ATE SRL
Via la Valle 76 - 22066 Mariano Comense (CO) - Italia
Tel. +39/0316879300 - Fax +39/0316879306
E-mail: info@atesrl.it
www.atesrl.it

Painting device
SIMPLE PAINT SYSTEM (PATENTED)

"The easiest way of optimising the output of non electrostatic mixed air and airmix spray guns"

CE

INSTALLATION, USE AND MAINTENANCE MANUAL

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DICHIARAZIONE DI CONFORMITA' / *DECLARATION OF CONFORMITY*

(Modulo A1 della direttiva sulle attrezzature a pressione)
(Module A1 of the Pressure Equipment Directive)

Produttore / *Manufacturer*:

ATE SRL – Via La Valle 76 – I-22066 Mariano Comense (Co)
Tel. 0039 031 6879300 – Fax: 0039 031 6879306

Insieme / *Unit*:

Fabbricante / *Manufacturer*	ATE SRL
Modello / *Model*	SIMPLE PAINT
Matricola / *Serial number*	ATE01 – SPX
Colonna dispensatrice / *Dispensing column*	PS 10.8; TS 0°C+40°C; V 48l
Fluido / *Fluid*	ARIA CATEGORIA 2 / *AIR CATEGORY 2*
Valvola di sicurezza / *Safety valve*	11 bar + anello/*ring* PED cat. IV
Standard armonizzati applicati / *Harmonised standards applied*	EN287
Standard Tecnici e specifiche / *Technical standards and specifications*	VSR
Altre direttive / *Other directives*	N.A. / *n/a*

La Società sottoscritta certifica sotto la unica responsabilità che l'insieme sopra specificato è conforme ai requisiti della direttiva sulle attrezzature a pressione 97/23/CEE che la riguarda.
L'insieme sopra indicato è stato sottoposto a controlli interni di produzione con monitoraggio della valutazione finale in base al modulo A1 della direttiva per le attrezzature a pressione, da parte di Bureau Veritas Italia SPA, ufficio locale di Milano, V.le Monza 261, 20126 Milano. (Nr. Notificato 1370).
Per quanto di propria competenza, l'ente notificato ha effettuato le verifiche sui dispositivi di sicurezza, certificato nr. CE-1370-PED-A1-ATE001-11-ITA.

The undersigned Company hereby certifies under its sole responsibility that the unit specified above conforms to the requirements of the Pressure Equipment Directive 97/23/EC which applies to it.
The unit indicated above has undergone internal production controls with monitoring of the final evaluation according to Module A1 of the Pressure Equipment Directive by Bureau Veritas Italia SPA, local office of Milan, V.le Monza 261, 20126 Milan (notified body number 1370).
Within the scope of its competence, the notified body has performed the verifications of safety devices, certificate no. CE-1370-PED-A1-ATE001-11-ITA.

Firmato per conto del produttore/rappresentante autorizzato
Signed on behalf of the manufacturer/authorized representative

Nome / *Name*:	Barbieri Emanuele
Qualifica / *Function*:	Responsabile Produzione / *Person in charge of production*
Luogo / *Place*:	Mariano Comense

Firma / *Signature*: ATE S.r.l.

_____

A.T.E. s.r.l.
Via la Valle, 76 22066
Mariano Comense-ITALY
Tel 0316879300 Fax 0316879306
www.atesrl.it

CE - 1370

Modello	SIMPLE PAINT
Matricola	ATE01SPX
Anno	2011
Pressione di progetto	11 BAR
Temperatura Min-Max(TS)volume	0°C\ +40°C
Fluido	GRUPPO 2 (ARIA) 48 lt
Valvola di sicurezza	11 BAR

APPLICATION FIELDS

The Simple-Paint system treats the sprayed air used by the spray gun during the painting process. This system integrates perfectly with any industrial or non-industrial plant and can be applied with:

- high and low pressure, manual and automatic non electrostatic mixed air and air-mix guns;

- monocomponent, bicomponent, polyurethane, vinyl, metallised, water-based and any other type of liquid resin paint.

- wood, plastic, metal, glass and leather products.

Furthermore, the Simple-Paint System can be adjusted to fit any air system, including those without a drier (or freezer), or special air filtering or drying devices after the compressor.

WARNING

A Simple Paint system with 1 column can supply up to 3 guns operating at the same time, positioned in one or more spray booths up to a distance of 40 m from the cabinet.

COMPONENTS (Diagram 1 page 6)

The SIMPLE-PAINT System is made up of the following components (Diagram 1):

1) Painted metal cabinet (1) with the following dimensions:
- height 1900 mm - width 450 mm - depth 300 mm weight 50 kg

2) Column (3)
The column is made of 5 mm thick anticorodal aluminium; the lower part of the column and flanges have been welded using aluminium electrodes with a 5 mm penetration length in the internal areas and 10 mm on the surface.
The flanges on the upper part of the column are 16 mm thick with a 5 mm diameter OR seal, and are joined together with steel bolts, washers and nuts of 8 diameter to guarantee a 10.8 bar air tightness.

