOTION 20	D-MOTION 25
Print Technology	DOD Piezo Inkjet	DOD Piezo Inkjet	DOD Piezo Inkjet
Print Length max.	400 mm	500 mm	600 mm
Print Widht max.	280 mm	280 mm	280 mm
Print Resolution max.	360 x 360 DPI	360 x 360 DPI	360 x 360 DPI
Print Head max.	4 [depending model 1 - 4]	4 [depending model 1 - 4]	4 [depending model 1 - 4]
Top Web max.	420 mm	520 mm	620 mm
Weight max.	110 kg	120 kg	130 kg

Number of cycles / min max. [Intermittent motion] Up to 20 step / minute depending web length

Number of lanes along printing width According to the packaging machine die-set

Supply voltage 220 / 240 V - 50 / 60 Hz

Input power 0.6 KVA

Air consumption Approx. 40 L / hour [60 L. x XP]

Print format Totally free area edited by software

Data transfer slot USB and Ethernet.

Kind of objects & code printables Standard text with true type font
Logos and graphic objects
Linear and bidimensional bar codes

Operator data input | variable data Yes

SAFETY NOTES

D-MOTION SINGLE COLOR G4 | DIGITAL PIEZO DOD INKJET

Main AMACO goal is to produce inkjet-printing systems with high quality and performance standards. To achieve this goal our company is dedicated to establish severe checks during the production and assembling of the final product. Guidelines in this section must intended to be provided as recommendations for the operators and technicians in order to maintain and work with the equipment without risk. General recommendation is to read and understand carefully this chapter in its entirety before start any activity with the printing system.

D-MOTION SINGLE COLOR G4 printer is designed for power supply systems at 230V 50-60 Hz. Connect the printer module only to electrical line with a ground contact.

Before connect or disconnect any connections, switch off all devices involved. Operate the printer in a dry environment only and do not get it wet [sprayed water, mist, etc.].

Carry out only the actions described in these operating instructions. Only trained staff or service technicians should perform all the tasks explained afterwards.

Security advices



Warning: Identifies a possible danger that could lead to serious bodily injury or even death if was not taken sufficient precautions.



Information: Identifies action that must be understood carefully before to operate.

Note: Identifies additional information that helps staff to work better with this system.

Operating conditions

Before starting operation and during any operation must be observed the following operating conditions to guarantee safe and interference-free service of our devices. Therefore, please read carefully these operating conditions.

Shipment and storage of our devices is allowed only in their original packing. Installation and initial operation of printer module is allowed only if operating conditions were fulfilled. Initial operation, programming, standard operation, cleaning and service of our printer are only recommended after careful study of our manuals.

Use and operating actions of our printer is allowed only by trained people.



Use only original spare and replacement parts.



Perform training regularly.

Security Guidelines



Read carefully and understand what is contained in the MSDS [Material Safety Data Sheet] for your specific application.

For every type of ink or purging primer to be used with the system, a safety datasheet must be present, read and understood by the operators before start using it. A copy of the MSDS should also be stored in a nearby location if you plan to stock a large amount of fluids in your production plant. A MSDS copy is attached to every ink or primer order: please check if the correct fluid is being sent and if the MSDS refers to the actual product shipped. In case the MSDS is not contained in the shipment, you can request a copy to the supplier AMACO stating the order number.



Avoid breathing the ink vapors.

Some ink types are irritant for the health, so take adequate precaution when handling ink bottles or where you get in contact with free ink, for example in the nearby of every print head ink nozzle plate. If inhalation succeeded please contact immediately a medical structure.



Avoid direct ink contact without skin protection.

Wear adequate protection to protect skin where exists the risk to get in contact with ink irritant composition, or the specific procedure may lead to contact with it. If contamination succeeded please contact immediately a medical structure in your location, and provide the necessary information about the substance [see MSDS sheet].



Apply your local rules to safely dispose the ink containers or exhaust ink.

Every ink container or ink residual, from normal use or as result of a purge procedure, must be disposed following your local rules. Never dispose the containers or the ink in the public water distribution system or toilet places. For any doubt please contact your local special product disposing agency.



Store all the consumable articles in a controlled area.

Some fluids like ink or purging primer are potentially dangerous. Ink and primer fluids also have an expiry date and relative humidity sensitive. Store them in a dark closed space and check periodically for the turnaround.



Avoid direct contact of the ink without eyes protection.

Do not operate the printer in a way to fire ink in the direction of eyes. This may leads to severe eyes injury.



High voltage danger.

Unplug the system power cord before accessing any internal site of the syste



Do not remove the safety locks and warning placards on the system.

Removing, altering or obstructing of security advice is strictly forbidden in any way and for any reason. Failing to do this will results severe injuries to operators in case of accident, and will void any supplier responsibility.



Do not smoke during the system operation.

During system normal operation some ink vapors may be generated and dissolved in the air. Explosion and/or flame generation risk exists, and must be absolutely avoided. Avoid to smoking in the locals dedicated to ink storage and disposal area.



Avoid touching the print heads nozzle with any object.

The accidental contact with the print head nozzles may lead to a print head damage resulting in less quality and/or missing firing bands of the print heads. Also avoid working with metallic tools in the print heads nearby, as this may lead to electrostatic discharges and/or electrocution. High voltage is used to drive the print heads.

DESCRIPTION

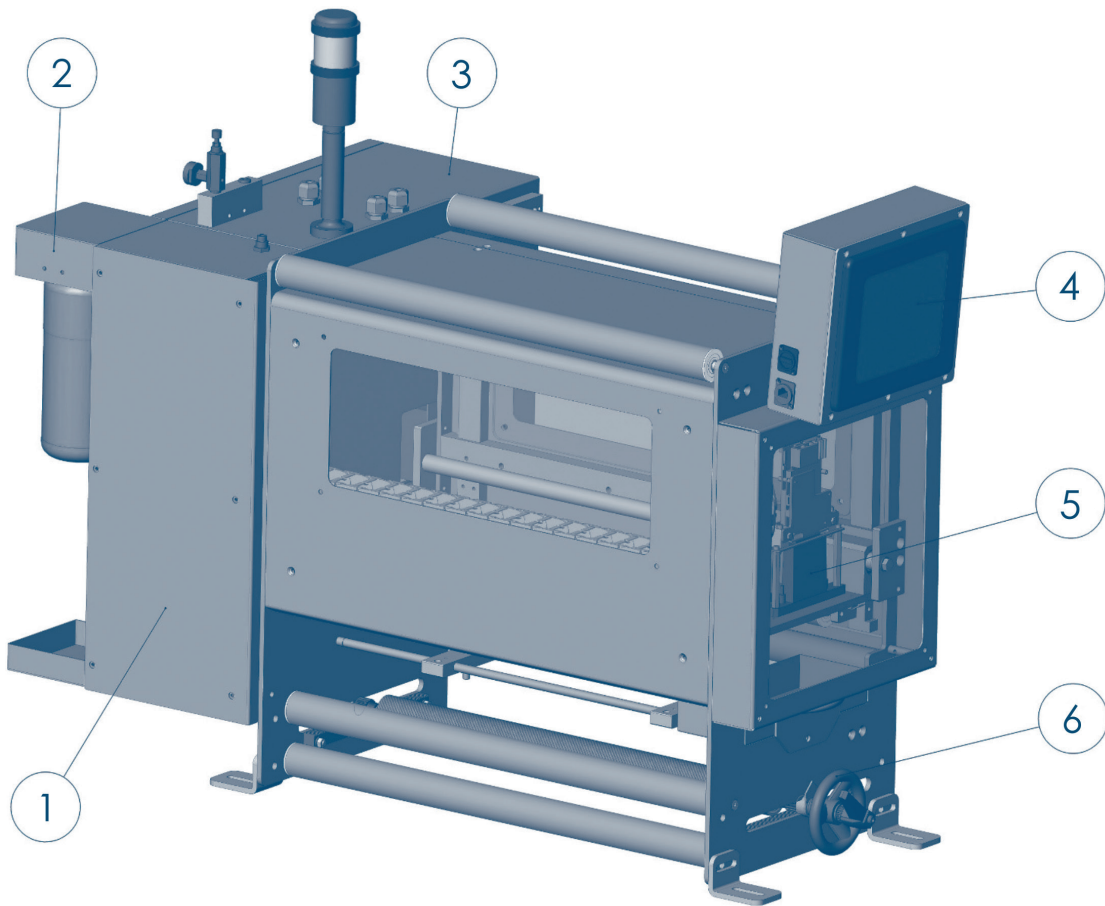
D-MOTION SINGLE COLOR G4 | DIGITAL PIEZO DOD INKJET

D-MOTION SINGLE COLOR G4 printers are modular systems that can be configured to fit a wide variety of applications. Depending on the number and type of components, we can define some major models. It is also possible to customize the printer in number and type of components to fit custom applications, after discussing with AMACO technical department.

