# Technical Description - Use and Maintenance

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INTRODUCTION

Thanking for the trust you gave us on choosing our system, we would like to remind you that this handbook is an integral part of our system and that you must follow the rules here included. Read carefully the notices and instructions as they give very important instructions concerning the

SECURITY AND MAINTENANCE

Keep this handbook carefully for any further consultation.

Reading the handbook, the operator finds some typographic conventions, which must be read following the directions below-mentioned:

⇒ Paragraphs marked by arrows do point out notes about working safety rules. It is necessary to follow the mentioned rules in order to avoid unnecessary risks

THE PARAGRAPHS WRITTEN IN BOLD FACE CAPITAL LETTERS DO POINT OUT AN OBLIGATION IN THE MACHINE USE. FOLLOW THESE RULES STRICTLY.

NOTES WRITTEN IN ANY STRUCTURE LIKewise THIS ONE POINT OUT IMPORTANT DIRECTIONS ABOUT USE, RISKS AND RULES.

THE NON-OBSERVANCE OF THE RULES CONTAINED IN THIS HANDBOOK RELIEVES THE MANUFACTURER FROM ALL AND ANY RESPONSIBILITIES.

N.B.: From now on, the COMBINED PAINTING BOOTH will be called BOOTH only.

This handbook describes all the use and maintenance rules to obtain the best results from the plant and its efficiency at high levels.

We suggest you to read carefully these recommendations before operating the machine.

WARRANTY

After the test, the plant is guaranteed for 12 months. We are at your disposal for any assistance witch could come up. We would like to remember you that the non-observance of the described rules revokes the warranty.

The responsibility concerning the warranty will be considered as cancelled if the operator does not follow these use directions or makes any change without a previous written permit of the manufacturer and/or does not use original spare parts.

Saima Meccanica S.p.A. reserves the right to make every change that should be necessary for a better working of the machine. The directions of this handbook are addressed to users (operators and maintenance workers).

REFERENCE RULES

This handbook has been drawn up in compliance with the indications of the following rules:

EN 292-1, EN 292-2, EN 418, EN 1050, EN 60204-1, EN 55022-B.

IDENTIFICATION

The metal plate here symbolized contains all the information about the identification and the plant working.

It is placed on the thermo-ventilating group, laterally to the burner; if there is no generator unit, the metal plate is placed on the exhauster unit.
**TECHNICAL DESCRIPTION - USE AND MAINTENANCE**

The plate contains the following information:

![Image of SAIMA plate]

In this section we report the identification and electrical and thermal capacity data of plant.

In this section we report air treatment capacity of plant.

Follow this general and easy instructions for good health of your plant.

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### MAINTENANCE INSTRUCTIONS EVERY 50 HOURS OF OPERATION

1/ To extract the filter from the prefiltration cabinate and clean it with compressed air.
2/ Motor/fan belt tension to be checked-pressing on the belts, in the middle of them, the deflection must not exceed 2 cm, and also must not be over tight.
3/ To check the filter under grills (if any) - if very dirty, replace.
4/ Having the booth in function (in spraying phase) with closed doors, clean all the internal elements in the upper part, with compressed air.
5/ To replace the filter in the tank of water recycle.

---

### EVERY 150 HOURS OF OPERATION

1/ To replace the prefiltration filter.
2/ To clean the glass of the upper lighting.
3/ In case of a booth with a basement-wet system-the tanks have to be cleaned perfectly.
4/ To check that the burner is working correctly.
5/ To change the water in the basins.

---

### EVERY 800 HOURS OF OPERATION

1/ To repaint the internal walls of the booth, if very dirty.
2/ To check the belts on the motor/fan and to replace them if very worn.
3/ To take off the special cap and inspect the fume pipe. If there is a large amount of soot, it must be removed.
4/ The burner must be serviced by the service Agent.
5/ To check the gasket of the doors. To replace them if they should prove to be worn so as not to be air tight.

---

### EVERY 1200 HOURS OF OPERATION

1/ To replace the plenum filters.
2/ To call in the approved service Agent for cleaning the combustion chamber.

**N.B.:**
The replacement filters must be exactly the same as the original ones.
USE DESTINATION

The booth must be used only for the painting of motor vehicles and their parts as well as for the painting of products in general.

USE DESTINATION RESTRICTIONS

The booth has to be destined only to the use it has been expressly conceived for, following the specified restrictions.

Any other use is to be considered as improper and unreasonable.

The manufacturer is not responsible for possible damages caused by wrong, improper and unreasonable uses.

DIMENSIONS

The dimensions of the object to be painted must be such to have a space of 80 cm far from each wall of the booth.

LOAD CAPACITY

The maximum capacity load of the grates is Kg 480 on a wheel print of 250 mm X 250 mm.

CHANGES

Features and data can change according to customer’s special requirements or special load capacities.

GENERAL SAFETY REGULATIONS

The use of the equipment is allowed only to specifically trained and authorized staff. Any and every tampering or modification of the equipment, which has not been previously authorized by the manufacturer, relieves him from damages derived or referred to the above-mentioned acts. The removal or the tampering of the safety devices entails a violation of the European safety rules.

We recommend the use of original fittings. Our machines are panned to accept original fittings only.

⇒ Skilled staff, respecting the instructions here described, must carry out the installation.

⇒ Check that damage conditions do not occur during the operations. In case of working irregularities, stop immediately the working system and call the service of the authorized seller or directly Saima Meccanica S.p.A.

| ! | THE INTERVENTION OF SKILLED STAFF IS REQUIRED FOR ANY INTERVENTION ON THE ELECTRIC SYSTEM, EVEN IF OF SMALL ENTITY |

SAFETY DEVICES

- Ergonomic control board
- Thermostat adjusted on 110°C. It is placed on the hot air thermo-ventilating group; if an anomalous temperature will be reached in the combustion chamber, he turns off the burner.
- Electric isolation
- Total air change (inside the booth) during both the painting phase and the drying one.
- Automatic opening of the service door in case of exceeding overpressure in the booth
- Protection throw magneto-thermal switches
- Flameproof and heat-resistant structure
- Self-extinguishing filters
- Automatic cooling system of the heat exchanger at the end of the drying cycle with pilot light
- Anti fire shutter and vibration-damper joint
- Pilot light of the burner block
- Emergency button
- Control board at 24 V
- Control pilot lights for the working phases

We remember that the customer must follow the safety rules in force. Especially, he has to effect the plant earthing, the safe equipment, the solenoid gun valve and the connection to the net.
TRANSPORT AND UNLOADING

The disassembled booth appears as a package kit. The package transport must be carried out following the list of instructions indicated in this paragraph. Very fragile or delicate parts are inserted into the thermo-ventilating structure during the loading.

![Before unloading the thermo-ventilating group, open the door and unload the fragile parts.]

Protect the control board from bad weather exposition to avoid substantial variations of the machine temperature and water infiltrations.

⇒ For the lifting, do not use metal ropes
⇒ For the handling, use lift trucks or fork-lifts having a minimum capacity of 2500 kg
⇒ If the packages are lifted by bridge crane, use belts of suitable dimension with a capacity no less than 2500 kg.

UNLOADING INSTRUCTIONS

| 1 | THERMO-VENTILATING GROUP | If possible, sling it with suitable belts (min. 800 kg) and lift it by bridge crane. If it is not possible to use this procedure, lift it by means of forklift or transpallet. |
| 2 | EXHAUST UNIT¹ | If possible, sling it with suitable belts (min. 800 kg) and lift it by bridge crane. If it is not possible to use this procedure, lift it by means of forklift or transpallet. |
| 3 | PANELS, SLOPING PIECES, FRONTAL, DOORS AND LARGE-SIZE ASSEMBLED COMPONENTS IN GENERAL. | The panels forming the booth walls must be unloaded manually and, owing to their deformability, trucks must carry them with caution. |
| 4 | GRATINGS (IF THERE ARE) | Forklifts or transpallet to carry gratings. |

![Handle with special care, owing to the deformability of the booths components.]

UNPACKING, INSTALLATION, ASSEMBLING AND TEST.

After having removed the packing, make sure of the integrity of all booth components, testing if there are not visibly damaged parts.

In case of doubt, get in touch with Saima Meccanica S.p.A. or with the authorized seller.

⇒ Packing materials (such as plastic bags, expanded polystyrene, nails, screws, wood, etc.) must not be left within the reach of children, since they can be extremely dangerous.

Put the above-mentioned materials into appropriate gathering places, if they are not biodegradable or contemning.

