



DieTronic
lubrication system

***Operating Instruction
and
Maintenance
SAGOMA SERIES***

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Revisions Form

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Signature						

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The customer is responsible for ensuring that, if the present document is modified by the manufacturer, only the updated versions of the manual are actually present in the points of use.

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THE OFFICIAL LANGUAGE CHOSEN BY THE MANUFACTURER IS ITALIAN.
 We do not take responsibility for translations, in other languages, that do not conform to the original meaning.

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1. GENERAL INFORMATION

1.1 General notes on delivery

Things to check at receipt of machine:

- The delivery matches to order
- Without damages

In case of damages or missing pieces, please inform immediately Dietronic Srl, indicating all possible details. Complaints will not be accepted more than a week after receipt of the goods.

The catalogs and designs in this instruction are to considerate as general reference and doesn't have necessarily all technical details.

1.2 Purpose of instruction manual for use and maintenance

This manual was created to provide the user with general knowledge of the machine and to allow its use in safe conditions.

This Instruction Manual is an integral part of the quasi-machine and is intended to provide all the information necessary for:

1. The handling of the quasi-machine (packaged and unpacked in safety conditions);
2. The correct assembly of the quasi-machine;
3. Knowledge of the technical specifications of the quasi-machine;
4. In-depth knowledge of its operation and its limits;
5. An indication of the qualifications and specific training required of operators and maintenance personnel of the quasi-machine;
6. Carry out maintenance and repair operations, correctly and safely;
7. Technical assistance and spare parts management.

This document assumes that, in plants where the quasi-machine is destined, the current occupational safety and hygiene regulations observed. I The responsible manager is obliged, according to the regulations in force, to read carefully the contents are of this Instruction Manual and to have it read by the assemblers and maintenance technicians, for the parts that are relevant to them.

The instructions, documentation and drawings contained in this Manual are of a reserved technical nature, strictly owned by the Manufacturer, therefore, apart from the purposes for which it was produced, any reproduction, both integral and partial, of the content and / or format, must take place with the prior consent of the Manufacturer.

1.3 Conservation of the instruction manual

The Instruction Manual must be carefully preserved and must accompany the quasi-machine in all the steps of ownership that it may have in its life cycle.

Storage should be favored by handling it with care, with clean hands and not depositing it on dirty surfaces.

They must not be removed, torn or arbitrarily modified of the parts.

The Manual should be stored in an environment protected from humidity and heat and in the vicinity of the machine to which it refers.

1.4 Updating the instruction manual

The Manufacturer is only responsible for the instructions written and validated by the same (Original Instructions); any translations MUST always be accompanied by the original instructions, in order to verify the correctness of the translation. In any case, the Manufacturer is not responsible for translations not approved by the Manufacturer, therefore if an inconsistency is detected,

attention must be paid to the original language and eventually contact the Manufacturer's sales office, which will make the changes deemed appropriate.

The Manufacturer reserves the right to make changes to the project, variations / improvements to the quasi-machine and updates to the Instruction Manual without prior notice to the Customers.

However, in case of modifications to the Customer's machine, agreed with the Manufacturer and which involve the adaptation of one or more chapters of the Instruction Manual, the Manufacturer will send the Client the parts of the Instruction Manual involved in the modification, with the new global revision model of the same. It will be the responsibility of the Customer, following the instructions that accompany the updated documentation, to replace in all the copies owned the parts no longer valid with the new ones.

1.5 Safety rules

The quasi-machine was built in compliance with the Technical Standards listed below.

DIRECTION	Title
UNI EN ISO 12100	Safety of machinery - General principles of design - Risk assessment and risk reduction
UNI EN ISO 13849-1	Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design
UNI EN 1088: 2008	Safety of machinery. Interlocking devices associated with guards. Design and choice principles.
UNI EN 982: 2009	Safety of machinery. Security requirements related to systems and their components for oleo-hydraulic and pneumatic transmissions. Hydraulic fluid power.
UNI EN 953: 2009	Safety of machinery. Repair: General requirements for the design and construction of fixed and mobile shelters.
UNI EN ISO 13857: 2008	Safety of machinery. Safety distances to prevent the reaching of dangerous areas with the upper and lower limbs.
UNI EN 981	Hearing and visual danger and information signal systems.
UNI EN 983	Safety requirements related to systems and their components for oil-hydraulic and pneumatic transmissions.
CEI 445 (CEI EN 60204-1)	Electrical equipment of the machines part 1: General rules.

1.6 Essential Health and Safety Requirement

Essential Health and Safety Requirement		Applicability YES / NO	Compliance YES / NO
1 ESSENTIAL SAFETY AND HEALTH PROTECTION REQUIREMENTS			
1.1 General considerations			
1.1.1 Definitions		YES	YES
1.1.2 Principles of integration of security		YES	YES
1.1.3 Materials and products		YES	YES
1.1.4 Lighting		YES	YES
1.1.5 Design of the machine for handling purposes		YES	YES
1.1.6 Ergonomics		NO	NO
1.1.7 Work places		NO	NO
1.1.8 Seats		NO	NO
1.2 Command systems			
1.2.1 Security and reliability of control systems		YES	YES
1.2.2 Control devices		YES	YES
1.2.3 Goodwill		YES	YES
1.2.4 Arrest			
1.2.4.1 Normal shutdown		YES	YES
1.2.4.2 Operational stop		YES	YES
1.2.4.3 Emergency stop		YES	YES
1.2.4 Machine assembly		YES	YES
1.2.5 Selecting the command or operating mode		YES	YES
1.2.6 Failure of the power supply circuit		YES	YES
1.3 Measures to protect against mechanical hazards			
1.3.1 Risk of loss of stability		YES	YES
1.3.2 Risk of breakage during operation		YES	YES
1.3.3 Risks due to falling or projecting objects		YES	YES
1.3.4 Risks due to surfaces, edges or sharp corners		YES	YES
1.3.5 Risks due to combined machines		NO	NO
1.3.6 Results related to changes in operating conditions		NO	NO
1.3.7 Risks due to moving parts		YES	YES
1.3.8 Choice of protection against risks due to moving parts		YES	YES
1.3.8.1 Mobile transmission elements		YES	YES
1.3.8.2 Moving elements that participate in the processing		YES	YES
1.3.9 Risks of uncontrolled movements		YES	YES
1.4 Characteristics required for guards and protection devices			
1.4.1 General requirements		YES	YES
1.4.2 Special requirements for repairs		YES	YES
1.4.2.1 Fixed guards		YES	YES
1.4.2.2 Interlocked movable guards		YES	YES
1.4.2.3 Adjustable guards limiting access		YES	YES
1.4.3 Special requirements for protective devices		YES	YES
1.5 Risks due to other hazards			
1.5.1 Electricity		YES	YES
1.5.2 Static energy		YES	YES
1.5.3 Energies other than electricity		YES	YES

1.5.4 Assembly errors	YES	YES
1.5.5 Extreme temperatures	YES	YES
1.5.6 Fire	YES	YES
1.5.7 Explosion	YES	YES
1.5.8 Noise	YES	YES
1.5.9 Vibrations	YES	YES
1.5.10 Radiation	YES	YES
1.5.11 External radiation	YES	YES
1.5.12 Laser radiation	NO	NO
1.5.13 Issuing of dangerous substances	YES	YES
1.5.14 Risk of being imprisoned in the car	NO	NO
1.5.15 Risks of slipping, tripping or falling	NO	NO
1.5.16 Lightning	NO	NO
1.6 Maintenance		
1.6.1 Machine maintenance	YES	YES
1.6.2 Access to workplaces and intervention points used for maintenance	YES	YES
1.6.3 Isolation from power supply sources	YES	YES
1.6.4 Operator intervention	YES	YES
1.6.5 Cleaning of internal parts	YES	YES
1.7 Information		
1.7.1 Information and warnings on the machine	YES	YES
1.7.1.1 Information and information devices	YES	YES
1.7.1.2 Alarm devices	YES	YES
1.7.2 Warnings regarding residual risks	YES	YES
1.7.4 Instructions	YES	YES
1.7.4.1 General principles of drafting	YES	YES
1.7.4.2 Contents of the instructions	YES	YES
1.7.4.3 Illustrative and promotional publications	NO	NO
2 ADDITIONAL ESSENTIAL SAFETY AND HEALTH SAFETY REQUIREMENTS FOR CERTAIN MACHINERY		
Not applicable		

1.7 Warnings

Parts of the instructions, written in bold, refers to warning signals and shows proceedings that, if partially or total not observed, can cause injuries at the operator. This instruction is strictly reserved to the client in possession of the machine. The information in this instruction can be amended without previous notice.

The documents delivered with this machine, included this instruction, are property of Dietronic Srl, who reserve all rights. This instruction, total or partial or attachments, can't be reproduced in any way without permission from Dietronic S.r.l.

1.8 Identification of producer

Dietronic s.r.l.

Via Madre Teresa di Calcutta, 9/13

26866 - Sant'Angelo Lodigiano (LO) - Italia

1.9 Identification of machine

SERIES	<i>SAGOMA</i>
MODEL	<i>SAGOMA 2000 SLIM</i>
REGISTRATION NUMBER	<i>20241113</i>
YEAR OF COSTRUCTION	<i>2025</i>

1.10 Request for intervention and assistance

Dietronic s.r.l.

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1.11 Warranty

The supplied machine is guaranteed for 12 months from delivery date. This warranty, regards vices and defects arising from material, construction or processing, is conditioned at the denounce within 8 days from finding, excluding vices and defects that depends on not observing the instructions supplied, not adequate or bad using, overexploitation of machinery, tampering, changes or repairs made by the purchaser and using oils, cleaners or other inappropriate products. The guaranty is substantiated and runs out with free replacement, ex works. The labor costs (disassembly and re-assembly, or other), shipping and handling are charged to the buyer in connection to the risks noted. With the present he abdicated all claims for damages to persons or things which are result of the above-mentioned vices and defects. The buyer enjoy only the warranty of subcontractors of the seller for damages at electric machines, electric motors, ball bearings, manometers, seals, chains and other pieces not changed or not fabricated directly by the seller and give up every time all claims for damages that may occur also in the period of warranty.

The parts changed under warranty do not extend its duration in any case.

The warranty period starts from the delivery date of the machine.

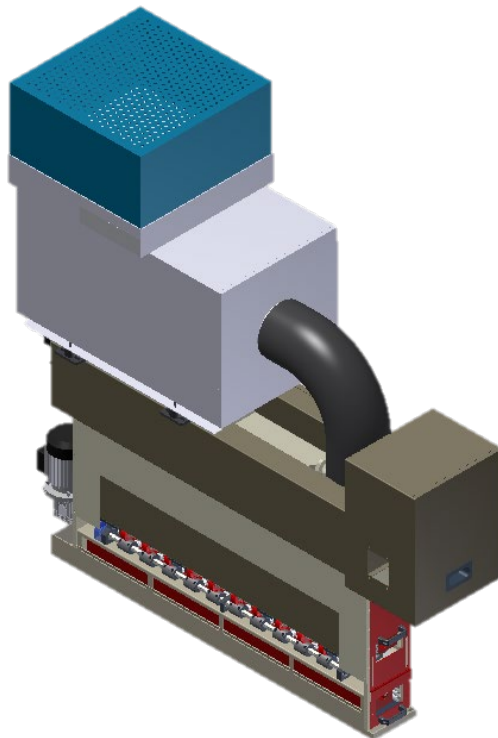
1.12 Safety requirements

- The terms used in these instructions to locate the different components of the machine, for example right, left, top, bottom and so on, always refer to the correct position of the operator during normal work. (in front of the machine).
- Before starting up the machine, the operator must read the present instruction and have acquired a deep knowledge of specific techniques and machine controls.
- It's recommended that the operator follows a course regarding the use of the machine.
- Before installing the machine, check that the dedicated area is compatible with the overall dimensions of the same.
- Do not allow unauthorized and qualified personnel to operate, adjust, or to conduct repairs. Refer also to this manual for appropriate action.
- Before cleaning and/or maintenance of the machine and before removing any protection, make sure the switch is OFF, to remove all electrical power to the machine during the intervention.