Technology

MODEL	D-MOTION 15	D-MOTION 20	D-MOTION 25
Print Technology	DOD Piezo Inkjet	DOD Piezo Inkjet	DOD Piezo Inkjet
Print Length max.	400 mm	500 mm	600 mm
Print Widht max.	280 mm	280 mm	280 mm
Print Resolution max.	360 x 360 DPI	360 x 360 DPI	360 x 360 DPI
Print Head max.	4 [depending model 1 - 4]	4 [depending model 1 - 4]	4 [depending model 1 - 4]
Top Web max.	420 mm	520 mm	620 mm
Weight max.	110 kg	120 kg	130 kg

Overview



1. Hydraulic box with control system for piezoelectric printheads.
2. Ink bottle holder.
3. Main electrical cabinet with logic and connections management.
4. Touchscreen Panel PC panel for checking printer functions.
5. Mobile print head bringing printheads and electronic boards.
6. Adjusting roller for print layout longitudinal setup.

INSTALLATION

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Following instructions must be intended as the standard procedure for installing the printer on the packaging machine, where it is not expected an installation work provided by AMACO.



To perform these instructions you must follow, for the whole time of the operation, the general safety rules of your State or community.

In order to do a more efficient job and to avoid as much as possible the risk of damage, these instructions must be executed by at least two (2) people, operating simultaneously.

For no reason and in no form AMACO can be considered responsible for any damage to the system or injury to personnel working on the system.

Packaging

Please keep in contact with the supplier if the package presents exterior damages or liquid stains dropping out from the package. Maximum attention was taken while packing the content to minimize the risk of damage to the content, but an unfortunately damage can even occur during transportation overseas.

Use short blade cutting tools.

Inside the package as part of the final product, some plastic tubes can be damaged by cutting tools. Pay attention to avoid such ink tubes.

Don not turn upside-down or roll the package.

The machine has some ink tanks communicating with open air. During the package opening you may notice some ink/solvent smell. That is normal due aforementioned reason, especially if the transportation taken a long time or the package was left under the direct warming of sun. If such the case, please vent the package appropriately before proceeding further in unpacking the machine.

Follow the safety precautions below.

We recommend to wear protective garments while unpacking and handling the machine such as:



Protective gloves: Ink contained in the machine may be irritant when comes in contact with skin. Protect your skin with safety gloves while handling the machine.

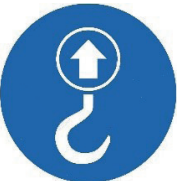


Lab coat: Inks contained in the machine are very difficult to remove when spotted over coatings or garments. We recommend using appropriate lab coats or similar work garments to avoid damaging your dresses.



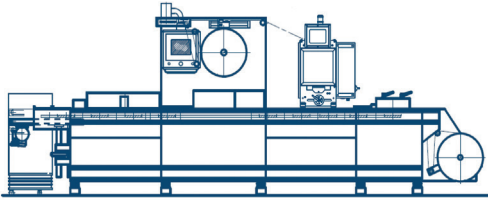
Safety shoes: The complete machine dry weight is about 100 kilograms. Even if the complete machine is a solid one-piece hardware, a screw may be loosen during transport resulting in some piece of hardware detach from main assy. We recommend using safety shoes and at least two operators to handle the machine while extracting from the package and installing on final destination.

ATTENTION:
After internal tests,
we prepare the printer for a correct and
safe transportation.
For no reason and in
no way can AMACO
be held responsible
for the status of the
received goods from
a third-party supplier.

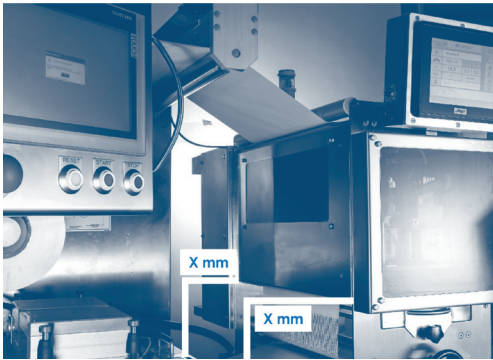


Lifting system: The total dry weight of the machine is over 100 kilograms. It is advisable to use an adequate lifting system when the machine is moving through extraction from the package, and during installation at the final destination.

Mechanical assembly



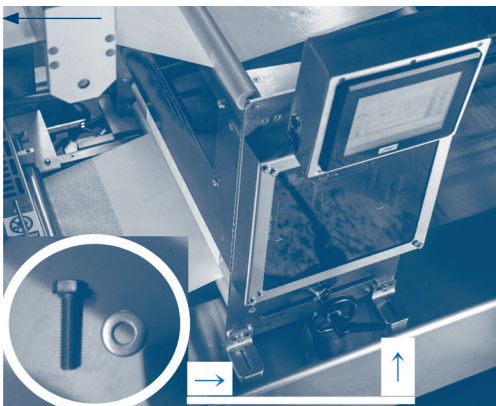
As a general rule, the printer must be installed in accordance with the specifications of the packaging machine, verifying its position and assembly with the layout provided. The standard fixing features four M8 threaded holes in the dedicated area for printer installation.



Pay particular attention to the printer parallelism with packaging machine. It is recommended using the sealing station as a reference. It may be helpful to use a level to get a more satisfactory result.



Place the printer to the absolute center of the packaging machine as possible, in the way the center of the film will scroll more accurately to the center of the printheads.



Install the printer to the packaging machine by 4 M8 screws, matching the holes made previously. It is suggested to use the slots to optimize the printer alignment respect the film unwinding and to the packaging machine longitudinal axe.