![Once the unpacking operations are ended, waiting to assemble the booth, place the material in a clean and dry place.]

¹ the cleaner group is optional, so it may not be included.
Skilled staff only, which has been expressly authorized by Saima Meccanica S.p.A., must effect the booth installation and assembly. The staff must follow the instructions given in the installation and assembly handbook. At the end, the assembler together with the customer will execute the operative testing and the assembler will fill in the form (see the form) and in case of a positive result, it will be signed by the customer.

| ! | A SKILLED TECHNICIAN MUST EFFECT THE TESTING, THE ADJUSTMENT AND THE SETTING AT WORK OF THE BURNER. THESE OPERATIONS ARE AT CUSTOMER’S CHARGE, COMPLETELY. |

**DEACTIVATION AND SET ASIDE.**

In case the booth is not used for a long period, shear the cable connecting the power board to the electric system, taking care to leave, at least, 30 cm of the cable, so to make easier any future installation. In case of plant setting aside, pack again adequately the power board, the control board and all the fragile parts (glasses, or anything else). We recommend to place all the plant parts in a sheltered and dry place, and to insulate any components from the floor or walls.

**WE REMEMBER THAT EXCLUSIVELY SKILLED STAFF AUTHORIZED BY THE MANUFACTURER CAN CARRY OUT THE PLANT DISASSEMBLING.**

In case the booth is not used for a long time, before activating the plant again, change all the filters and clean all the electric system carefully with compressed air. If the system, which has been previously set aside, will be reassembled, change *ex-novo* the electric system.
The booth is a structure projected for painting, flash off and drying of painted objects.

This structure works in a light positive pressure and the following parts form it:

1. Inclined light fixtures with 30W neon
2. Thermo – ventilating group pre - filters
3. Big inlet curve
4. Recycling automatic air lock.
5. Thermo – ventilating group pre filters
6. Centrifugal fan; flow rate 16.000/41.000 m³/h.
7. Heat exchanger. Tube bundle
8. Heat exchanger. Boiler
9. Hot air inlet duct
11. Ceiling filters
12. Vitiated air exit ditches
13. Lateral roof light fixtures with 30W neon
14. Exhaust unit. Trapezoidal pipe fitting
15. Exhaust unit with synthetic pocket filter (optional activated charcoal).
17. Exhaust unit. Setting shutter.
18. Exhaust unit structure
19. Hot air thermo – ventilating group
20. Anti fire shutter
21. Vibration damper joint
BASEMENT

The booth basement is to be considered as the underlying works of the booth. These works are necessary for the out flow of the vitiated air from the booth inside. For the booth working there are three available different kinds of basement:

A) PREFABRICATED METALLIC BASEMENT

Steel sections entirely bolted among them, so to make an integral assemblage, form it and it is projected in order to carry out correctly a pre-filtered air outflow.

This basement has the same length and width of the booth; it is installed under the booth and it gives a positive gradient to the booth entrance.

To eliminate this gradient, the customer can underground the basement or to ask the rise running boards to the manufacturer.

The trampling plane is made of shaped, galvanised or raw gratings, according to the customer’s requirements. The gratings are formed by 30/10 mm flat iron which form the border and the load-bearing structure plane, they are placed transversally, whereas, in the length direction, there are square-twisted iron rods.

! CAUTION! THE TRAMPLING PLANE HAS AN ABRASIVE SURFACE

B) MASONRY BASEMENT

The customer realises the basement in masonry or in civil structures following our design, excepting a different agreement. This basement is necessary to allow a correct outflow of the vitiated air besides; it is the work plane of the booth. Such basement is made up by a masonry floor

with suitable load capacity and must be sized by a skilled technician, at customers charge, on the basis of the customer’s requirements. It is necessary to take into consideration the working loads and local aseismic rules.

Two ditches covered with our gratings interrupt this floor; in this way, the air can outflow from the booth inside, once it has carried out its work. Special filters placed under the gratings filter the air.

The underlying tunnel must be no less than 80 cm high, so the air can flow regularly.

Section-breaker walls may be placed inside the underlying tunnel to support the overhanging floor; but they must not interrupt the air outflow. Make sure that the walls are built in sections or own large holes in their extension. The outlet tunnel, where the air to be flown is canalised, must keep the dimensions of 150X80 cm and it must not have angles greater than 90° to avoid airflow hind ness.

C) LATERAL AIR DOWN-FLOW

With the lateral airflow, which is mainly used if it is not possible to execute the necessary works to build the structures A and B, no supplementary works are necessary. Nevertheless, make sure that the plane where the booth will be installed is perfectly in level and rigging. This check is necessary to ease the assembly and to assure a perfect booth operative working.
UNDER GRID FRAMES WITH ADJUSTABLE VANES
The new under grid frames with adjustable vanes make a more definite adjustment of air flow possible. Follow the following instructions of installation to make the most of regulation chances.

INSTRUCTIONS OF INSTALLATION
Once the installation of metal basement has finished, go on as follows:
• Start the assembling of tanks from any angle of basement.

• Complete the distribution of the under grid frames. The frames of the outside pits should be installed so that the adjustable vanes are turned towards the spray booth inside.
• Once the frames have been arranged, open the adjustable vanes completely in order to make a ring.

• Lay down the filters and place the grids. Then proceed to survey the air flow inside the booth. In case of unsatisfactory balancing, change the opening of the adjustable vanes.
**FRONT ENTRANCE PANEL**

The front entrance, which is equipped with lateral hinged doors or with a motorised winding shutter, permits the entry in the booth of the objects to be painted. When it is closed, it provides a perfect separation from the outside room.

The wings of the doors are made up with sheets of top quality steel; the sheet can be galvanised, pre-painted or vinyl coated according to the customer's requirements. The motorised gate is made out with transversal elements in coloured aluminium with variable dimensions, according to the customer's requirements.

The frontal entrance can be of different typologies:

A) **FRONTAL WITH THREE SHUTTERS**

The frontal with three shutters has a usable entry of 282 cm wide. It is installed in booths with a maximum width of 407 cm without service doors; in booths with a width of 469 cm; in the version equipped with two service doors positioned laterally to the main entry. This version has all doors equipped with inspection portholes, except on explicit customer’s request.

B) **FRONT WITH FOUR SHUTTERS**

This version is proposed in booths with a minimum width of 407 cm, a usable opening of 379 cm, to permit the entry of bulky means. This type of frontal does not have service doors on the frontal
C) LATERAL ENTRANCE

For special entries or movements, the booth can be equipped with a lateral entrance. It can be combined with a standard frontal entrance, stand-alone or with a lateral opening formed by 6 wings that, opening like a book, permitting a large entrance (about 5.90 m).

D) DOUBLE FRONT DOOR

Sometimes, upon request of customer, spray booths can be equipped with double front door.

| ! | **SERVICE (OR EMERGENCY) DOORS ARE EQUIPPED WITH TWO SPRING LATCHES, WHICH OPEN WITH A MINIMUM, BUT ADEQUATE, PRESSURE, IN ORDER TO MAKE IT AN EFFICIENT ANTI-PANIC SYSTEM. IF IT IS NOT POSSIBLE TO EQUIP THE BOOTH WITH ONE SERVICE DOOR AT LEAST, THIS MECHANISM CAN BE APPLIED TO ONE OF THE FRONTAL DOORS.** |
OUTER WALLS

The outer wall panels are made up with a sandwich of treated sheet, with a minimum thickness of 8/10 mm, filled internally with high quality thermo-insulating and auto-extinguishing material. In the panels, one or more light fixtures can be inserted in the roof, equipped with neon lights, so to obtain an excellent, balanced lighting of the work environment (actually, over the limits imposed by the laws). The panels are white inside, whereas outside they can be supplied with a galvanised, pre-painted or vinyl coated; they can be coloured on the basis of the customer’s requirements, too. To improve the seal, between the panels of the outer walls, there are some elements of treated sheet formed by “H” shaped white sections. One or the lateral walls can be replaced, on the customer’s request, with a lateral opening, which is made up with 6 book-like opening wings. In this way, the customer has an opening of 590 cm wide, so to permit the transversal entry of cars or other big objects. Except in this case, service doors can be inserted in the outer walls, according to the customer’s requirements.

PLENUM AND ROOF OF THE BOOTH

Over the above-mentioned outer walls, there are the ceiling filters of the booth made up with high filtering material expressly realized for Saima Meccanica S.p.A. by important firms. Together with the roof, they mark the limits of an area called “plenum” or “calm zone”. This area is expressly projected to receive the air thrust by the thermo-ventilating group, to distribute it uniformly on all the booth extension and to slow its speed in order to increase the air pressure. Descending through the ceiling filters, the airflow will have reached the right speed, pressure and distribution in order to allow an efficient work. In order to delimit this area there are some big beams and trays, made of galvanized sheet and specially reinforced.