- The power system must be equipped with an automatic release system upstream of the overall machine and a suitable system grounding that meets all the requirements of industrial standards for the prevention of accidents.
- If you need to work on the main switch or in its vicinity, remove voltage from the line to which the switch is connected.
- The moving parts (rollers and gate protection) of the machine do not stop immediately after it is turned off. Before working on the machine, it is recommended to make sure that all moving parts have stopped.
- All inspections and maintenance operations that require the removal of protective security are carried out under the full responsibility of the operator. It is therefore recommended to perform these operations by a qualified and authorized technician.
- Check that all safety devices (fences, protections, guards, switches, etc.) have not been tampered with and that are fully functional before operating, otherwise arrange for their accommodation. Do not remove safety devices.
- Do not tamper with the electrical system, pneumatic system or any other mechanism for any reason.
- Do not attempt to climb over the running machine.
- Do not wear rings, watches, jewels, torn clothing or baggy such as ties, shoes, unbuttoned jackets or anything who can entangled in moving parts. Wear, however, approved clothing for accident prevention such as, for example, hard hats, sturdy shoes, gloves, earmuffs, safety glasses when necessary.
- Do not wear clothing with sleeves while operating and particularly during cleaning operations.
- In case of repair you must ensure that there are:
 - No moving parts that can come into operation;
 - No unstable pieces/object located on the machine or in its vicinity;
 - In each case, fix them on the top with a suitable locking.
- Do not use your hands instead of adequate tools to operate the machine
- Don't use hands or other objects to stop moving parts.
- Pay close attention to the labels on the machine whenever you prepare to operate on it or nearby.
- It is mandatory to keep all the tags legible by changing, if necessary, the position in order to guarantee complete visibility to the operator.
- The user is also required to replace all the tags that, for any reason, have deteriorated or are not clearly visible, requesting new ones from the DIETRONIC SRL spare parts service.
- If not expressly specified in this document, avoid repairing or adjusting the machine or part of it when the machine, or part of it, is running, in order to avoid being pinched by moving parts.
- In the case of machine malfunctions or components damage, please contact the maintenance manager, without proceeding with further repairs.
- It is strictly forbidden to use the machine for purposes other than those provided and documented. The use of the machine must always be in the ways, times and places designated by the standards of good practice, by the laws of each nation, even if there are no specific rules to regulate the sector.

DIETRONIC disclaims any liability for any accidents or damage to persons or property caused by failure to comply with the requirements for both safety standards listed below. These requirements, together with requirements for installation of the machine and the electrical connections are, moreover, an integral part of the Industrial Accident Prevention regulations of each country. These safety standards complement and not replace the safety rules in force locally. NEVER try to rush or emergency repairs that may affect the proper operation of the machine. IF IN DOUBT, ALWAYS ASK THE INTERVENTION OF A TRAINED. ANY ALTERATION BY THE USER RELEASES THE MANUFACTURER FROM ALL RESPONSIBILITIES AND MAKES THE USER SOLELY RESPONSIBLE FOR THE COMPETENT BODIES FOR THE ACCIDENT PREVENTION.

2. DESCRIPTION OF THE MACHINE



The **SAGOMA** series has been designed to minimize the overall dimensions in depth (200mm) and to be also inserted on lines where the available spaces are reduced.

The strength of this lubrication machine is the possibility to vary the amount of lubricant, using high frequency valves integrated in the oil distribution manifold, and coupled to each individual nozzle.

The control unit is equipped with a 8 inches touchscreen keyboard, where all the lubrication parameters are set, such as the width of the surface to be lubricated, the amount of oil to each side of the blank, the pressure of the pulverization air and the lubricant temperature to allow uniform application of medium and high viscosity products.

The machine (if supplied) is equipped with an upper spray head lifting system, to facilitate the operations of exchange coils.

It is also equipped with a transport roller which can be motorized with adjustable speed, used to accompany the metal sheet during the passage inside the lubricating machine.

Interfacing with the production line through a sheet metal advance signal in the case of coils, or a photocell for reading the pieces entering the lubricator in the case of squares of sheet metal, allows the application of the lubricant only during the advancement or the passage of the sheet. This allows the costumer to have a reduced consumption of oils, avoiding waste and excessive dosing.

The supply of the machine includes a tank of 40 liters, equipped with a visual control system, an electrical oil level and a filtering system for any impurities of the product used.

The strength of our machines is the possibility to extraction of spray heads from the machine to allows the replacement in case of the different lubricants used.

3. INSTALLATION

3.1 Positioning, installation and first start

The quasi-machine can be transported with a normal vehicle capable of bearing its weight and dimensions. It is recommended to always use means that can withstand the weight and size of the machine, in order to avoid damage to it and to people or things around it.

"Lift the machine with a forklift truck that supports the two sides, always check the correct balance of the weight of the machine to prevent unexpected shifts or falls to the ground."

"For the movement inside the factory, the machine can be transported with a crane providing a correct sling by using ropes with adequate resistance characteristics depending on the weight of the machine itself."

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The Manufacturer can't be held liable for damage caused to persons or animals due to the use of lifting systems other than those indicated.

3.2 Storage

In case of inactivity, the quasi-machine must be stored using the following precautions:

- a) storing the quasi-machine in an enclosed area;
- b) grease the unpainted parts;
- c) protect the machine from impact and stress;
- d) protect the quasi-machine from moisture;
- e) avoid that the quasi-machine is subject to extreme temperatures and protect it from high temperatures excursions;
- f) prevent the quasi-machine from coming into contact with corrosive substances.
- g) avoid storing the quasi-machine while it contains oil or water residues inside the pipes or tanks.

3.3 Preparations

Preparations for installation

For the installation it is necessary to provide a maneuvering area suitable for the dimensions of the machine and the selected lifting facility.

The preparation of the quasi-machine must be carried out in such a way as to optimize the ergonomics and safety on the workplace: leave sufficient area around the machine to allow easy operations of use and handling of the material to be processed and for maintenance and adjustment operations.

Preparation of the electrical system

The connection to the electrical system that powers and combines synchronization with other machines must be carried out by specialized and qualified personnel respecting the wiring diagram and the provisions prescribed by the Laws and / or Technical Safety Standards in force in the workplace and in the electrical installations.

To achieve an adequate level of safety, the customer must prepare, for the electrical system to which the quasi-machine belongs:

- a) a grounding system according to the provisions of the user's country;
- b) what is necessary for the correct implementation according to the Laws and Technical Standards on safety in the workplace and on electrical systems.

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These predispositions are always charged and under the full responsibility of the user.

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The Manufacturer is not responsible for damage to people, animals and property caused by non-compliance with this provision.

3.4 Customer preparation

Subject to different contractual agreements, they are normally charged to the Customer:

- a) preparation of the premises, including any masonry and / or canalization required;
- b) power supply of the quasi-machine, in compliance with the standards in force in the country where the lubricator is used;
- c) pneumatic supply.

3.5 Connections

The internal connections of the quasi-machine are carried out by qualified personnel of the manufacturer.

3.6 Electrical connections

The electrical connection between the panel of the quasi-machine and the power supply line of the customer's electrical distribution must be carried out by qualified personnel of the Customer.

3.7 Preliminary checks

Before starting the quasi-machine, a series of checks must be carried out in order to prevent errors and accidents:

- a) control of all security systems;
- b) protections control;
- c) control of the signs;
- d) checking the correct connection of all external energy sources;
- e) checking that the hydraulic and pneumatic connections are tightened so as not to cause dangerous leaks;
- f) verify that the quasi-machine has not been damaged during the assembly phase;
- g) verify, with particular care, the integrity of electrical panels, control panels, electric cables and pipes;
- h) verification of free movement and free rotation of all moving parts.

➤ VACUUM TESTS

- a) Before using the machine, carry out at least one empty test to verify the absence of anomalies.

- b) Test the correct functioning of the engines

c) LOAD TESTS

- d) Perform at least one load test in order to verify the absence of anomalies.
- e) Through the operator panel it is possible to test every component of the machine.
- f) In case of anomalies, a screen will appear with any alarms in progress

Check that the support chosen for the positioning of the machine is fixed perfectly to the ground, that the spray heads are the most possible horizontal respect to the passage of the sheet and there are adequate free spaces to allow the use and maintenance in safety conditions.

Place the machine in the production line, securing it to the pedestal suitably designed for the accommodation of lubrication.

Connect the electrical connectors specially signed with identification plates, which connect the machine to the electrical cabinet.

Connect the circuit oil and air circuit

Connect the machine to the power supply (breaker 16 A 380 VAC three-phase).

Connect the power cable on the electrical cabinet (terminal with shown the three supply phases [UVW]).

N.B. DIETRONIC disclaims any liability arising from an electrical connection does not match the industrial standards for the prevention of accidents.

After the connection between the various components of the system, fill the oil tank manually or through a charge pump.

Verify that the different components are functioning:

- A.** select the individual nozzles on the control panel and verify that the product is delivering, varying the supply pressure and checking the different intensity of spraying;
- B.** verify, if provided, the correct functioning of the suction system;
- C.** check the proper functioning of the minimum oil level sensor positioned in the tank, it will be possible to visually check the control panel;
- D.** check, if applicable, the proper functioning of the transport system;
- E.** verify, if provided, the operation of the Vertical Adjustment System.

Verify the points D and E only in the case where the operator has not within the production line (outside of the gates protection).

3.8 Operating principle

The pneumatic pump pressurizes the oil system in the tank.

The pressurized oil in the hydraulic system is dosed by managing the frequency of the control valves of the spray nozzles.

The selected oil, mixed with the atomizing air, determines the uniform application of lubricant on the blank.

The parameter settings are made through a touchscreen located on the lubrication control console.

3.9 Recommended Uses

We recommend the use of oils with a viscosity not exceeding 120 cSt.

It is also important, for a longer lasting correct operation of the machine, not to return the recovered oil to the tank.

Everything that is used to fill the tank, should be thoroughly cleaned.

The quasi-machine must be installed in an illuminated, aired industrial building with a solid, leveled floor.

The quasi-machine is suitable for operating in environments that are:

- at an altitude not exceeding 1500 m a.s.l.;
- at temperatures between + 5 ° C and + 40 ° C;
- relative humidity must be between 30% and 95%, not higher than 50% at 40 ° C, not more than 90% at 20 ° C.

It is forbidden to use the machine in environments that are:

- dusty;
- in corrosive atmosphere;
- at risk of fire;
- *in an explosive atmosphere.*

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The quasi-machine is not suitable for working in environments with an explosive / corrosive atmosphere / with an excessive presence of dust.

➤ LIGHTING

The lighting of the assembly environment must comply with the laws in force in the country where the quasi-machine is installed and must in any case guarantee good visibility at every points, not create dangerous reflections and allow a clear reading of the control panels, as well as the identification of the emergency buttons.