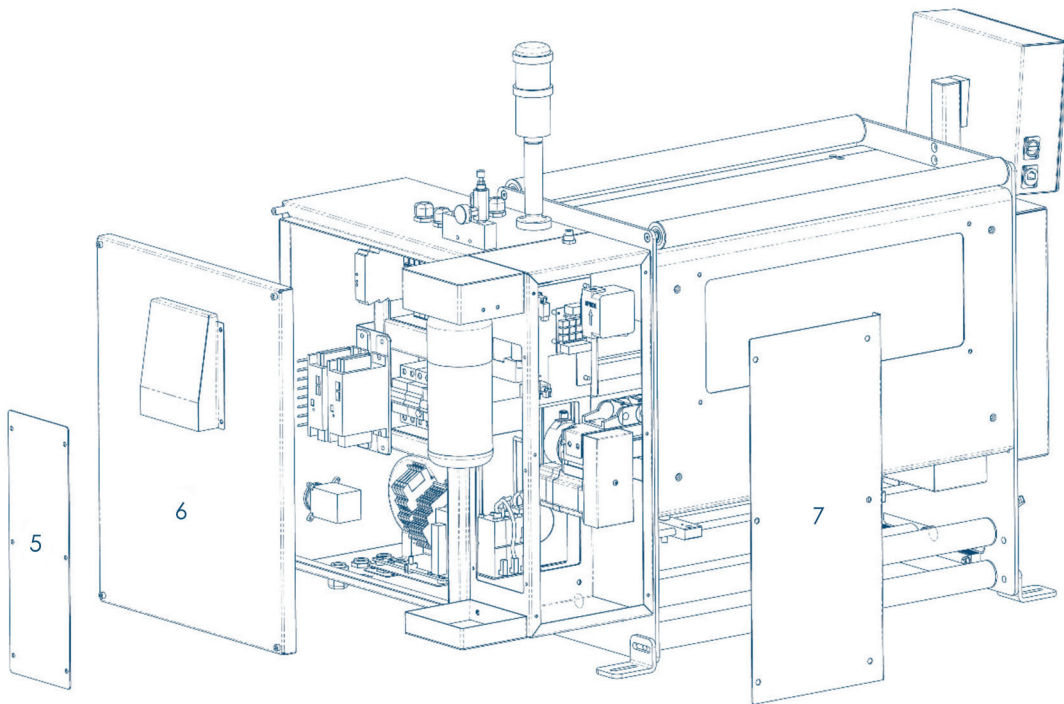
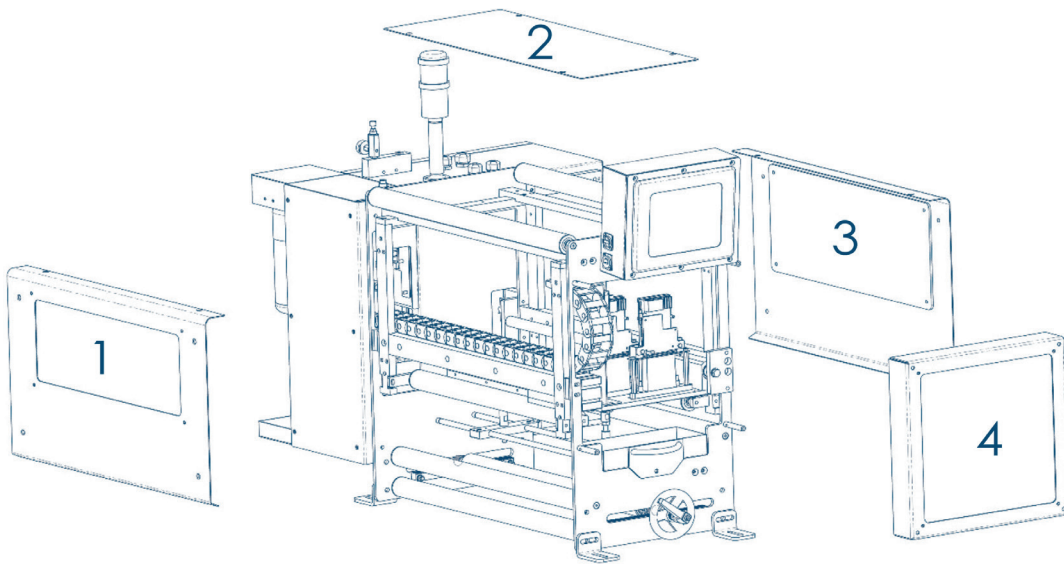


Isolate the printer from any source of electricity. Stand next to the printer in a secure location, in stable equilibrium with the space you need to able to operate.

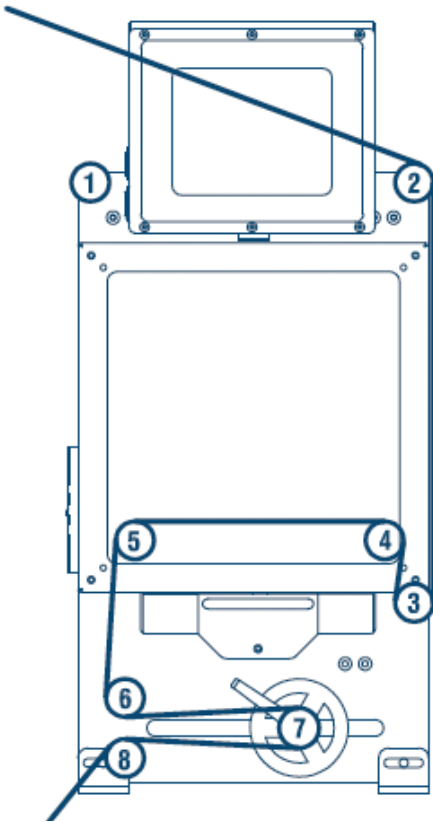
To obtain best accessibility during the installation works, provide the cover and protections opening as shown in the next figures. At this moment the following are necessary:

1. Front cover
2. Hydraulic box
3. Electrical cabinet

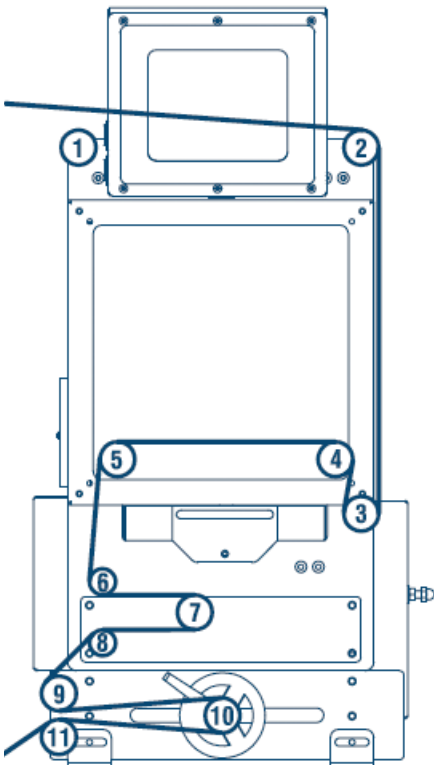
Store the protections in a dedicated place that allows operations safely.

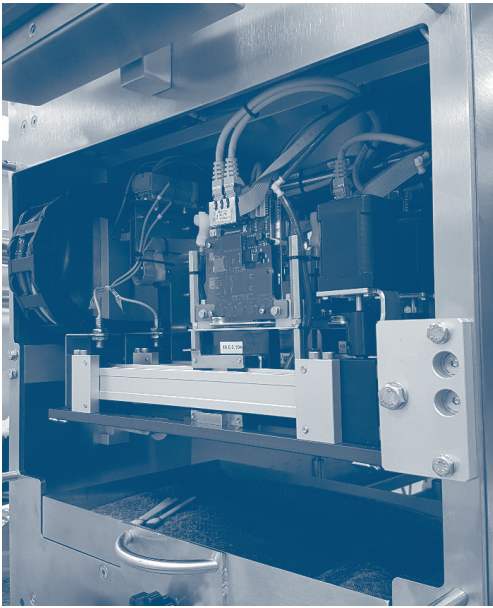


Film feed: To apply the correct film passage, refer to the label pasted on the operator panel side.



Film feed with double index system: To apply the correct film passage, refer to the label pasted on the operator panel side.





To preserve the good state of the most sensitive components, we fix the printheads plate on the short side. Before the first startup, remove the cable tie that blocks the print head.



Remove the hydraulic box covers [Picture 3.2.7 n° 5 and 7] with Ø 3mm Hex Key to access the ink tanks. To avoid ink lost during transportation, we move completely down the tanks position. Before the first startup, place the support plates up to the maximum height level.

Electrical connection

All electrical connections must be executed by following the technical diagrams specific to the printer model you are installing.

All electrical connections must be performed in accordance with general safety rules of your State or community, under the supervision of an AMACO technician or a person trained by AMACO.

AMACO will not be responsible for any unsafe or unstable connection that could lead to a malfunction or damage for people or to the system.



Provide a right level of protection [EMC]:

Some system cables operate at high voltages. If you need a replacement of such cables, please use, when possible, shielded cables; to provide adequate protection from noise and isolate by RF emissions (radio frequency).

When available, the cables with quick-release pins are designed to allow the plug-in only in the correct direction, avoiding polarity reversals or incorrect entries. It is the customer's responsibility to ensure these cables a good state of maintenance and avoid contact with liquids.

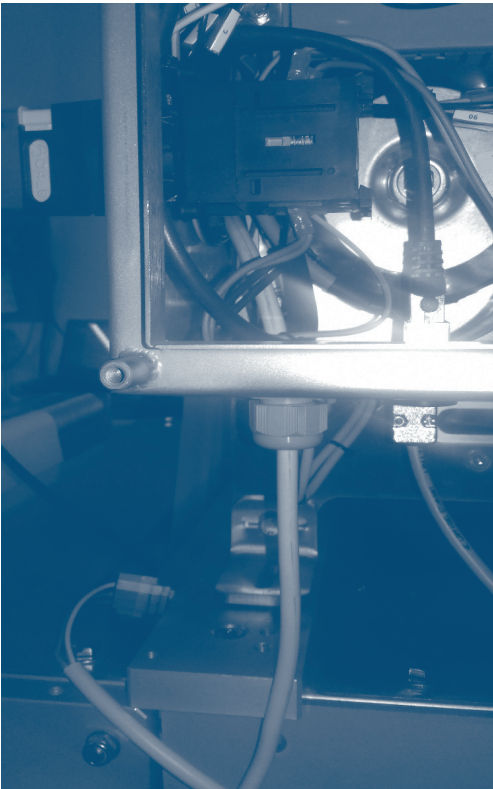
In case of visible damage, rust or cut cables, proceed immediately to replace them. Please contact the AMACO technical office for more details about your order of original spare parts.