ATTENTION! THE ROOF OF THE BOOTH IS NOT PRACTICABLE

THERMO VENTILATING GROUP

The thermo-ventilating group is an indispensable element for the booth working. It is made up with a load-bearing structure of treated steel sections and the outer panels are made of galvanised steel sheet sandwiches, which are pre-painted or vinyl coated, according to the customer’s requirements. The greatest part of the outer panels is screwed up to the structure in order to isolate the inner elements, since they are dangerous and wear-resistant. Anyway, Saima Meccanica S.p.A.’s skilled staff is authorized to carry out their overtime maintenance. However, the upper part of the back panels forms the inspection panel for the pre-filters placed in the air intake of the thermo-ventilating group. In fact, opening knobs and removing panel handles are placed on it. What concerns the modalities of this operation and for any further one about the routine maintenance, look up the maintenance chapter of this handbook. On one side of the structure, in the attachment plate, there is the burner, and usually on the opposite side, there is the smokestack, which ejects the combustion products of the burner.

Inside the thermo-ventilating group there are:

- The centrifugal fan, for thrusting the air inside the booth, and the relative electric motor of suitable power;
- The combustion chamber with the thermal exchange piping for heating the air before its entrance in the booth.

The combustion chamber and its exchange piping, with a single or double tube bundle, are made of stainless steel, and they are placed on a moving slide, which supports the elastic movement due to the thermal expansion. On the upper part of the thermo-ventilating group, or on the part called “big inlet curve”, there is an air-recycling shutter. It is useful to increase the air outlet temperature during the drying phase, since, once it is opened, it lets again in the cycle the air already heated by the heat exchanger. The turning on of this part can be manual or automatic, by means of an electric motor activated on the control board.
The exhaust unit is an optional fitting of the booth working. It is formed by a load-bearing structure made of structural steel appropriately treated and the external panels are made of hot galvanised steel sheet sandwiches; they are pre-painted or vinyl coated according to the customer's requests. Mostly of the outer panels are bolted to the structure to isolate the inner elements, because they are dangerous and wear-resistant, which maintenance has to be effected by Saima Meccanica S.p.A.'s skilled staff. In the inaccessible upper part, there is the centrifugal fan, which sucks the air from the lower part of the machine. Over the cleaner group, there is a calibration shutter. The technician who assembles and tests the plant must adjust it; it is useful to optimise the electric motor input, which turns on the centrifugal fan. Skilled staff must effect any possible following adjustment of it. During the drying phase, the cleaner group fan does not work. In this way, it permits the group works passively, as a filtering duct.

The exhaust unit can be of three different types:

A – Exhauster with dry filter: the filtering occurs by a set of filters placed on the lower part of the group. These filters are dry, made of synthetic fibres thermally bound and with a progressive density. The maintenance and the periodic replacement of filters are carried out by means of the inspection panel placed on the lower part of the group.

B – Exhauster with activated charcoal: the filtering occurs by cylindrical cartridges containing granules of activated carbon. The maintenance and the periodic replacement of filters are carried out by means of the inspection panel placed on the lower part of the group.
Thermo Ventilating Unit Type Aggregate

Power unit type aggregate joints together in a sole structure both power. Exhaust unit and air intake see page 16/17 for the description of each component.

Pneumatic Recycle Scheme

- Connection to control panel
- Air speed regulation
- Air entry
- Regulation of pistons closure speed
- Connection for pistons opening
- Connection for pistons closure

IN DRYING PHASE, LOW PARTIAL RECYCLE OF AIR INSIDE THE SPRAY BOOTH IS ALLOWED, PROVIDED THAT THE LIMIT OF 10% OF FLAMMABLE SUBSTANCES IS NOT EXCEEDED.
FILTERS

PRE - FILTERS OF THE THERMO-VENTILATING GROUP

Fabric no-fabric, progressive density type, out of thermoregulated synthetic fibres.
No-biodegradable product.
NB. The filtering panel is not to disperse in the environment, but sent to an authorized dump.

Mean gravimetric efficiency 90%
Starting change loss 23 Pa
Max change loss 250 Pa
Max temperature 100°C
Fire reaction CLASS 1 in compliance with Din 53438
Classification (EN 779) G 4
Nominal air speed 1.5 m/s
Over spray accumulation 530 gr/mq
Regeneration Yes

CEILING FILTERS

Fabric no-fabric, progressive density type, out of synthetic fibres totally soaked; a glass net is located on the side for the air outlet in order to get a bigger stability.
No-biodegradable product.
NB. The filtering panel is not to disperse in the environment, but sent to an authorized dump.

Mean gravimetric efficiency 96%
Starting change loss 25 Pa
Max change loss 450 Pa
Max temperature 100°C
Self-ignition temperature no one
Fire reaction CLASS F1 in compliance with Din 53438
Classification (EN 779-Eurovent) G 3 – EU 3
Nominal air speed 1.5 m/s
Over spray accumulation 419 gr/mq
Regeneration no
**UNDER - GRATING FILTERS**

The filter is composed of continuous filaments out of glass fibre which are progressively twined so that the particles can deeply enter.

No-biodegradable product

NB. The filtering panel is not to disperse in the environment, but sent to an authorized dump.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
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<td>Mean gravimetric efficiency</td>
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<td>Starting change loss</td>
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<td>Max change loss</td>
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<tr>
<td>Max temperature</td>
<td>100°C</td>
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<tr>
<td>Classification (EN 779)</td>
<td>G 3</td>
</tr>
<tr>
<td>Fire reaction</td>
<td>CLASS 1 in compliance with Din 53438</td>
</tr>
<tr>
<td>Nominal air speed</td>
<td>1.5 m/s</td>
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<tr>
<td>Over spray accumulation</td>
<td>4000 gr/mq</td>
</tr>
<tr>
<td>Regeneration</td>
<td>No</td>
</tr>
</tbody>
</table>

**SUCTION BOARD FILTERS AND PRE - FILTERING CELLS OF THE EXHAUSTING UNIT**

The filter is composed of continuous filaments out of glass fibre which are progressively twined so that the particles can deeply enter.

No-biodegradable product

NB. The filtering panel is not to disperse in the environment, but sent to an authorized dump.

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<td>G 3</td>
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<tr>
<td>Fire reaction</td>
<td>CLASS 1 in compliance with Din 53438</td>
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</tbody>
</table>
**POCKET FILTERS OF THE EXHAUSTING UNIT**

The filter is composed of continuous filaments out of glass fibre which are progressively twined so that the particles can deeply enter.

No-biodegradable product

NB. The filtering panel is not to disperse in the environment, but sent to an authorized dump.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean gravimetric efficiency</td>
<td>90%</td>
</tr>
<tr>
<td>Starting change loss</td>
<td>23 Pa</td>
</tr>
<tr>
<td>Max change loss</td>
<td>250 Pa</td>
</tr>
<tr>
<td>Max temperature</td>
<td>100°C</td>
</tr>
<tr>
<td>Self-ignition temperature</td>
<td>n/a</td>
</tr>
<tr>
<td>Fire reaction</td>
<td>CLASS in compliance with Din 53438</td>
</tr>
<tr>
<td>Classification (EN 779-Eurovent 4/5)</td>
<td>G 4</td>
</tr>
<tr>
<td>Nominal air speed</td>
<td>1,5 m/s</td>
</tr>
<tr>
<td>Over spray accumulation</td>
<td>530 gr/mq</td>
</tr>
<tr>
<td>Regeneration</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**BAG FILTER FOR FILTERING UNIT MOD. “ACTIVATED CHARCOALS”**

The filter is composed of continuous filaments out of glass fibre which are progressively twined so that the particles can deeply enter.