It is necessary that the work environment is equipped with a general lighting that guarantees values between 200 and 300 lux on each point of the quasi-machine.

➤ VIBRATIONS

In conditions of use that comply with the instructions for correct use, the vibrations are not such as to create dangerous situations.

➤ SOUND EMISSIONS

The sound pressure level of the A-weighted emission in the workplace is <80.0 dB (A).

➤ TECHNICAL DATA

The following are the main technical data relating to the quasi-machine.

Operating voltage: 400 VAC

Auxiliary voltage: 12 VDC 220VAC 48VAC

Signal voltage: 24VDC

Frequency: 50 Hz

Rated current: 40 °

Total power: 15 kW

IP: IP 55

➤ ELECTRIC CABINET AND BUTTONS

The quasi-machine is equipped with an electrical panel.

Housed in the electrical panel is an operator panel for managing machine parameters.

There are also: an emergency button (red button), an alarm reset button to re-enable the machine in the event of anomalies and shutdown of it, a push-button panel for moving the machine (arming / disarming in the line)

➤ STANDARD SUPPLY

The quasi-machine is supplied complete for commissioning.

It's supplied with:

- a) Assembly Instruction Manual;
- b) Declaration of Incorporation.

➤ ELECTROMAGNETIC ENVIRONMENT

The quasi-machine is designed to operate correctly in an industrial-type electromagnetic environment, within the limits of Emission and Immunity provided for by the following standards:

CEI EN 61000-6-2

Electromagnetic compatibility (EMC) Generic standards - Immunity for industrial environments.

CEI EN 61000-6-4

Electromagnetic compatibility (EMC) Generic standards - Emission for industrial environments

4 MACHINE COMPONENTS

4.1 Tank with control unit and control cabinet

The tank is a component movable on wheels composed of the tank 40 lt, with a space for the pneumatic circuit.

The tank is made from a minimum of one up to 4 tanks.

Each Tank is equipped with:

- Oil level viewer
- Minimum level sensor
- Oil filter

Each tank is equipped with a manual valve for drop emptying. A manual valve (extern emptying) is used for emptying the contaminated cleaning product which was used for washing (during the cycle of cleaning please take care that it's open).

4.2 Dosi-mixer (OPTIONAL)

The **Dosi-Mixer** is composed by a 3 litres tank for the correct mixing of water and water-based oil, which comes from a pure oil tank. Oil and water are mixed up by a high-speed spin centrifuge, which allows a correct emulsion and prevents the two fluid from separating.

The prepared emulsion is pumped into the 3 liters pressure tank Ssp1 (see OP schemes) that ensures a constant pressure in the oil-pressure circuit in every piping. Once the Dosi-Mixer tank is empty, the mixing cycle is started automatically, so that a continuous product feeding is ensured to tank Ssp1.

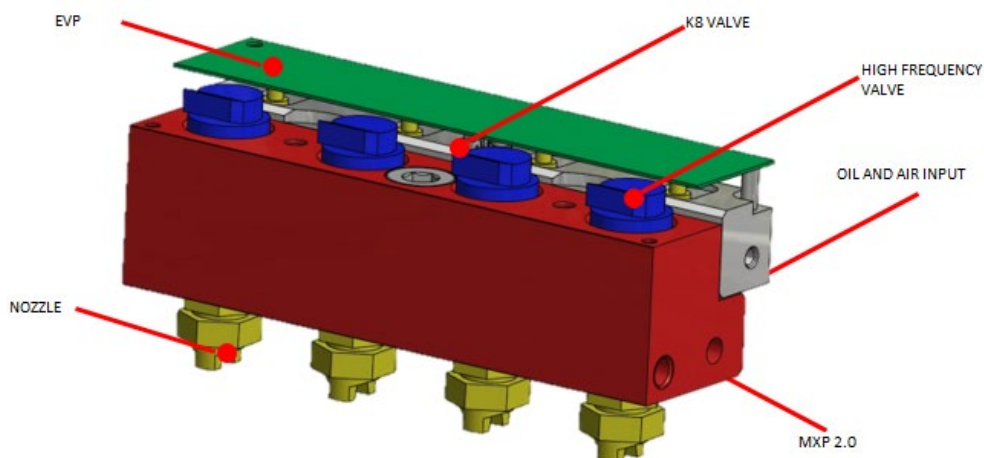
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To be used only with DEMINERALIZED WATER.

Any defect caused by the non-use of demineralized water is not covered by warranty

4.3 Spraying box

The spray heads are composed of aluminum manifold, in which 4 nozzles with 50 mm center distance are housed. The management of the oil amount supplied is made by 4 high frequency valve and a channeling of pulverization.



Below you can see a spray box configuration.

Upper part

P1S	P1S	P1S	P1S	P2S	P2S	P2S	P2S	P3S	P3S	P3S	P3S	P8S	P8S	P8S	P8S	P5S	P5S	P5S	P5S
CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH
S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16	S17	S18	S19	S20
N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11	N12	N13	N14	N15	N16	N17	N18	N19	N20

Surface in mm

50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	------

Lower part

P1I	P1I	P1I	P1I	P2I	P2I	P2I	P2I	P3I	P3I	P3I	P3I	P4I	P4I	P4I	P4I	P5I	P5I	P5I	P5I
CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH	CH
I21	I22	I23	I24	I25	I26	I27	I28	I29	I30	I31	I32	I33	I34	I35	I36	I37	I38	I39	I40
N21	N22	N23	N24	N25	N26	N27	N28	N29	N30	N31	N32	N33	N34	N35	N36	N37	N38	N39	N40

Surface in mm

50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	------

Legend:

P1I ... P5I	Solenoid valve for lower pulverization
P1S ... P5S	Solenoid valve for upper pulverization
CH1S ... CH20S	Upper control valves with adjustable frequency
CH21I ... CH40I	Lower control valves with adjustable frequency
N1 ... N40	Spraying nozzles

4.4 Transport system (optional)

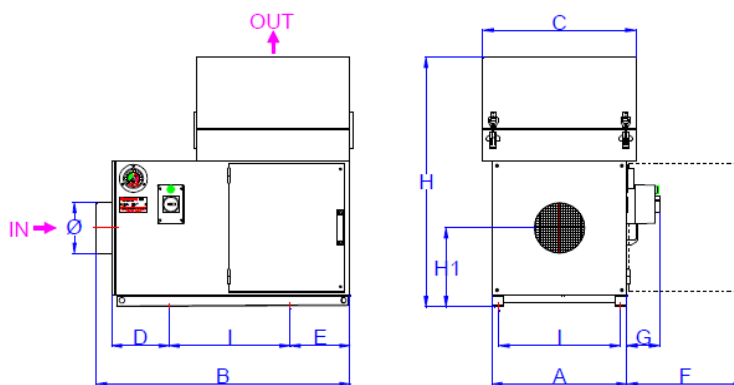
To allow the passage of the blank inside the machine, there is provided a transport system "roller" that at the request of the customer can be motorized.

To facilitate the oiling of the piece in transit, without it moving during the passage, it is also possible to install a system of crush-less wheels that allow to staple the passage sheet.

4.5 Suction system (Optional)

Suction system of ARNO K series are indicated for suction and purification of mists and dusts produced during damp and dry processing. Due to the way are manufactured, they are good for purifying particles of different granulometry, simply using interchangeable filters having a different filtering efficiency.

The equipment contains drainage for the recovery of the condensed liquid.



Picture 1

TECHNICAL DATA

<i>Model</i>	<i>Suction inlet</i> <i>Ø mm</i>	<i>Max airflow rate</i> <i>MC/H</i>	<i>Power</i> <i>HP/KW</i>	<i>Voltage-</i> <i>Frequency</i> <i>V - HZ</i>	<i>Noise level</i> <i>dBA</i>	<i>Weight</i> <i>Kg.</i>
ARNO K1	150	1700	1/0,75	230/400-50	68	70
ARNO K1C		1500			67	
ARNO K2	150/200	2700/3300	2/1,5		72	97
ARNO K2C	150	2600			70	
ARNO K3	200	4000	3/2,2		72	110
ARNO K3C		3100			72	

Model	Overall dimensions (mm)									Fixing wheelbase I (mm)
	A	B	C	D	E	F	G	H	H1	
ARNO K1/K1C	430	880	400	200	230	420	130	880	260	360 – $\varnothing 9$
ARNO K2/K2C	530	1000	500	205	230	460	130	1000	310	360 – $\varnothing 9$
ARNO K3/K3C	530	1000	600	205	230	460	130	1000	310	360 – $\varnothing 9$

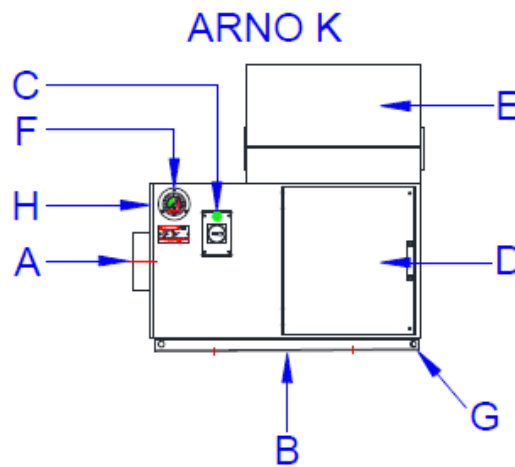
FORESEEN USES

Suction and cleaning of powders and smokes generated in dry and damp processing.

USE OF THE MACHINE

On the machine it's possible to see the following elements:

- Suction pipe;
- Supporting and fixing feet - hole \varnothing 9 mm;
- Automatic circuit breaker;
- Doors for **A** and **B** filters extraction;
- Removable cover for **C** and **D** filters extraction;
- Gauge to monitor filter conditions;
- Drainage for the recovery of recondensed liquid;
- Doors for **E** and **F** filters extraction;
- Removable cover for filter **X** extraction (only for ARNO KC).

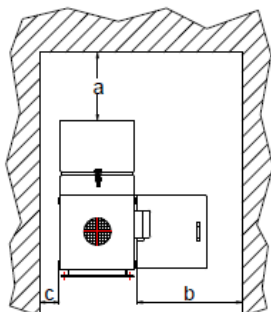


Picture 3

INSTALLATION

POSITIONING AND MOUNTING

- The installation of the suction system must be carried out by specialized staff.
- Try to find an adequate position where to install the suction system (near to the machine tool).
- Check that in the chosen position is enough space in order to allow the use/maintenance of the suction system under the security conditions. It is recommended to observe the distance as mentioned below:



Picture 4

A	ARNO K1	400 mm
	ARNO K2/K3	500 mm
B	ARNO K1	600 mm
	ARNO K2/K3	700 mm
C	ARNO K1/K2/K3	200

- Prepare the different material and accessories necessary for the setup of the machine (suction pipe, hose clamps, powder collector, etc.).

- Make 4 holes in the chosen position (9 mm loops or threaded 8M) at the center distance, as fixing holes for the suction system feet and fixing the vibration damping and the security cables
- Make a hole on the machine (if faired) cover with a diameter suitable for the application of the powder collector.
- Otherwise if machine is not faired, there should be prepared a suction cap very near to the pollution source.
- Lift the suction system docking it to the special hooks placing it in the specific area and fixing it with the nuts included in the equipment and screw it strongly.
- Insert the suction pipe on pipe union of the suction system fixing it with a hose clamp.
- Connect the other end of tube to the powder collector or to the suction cap which have been previously prepared.