The printer is arranged to work with an external system, receiving input signals and sending output signals. The voltage of these signals is always 24V DC, unless otherwise specified. This voltage is delivered by the power supply installed in the electrical cabinet [refer to the electrical diagram of your printer model].

Unscrew the M6 screws to remove the electrical cabinet cover panel [Picture 3.2.7 n° 5 and 7].
Connect the power cord to an electrical power source.

Is suggested to use a switch or a fuse dedicated to the printer, placed within the packaging machine. If not available, it is recommended to implement it. If this is not possible, connect directly to the supply of the packaging machine.

The printer must be supplied with 230V AC, unless otherwise specified. In every printer, voltage and other required values are stamped on the identification plate.



Unscrew the M6 screws to remove the electrical cabinet cover panel [Picture 3.2.7 n° 5 and 7].

Connect the power cord to an electrical power source. Is suggested to use a switch or a fuse dedicated to the printer, placed within the packaging machine. If not available, it is recommended to implement it. If this is not possible, connect directly to the supply of the packaging machine.

The printer must be supplied with 230V AC, unless otherwise specified. In every printer, voltage and other required values are stamped on the identification plate.

ATTENTION:
Connect the printer signal cable to the packaging machine (pay attention to every different packaging machine model).
The printer can provide various synchronization signals. They are explained in the next page. Not all of them are present in the standard signal cable.



INPUT SIGNAL

Print start: The first signal, as well as the only necessary, it is the print start signal, and it is advisable to set between 0.2 and 0.5 seconds.

Packaging machine status: Showed by packaging machine whether is carrying out operations in that instant. If active, it inhibit all printing operations.

Splicing tape: It allows to connect a sensor for detecting the film junction. When sensor runs, the print head will lift in the appropriate time to allow the film to go beyond the printheads. If not originally supplied by packaging machine, it is obtainable by connecting the sensors directly to the PLC input. For default is not present into the supplied signal cable.

Brake command: With this signal is possible to anticipate the film stop, increasing the paper tension at the time of „PRINT START“ signal. It is not present in the supplied signal cable, but it is possible to add it via distribution terminal, adding also an additional cable in the cable gland of electrical cabinet.

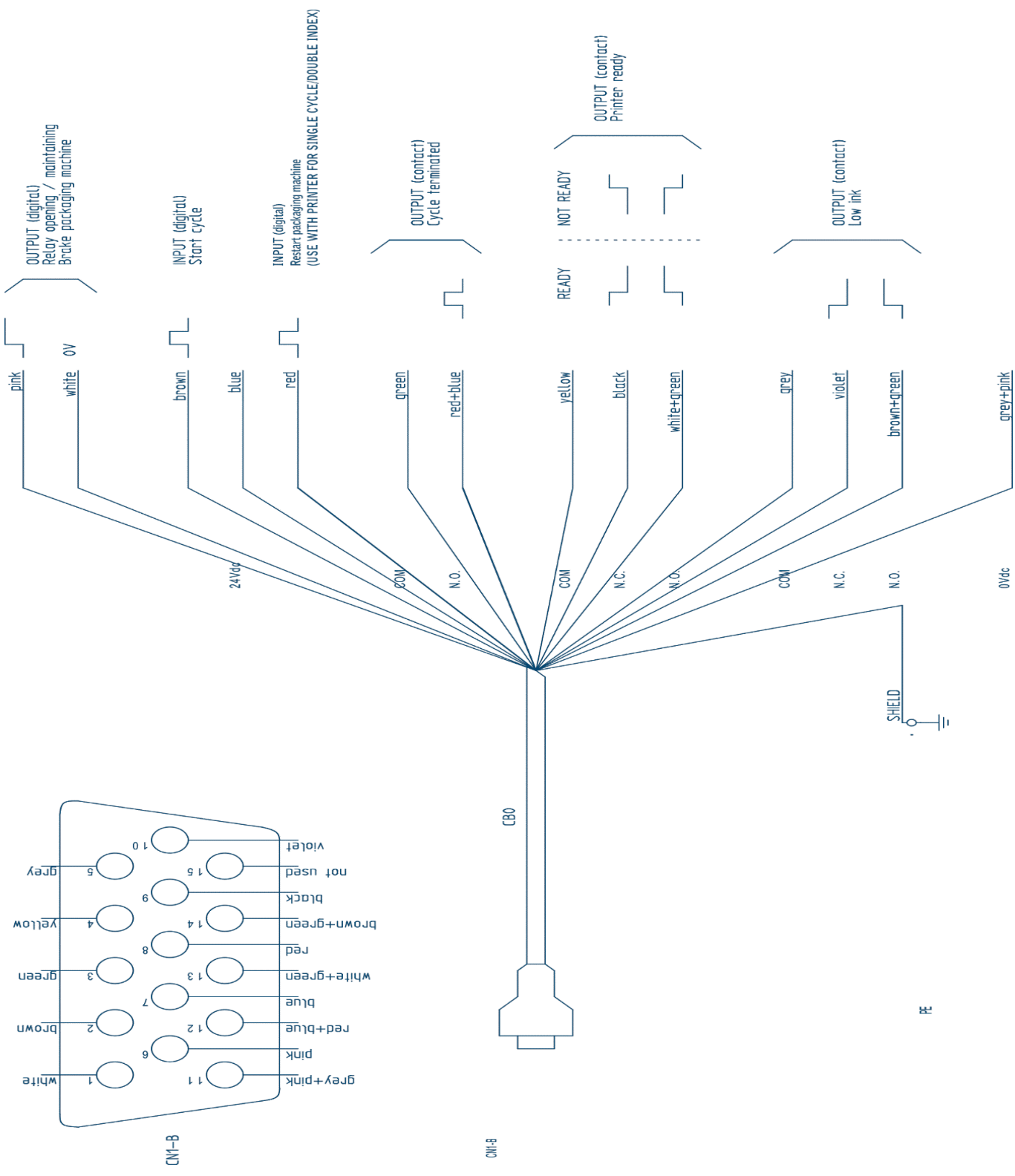
OUTPUT SIGNAL

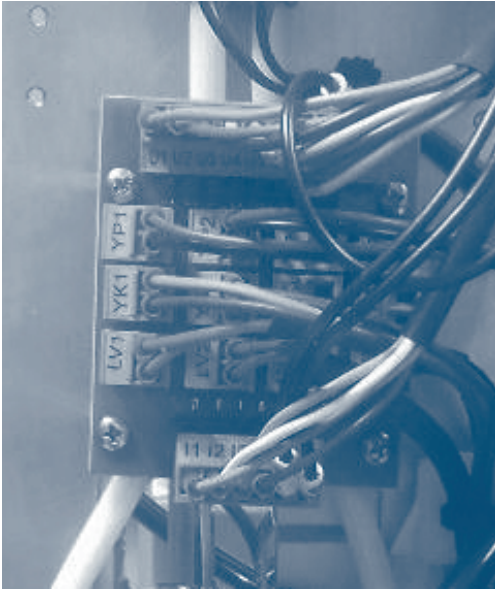


Print end: A dry contact that can be managed directly by packaging machine. Its purpose is to notify the end of the machine cycle and the following start of a new one.

Alarm: Generic alarm signal that alerts the packaging machine of a fault status of the printer and allows to halt the working cycle.

Ink reserve: Non-blocking warning signal, it is useful to use for example to activate audible reserve ink alarm or visual alerts.





Following the instructions of electrical diagram, plug all the connectors of derivation board, as in picture. It will constantly check the ink level into the tanks, managing also their alarms.