No-biodegradable product

NB. The filtering panel is not to disperse in the environment, but sent to an authorized dump.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean gravimetric efficiency</td>
<td>75%</td>
</tr>
<tr>
<td>Starting change loss</td>
<td>18 Pa</td>
</tr>
<tr>
<td>Max change loss</td>
<td>125 Pa</td>
</tr>
<tr>
<td>Max temperature</td>
<td>100°C</td>
</tr>
<tr>
<td>Self-ignition temperature</td>
<td>n/a</td>
</tr>
<tr>
<td>Fire reaction</td>
<td>CLASS in compliance with Din 53438</td>
</tr>
<tr>
<td>Classification (EN 779-Eurovent 4/5)</td>
<td>G 2 – EU 2</td>
</tr>
<tr>
<td>Nominal air speed</td>
<td>1,5 m/s</td>
</tr>
<tr>
<td>Over spray accumulation</td>
<td>400 gr/mq</td>
</tr>
<tr>
<td>Regeneration</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**ACTIVATED CHARCOAL CARTRIDGES OF THE EXHAUSTING UNIT**

<table>
<thead>
<tr>
<th>Charcoal cylinders diameter</th>
<th>4-4.5 mm</th>
<th>Density</th>
<th>430-480 kg/mc</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.T.C. Absorption</td>
<td>55%</td>
<td>Humidity</td>
<td>3%</td>
</tr>
</tbody>
</table>
ANTI-EXPLOSION DEVICE OF THE ROOF (UPON REQUEST)
Some panels of the roof can be fixed in a particular way so to satisfy anti-deflagration requirements if they are required by local laws or on the customer’s request.

ELECTRIC MOTORS
Saima Meccanica S.p.A. uses motors conformed to the IEC 34-I electric rules.

SUCTION BOARD
Heat-galvanised sheets form the suction board, and it is nothing else than a duct provided with filters. It conveys the air to the exhaust unit, providing a first filtering, to retain solid or liquid parts. Upon customer’s request, it is possible to fit it in matter to permit to walk on its surface.
PLANT WORKING

The plant working phases are two:

PAINTING PHASE

WITH OR WITHOUT AGGREGATE UNIT

In this phase, during which the operator is inside the booth, the thermo-ventilating group lets always-clean air in the booth. It heats it with a thermal rise of about 15°C (varying value according to the external temperature), pushing the air speedy, in order to keep the operator out of the residual paint “cloud” of the painting phase.
**DRYING PHASE**

**WITH OR WITHOUT AGGREGATE UNIT**

Now the booth, without the operator inside, heats the air more considerably (about 60°C of thermal rise), with an air recycle to get a fast and uniform drying of the treated piece.

**WITH AGGREGATE UNIT**
CONTROL BOARD

Before executing any operation on the machine, the user must read carefully this chapter about the control board and its commands in order to understand exactly their meaning and use. It is necessary a good knowledge of the technical terminology to operate on the machine’s commands with safety.

REFERENCE DESCRIPTION

<table>
<thead>
<tr>
<th>Reference</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>Key selector on/off</td>
</tr>
<tr>
<td>H1</td>
<td>Pilot light - the board is under tension</td>
</tr>
<tr>
<td>S4</td>
<td>Painting phase stop button</td>
</tr>
<tr>
<td>S5-H4</td>
<td>Painting phase start button</td>
</tr>
<tr>
<td>S6</td>
<td>Drying phase stop button</td>
</tr>
<tr>
<td>S7-H5</td>
<td>Drying phase start button</td>
</tr>
<tr>
<td>S2-H2</td>
<td>Lights switching on</td>
</tr>
</tbody>
</table>

REFERENCE DESCRIPTION

<table>
<thead>
<tr>
<th>Reference</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S3-H3</td>
<td>Lights switching on</td>
</tr>
<tr>
<td>H7</td>
<td>Cooling phase pilot light</td>
</tr>
<tr>
<td>H6</td>
<td>Block red pilot light of burner</td>
</tr>
<tr>
<td>P2</td>
<td>Counter</td>
</tr>
<tr>
<td>KT5</td>
<td>Counter</td>
</tr>
<tr>
<td>P1</td>
<td>Thermo - regulator (pyrometer)</td>
</tr>
<tr>
<td>S8</td>
<td>Emergency stop button</td>
</tr>
</tbody>
</table>
**REFERENCE DESCRIPTION**

<table>
<thead>
<tr>
<th>S1</th>
<th>Key selector on/off</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Pilot light - the board is under tension</td>
</tr>
<tr>
<td>S4</td>
<td>Painting phase stop button</td>
</tr>
<tr>
<td>S5-H4</td>
<td>Painting phase start button</td>
</tr>
<tr>
<td>S6</td>
<td>Drying phase stop button</td>
</tr>
<tr>
<td>S7-H5</td>
<td>Drying phase start button</td>
</tr>
<tr>
<td>S2-H2</td>
<td>Lights switching on</td>
</tr>
<tr>
<td>S3-H3</td>
<td>Lights switching on</td>
</tr>
</tbody>
</table>

**REFERENCE DESCRIPTION**

<table>
<thead>
<tr>
<th>S10-S11</th>
<th>Selector for spray booth pressure balancing</th>
</tr>
</thead>
<tbody>
<tr>
<td>H7</td>
<td>Cooling phase pilot light</td>
</tr>
<tr>
<td>H6</td>
<td>Block red pilot light of burner</td>
</tr>
<tr>
<td>P2</td>
<td>Counter</td>
</tr>
<tr>
<td>KT5</td>
<td>Counter</td>
</tr>
<tr>
<td>P1</td>
<td>Thermo - regulator (pyrometer)</td>
</tr>
<tr>
<td>S8</td>
<td>Emergency stop button</td>
</tr>
<tr>
<td>MGH</td>
<td>Magnehelic</td>
</tr>
</tbody>
</table>
**SPRAYING PHASE**

Insert the key into the SELECTOR [S1] and rotate it up to position 1, so that tension is inserted into the control circuit. The warning light [H1] lights. If it has not already been done previously, set the PYROMETER [P1] on the desired value, so that the desired temperature for spraying is set. For pyrometer setting see the sheets that are attached to the control panel manual. Push the button [S5-H4] to start spraying phase, the warning light [S5-H4] lights and the thermo-ventilating group starts working; if it is present the exhaust/extractor group starts working. Turn on the inside lights of the spray booth by the switches [S2-H2 S3-H3]. The spray booth is ready to start spraying.

**DRYING PHASE**

Push the button [S5-H4], the inside lights of the spray booth turn off in an automatic way. Leave the spray booth work in spraying phase for further five minutes; this phase, called flash off phase, allows the expulsion of the solvents that are still present in the spray booth and allows also the BYPASS to open. The warning light [S2-H2 S3-H3] turns off in an automatic way. If it is present the exhaust/extractor group turns off. The temperature that has been set for drying phase appears onto the pyrometer, and if it is necessary such temperature can be changed by the push buttons of the pyrometer itself. For pyrometer setting see page 25, or the sheet that is attached to the control panel manual. By the timer [KT5] you can set the desired time of phase duration. For timer setting see the sheets attached to the control panel manual. If you want to interrupt drying phase, you must push the button [S6]. When the time you had set on the timer is finished, the spray booth passes in an automatic way to the cooling phase, shown by the warning light [H7], where the spray booth keeps on working for some minutes with the burner off.

! **DURING DRYING PHASE THE OPERATORS ARE NOT ALLOWED TO ENTER THE SPRAYING/DRYING BOOTH OWING TO THE HIGH TEMPERATURE THAT HAS BEEN REACHED INSIDE THE BOOTH**

At the end of the cooling phase, the booth turns off and a new spraying phase is set in an automatic way.

**TIMER**

N.B.: TO PROGRAM THE TIMER, SEE THE CARDS ENCLOSED IN THE CONTROL BOARD HANDBOOK.

! **IF THE BOOTH HAS NOT BEEN USED FOR SOME TIME OR, NEVERTHELESS, OR IF THE CUSTOMER THINKS IT IS NECESSARY, IT IS GOOD TO EXECUTE A CLEANING CYCLE OF THE BOOTH. IT CAN BE SIMPLY REALIZED LEAVING IT WORKING IN THIS PHASE FOR 10-15 MINUTES, BEFORE STARTING THE PAINTING OPERATIONS OF THE PIECE**
THERMO-REGULATOR (PYROMETER)

**REFERENCE DESCRIPTION**

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Temperature setting</td>
<td>4</td>
<td>Temperature drop button</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Indicator of spray booth temperature</td>
<td>5</td>
<td>Temperature rise button</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Phase button</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Before starting the working phases of piece, it is important to adjust working temperature, both for painting and drying phase by means of the pyrometer placed on control board.

Press phase button (3) to enter ‘painting phase set’, set temperature by means of buttons ‘temperature down’ (4) and temperature up (5) until the display (1) visualizes the desired temperature; then press button (3) to go on to drying phase and set temperature as described before. Once such an operation has ended, press button (3) again to bring the pyrometer back to standard mode.