START AND STOP

TO START THE MACHINE:

- 1) Set the general switch on "ON".
- 2) Press the Starting button "I" of the motor protecting switch.

TO STOP THE MACHINE:

- 1) Press the button "O" of the motor protecting switch.

TO DISCONNECT COMPLETELY THE MACHINE:

- 1) Stop the machine.
- 2) Set the general switch on "OFF".

- We recommend in order to guarantee a longer life to avoid starting and stopping the machine constantly.
- We recommend avoiding the overheating of the machine without filters.

SECURITY DEVICES

The following safety devices have been installed on the machine:

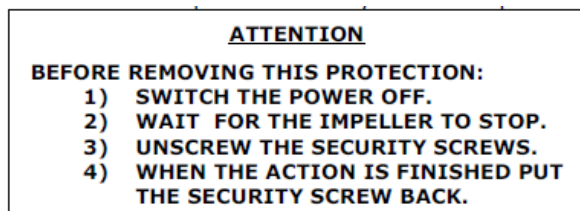
- Automatic circuit breaker with IP55 protection degree.
- Protecting net on the suction mouth of the electrical ventilator.
- Security screws on cover and door.

WARNING!

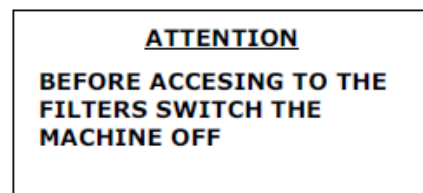
Check regularly the working condition of the security devices.

DISPOSITION OF DANGER AND WARNING PLATES

On the machine there are some danger and warning plates to complete the indications contained in this manual. In case the plate wears out you should replace them with new ones.



Picture 5



Picture 6

CONNECTION TO THE ENERGY SOURCE AND RELATIVE CHECKS

- Verify that the connection voltage indicated on the plate is the same as the network one.
- If fuses are plugged in, please use delayed fuses.
- Detection of the data from the engine plate, written in the Declaration of Conformity EU, for a correct choice of the material for the connection (cable section etc.).
- Connect the feeder to the special plug placed on the machine.
- Give voltage to the equipment and pay attention to the security regulations.
- Check that the calibration of the motor protector switch agrees to the current's value which you can detect on the electrical engine plate and written in the Declaration of Conformity EU.
- **ATTENTION: IMPORTANT Check the correct direction of rotation of the impeller.**

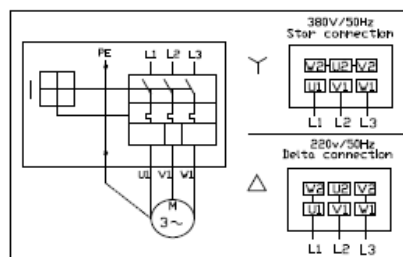
Please look up on the suction hole in order to check the correct direction of rotation: the impeller must turn in clockwise direction.



Picture 7

The Dietronic s.r.l. declines all responsibility caused by an electrical connection which is not in conformity with the regulations for accident prevention.

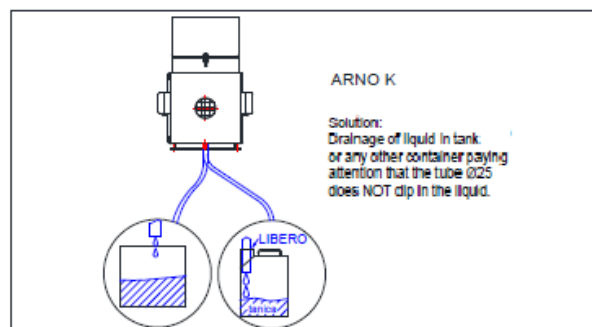
ELECTRICAL LAYOUTS



Picture 8

DRAINAGE FOR THE RECOVERY OF RE-CONDENSED COOLANT LIQUID

Tips for good drainage of the suction system.



Picture 10

MAINTENANCE

To carry out the maintenance:

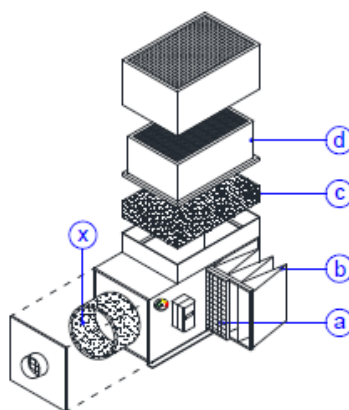
- STOP THE MACHINE.
- Press the stop button “O” of the motor protection switch.
- Set the general network switch on the position “OFF”.
- Be sure that the moving parts (impeller) are completely stopped.
- Use all individual protecting devices prescribed by the regulations being in force for the work security.

Maintenance operations must be carried out only by specialized staff with knowledge about the maintenance procedures and about the precautions to be adopted.

The filtering set is shown on the plate, which is fixed on the door for filters extraction and on the enclosed documentations.

The filtering set is composed by four numbers, which correspond to the letters “a-b-c-d” of the following picture 11 and table 2.

Suction system K are equipped also with a centrifugal filter “x” (not indicated on filtering set).



Picture 11

	ARNO 1		ARNO 2		ARNO 3		
set	code	item	code	item	code	item	description
CENTRIFUGAL FILTER ONLY FOR ARNO KC							
x	-	00069 FC1	00070	FC23	00070	FC23	Centrifugal filter
FILTER FOR ARNO K							
a	1	00044 FMP1	00045	FMP23	00045	FMP23	Metallic filter
	2	00046 FTU1	00047	FTU23	00047	FTU23	Synthetic pocket filter
b	3	01308 FTR1	01309	FTR23	01309	FTR23	Pocket filter in fiber glass
	4	00621 FTG1	00605	FTG23	00605	FTG23	Pocket filter in fiber glass
c	4	01904 FPN K1	01905	FTN K2	01906	FTN K3	Black panel filter
d	8	00052 FAE1 E10	00057	FAE2 E10	00064	FAE3 E10	High efficiency filter E10 EN1822
	9	00053 FAE1 E11	00058	FAE2 E11	00065	FAE3 E11	High efficiency filter E11 EN1822
	A	00054 FAE1 E12	00061	FAE2 E12	00066	FAE3 E12	High efficiency filter E12 EN1822
	H	02038 FAE1 H13	02039	FAE2 H13	02040	FAE3 H13	Absolute Hepa filter H13 EN1822
	2	-	01324	FF2 E10	01328	FF3 E10	High efficiency filter E10 EN1822
	1	-	01325	FF2 E11	01332	FF3 E11	High efficiency filter E11 EN1822
	X	-	01325	FF2 H13	01348	FF3 H13	Absolute Hepa filter H13 EN1822
GASKETS KIT							
-	-	KGRK1	-	KGRK23	-	KGRK23	Gaskets kit

PROGRAM OF MAINTENANCE

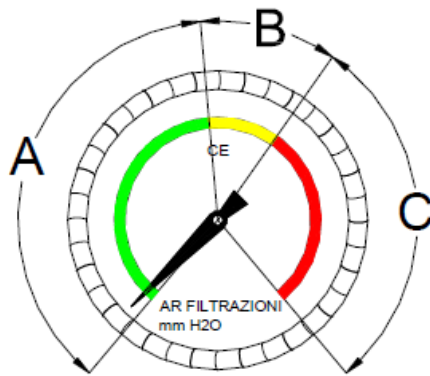
Quantity	Legend filter position	Description	Program of maintenance	
			Intervention	Average time
1	X	Centrifugal filter	Replacement	12 months
1	a	Metallic filter	Washing	12 months
1	b	Pocket filter	Replacement	12 months
1	c	Black panel filter	Washing	12 months
			Replacement	24/36 months
1	d	Final filter	Replacement	24/36 months
		High efficiency filter HEPA	Replacement	24/36 months

Table 3

This maintenance program highlights indicative average times, the result of statistics developed based on more than a thousand plants that DIETRONIC maintains annually with its customers.

The average times for the replacement of filters can vary in defect or in excess, depending on the processed material, on the difficulty of the working process and on the use of high-pressure pumps.

GAUGE TO MONITOR FILTER CONDITIONS



Picture 12

How to read the clogging gauge of the filters a, b, c, d:

Sector A (Green):

Optimum efficiency of suction system.

Sector B (Yellow):

Caution sector.

Proceed to replacement of filters b and/or c and/or d.

Sector C (Red):

Insufficient efficiency of suction system.

Proceed to replacement of filters b + c and/or d, Washing or replacement of filter a and/or c and at the control and possible cleaning of the suction inlet.

NOTE:

- If the pressure gauge hand is outside Band A, replace the clogged filter (s) by extracting each filter individually and checking the behavior of the pressure gauge hand from time to time






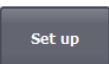


5 OPERATION PANEL FUNCTION

5.1 Home page

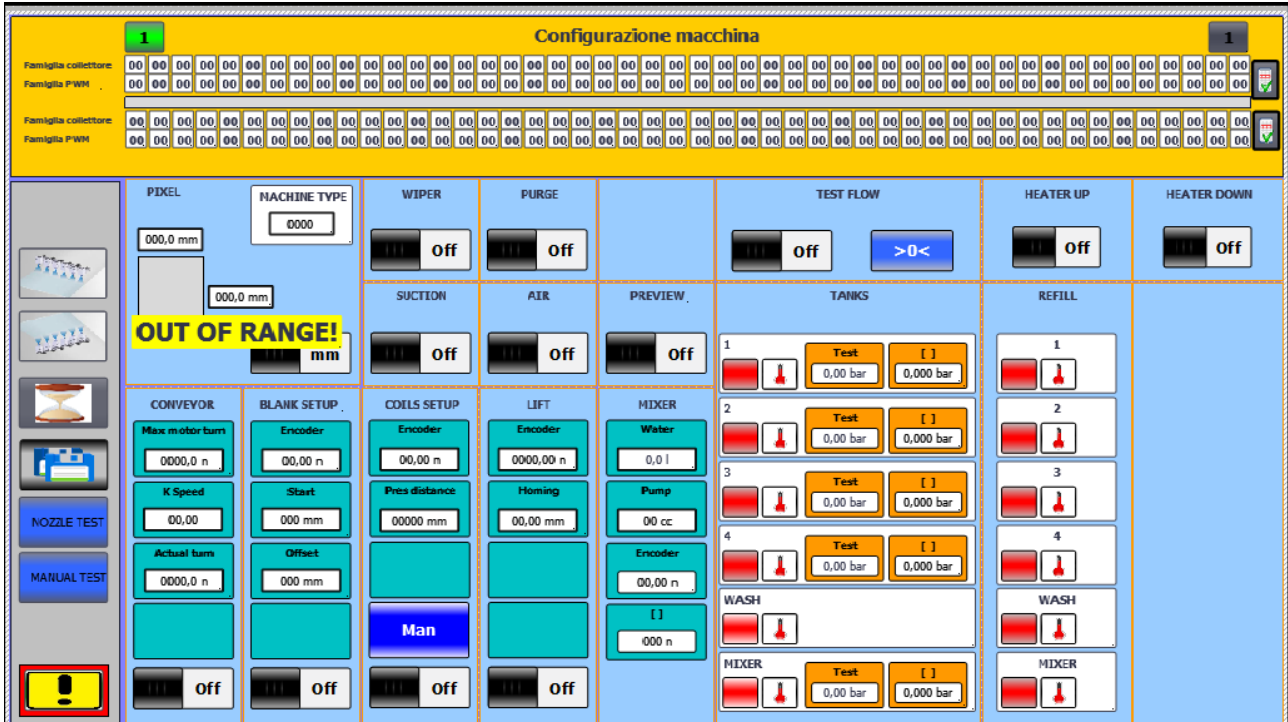


When the machine is turned on, the "Home" screen with the Dietronic logo will appear on the screen.