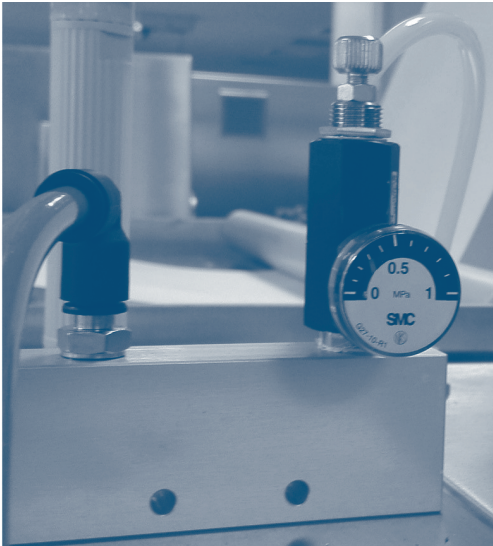


After checking that all connections and wiring are installed and fixed properly, (especially those lead to the electronic boards and to the printheads), activate all the switches inside the electrical cabinet. Finally, close the protective cover panel of electrical cabinet.

WARNING:
Never swap cables or reconnect them differently from their originally or previously connected origins.

Pneumatic connection

Connect the Ø 6mm tube of pressurized air coming from packaging machine to the correct inlet, positioned on the upper base of the electrical cabinet. Then setup the ink pump pressure as following:



0.2 Mpa << MN 2 >> 0.3 Mpa

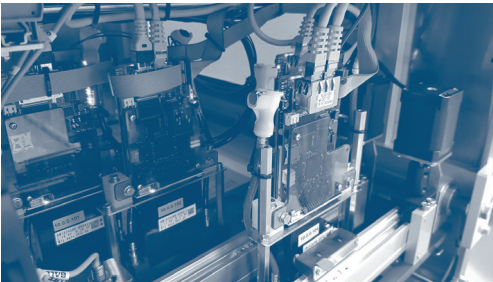


2 bar << MN 1 >> 3 bar

IMPLEMENTING

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Ink loading



If necessary, the ink pump could start automatically to restore ink level.

Otherwise, if the HMI panel shows the LOW INK level alarm, you can reset and restore by pressing on it.

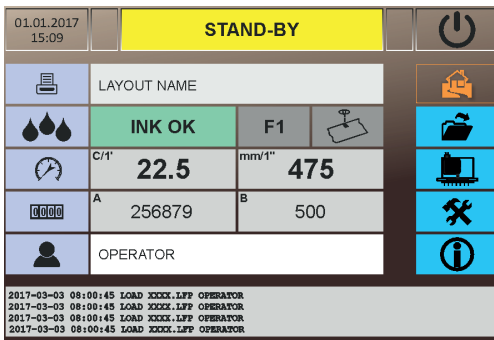
Once loaded on the printer, a specific ink color can not be changed, unless the complete hydraulic circuits will washing and drying (printheads included); and in every case after to the written approval of AMACO technical department.

After that is possible to remove immediately the ink bottle without restoring it, in the way to make the tanks empty and reach the INK FINISHED alarm soon.

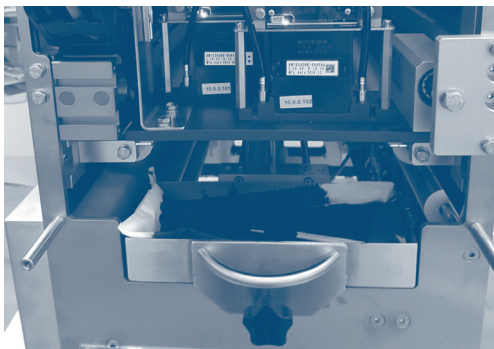
In this way the contamination of the old ink with the new one will be minimal.



Unscrew the bottle in the correct direction of rotation and replace the heat-shrink tubing placed on the needle: pay attention to escape of any drops of ink contained in the system. It is advisable to perform this procedure with the help of another person, used to dab the needle as soon as the sheath is removed from its seat.



In the event of first power-up the machine automatically restore the „NO LAYOUT“ status; alternatively the „STAND-BY“ status when there was a preloaded artwork.



Before start working on, make sure that the ink tray is positioned and fixed correctly to its seat.

Printheads alignment

Every printer is adjusted, during the internal tests, in terms of print delay [alignment] and overlap [stitching] for each printhead.

#	IP	⊕ ⊖	⊕ ⊖	V-L	V-R	⊕ ⊖	°C
1							
2							
3							
4							
5							
6							
7							
8							

Proceed by increasing or decreasing the value by pressing first the appropriate cell.

The alignment is located on the second column of the table, while the stitching on the third.

Because there are a very wide range of values, it is recommended to change the value at least dozens for dozens.

Finally, print the default pattern to check the adjustments made. The pattern is installed and always available on the hard disk of each printer.

It is recommended to carry out some printing proofs before proceeding with full pace of the system.



Starting situation [extremized]

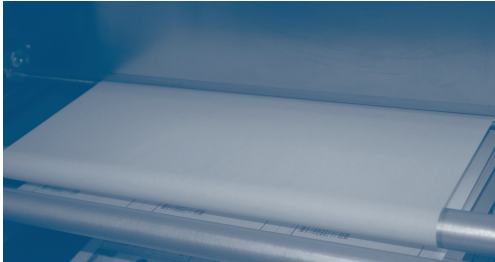


Optimal result

Print placement

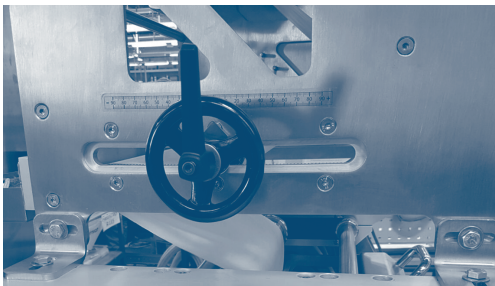
The printer is conceived, once a label was printed, for move mechanically the print done in case it is not satisfactory in terms of blister centering.

One of these three situations may occur:



Case A - White paper [without position mark]:

If the print is not longitudinally aligned in the correct way, take action by adjusting the step roller, setting a value of half of the offset desired. With a positive value the output will be early, while it will be delayed with a negative value.



Case B - Pre-printed paper with positioning mark but without mark detector:

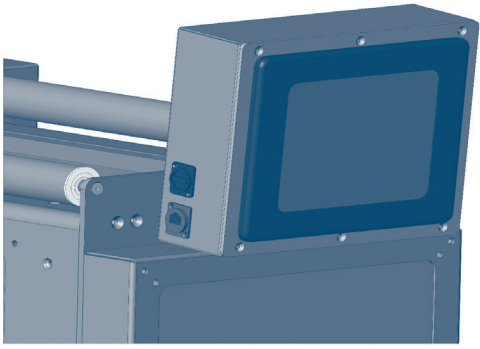
Set as above, remembering that when you change the position of the step roller (Picture 4.9.2) you need to change the position of the packaging machine photocell that handles the centering of pre-printed paper on the package.

Local network connection

All printer electronic components are equipped with a network card connected to the printer internal LAN, in this way we can communicate and check the status at any time during remote support sessions.

To connect the printer to your factory local network, provide a standard RJ45 ethernet cable and plug it into the socket on the printer, placed on the bottom of the electrical cabinet, identified by the words „EXTERNAL ETHERNET“ on electrical plan.

It may be necessary to use a ethernet cross cable in case you want to connect the printer directly to your PC.

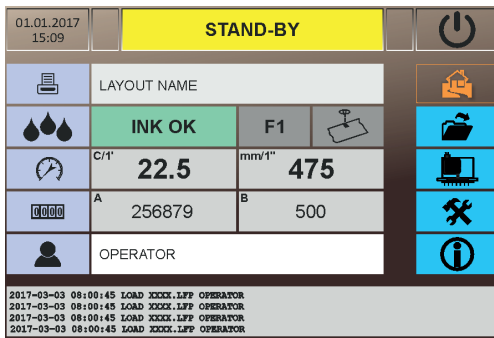


Note: You may need to contact your IT manager to obtain the data and the information required to communicate to the printer by local network. By default, the printer is setted with 192.168.0.150 as external IP address and 13001 as port.

CONTROL PANEL

D-MOTION SINGLE COLOR G4 | DIGITAL PIEZO DOD INKJET

General view



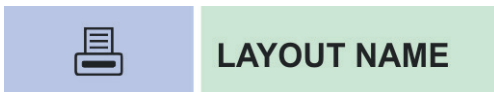
The HMI consists in a 8" touch screen panel. It starts automatically after the operating system load. The main screen shows the real time status of the printer and provides access to various menu.