**OPERATIVE TEMPERATURES**

The temperatures to be set for the working phases are:

- **PAINTING**: usually about 20 °C, but it can be set at any temperature useful for the operator, since the heating of the air does not affect on the good result of the painting. In limit situations, i.e. in very hot countries or periods, the temperature can be set at 0°C, so the booth will be only ventilated.

- **DRYING**: the temperature to set for the drying phase varies according to the type of the paint used by the user. Saima Meccanica S.p.A. guarantees a thermal rise of 50°C for the model Prisma, 60°C for the model Beta and 80°C for the models Gamma and Thema, excepting customer’s different request at the moment of the order. The user must follow the instructions specified by the manufacturer of the paint.

**THE PYROMETER STORES THE DESIRED PARAMETERS, SO TO AVOID NEW SETTING EVERY TIME**
The manometer is a pressure control device. Its installation and following adjustment is carried out by one of our skilled technicians when we operate the system. Its function is to show constantly the pressure value, so that it could be possible to act immediately if there is an anomalous variation.

**A** BEFORE EVERY CONTROL, CHECK IF THE INSTRUMENT IS IN A PERFECT HORIZONTAL POSITION. READ THE VALUE DIRECTLY EXPRESSED IN MM OF H₂O.

**WATER TUBE MANOMETER ASSEMBLY**

In order to check the pressure value in the several parts of the plant, it is necessary to install three gauges, as shown in the figure:

- **A** – Booth Pressure Checking Manometer
  
  To check the pressure inside the booth, connect the high-pressure clutch (7) on the booth side.

- **B** – Checking Of The Pressure In The Generator Pre-Filtering Filters
  
  Connect the low-pressure clutch (6) at the centre of the hot air generator booth, under the pre-filtering filters.

- **C** – Checking Of The Pressure In The Exhauster Unit Filters
  
  Connect the low-pressure clutch (6) to the exhauster unit panel, under the filters inside the unit.
CONTROL PANEL OF ELECTRIC BOARD

REFERENCE DESCRIPTION

<table>
<thead>
<tr>
<th>S1</th>
<th>Key selector on/off</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Pilot light - the board is under tension</td>
</tr>
<tr>
<td>S4</td>
<td>Stop button</td>
</tr>
<tr>
<td>S5</td>
<td>Painting phase start button</td>
</tr>
<tr>
<td>S41</td>
<td>Stop button</td>
</tr>
<tr>
<td>S7</td>
<td>Drying phase start button</td>
</tr>
</tbody>
</table>

REFERENCE DESCRIPTION

| S2-H2 | Lights switching on |
| S3-H3 | Lights switching on |
| S51   | Flash off button   |
| S8    | Emergency stop button |
| S10   | 3 speed selector (low-medium-high) |
| XBT   | Control alphanumeric keyboard |
CONTROL ALPHANUMERIC KEYBOARD

Press <MOD> and set the desired value with the alphanumeric keyboard to modify the desired values.
Press <ENTER> to confirm.

If the display visualizes more variables, only the flashing one can be modified.

The operating logic is characterised by three phases:
1) Painting
2) Passivation
3) Drying

CYCLE START

After starting the power panel with the general switch (Q1) you will display on the control console the home page:

Aside the letter h, there are the working hours of the booth.
Bring the key selector (S1) on position 1, the lamp (H0) turns on and it is possible to start the working cycle.
Use the green selectors (S2-H2) and (S3-H3) to turn on the lights. The lights will automatically turn off during the desiccation phase and they always turn off in manual mode.
Before starting with the working cycle, it is possible to set the temperature and time variables of all phases. Pressing the right arrow, you will display the following page:

The password allows to enter the manufacturer’s layout software and is exclusively reserved to the Saima assistance centre. Pressing the right arrow, you will display the following page:

Now pressing <MOD>, a field begins to flash. It is possible to display in this field with <UP> and <DOWN> on the alphanumeric keyboard the working phases. After displaying the desired phase (ex. Painting), with <ENTER> on the alphanumeric keyboard, you will display the following page:

(The antifrost time is used to delay the action of the antifrost thermostat, we recommend not to change the factory formulations). Press <MOD> to modify the desired values and set the desired value with the alphanumeric keyboard. Press enter to confirm.

If the display visualizes more variables, only the flashing one can be modified.

After displaying the phase (ex. Drying), press <ENTER> on the alphanumeric keyboard and you will display the following page:

Press <MOD> to modify the desired values and set the desired value with the alphanumeric keyboard. Press <ENTER> to confirm.

If the display visualizes more variables, only the flashing one can be modified.

Once set the phases, start the working cycle. During the working cycle, the temperature and time values related to the phases in execution are settable.
**PAINTING (S5)**

This is the main phase, pressing the key <Painting>, the motors start and the automatic controls of temperature and pressure begin.

In this phase you will display the following page:

![Painting Page](image)

the variables to set are two:

1. **Temperature (°C)**
2. **Air Capacity** (Potentiometer R1 or Selector for 3 speeds). Press <MOD> to modify the desired values and set the desired value with the alphanumeric keyboard. Press <ENTER> to confirm.

If the display visualizes more variables, only the flashing one can be modified.

**PASSIVATION (S51)**

This phase is indicated for the treatment of cold-water paints. Pressing the suitable key, you will start the automatic phase with temperature and time set by the operator.

Once expired the time, the machine automatically goes to the painting phase.

If you want to return to the painting phase before the time end, press the key <Painting>.

In this phase you will display the following phase:

![Flash Off Phase](image)

In this phase, there are three variables to set:

1. **Temperature (°C)**
2. **Air capacity** (Potentiometer R1 or selector for 3 speeds).
3. **Time** (Minutes)

Press <MOD> to modify the desired values and set the desired value with the alphanumeric keyboard. Press enter to confirm. If the display visualizes more variables, only the flashing one can be modified.
**DRYING (S7)**

This phase dries the painting. Press the drying button <Drying> to start the drying cycle after selecting the painting mode.

The drying phase has 3 phases:

1. Flash period:

2. Drying:

3. Cooling:

In these phases you can set: Time, Temperature and Air capacity.

These 3 phases allow the user to set some drying cycles with different temperature ranges. (example: 20 minutes at 40°C + 10 minutes at 60°C + 5 minutes at 20°C to cool the machine.)

The passages from phase to phase are automatically operated by the times. Set the time of the current phase to zero to pass to the following phase before time expiration.

Once the drying cycle has finished, the machine stops.

In this phase you have to set three variables:

1. **Temperature** (°C)
2. **Time** (Minutes)
3. **Air capacity** has a preset value.

Press the <MOD> button to modify the desired values and set them using the alphanumeric keyboard. Press <ENTER> to confirm.

If the display shows different variables, you can modify the blinking one.

- Press button <S4> to stop the installation whenever you want.
- Press button <S8> for the emergency stop.
Alarm messages are removed automatically from the display when the alarm disappears.

**Press button <ESC> to remove service or pressure alarm messages.**

The alarms are managed by the display:

**SAFETY THERMOSTAT:** when this message appears, the burner stops.

- An anomalous overheating of the boiler causes the alarm.
- This problem is often caused by the malfunction of the air inlet group.
- Control the state of the fan belts and anyway contact the service department.

Scroll the display with the button <DOWN> to read the prompts to control the damaged part.
**PRESSURE ALARM:** in this case the machine stops.
Replace the filters and control the belts of the engines to remove the anomaly.
Respect the service messages (maintenance) periodically displayed to avoid the anomaly.

**THESE MESSAGES SUGGEST THE REPLACEMENT OF THE FILTERS ACCORDING TO THE WORKING HOURS.**

Scroll the display with the button <DOWN> to read the prompts to control the damaged part.

**SERVICE MESSAGES (MAINTENANCE) periodically displayed.**
These messages suggest the control or replacement of the filters according to the working hours.
Press the button on the bottom of the display to scroll the display.
**Throw/Extraction Alarm:** in this case the machine stops. Contact the technical assistance to remove the anomaly.

**Alarm Messages Are Removed Automatically From The Display When The Alarm Disappears.**
Press button <ESC> to remove service or pressure alarm messages.

**Fire Barrier:** in this case the machine stops.
An anomalous overheating of the air inlet area causes the alarm.
Contact the service department.