On the left of the screen there are the following buttons:

-  push this button to exit the application
-  push this button to enter in the alarm page
-   push these buttons to access the work parameter settings page
-  push the button to enter in the page "Recipes Saving"
-  push the button to enter in the setup page. In this page it is possible to set the basic parameters of the "machine configuration" of the machine
-   push the flag button to change the language

5.2 Setup page



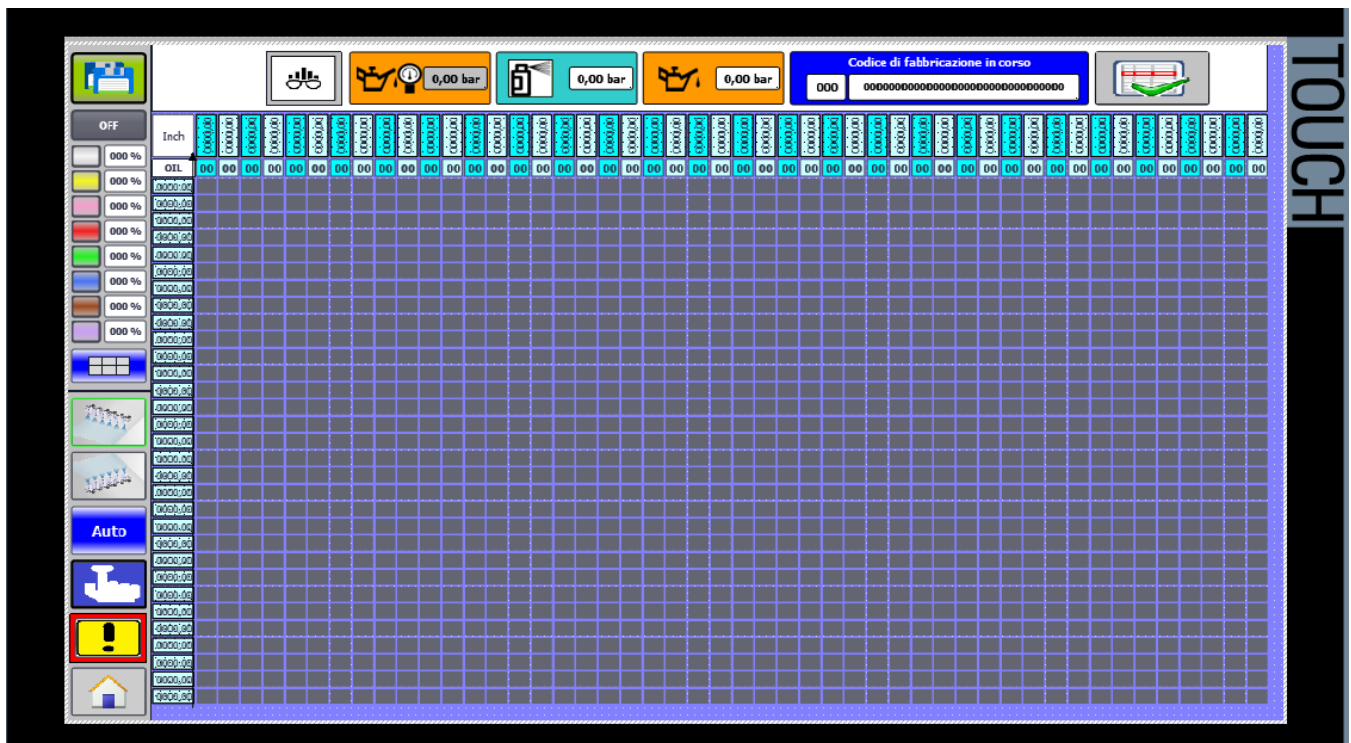
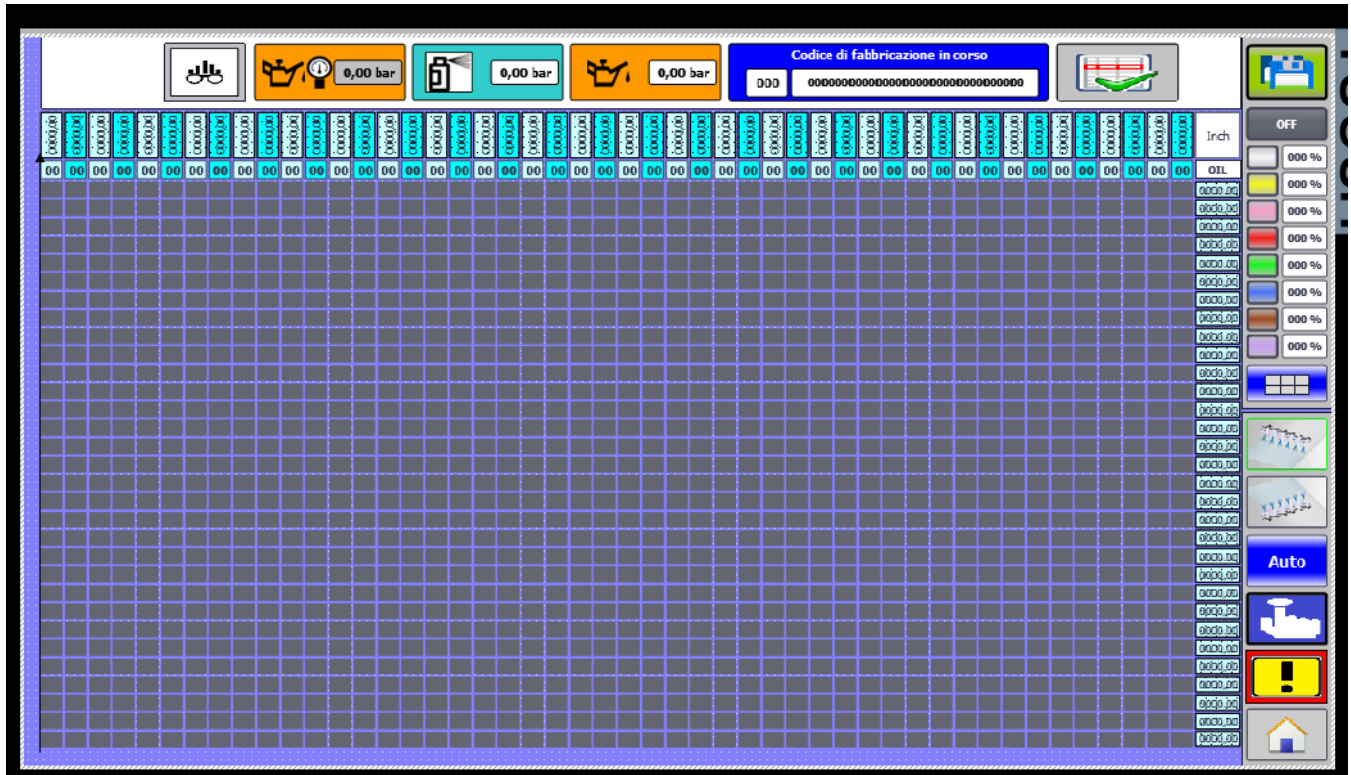
In this page it's possible to change the parameters to setup the different configurations of the machine. This page is password protected. The settings are DieTronic' charge according to the customer technical specification.



N.B. DIETRONIC s.r.l. disclaims any liability for damage caused by improper system shutdown.

5.3 "SAGOMA" configuration









Depending on the position of the panel with respect to the system you can view this screen in two different ways:



This page allows you to draw the shape and configure the dosage of lubricant to be sprayed on the various areas of the sheet.

The sheet is divided into 31 rows and a number of columns equal to the number of nozzles in the machine.

- These rows and columns divide the metal sheet in different cells that cover an area of spraying of 50 mm x 50 mm. Each individual nozzle may work with values of PWM (Pulse Width Modulation) different from other nozzles.

	000 %
	000 %
	000 %
	000 %
	000 %
	000 %
	000 %
	000 %

- You can set up to 8 different values of PWM.
 - Each color corresponds to a different value of PWM.
 - You can't set the same value for two color.
 - It's possible to change the values of each PWM at any time.

To realize the design "SAGOMA" you will have to proceed according to the following mode.

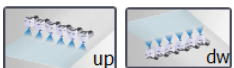
- First, select the spray head to configure.
- In the top center of the page, you will see the following picture if the spray head is selected the top



- for the bottom head will appear the following image



- To switch from the configuration of the upper head to head lower, and vice versa, press the following buttons located at the bottom left of the page:



After selecting the spray box, you can choose the color corresponding to the PWM that you want to use by pressing the following buttons

The selected button will start flashing.

Now you can edit the desired areas to create the SAGOMA to be lubricated.



- In case you select a frame not desired, to cancel the selection, press



and select the area to be cleared (the button will start flashing).

To have a completely clean page, press the OFF square button for 3 seconds.

- By pressing the following button:

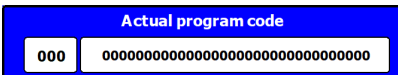





it is possible to acquire the shapes of the sheets automatically, when the sheets pass through the machine

In the upper part of the page may be displayed the air pressure and the oil pressure inside of the spray heads



Other functions are:

-  Indicates the code of the recipe in use
-  Hold this button for 3 seconds to copy the same configuration of the bottom side or vice versa
-  Hold this button for 3 seconds to directly saves any shape changes without going into the save page
-  Pressing this button activates the Multicell mode.

In Multicell mode, you can edit multiple cells simultaneously.

Activating the multicell mode, the button will change to a green color: it's now possible to select the rows and columns corresponding to the cells to be lubricated with the same amount of oil

Select the rows and columns as shown in the following figure (red rectangles).

	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00
Inch	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00
OIL	00	00	00	00	00	00	00	00	00	00	00	00
0000.00												
0000.00												
0000.00												
0000.00												
0000.00												
0000.00												

The selected rows and columns light up orange.

The numbers relating to the single column will also light up in orange like the picture below

	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00
Inch	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00
OIL	00	00	00	00	00	00	00	00	00	00	00	00
0000.00												
0000.00												
0000.00												
0000.00												
0000.00												
0000.00												

Now select the desired color in the left column (PWM) [for example: **GREEN**]. The cells relating at the selected rows and columns will be colored automatically.