Real time status of the printer



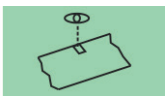
Stand-by / Restore run



Current artwork loaded with print preview [by pressing the icon]



Ink level, with 3 different colors:
Ink OK | Ink Low | No Ink



Photocell ON / OFF and other function pre-disposition.



C/1' 22.5

mm/1" 475

Speed counter

C/1`
Cycles per minute

mm/1"
millimeters of printed paper moved in a second



A 987654

B 500

Pieces counter

A
Total from beginning

B
Current artwork blisters



OPERATOR

User: Name of the active operator and login/logout functions (by pressing the icon).

```
2017-03-03 08:00:45 LOAD XXXX.LFP OPERATOR
2017-03-03 08:00:45 LOAD XXXX.LFP OPERATOR
2017-03-03 08:00:45 LOAD XXXX.LFP OPERATOR
2017-03-03 08:00:45 LOAD XXXX.LFP OPERATOR
```

Log: Log files with last 5 actions performed.



Artwork: Press to select a layout to print and for managing printer files.



Print head: It allows making the quick and most practice operation to improve print cleaning and quality, called "purging".

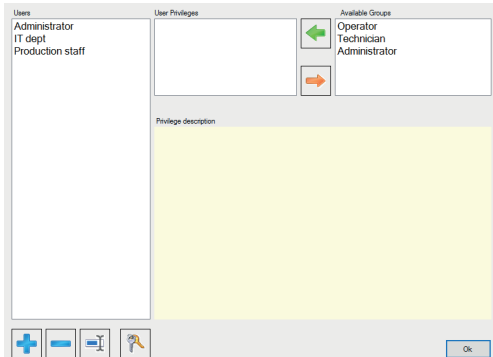


Settings: Provides access to the complete user interface menu, with parameters grouped by movement, hydraulics, print alignment and network connection.

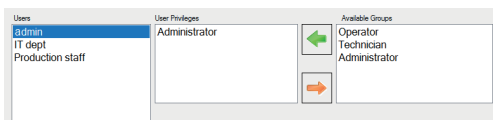


Information: It is contained all the information about system versions, input & output and counters.

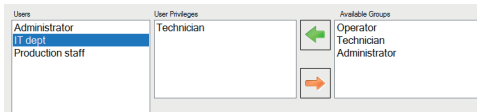
User



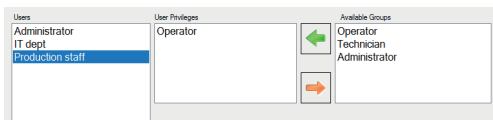
By clicking on the Users icon, the User Management window will shown. With the icons at the bottom of page, it is possible to add and remove users, rename them and changing their access password. There are three different user levels: Administrators, Technicians and Operators. Below a brief explanation of each: it is possible to ask AMACO the full version with the complete specifications.



Admin: Admins allows performing any admitted actions without restrictions, which means the complete access to labels, printer settings and user management.

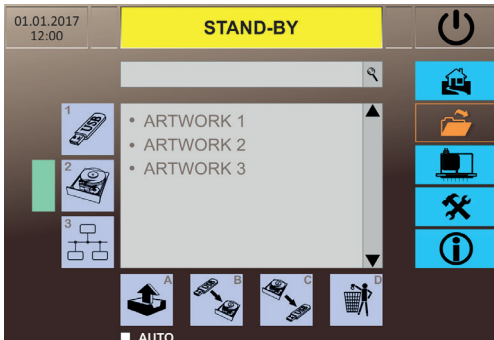


IT dept: Tech users are able to print labels (open menu and load them), confirm their variable data [if present] and manage their position on printing (by the offset and delay corrections).



Production staff: Operators are able only to select and print labels and to confirm their variable data if present.

Artworks



Main box: The main box shows the list of the files, easily to find by the upper search bar. (2) The printer can support thousands artworks, taking advantage of its SSD disk of many Gigabytes. It is possible to load them by USB pen drive (1) or find them in your network (3) just selecting the desired source. The Hard-disk source is the default choice. Once selected, the layout can be managed by the buttons located on bottom.

A: The button (A) allows the immediately loading and printing.

Auto: With the AUTO button is possible to load the artwork automatically at the next printer reboot.

B: Its usefulness is affirmed in all the cases in which the operator cannot be present in front of the machine, for example if the packaging machine is equipped with an automatic charger. Only if the USB source is selected, it is possible to operate with button (B), which admits the file copy on the printer disk. The artwork must located in the root directory of the USB drive; in case it is in a subfolder or have a not supported extension, will not be read by the system.

ATTENTION:
The copy will overwrite on the internal memory any existing file with the same name.

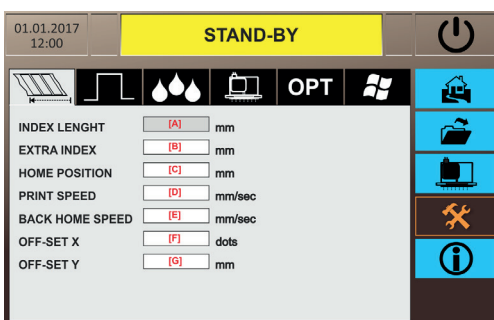
C: It is possible to carry out the copy also in the opposite direction. The artwork will saved in the root directory of the USB drive, and will overwrite any print file with the same name.



D: In order to delete an item in a data source (D), is necessary just a „double click“ on it. A green tab will activated, and now the click on the icon will proceed with the permanent erasing of the artwork.

ATTENTION:
permanent erasing
of the artwork.

Settings



A) Label length, information not editable.

B) Extra step when needed to cover print areas beyond machine index, anyway remaining in the end of the step limit sensor.

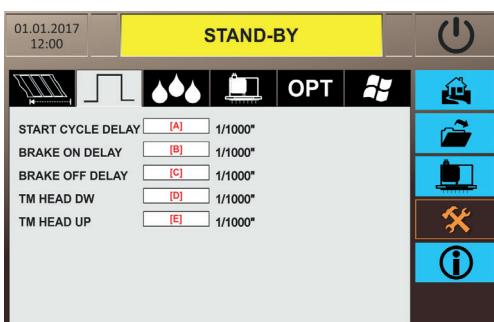
C) Starting and return position of translation.

D) Advancement speed, can be also optimized depending the drop size used.

E) Return speed, it is logical to keep equal or greater than the one in which the printing is done.

F) G) Delay of the printing in the cross and longitudinal direction.*

* Editing this value will add or remove a print area by editing the label margins .



A) Time delay to start run after receiving print start signal.

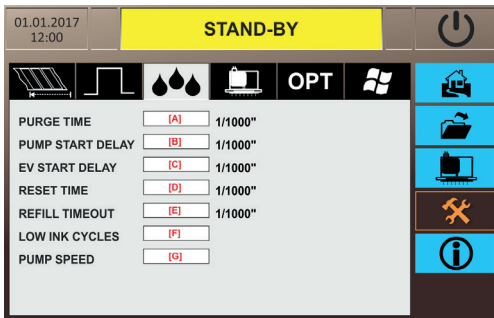
B) Time delay before activating paper brake.

C) Time delay before release paper brake.

D) Max. amount of time to push heads plate down (printing position)*

E) Max amount of time to release heads plate (standby position)*

* Available only for printers with fixed head plate



A) Default 2500 milliseconds: Time in which the pump is activated to increase the pressure and allow the ink to be released quickly from the printheads. An excess could lead to a premature term of the bottle and the consequent air entry into the hydraulic system.

B) Default 0 seconds: Delay of the air pump.

C) Default 500 milliseconds: Delay of the solenoid valve, that is activated after the working time of the pump. In this period the ink will continue to drop down with pressure gradually lower.

D) Default 2500 milliseconds: Rest of the time at the end of the operation in which the normal operating pressure will be restored naturally inside the tanks.




E) Default 5000 milliseconds: System waiting time before an eventually „NO INK“ alarm, in which the ink pump attempts to restore the ink level of the tanks.

F) Default 100: Countdown of printing cycles, inside a „LOW INK“ status, available for changing ink bottle without standby the machine and lost production. After this time, the machine will display the ink finished alarm, stopping the printing.