**Burner Block:** when this message appears, the burner stops.
The alarm is caused by a problem observed by the burner gearcase.
This problem is often caused by the lack or insufficient fuel pressure.
The burner has a red luminous reset button in the gearcase.
Pressing this button, the burner should restart.
If the alarm appears once again, contact the service department of the burner.
**USE OF THE BOOTH**

CAUTION! While using the booth, be careful to follow the rules and restrictions here specified.

| 1 | Wear protective glasses and a woven not woven faceplate, in compliance with the work safety regulations. |
| 2 | Wear anti-accident shoes, protective gloves made of woven not woven or other material. |
| 3 | It is strictly forbidden to bring in or to make free flames inside the booth. |
| 4 | It is strictly forbidden to smoke inside the booth. |
| 5 | It is strictly forbidden to introduce objects or tools, which will not be used immediately. |
| 6 | It is strictly forbidden to introduce food or drinks inside the booth. |
| 7 | The entry of non authorized people is strictly forbidden. |
| 8 | Proceed at man’s walking with every vehicle. |
| 9 | Maximum load onto the piece holders: 40 kg |

Execute the painting operations respecting the following rules in order to get excellent results.

**PLANT CLEANING**

Check often the plant cleaning, especially the walls; wash them with a wet sponge (do not use rags). Protect the walls with special material (such as M3 adhesive paper or something like that).

Inside the booth, there must not be foreign materials such as paper, rags, etc. Make sure that the paint is well filtered and there are not impurities from the tank of the compressor. To connect the regulator to the spray gun use plastic tubes to avoid the flaking of the gum tubes. The gun’s plastic tube must be kept rolled on his device. When it is used, make sure the tube does not rub on the floor. We suggest using a gun transfer system.

Keep always the booth doors closed. If it is necessary to open the doors, make sure that the fan is always working.

**PAINT PREPARATION**

The paint preparation must be carried out in a perfectly clean environment and never inside the booth.

Prepare the mixture in the desired quantity into a perfectly clean plastic container, which should be made of plastic. To filter the composition, pass it through fall filters for five times at least and at the six one use two 10,000 mesh filters, one over the other and positioned diagonally.

**PREPARATION AND PAINTING OF CARS (GUIDE FOR ANY OTHER TYPOLOGY)**

The painter must keep care of the following measures, because the painting installations are to be considered as sterile environment. The painter must wear anti-dust white coat and headgear made of woven not woven material; he can find these clothes in specialized shops. If he wears gloves, they must be the ones made of woven not woven or made of gum only and he must make sure they are clean.

These wears must be put on inside the booth and, in case of reuse, keep them into plastic bags.

Switch on the fans for five minutes at least, before to start painting, in order to eliminate impurities from the surface to be painted. The preparation of the car body must be done outside the booth. The body must be perfectly clean and perfectly washed by using compressed air at high pressure.

Shield the parts that must not be painted with a special paper. After that, if it is necessary, pass the anti-silicone, blow the car again and transfer it into the booth.

Execute the last cleaning of the body by means of anti-dust clothes; blow the air on the surface to be painted, and check if there are no impurities. For that operation, use compressed air at very low pressure. During the painting phase, use compressed air at a pressure no higher than four atmospheres.

**DO NOT MAKE SUDDEN MOVEMENTS IN THE BOOTH AND AVOID THE DRAG AND THE "WHIP" OF THE AIR PIPE.**
CONTRAINDICATIONS AND SAFETY

Do not use compressed air for the cleaning of the ceiling-filtering mantle and for cleaning the walls. Never open the doors during the painting. During the painting never wear wool or cotton clothes.

REMOVE THE FUEL TANK (FUEL, GASOLINE, GAS OR OTHERS) AND THE BATTERY BEFORE TRANSFER THE VEHICLE INTO THE BOOTH.

NEVER INSERT INSIDE THE BOOTH TINS OF PAINT OR SOLVENT.

NEVER REST TINS OR OTHER THINGS ON THE TOP OF THE THERMO-VENTILATING GROUP, ON THE TOP OF THE CLEANER/EXTRACTOR GROUP OR ON THE SUCTION BOARD.

DO NOT USE THE BOOTH ROOF AS A DEPOSIT.

BEFORE STARTING TO WORK THE PIECE, ALWAYS MAKE SURE ABOUT IT’S EARTHING.

TEST OF GOOD WORK

The awareness of the quality of the used materials and the good quality of our painting plant construction make us sure the booth will work correctly until the end of its working life. If you are not satisfied of the work quality effected by our plant, effect the following good working proof to find the problem in the system. Prepare and clean, following the directions above described, a flat piece of adequate size (a bonnet, for example); so, carry out the painting work-manly. If at the end of the painting there are impurities and dirtiness on the painted piece, count them and start with the drying phase. At the end of the drying phase, count again the impurities. If the impurities have not increased during this phase, the paint has not been well filtered. This means that the defect can be generated by the compressor-pipe-spray gun system, that is to say, the instructions about the painter’s wear previously described have not been followed. If the impurities have increased, please look up the maintenance table to verify if it is time to replace the thermo-ventilating group and plenum filters. If the prescribed maintenance instructions where followed, get in contact with Saima Meccanica S.p.A. or with your authorized seller to ask for help.

! The blemishes, which are found most frequently during the spray painting, are a sort of pricks coming from a paint over-spray and the “orange peel” effect due to an elevated viscosity of the paint.
**BOOTH MAINTENANCE**

In compliance with EC and national rules, the plant maintenance is divided into three different categories. The first one includes those interventions that the plant user can effect on own initiative, with non-skilled staff, since that the complexity and the accident risk is extremely reduced or non-existent. The second category includes interventions to be effected by skilled staff (electricians, burner operators, etc.), since that they are very complex or they need high specialization level.

The third one includes the interventions to effect by staff assigned by the manufacturer only, which is the only one who knows the methods and the features of the intervention. This category includes, for example, the heat exchanger replacement or the change of the control board logic, etc.

Listed below, there are the possible inefficiencies, the relative causes and the interventions to be effected, for what concerns the electric ventilating, heating and lighting system.

### AFTER HAVING TURNED THE KEY, THE PILOT LIGHT OF THE VOLTAGE (A) DOES NOT TURN ON

<table>
<thead>
<tr>
<th>Condition</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>The network voltage lacks</td>
<td>Check if the switch (or the switches), placed on the top of the booth, is closed</td>
</tr>
<tr>
<td>The pilot light lamp is broken</td>
<td>Replace the pilot light lamp</td>
</tr>
<tr>
<td>The fuse in the auxiliary circuit is interrupted</td>
<td>Replace the interrupted fuse with another one with the same features</td>
</tr>
<tr>
<td>The auxiliary circuit fuse of the fire stop gate, which is placed below the thermo-ventilating group, is interrupted</td>
<td>Replace the interrupted fuse with another one with the same features</td>
</tr>
</tbody>
</table>

### PUSHING THE BUTTON (O – PAINTING PHASE) THE MOTOR DOES NOT START

<table>
<thead>
<tr>
<th>Condition</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>The network voltage lacks</td>
<td>Check the switch (or the switches), which is placed on the top of the booth, is closed</td>
</tr>
<tr>
<td>The motor fuse is interrupted</td>
<td>Replace the motor fuse with fuses with the same features</td>
</tr>
<tr>
<td>The fuse placed in the auxiliary circuit is interrupted or there is a defect in the circuit</td>
<td>Call Saima Meccanica S.p.A. to ask for the intervention of skilled staff</td>
</tr>
</tbody>
</table>

### THE “THERMAL BLOCK” PILOT LIGHT (M) TURNS ON

<table>
<thead>
<tr>
<th>Condition</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>A phase from the feeding network lacks during the plant working</td>
<td>Restore the thermal relay</td>
</tr>
<tr>
<td>The thermal relay is wrongly adjusted</td>
<td>It is necessary the aid of a skilled technician to carry out the correct adjustment of the thermal relay, according to the features of the plant motors</td>
</tr>
<tr>
<td>The motor fuse is interrupted</td>
<td>Replace all the fuses with others with the same features</td>
</tr>
<tr>
<td>Situation</td>
<td>Action</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>The burner tries to start, but the “burner block” pilot light (M) turns on</td>
<td>Supply the tank, so push the release button. <strong>This operation must not be repeated more than two times</strong></td>
</tr>
<tr>
<td>The gas oil lacks</td>
<td>Directly, call the service center close to you, the manufacturer of the burner to carry out the necessary controls and the possible changes.</td>
</tr>
<tr>
<td>The gas pressure is insufficient</td>
<td>Clean the filter and push the release button.</td>
</tr>
<tr>
<td>The filter of the gas oil refueling tube is clogged</td>
<td>Directly, call the service center close to you, the manufacturer of the burner to carry out the necessary controls and the possible changes.</td>
</tr>
<tr>
<td>There is a combustion defect</td>
<td>Call Saima Meccanica S.p.A. to have the original spare part; the replacement must be carried out by skilled staff or by Saima’s staff.</td>
</tr>
</tbody>
</table>