	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00
Inch	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00	0000.00
OIL	00	00	00	00	00	00	00	00	00	00	00	00
0000.00												
0000.00												
0000.00												
0000.00												
0000.00												
0000.00												

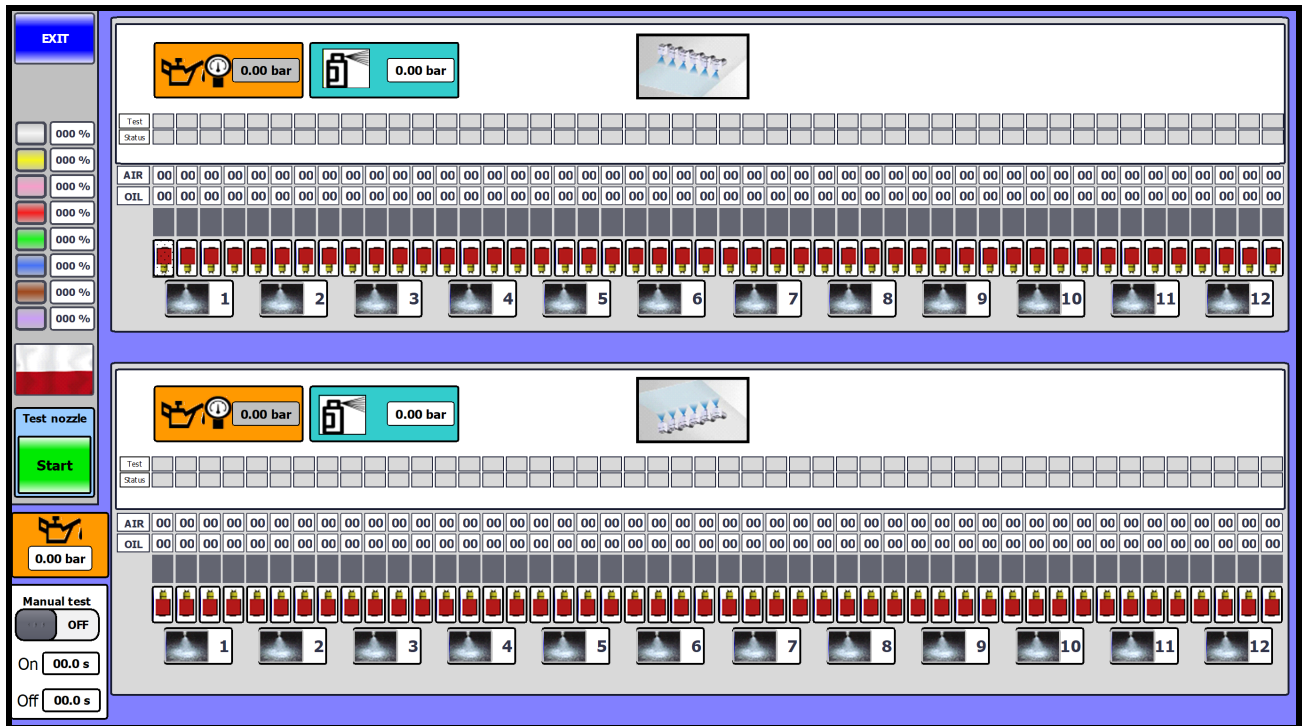
Pressing the buttons


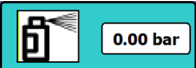




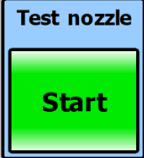


you can respectively access the **MANUAL MODE**, **INFO** pages or go back to the **HOME PAGE**.

5.4 Manual command page

Depending on the position of the panel with respect to the system you can view this screen in two different ways:



-  This box shows the feedback pressure oil in the upper and lower spray head
-  In this box you can setup the value of the pulverization air for the upper and lower spray head
-  Here you can setup the pressure of the hydraulic circuit
-  Select one or more valves to check the correct functionality
-   Enable/disable the pulverization air for each manifold
-  Push this button to start a procedure that will verify the correct operation of the valves. At the end of the procedure, if there are anomalies, it will be reported in the alarm page.

When the test begins, the squares of the following indicator change status:

Test																			
Status																			

The first line indicates which high frequency valve is being tested, by coloring the corresponding square green, while the second line indicates whether the valves are functioning.

Manual test

☐ OFF

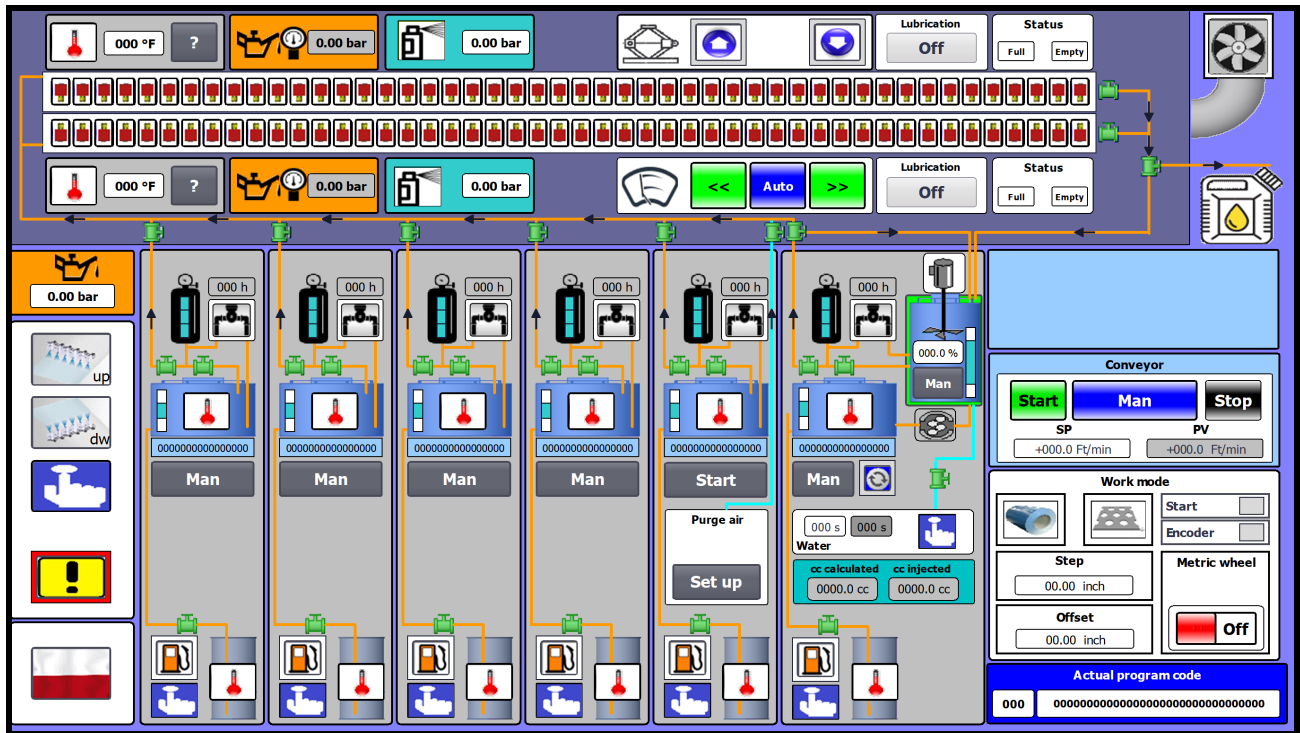
On


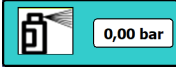
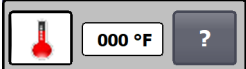
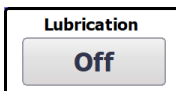
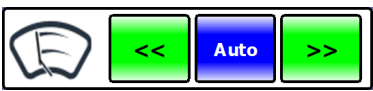



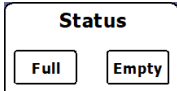
Off

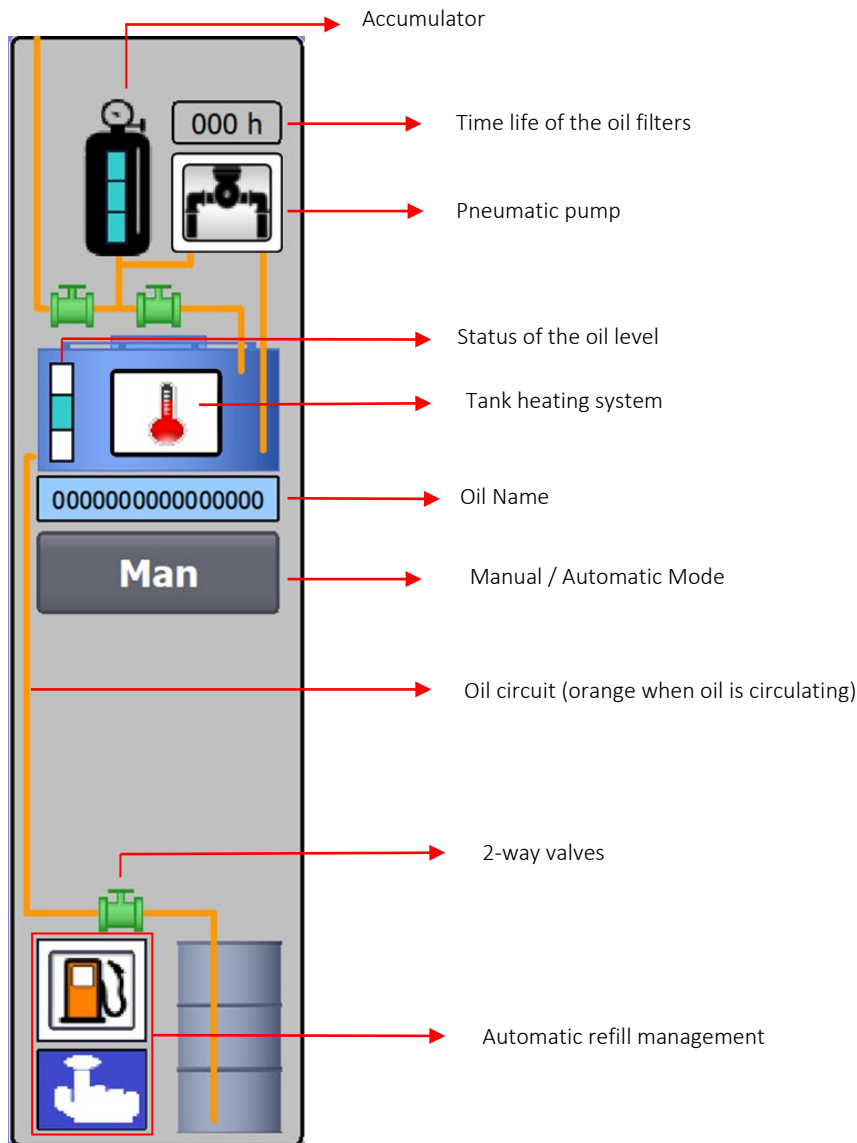
- activate a procedure to test the valves in manually mode by setting the on and off time

5.5 Setup parameter for automatic mode

Depending on the position of the panel with respect to the system you can view this screen in two different ways:



-  This box shows the feedback pressure oil in the upper and lower spray head
-  In this box you can setup the value of the pulverization air for the upper and lower spray head
-  Here you can enable/disable the heating system in the manifold and set the temperature
-  By pressing the button in this box, the spray boxes can be activated or deactivated individually
-  (OPTIONAL) indicate the status of the WIPER. Push the button  to select the auto/manual mode. In manual mode, push the arrows   to move the WIPER left/right.
-  In this box you can check the status of the spray boxes, to check that they have been emptied from the oil or not



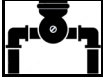

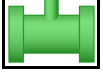



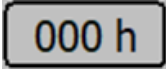




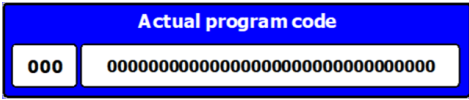
-
- **Oil Name:** window to write the name of oil
- **Manual / Automatic Mode:** button to change the mode of work of the tank: **AUTO** to work in automatic mode; **MAN** to manage manually all components of the tank
- **Accumulator:** window to control the status of the oil level in the under-pressure tank. It can show three different status:

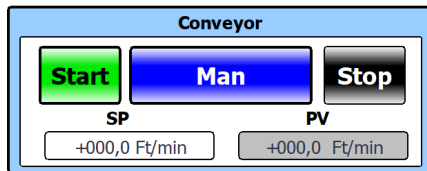


Minimum level

OK


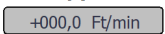
Maximum level

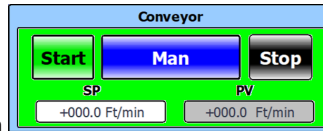
- 
Pneumatic pump: Button to control the pneumatic pump; push it to enter manual mode
- 
Tank heating system: button to activate the heating system on the barrel
- 
2-way valves: symbol to check the status of the 2-way valves; press it to manually open/close the valves. When the symbol is green the valve is open.
- 
Automatic refill management: window to manage the automatic refill of the tank from the barrel (OPTIONAL):
 -  button to activate the refill in automatic mode;
 -  button to refill the tank from barrel in manual mode;
- 
Time life of the oil filters: Hours count of oil filters. A warning will appear on the alarm screen when it needs to be changed
- 
 push the button to activate the recirculation of oil. When the spray boxes aren't connected with the machine please leave the door of the pneumatic cabinet open (like the picture below) to avoid the deactivation of the recirculation.
- 
- 
 suction system box. This image will change the status in green (
 
) during the activation of the suction system (by default: AUTO mode, press the icon to switch to MAN mode)
- 
 this window indicates the code and name of recipe.