G) Default 3: Ink pump power to pull out ink from the bottle and refuel the tubes, in a range from 1 to 5.

Printheads

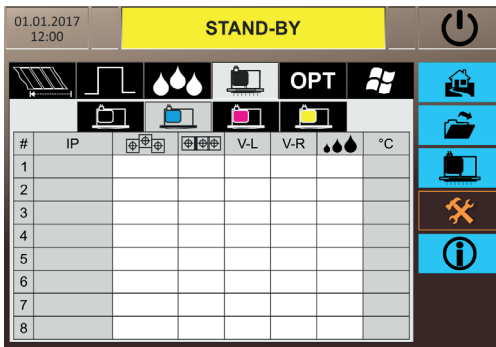
Every printer is already adjusted, during the AMACO internal tests, in each of these terms for an optimal printing. The drop size 2 (double drop) is defined as standard value. The item list includes:

IP	IP address [read-only]
	Alignment
	Overlap [stitching]
V-L	1. Voltage [left]
V-R	2. Voltage [right]
	Drop size [range 1 – 3]
°C	Temperatur [°C, read-only, where available]

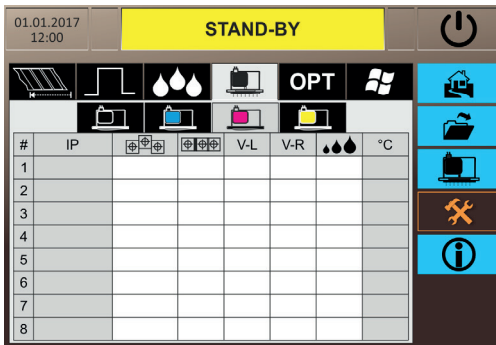
We provide the panel screenshots of the printheads table with empty fields. You can fill them with the current settings to get a backup copy in case of need.

01.01.2017 12:00		STAND-BY		OPT		°C	
#	IP			V-L	V-R		°C
1							
2							
3							
4							
5							
6							
7							
8							

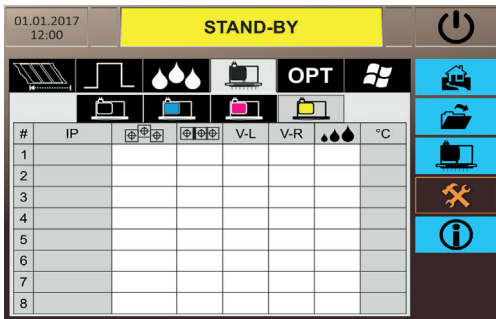
Color 1



Color 2

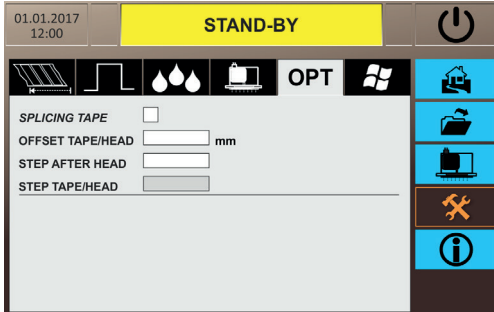


Color 3

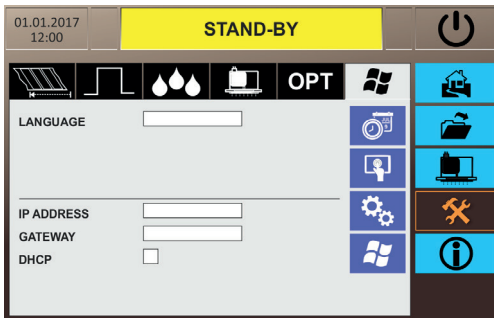


Color 4

Options



Tab-Options: D-MOTION printers have the possibility to save prints in case of paper splice. When "Splicing Tape" checkbox is active and the OFFSET was declared, the printheads plate will automatically lift up and the tape will pass below it; avoiding the risk of nozzle damages. This value is expressed in millimeters. With "Step After Head" field, it is also possible to jump printing for a certain number of machine step after the tape passage.



Tab-System: The last option tab is dedicated to change system language or set up the printer for an external network communication: for example, the transmission of artwork from your own desk and, not as last for its great benefits, for remote assistance.



Calendar: Adjustment of system date and time



Calibration: Recalibration of touch screen



Updates: HMI updates released from AMACO via USB key .



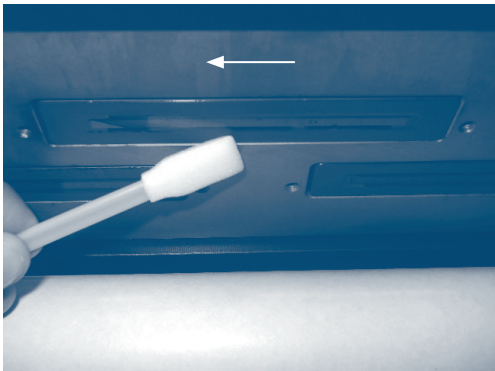
Windows: Exit to operating system, reserved for AMACO users.

STANDARD PROCEDURES

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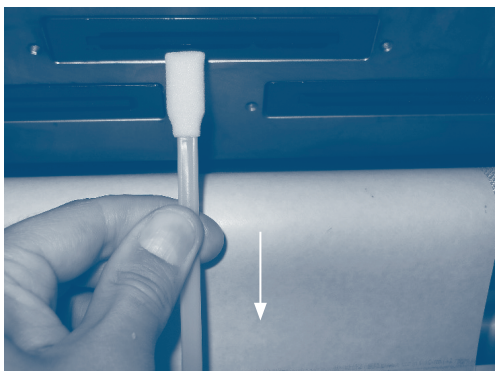
Printhead cleaning

If there are ink residues formed during the normal use of the machine or subsequently to a purge, follow these steps to clean the printheads involved.



Absorb with the swab the ink on the edge of the head, avoiding collision with the center of the same, wiping parallel to the nozzle pad position.

Perform a couple of print cycles and check the presence of thin lines. The best way to detect problems on printing is to print a full black print.



If you find the presence of one or more lines, dab the nozzles in the point corresponding the missing row, and move the swab externally in a transversal way respect the position of the nozzle pad. Alternatively, soak the swab with ink and dab the spot obstructed.

Perform a print test and, if necessary, repeat the previous step.

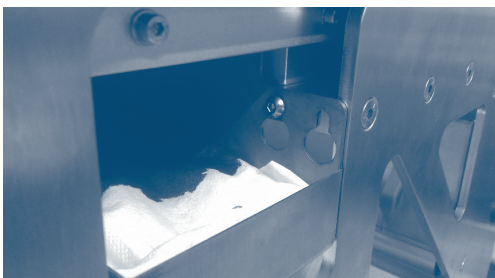
If the problem persists, it could be necessary to perform a complete nozzle purging procedure of the hydraulic system.

Nozzle purging

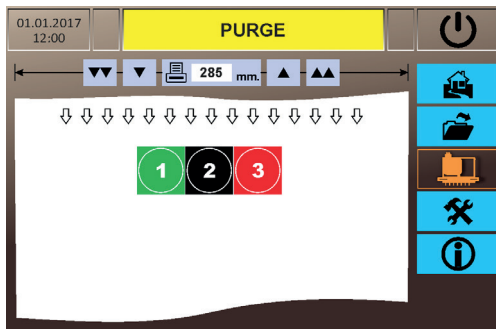
In case of many rows in various points of the printhead or one or more rows of great thickness, the normal dabbing operation may not be effective; in this case, air bubbles may be settled in the nozzle pad. This kind of situation will be solved by doing a purging operation of the nozzles, following the steps listed below.

01.01.2017 12:00	PURGE MODE		
	LAYOUT NAME		
	INK OK	F1	
	C/1" 22.5	mm/1" 475	
	A 256879	B 500	
	OPERATOR		
<small>2017-03-03 08:00:45 LOAD XXXX.LFP OPERATOR 2017-03-03 08:00:45 LOAD XXXX.LFP OPERATOR 2017-03-03 08:00:45 LOAD XXXX.LFP OPERATOR 2017-03-03 08:00:45 LOAD XXXX.LFP OPERATOR</small>			

Slide toward the outside, gently pulling with both hands, the handle of the printer head, until it reaches the stroke end, in the way the HMI panel detects the position and set the status on „PURGE MODE“.