**The burner starts during the booth working but it stops before reaching the fixed temperature.**

<table>
<thead>
<tr>
<th>Situation</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>The safety thermostat has operated</td>
<td>Both visually and by checking the use-hours, check the plenum and thermo-ventilating filter conditions. For the maintenance or the replacement of filters, consult and follow the instructions written in the next chapter.</td>
</tr>
<tr>
<td>Worn or loosened driving belts</td>
<td>Replace or act on the tightening pieces.</td>
</tr>
</tbody>
</table>

**During the booth working, the burner does not start**

<table>
<thead>
<tr>
<th>Situation</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>The temperature fixed on the pyrometer is lower than the environmental one, i.e. than the temperature inside the booth</td>
<td>Increase the temperature fixed on the pyrometer. N.B. The air heating, during the painting phase, is not necessary for a good result of the work. Therefore, in very hot places or periods, it cannot be necessary to heat the air.</td>
</tr>
<tr>
<td>The pyrometer is broken</td>
<td>Call Saima Meccanica S.p.A. to have the original spare part; the replacement must be carried out by skilled staff or by Saima’s staff.</td>
</tr>
</tbody>
</table>

**The burner does not stop**

<table>
<thead>
<tr>
<th>Situation</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>The pyrometer is broken</td>
<td>Call Saima Meccanica S.p.A. to have the original spare part; the replacement must be carried out by skilled staff or by Saima’s staff.</td>
</tr>
</tbody>
</table>

**After the ventilation starting, the lights of the booth do not turn on.**

<table>
<thead>
<tr>
<th>Situation</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>The fuses are interrupted</td>
<td>Replace the fuses with other ones with the same features.</td>
</tr>
<tr>
<td>The buttons or the switches are broken</td>
<td>Usually, the replacement can be carried out by skilled staff; in special cases, as well as if it is not possible to find some components, contact directly Saima Meccanica SpA.</td>
</tr>
</tbody>
</table>
DURING THE DRYING PHASE, THE TEMPERATURE DOES NOT REACH THE FIXED LIMIT.

<table>
<thead>
<tr>
<th>Possible Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>THE CALIBRATION AIR LOCK ON THE THERMO-VENTILATING GROUP IS IN THE PAINTING POSITION</td>
<td>Manually adjust the air lock in the DRYING position; if the problem persists, contact skilled staff.</td>
</tr>
<tr>
<td>THE REDUCTION GEAR OF THE GATE IS BROKEN</td>
<td>Contact Saima Meccanica S.p.A. to have the original spare part; skilled staff has to execute its replacement.</td>
</tr>
<tr>
<td>THE SAFETY THERMOSTAT HAS OPERATED</td>
<td>Both visually and by checking the use-hours, control the conditions of the plenum and thermo-ventilating group filters. For the maintenance or the replacement of filters, consult and follow the instructions written in the next chapter.</td>
</tr>
<tr>
<td>WORN OR LOOSENED DRIVING BELTS</td>
<td>Replace or act on the tightening pieces.</td>
</tr>
</tbody>
</table>

DURING THE DRYING PHASE, THE AIR DOES NOT REACH A SUFFICIENT VOLUME.

<table>
<thead>
<tr>
<th>Possible Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>THE CALIBRATION AIR LOCK ON THE THERMO-VENTILATING GROUP IS IN THE DRYING POSITION</td>
<td>Manually adjust the air lock in the PAINTING position. If the problem persists contact skilled staff.</td>
</tr>
<tr>
<td>THE REDUCTION GEAR OF THE AIR LOCK IS BROKEN</td>
<td>Call Saima Meccanica S.p.A. to have the original spare part; the replacement must be carried out by skilled staff or by Saima's personnel.</td>
</tr>
<tr>
<td>WORN OR LOOSENED DRIVING BELTS</td>
<td>Replace or act on the tightening pieces.</td>
</tr>
</tbody>
</table>

The thermostat display shows the following:

<table>
<thead>
<tr>
<th>Possible Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>---</td>
<td>THE CIRCUIT IS UNDER TENSION</td>
</tr>
<tr>
<td>FFF</td>
<td>THE CIRCUIT IS IN OVER TENSION</td>
</tr>
<tr>
<td>--- OR FFF FLASHING</td>
<td>THE FEELER IN THE BOOTH IS NOT WORKING PROPERLY</td>
</tr>
<tr>
<td>E 11</td>
<td>THE INNER MEMORY IS ERASED.</td>
</tr>
<tr>
<td>E 33</td>
<td>THE A/C TRANSFORMER IS BROKEN</td>
</tr>
</tbody>
</table>
ROUTINE MAINTENANCE

In order to grant a good efficiency and a good working of the machine it is necessary to follow the instructions listed below, carrying out the cleaning and the periodic routine maintenance.

AUTHORIZED STAFF, ACCORDING TO THE INSTRUCTIONS LISTED BELOW, MUST EFFECT CLEANING AND ROUTINE MAINTENANCE OPERATIONS.

CLEANING AND ROUTINE MAINTENANCE OPERATIONS MUST BE EFFECTED IN HIGH SAFETY CONDITIONS. THE MACHINE MUST BE STOPPED AND THE CUTOUT SWITCH MUST BE IN THE POSITION (0).

ROUTINE MAINTENANCE PLAN

Follow the periodicity shown below to get always a good working of your plant.

<table>
<thead>
<tr>
<th>Periodicity</th>
<th>Instructions</th>
</tr>
</thead>
</table>
| **EVERY 30 HOURS** | - Extract the pre-filtering filter and clean it by compressed air.  
| | - Check the belts tension of the motors and fans; if at the center they loose for more than 2-3 cm, act on the tightening pieces.  
| | - Check the under grating filters and, if they are very dirty, replace them with original Saima Meccanica S.p.A. filters or with other ones with the same features.  
| | - During the booth PAINTING phase, clean all the parts inside the plant by compressed air. |
| **EVERY 120 HOURS** | - Replace the pre-filtering filter and clean it by compressed air.  
| | - Clean the glasses of the roof lamps.  
| | - If the plant has a basement or water cleaner, wash the collected moods, carefully.  
| | - Check the burners good working. |
| **EVERY 720 HOURS** | - Check the belts of all motors and fans and, if they are worn, replace them with other ones of the same kind and length.  
| | - Let the manufacturer’s service center carries out a check of the burner.  
| | - Check the gaskets of the doors and replace them if they have tight defects. Contact Saima Meccanica S.p.A. to have the original spare parts. |

UNDER GRATING FILTERS REPLACEMENT (IF THERE ARE)

<table>
<thead>
<tr>
<th>Control</th>
<th>Replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CONTROL</strong></td>
<td>weekly</td>
</tr>
<tr>
<td><strong>REPLACEMENT</strong></td>
<td>every 30-50 working hours</td>
</tr>
</tbody>
</table>

**MODALITY**

Using special anti-accident gloves, remove the gratings and take away the filters. Lay the new filters with the white side turned downwards.
**THERMO-VENTILATING GROUP PRE-FILTER**

CONTROL
weekly

REPLACEMENT: every 100-120 working hours

**MODALITY**
Remove the pre-filtering cell cover of the thermo-ventilating group and extract the frames. Replace the filters and reinsert the filters as shown in the figure.
### Ceiling Filters

<table>
<thead>
<tr>
<th>Control</th>
<th>Replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekly</td>
<td>every 1000/1200 working hours</td>
</tr>
</tbody>
</table>

**Modality**

- Wearing anti-accident gloves, screw out the knobs “A” clockwise, and take away the filters. Lay the new filters with the nameplate Saima Meccanica S.p.A. turned downwards. Set at work again the frames. Screw the knobs.

### Exhausting Unit Filters

<table>
<thead>
<tr>
<th>Control</th>
<th>Replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekly</td>
<td>- Dry filters: every 100-150 hours max.</td>
</tr>
<tr>
<td></td>
<td>- Cartridges with charcoal: every 200-250 hours max.</td>
</tr>
</tbody>
</table>

**Modality**

- **Dry filters**: Remove the inspection door. Unthread the filters in a plane position and/or the tasks; insert them and close again.
- **Cartridges with charcoal**: Extract the cartridges, remove the upper plug, overturn the cylinder content into a container, fill the cylinder with new carbon, screw again the plug and close.

N.B. Do not use regenerated activated charcoal.