- use this window to manage the conveyor speed. Push the button

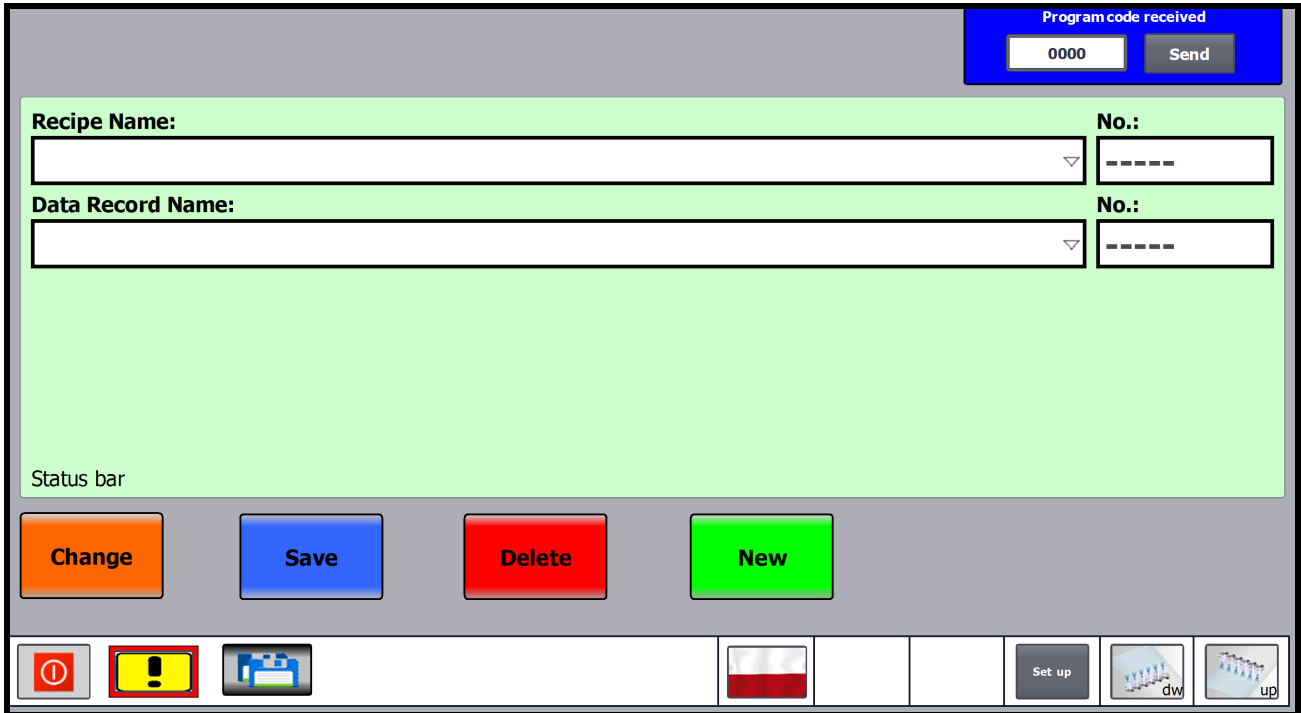
 to select the working mode. Push the button  and  to active/deactivate the conveyor in manual



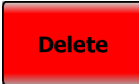

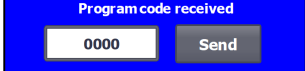
mode. Use the window   to set the speed (SP) and control the correct speed (PV).



While the conveyor is running, the box background turns green

5.6 Save recipes



-  Button to change the name of an existing configuration
-  Button to save the current configuration
-  Button for deleting configuration files
-  Button to create a new configuration
-  Button to send the recipe to the PLC

5.7 Alarm page



On this page it's possible to consult the machine status lists and any alarms or faults.

The states shown can be reset via the dedicated button



6 MAINTENANCE

WARNING: Stop the machine

Before starting the maintenance procedure, do the following steps:

- Turn off the main switch of the machine
- Make sure that the air supply tap has been tightened
- Make sure that all moving parts are completely stopped
- Wear all personal protective equipment prescribed by current workplace safety regulations.

Maintenance operations must be carried out by people who know the maintenance procedures and precautions to be taken.

UNI 11063:2003 Maintenance - Definitions of ordinary and extraordinary maintenance

The standard provides a classification of maintenance activities, distinguishing these activities in "ordinary maintenance" and "extraordinary maintenance".

MAINTENANCE CLASSIFICATION: (ordinary and extraordinary) The maintenance is divided, according to the content of the works and their purpose, in the following destinations: - ordinary maintenance; - Extraordinary maintenance;

Ordinary maintenance: Types of maintenance during the life cycle, to:

- maintain the original integrity of the goods;
- maintain or restore the efficiency of the goods;
- contain normal degradation of use;
- guarantee the useful life of the goods;
- cope with accidental events.

Generally, interventions are required following:

- detection of faults or failures (failure or corrective maintenance),
- implementation of maintenance policies (preventive maintenance, cyclical, predictive conditions),
- optimize the availability of the goods and improve its efficiency (improvements or minor changes that do not increase value of the asset).

The aforesaid interventions do not modify the original characteristics (plate data, dimensioning, constructive values, etc.) of the good itself and do not modify its essential structure and its intended use. The relative costs must be foreseen (also on a statistical basis) in the maintenance budget and allocated to the financial year in which the activities were carried out (see UNI 10992). Ordinary maintenance costs are always expensed.

Extraordinary maintenance: Type of non-recurring and high cost interventions, compared to the replacement value of the goods and the annual costs of ordinary maintenance of the machine. The interventions also:

- may extend the useful life and / or, in the alternative, improve its efficiency, reliability, productivity, maintainability and inspection;
- do not modify the original characteristics (plate data, dimensioning, construction values, etc.) and the essential structure;
- do not entail changes in the intended use of the asset.

The relative costs are foreseen in the maintenance budget (see UNI 10992); the intervention must be evidenced in the accounts.

The cost incurred for its realization can be:

- attributed to the financial year in which the operations were carried out.
- capitalized, provided that it determines the increase in the good's asset value (interventions such as the replacement of important structural components, the substantial remaking of parts of the asset) which in general leads to a significant increase in the useful life of the asset and / or its own services of its function.

Note 1

In order to give more precise information, it is possible to classify and list the extraordinary maintenance interventions; this list can be based on sector regulations that refer to the present general rule.

Note 2

This type includes all the interventions that can be:

- programmed in advance and included in the maintenance budget for the current year;
- accidental and therefore not provided for in the aforementioned budget (extra budget).

The value of the assets of the legal persons is written in the book of assets. The value of capitalized extraordinary maintenance is to be entered in the asset book, while the calculated value of the replaced or redeemed asset must be disinvested.

6.1 Maintenance status

Maintenance operations must be carried out with the quasi-machine under the conditions described under "STATE OF THE QUASI-MACHINE" Scheduled Maintenance.

6.2 Functional checks on the machine electrical system

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Only properly trained personnel can carry out maintenance operations on electrical panels or electrical equipment on the machine.

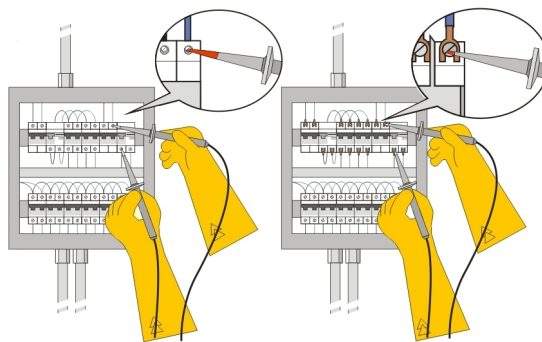
MEASUREMENT TYPE

The open panel has a degree of protection towards active parts <IP55B.

There is a risk of accidental contact, but there is no risk of accidental short-circuit, considering the type of tips used (size and sleep of the bare contact tip) and the distances of the active parts between them towards the masses.

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The measurement must be carried out by an expert person suitable for work under tension with insulating gloves, but without the short-circuit protection visor.



N.B. If there is a risk of contact with the active parts accessible in the vicinity, as an alternative to insulating gloves it is necessary to make the active parts inaccessible with a protection, for example an insulating sheet.

6.3 Isolation of the quasi-machine

Before carrying out any type of maintenance and / or repair, it is necessary to isolate the machine from the power supply and other energy sources.

All the disconnecting devices must be able to be locked in an «isolated circuit» position, for example by using padlocks, so that the operators intervening on the quasi-machine can ensure that no element of it can be started while the intervention is in progress , by a procedure of this type:

before intervening on the quasi-machine each operator blocks all the disconnectors of the external power sources with locking means and carries with them the opening keys. Each operator removes the personal locking means of the disconnectors only once the intervention on the machine is finished, in this way the blocking of the disconnectors can be removed only after all the operators have removed the personal locking means, i.e. only after all the operators have completed the operations on the quasi-machine.

If the disconnectors do not have enough space for all the padlocks, simple blocking means like those shown in the picture can be used:



A procedure of this type prevents an operator from starting the machine without noticing the presence of other operators inside the dangerous areas of the machine; for it to be effective it is essential that all the operators involved in the quasi-machine block the disconnectors with personal locks.

Apply the "maintenance in progress" warning signs



Isolation Mode

Electric energy



Pneumatic energy



Energy isolation procedures:

➤ Electrical

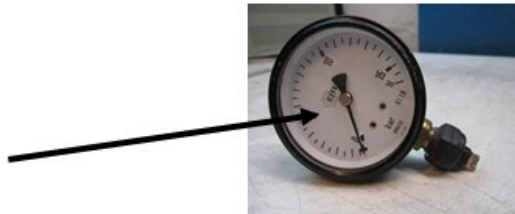
Turn the switch on the electrical panel of the machine to OFF.

➤ Hydraulics

The OFF position of the electrical panel allows to isolate also the hydraulic circuit. Check the stop of the hydraulic unit, that the pump is stopped ("zero" pressure gauge). Make sure the oil circuit is drained.

➤ Pneumatic

Close the manual valve of the air supply circuit upstream of the quasi-machine; discharge the air present in the pneumatic system; the pressure gauge must mark "zero" bar



Before carrying out any installation, adjustment, maintenance or repair work, **MAKE SURE** that no voltage can be applied.