Place the ink tray for the purging under the printheads by clipping it to opposite screws support.



Enter in the dedicated menu of HMI panel. Start the purge procedure by pressing the icon of the interested printhead to be purged.

Commonly in this situation, the ink pump could turn itself on, trying to restore the ink level in the tanks, which might have suffered a sudden fall. Generally if after five seconds these containers have not been filled yet, the panel will display the „INK LOW“ message. This is not an alarm message so was not indicating a problem in the system, and it is possible to reset by pressing this point on the panel, as long as it will show again „PURGE MODE“.



If the panel will display the „NO INK“ alarm, check the content of the ink bottle: in the event it is empty, replace it with a new one as described in the next chapter.

Ink bottle refill

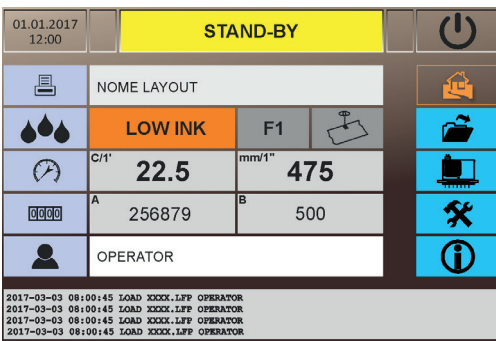
The printer was thought for avoiding production stops: this means the possibility to replace the ink bottle during the normal working shift.



Unscrew the ink bottle from its housing, rotating in a anti-clockwise direction.

Pay attention to the needle avoiding any contact with the liquid.

It is advisable to perform this procedure with the help of latex gloves.



In case of „NO INK“ status, finally it's possible to press on this button to reset the alarm.



The system is equipped with sensors that continuously analyze the ink level: if this will be inadequate, the warning „LOW INK“ message is displayed on the HMI panel; and in the meantime a yellow lamp will blink to advise the situation. Nothing change during production: if the ink level in the bottle is enough, the alarm will resetted automatically.



Low ink period: This period is ideal to perform the replacement of the bottle. Any machine stop signal will be sent now: the printer just starts an internal countdown of prints, and only after this deadline displays the „NO INK“ status. Generally this counter is set to 100, because is an average value in which there is the certainty to do the replacement in time.

TROUBLESHOOTING

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Hardware section

PROBLEM	SOLUTION
White line on the printing or bad quality caused by a seeming ink missing.	Purge the printhead corresponding to the problem, then wait at least for 30 seconds for let ink be absorbed. Then clean with the 'swab' be carefully not touching the nozzles.
Bad quality with ink present: no white line.	Make sure the paper/Tyvek has good tension, and the distance from the printheads nozzles is not too much [1-2 mm]. The tension of the paper does not depend by the printer, so please check the paper/Tyvek coil on the machine. Check the two roller below the carriage of the printer, that are responsible of the distance: restore the previous distance if necessary.
Layout not centered on the blister or his position not stable between different cycles.	The printer cannot change the position of the label. Make you sure that the position of the paper is constant, the same every cycle. If the paper stop in the same position each time, also the printer prints on the same point. In any case, if the variation of the position seems too much, check the belt and all parts involved for the carriage movement. Check also if all the roller are correctly fixed.
The printer is in „RUNNING“ state, but doesn't print running the machine.	This case means that the print command is not started from packaging machine or is not arrived to the printer. Check the connection of the 15 pins connector below the main electrical box, and also the connection to the printer in the packaging machine electrical box. Is possible to verify the coming signals looking at the corresponding PLC LEDs.
The carriage doesn't move or makes noises during the movement.	Check if something blocks the movement of the carriage and check the connection between the motor-drive and the motor. Check also the LEDs on motor driver: a red light means alarm. In this case restart the printer by main switch. If the problem persists contact the AMACO support.
Alarm „INK FINISHED“ persistent also after reset by HMI.	The printer is not able to refill the ink in at least one of the tanks. Probably the ink bottle is quite empty and must be replaced. Otherwise, could be other causes: the ink tube starting from the main electrical box could be obstructed; the ink valve that let the corresponding tank be refilled could not work. Checking the hydraulic circuit contained into the hydraulic box allows to see the actual ink level on each tanks, and the functioning of ink valves. Another cause could be the ink filter: could be obstructed, especially if you never changed in the last year.

PROBLEM	SOLUTION
When you try to purge a head, the ink doesn't flow.	It happens if the ink pump doesn't work correctly. If the ink pump runs, check the air valve corresponding the printhead that you want to purge. Generally when the air pump is broken, you can not purge any head. If only the air valve is broken, you are able to purge the others heads. There is the possibility that the problem could be generated by a disconnected wire. In any case you can make all these checks opening the hydraulic box.
The paper/Tyvek tends to go to one of the two sides of the packaging machine.	Check the rollers. May be one is not fix well and doesn't respect the parallelism with the other ones and with the machine.
Big white line on the print after many purging.	Though is very difficult to remove a white line on printing, there is only a little chance that the printhead is damaged. Maybe the air bubble is too big to remove only by a purging procedure. In this case it is necessary to start a cleaning cycle made with the right open tube mounted on the printhead. When you see the ink coming up on the tube, close it immediately and block it with a clamp. This operation let the bubble air to exit from the tube and not from the nozzles.
One head is not printing, but everything seems OK.	The continuous movement of the carriage could damage a cable or a tube inside the plastic chain that move following the carriage. In this case is necessary to replace the broken cable.
Drops of ink from the heads.	If one or more printheads lose ink from the nozzles, the position of the tank could be too higher. Please put their position downward.

Software section

PROBLEM	SOLUTION
Alarm „HARDWARE FAULT“	Means that at least one electronic board fails to start. Please reboot the machine waiting 30 seconds before switching on.
The printer does not load the label during „LOADING“ status	If the printer spends more than a couple of minutes to load the artwork, try to reload again. The medium loading time is around 45 seconds.
The printer does not load the label: „ERROR PROCESSING JOB“ status	You have some trouble in your artwork. Check, with LabelFarm labelling software, if some object shows problem. Generally, is enough to enter into the properties. When you will identify the failed object, remove and redo it.

PROBLEM	SOLUTION
„ INK FINISHED“	You donâ€™t replace the ink bottle in time. Please first replace ink bottle with a new one [is not necessary to switch off the printer], then press the „NO INK“ button on panel homepage until some ink reach the printheads nozzles.
Various artwork composition problems	Please refer to the appropriate AMACO document or send us the specific request.

COMPLIANCE

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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.
2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference. In such cases, the users will be required to correct the interference at their own expense. Shielded cables must be used with this unit to ensure compliance with Class A FCC limits. .

This equipment displays the CE placards to indicate conformance to the following European legislation:

Machine directive (2006/42/EC)

Low-Voltage Directive (2006/95/EC)

Electromagnetic Compatibility Directive (2004/108/EC)

EMC DIRECTIVE

D-MOTION SINGLE COLOR G4 | DIGITAL PIEZO DOD INKJET

All machinery and ancillary equipment supplied by AMACO are conform to EN and FCC standards which includes the necessary tests to ensure that the equipment supplied meets the requirements of the Electromagnetic Compatibility [EMC] Directive of the European Union and FCC rules CFR47 relating to electromagnetic emissions.

Under no circumstances should any of the equipment or any of its interconnecting cables supplied by AMACO be modified or altered in any way as this may result in the equipment no longer complying with the Directive and could leave the person or company making such modifications liable to prosecution from the authorities.

It is also a requirement of the EMC Directive that any other items of ancillary equipment that may be added to the products supplied by AMACO [e.g. sensors, connection cables, junction boxes and so on] during the normal course of an installation, should also be supplied and installed in accordance with the EMC Directive. The person or company supplying and installing these ancillary components or assemblies is responsible for ensuring such compliance and in the event of noncompliance, would be liable in the event of prosecution by the authorities.

It is strongly recommended that all personnel involved in the installation of equipment should be familiar with the EMC Directive and trained in the correct installation methods required to ensure compliance of their installation with the Directive.

The following guidelines intended to highlight the most important areas of good installation practice when installing the AMACO D-MOTION equipment but they are not intended to be a substitute for the installers own knowledge of the directive nor do they in any way assume responsibility for the actions of the installer of the equipment.