### Filtering Unit with Water

<table>
<thead>
<tr>
<th>Control</th>
<th>Replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Every 40 Working Hours</td>
<td>- Control and clean the salvage dump sectors.</td>
</tr>
<tr>
<td></td>
<td>- Restore the water level in the tank.</td>
</tr>
<tr>
<td></td>
<td>- Verify the tension of the motor/fan belts.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control</th>
<th>Replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Every 160 Working Hours</td>
<td>- Clean with pressurized water (water washer).</td>
</tr>
<tr>
<td></td>
<td>- Replace the water of the decantation tank and put again clean water.</td>
</tr>
<tr>
<td></td>
<td>- Suck up water and moods from the tank using condensed products (the maintenance results easier and the water is much more clean).</td>
</tr>
</tbody>
</table>

These instructions are related to the most onerous working conditions; so, if the paint quantities are lower, it is possible to lengthen the above described times. To eliminate the residual waters and the moods, follow the anti-pollution rules in force and ask for the intervention of a firm provided with a ministerial authorization only.

### Thermo-Ventilating Group Smoke-Stack

<table>
<thead>
<tr>
<th>Control</th>
<th>Replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once a year</td>
<td>not expected</td>
</tr>
</tbody>
</table>

**Modality**

- When the booth is not working, remove the lower plug of the fumes stack’s vertical section and remove the deposit left by the combustion.
MODALITY

Measure the free section of the driving belt; apply on the free section of the driving belt, by means of a dynamometer, a perpendicular force, which can generate a camber of 1.5% the free section. If the value of the force is less than 8 kg, the belt must be tensioned; on the contrary, if the force is more than 14 kg the belt is over-tension and in this case, it must be loosened. In both cases, the bolts must be loosened on the slide where the motor rests and it must be positioned again appropriately. Repeat the control more than one time.
**FLUORESCENT NEON-LAMPS REPLACEMENT**

**CONTROL** | not expected | **REPLACEMENT** | every 9,500 hours (manufacturer's data)
---|---|---|---
**MODALITY** | After having switched off the electricity, remove the glass from its seat in the lean piece or from the body side. Take the fluorescent-neon lamp and gently turns it for a quarter. It will be extracted from its gasket. Then, switch on the plant.

**STARTER REPLACEMENT**

**CONTROL** | not expected | **REPLACEMENT** | data not available
---|---|---|---
**MODALITY** | Follow the instructions of the point 5.6 until to extract the fluorescent-neon lamps. At this point, it will be possible to turn, to extract and to replace the starter, which is placed down the fluorescent-neon lamps, too. Re-place the lamp in its seat and the glass in its gasket and switch on the plant.
INSTRUCTIONS RESERVED TO AUTHORIZED STAFF ONLY

EXTRAORDINARY MAINTENANCE

BURNER

CONTROL  once a year  
REPLACEMENT  not expected

MODALITY
Acting on the four bolts, which fasten the burner to the backing plate, extract it from its seat and effect the inspection. Insert it again in its seat and tighten the bolts.

HEAT EXCHANGER CLEANING

CONTROL  once a year  
REPLACEMENT  not expected

MODALITY
Act on the bolts of the burner and extract it following the instructions described in the previous chapter. Unscrew the bolts, which hold the backing plate of the burner. In the upper part of the exchanger, there is a cover: remove it to enter and to clean the tube nest. In the lower section, act on the opening to clean the boiler structure. Re-place and close again the upper cover, the panel, the backing plate and the burner.
With the lights downward, the connection between the boxes NR12 and NR13 must be carried out by means of a Ø 16 sheath and relative connections. The 3X1.5 flame-retardant cable will be replaced by 3X2.5 flame-retardant cable.
**RECOMMENDED SPARE PARTS**

Listed below, you will find the original spare parts. We suggest you to stock them in the warehouse for the routine maintenance (period of 1000 working hours). Follow the periodicities listed below to get always a good working and excellent maintenance conditions from your plant.

### FILTERS SPARE PARTS OF THE BOOTH

<table>
<thead>
<tr>
<th>Filters Spare Parts of the Booth</th>
<th>Periodicity</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under Grating Filters</td>
<td>To replace every 50 hours</td>
<td>No. 20 rolls</td>
</tr>
<tr>
<td>Pre-filters of the Thermo-Ventilating Group</td>
<td>To replace every 120 hours</td>
<td>No. 6 sets</td>
</tr>
<tr>
<td>Filters of the Cleaner Group</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dry filters: Cardboard Cells and Pocket Filters</strong></td>
<td>To replace every 100 hours</td>
<td>No. 20 sets (10 for each type)</td>
</tr>
<tr>
<td><strong>Activated Carbon Filters: If there are in the Group</strong></td>
<td>To replace every 250 hours</td>
<td>No. 4 spare parts</td>
</tr>
</tbody>
</table>

### SPARE PARTS OF THE BOOTH

<table>
<thead>
<tr>
<th>Spare Parts of the Booth</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glass for the frontal door</td>
<td>1 PIECE</td>
</tr>
<tr>
<td>Glass for the back door</td>
<td>1 PIECE</td>
</tr>
<tr>
<td>Glass for the roof lamp</td>
<td>2 PIECES</td>
</tr>
<tr>
<td>30 W Fluorescent tubes</td>
<td>4 PIECES</td>
</tr>
<tr>
<td>Starters of the lights</td>
<td>2 PIECES</td>
</tr>
<tr>
<td>Ballast of lights</td>
<td>2 PIECES</td>
</tr>
<tr>
<td>&quot;Rivoli&quot; lock</td>
<td>1 PIECE</td>
</tr>
<tr>
<td>Handle of the frontal</td>
<td>1 PIECE</td>
</tr>
<tr>
<td>Handle for the service door</td>
<td>1 PIECE</td>
</tr>
<tr>
<td>Dead-latch for the service door</td>
<td>2 PIECES</td>
</tr>
<tr>
<td>Driving belts</td>
<td>4 PIECES</td>
</tr>
<tr>
<td>TYPE OF FILTER</td>
<td>DIMENSION</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Under grating filters</td>
<td></td>
</tr>
<tr>
<td>Flat filters of the exhaust unit</td>
<td></td>
</tr>
<tr>
<td>Pocket filters</td>
<td></td>
</tr>
<tr>
<td>Sleeves of the charcoal filter</td>
<td></td>
</tr>
<tr>
<td>Power unit filters</td>
<td></td>
</tr>
<tr>
<td>Driving belts</td>
<td></td>
</tr>
<tr>
<td>Active carbon</td>
<td></td>
</tr>
<tr>
<td>Plenum filter</td>
<td></td>
</tr>
</tbody>
</table>
### Piano di Manutenzione Ordinaria

#### Indicatore (AR) Italia

<table>
<thead>
<tr>
<th>Materiale</th>
<th>Tipo</th>
<th>Anno</th>
<th>Volt</th>
<th>Volt rad</th>
<th>Cal</th>
<th>Hz</th>
<th>Fase</th>
<th>Calh</th>
</tr>
</thead>
</table>

#### Gruppo Generatore

<table>
<thead>
<tr>
<th>Portata Aria</th>
<th>Potenza Kw</th>
<th>Massa Kg</th>
</tr>
</thead>
</table>

#### Depuratore

<table>
<thead>
<tr>
<th>Portata Aria</th>
<th>Potenza Kw</th>
<th>Massa Kg</th>
</tr>
</thead>
</table>

---

**ATENZIONE**

Elettromagnetismo potenziale per operatori in prossimità di apparecchi elettrici

**ATTENZIONE**

Cambiamenti Cryl a calore

**NON INDIRIZZARE GETTI D'ACQUA SU MOTORI E LINEE ELETTRICHE**

**INDICATORE (AR) ITALIA Tel. 0575/9291**

**TERRA**

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**VIETATO DEPOSITARE MATERIALI O ATTREZZI**
E’ OBLIGATORIO PROTEGGERE LE VIE RESPIRATORIE
CALZATURE DI SICUREZZA OBBLIGATORIE
INDOSSARE GLI INDUMENTI PROTETTIVI
VEICOLI A PASSO D’UOMO
VIETATO L’INGRESSO a tutte le persone non autorizzate
VIETATO FUMARE
VIETATO L’USO DI FIAMME LIBERE
IN QUESTO LOCALE E’ VIETATO MANGIARE E BERE
VIETATO DEPOSITARE MATERIALI O ATTREZZI
ASSICURARSI DEL COLLEGAMENTO A TERRA prima di iniziare lavori

PORTATA MASSIMA DEL GRIGLIATO
kg [Blank]