All exclusions of energy sources must be ensured with appropriate locking systems, the key must be kept by the maintenance manager.

6.4 Special precautions

When carrying out maintenance and / or repair work scrupulously follow the instructions below:

- a) before starting work, display a sign indicating "MAINTENANCE MACHINE" in a clearly visible position;
- b) do not use solvents and flammable materials;
- c) take care not to disperse lubricating and cooling liquids in the environment;
- d) to access the highest parts of the quasi-machine, use suitable equipment for the operations to be carried out;
- e) do not climb on the organs of the quasi-machine, because they have not been designed to support people;
- f) at the end of the work, restore and correctly fix all the guards removed, opened and deactivated.

I

The manufacturer is not responsible for failure to comply with the above recommendations and for any other use that is not or not mentioned in these instructions.

6.5 Cleaning

Before carrying out any type of cleaning, it is necessary to isolate the quasi-machine from the power supply and other energy sources.

Cleaning the internal parts of the machine could be an extremely risky operation, especially if the operator has to enter the machine to perform them, if these parts have contained dangerous substances.

The measures necessary for the safe execution of these operations are indicated in the following procedure.

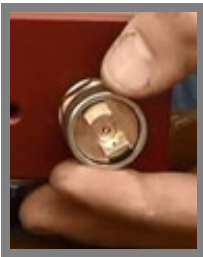
Nozzles cleaning

Clean the nozzles only if necessary because a nozzle filling has been created.

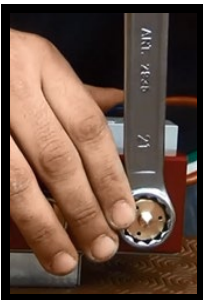
Remove the nozzle cap, and with the aid of correct tools remove the nozzle and clean it.

It is advisable to carry out this operation anyway with a periodicity of about 6 months, ensuring the correct functioning of all the nozzles.

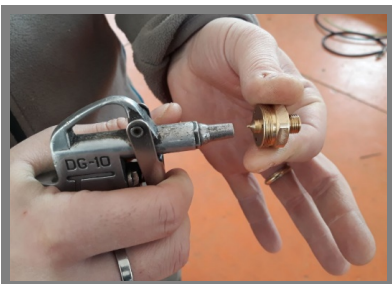
- Step 1: remove the nozzle ring nut



- Step 2: removal of the spray nozzle using correct tools

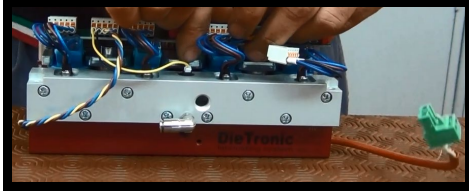


- Step 3: cleaning the nozzle orifice using compressed air

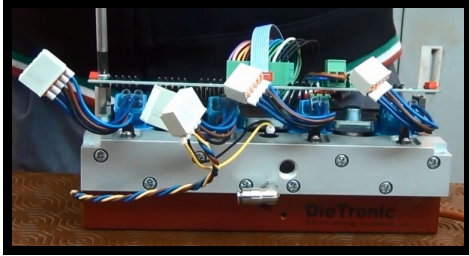


HFV high frequency valve replacement

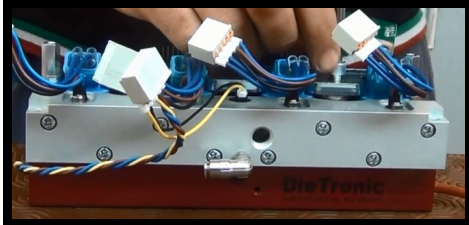
- Step 1: After removing the manifold from the spray head, place the manifold on a work surface and disconnect all electrical connections (Fast connections) on the green EVP board



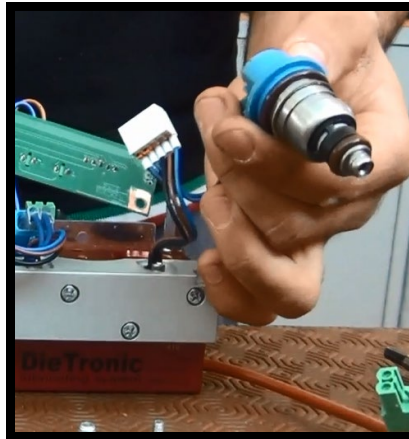
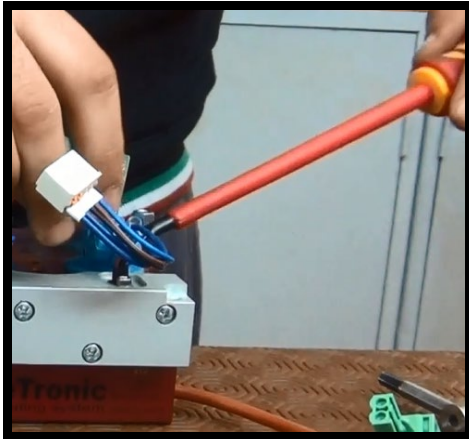
- Step 2: After disconnecting all connections, remove the green EVP board



- Step 3: Remove the screws and the locking bracket of the HFV valves.



- Step 4: Use a flat screwdriver to remove the valve to be replaced



- Step 5: Replace the damaged valve with the new one and follow the reverse procedure to reassemble the manifold.

LUBRICATION

Lubricate / grease periodically the mechanical parts that contribute the movement of the moving parts of the machine, chains and gears.

Periodically check the level of lubricant in the gearbox.

6.6 Scheduled ordinary maintenance

General requirements

Scheduled routine maintenance includes inspections, checks and interventions which, to prevent interruptions and breakdowns, systematically monitor the lubrication status of the machine and the state of the parts subject to wear.

These operations, although simple, must be performed by Qualified Personnel.

The quasi-machine has been designed to minimize ordinary maintenance, it is up to the operator to judge the status and its suitability for use.

Any maintenance operation must be carried out with machinery switched off and only after having disconnected the electrical panel.

It is recommended, however, to stop and to intervene with the maintenance whenever you experience a non-optimal functioning, this will allow you to always have the maximum efficiency.

Always use the appropriate Personal Protective Equipment:

- a) gloves;
- b) anti-slip shoes;
- c) glasses;
- d) suitable work clothing.

6.7 Procedures

Cleaning the nozzles and checking the correct operation of the spray heads

(remove the nozzles and clean them with compressed air Refit the nozzles and let the spray heads work in manual mode, using a solvent for cleaning - we recommend Solv60)

Frequency: 5000 h

Checking the correct operation of the tank level sensor

(empty the tank and move the level upwards)

Frequency: 10000 h

Checking the integrity of the "roller conveyor" transport system

Frequency: 10000 h

Checking the integrity and correct operation of switches, photocells, micro and sensors

Frequency: 10000 h

Checking the correct operation of the electric cabin ventilation system

Frequency: 10000 h

Tightening of screws and bolts

Frequency: 10000 h

Replacement of adjustable frequency valves

Frequency: 7000 h

Control of the correct functionality of the motors and transformers, the calibration of the temperature, the integrity of the electric cables and pipes

Frequency: 10000 h

Checking the correct functioning of the membrane pump

Frequency: 5000 h

Suction filter replacement

Frequency: 15000 h

Revision of the lubricant.

To do this, contact the company DieTronic s.r.l.

Frequency: 50000 h

All faults and alarms are signaled on the operator panel, indicating the faulty or malfunctioning component and its position on the machine.

Visually check the condition of the individual parts that make up the quasi-machine, checking that there are no alterations due to sagging or deformation.

For all the maintenance that does not require voltage to the power components, stop the system by disconnecting the power supply from the main switch disconnector, locking it with the appropriate padlock in the "O" position (OFF).

Check and test once a month the correct operation and intervention of the Emergency Arrests, making the quasi-machine run idle.

In the event of malfunctioning, entrust the fault search only to specialized personnel or call the technical assistance of the manufacturer of the electrical panel.

Check the continuity of the earth circuit by performing the continuity measurement according to the provisions of the CEI EN 60207-1 p. 18.2.2.

I

Failure to comply with the requirements, exonerate the manufacturer from any type of responsibility.

6.8 Extraordinary maintenance**General requirements****I**

Attention, it is forbidden for the user to carry out extraordinary maintenance interventions, because, having no detailed information on their execution methods, the operators could be in dangerous situations.

Have the interventions carried out by expert personnel appointed by the user.

Any maintenance operation must be carried out with machinery switched off and only after having disconnected the electrical panel.

It is recommended to stop and to intervene with the extraordinary maintenance every time a not optimal functioning is felt, this will always allow to have the maximum efficiency.

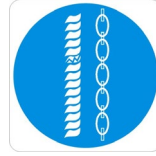
Always use the Personal Protective Equipment:

- a) gloves;
- b) anti-slip shoes;
- c) glasses;
- d) suitable work clothing.

Spray Box removal procedure

For extraordinary nozzle replacement operations, remove the "nozzle holder drawer" from the guides of the machine and remove the fixing screws.

The load must be lifted with suitable slings, hooking of the loads and mechanical lifting means or carrying out the operation with several workers.



Initial conditions

- Switch off the system
- Disconnect the power supply

Safety conditions

- Pad the electrical cabinet and hold the key with them
- Apply the "maintenance in progress" warning signs
- Use the appropriate PPE
- Contact the manufacturer

Visually check the status of the individual parts that make up the quasi-machine, checking that there are no changes due to sagging or deformation.

For all the maintenance that does not require voltage to the power components, stop the system by disconnecting the power supply from the main switch disconnector, locking it in the "O" position (OFF) with the appropriate padlock.

I

Failure to comply with the requirements, exonerate the manufacturer from any type of responsibility

DIAGNOSTICS AND TROUBLESHOOTING

For faults and / or malfunctions of the quasi-machine not described in this manual, please contact the Manufacturer.

6.9 Assistance

For any kind of information concerning the installation, use and maintenance of the quasi-machine, the Manufacturer is always considered available.

On the Client's side it is advisable to ask the questions in clear terms, with references to this Manual and to the instructions listed.

6.10 Accessories

The accessories that can be combined with the quasi-machine are:

- brushing machine (see attached documentation) for sheet metal cleaning
- aspirator (see attached documentation) for the extraction of the oil mists

The accessories are installed in accordance with the provisions of the individual manufacturer.

6.11 Spare Parts

I

Always use original spare parts.

For any spare parts contact the manufacturer.

For the management of spare parts, the manufacturer recommends using the attached form. To request the spare parts, fill in the form, taking care to insert all the requested information, and send it to the Manufacturer.

In order to interact in the most effective way with our technicians when ordering spare parts, please follow the procedure below:

- call the Company's spare parts service and describe the type of fault found;
- describe the non-functional detail;
- trace the part of the quasi-machine where the non-functional part is located
- order the details using the Order Form on the following page;

The use of non-original spare parts is not recommended: in the event this happens, the warranty conditions (if still existing) and Manufacturer's Responsibility in the use of the quasi-machine and for possible damages to people and / will be void. or things.

REPLACEMENT PARTS REQUEST FORM

APPLICANT DATA	BUSS NAME	
	NAME SURNAME	
	ADDRESS	
	LOCATION	
	POSTAL CODE	
	PROVINCE	
	PHONE	
	E-MAIL	

QUASI-MACHINE DATA	QUASI-MACHINE NAME	
	TEMPLATE	
	SERIAL	
	YEAR OF CONSTRUCTION	

LIST OF PARTS TO ORDER	ID	P/N	DESCRIPTION	QUANTY

NOTE	
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