A) Column upper part (Diagram 2 page 13)
A ¾' inlet and outlet air supply system, made of iron and brass

B) Column internal part.
- An internal tank on the bottom of the column where the Easy-Paint liquid is stored.
- A 150 W electric emersion heater operating at 220 V (connected to an external indicator lamp which shows that it is operating).
- A heat control timer regulating the emersion heater operation, calibrated to keep the temperature of the Easy-Paint liquid constant around 20°C.

C) Column lower part (Diagram 5 page 13)
The lower part of the column houses a "coupling" with a 3/8 tap connected to an external plastic tank (7). With this "coupling" you can:
- let in, control and remove the Easy-Paint liquid.

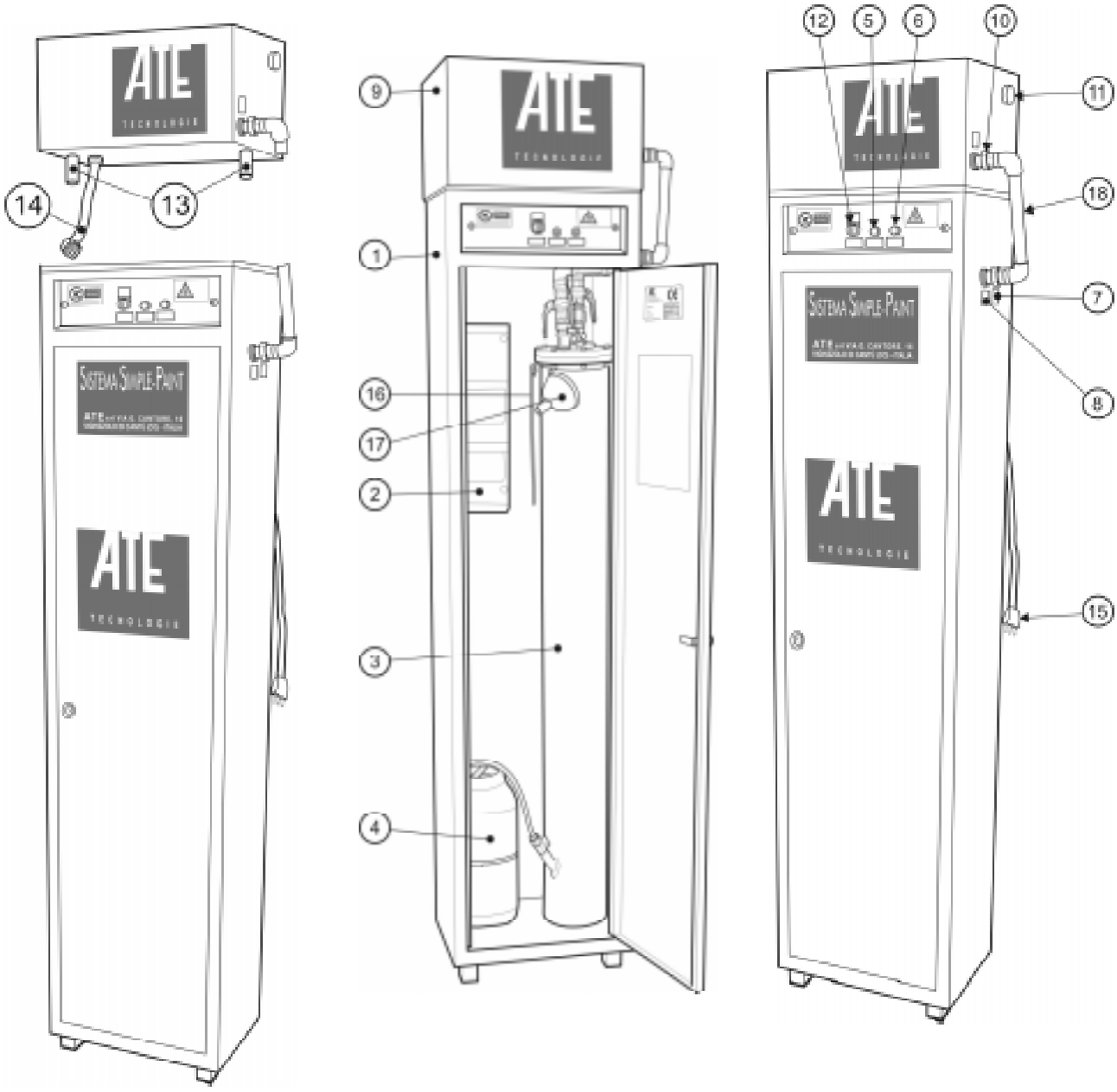
3) Electric Deionising device (9)
A moplen cover (height 280 mm - width 450 mm - depth 300 mm weight 10 kg) with a 3/4 ' air inlet – outlet containing a static power supply.

4) Metal shelving (2) for storing the Easy-Paint liquid bottles.

Diagram 1
"Simple-Paint system"

Legend:

1) Metal cabinet
2) Bottle storage shelving
3) Column
4) External tank for liquid drainage
5) Deionising device indicator lamp
6) Column resistance indicator lamp
7) Column air inlet
8) Column air outlet
9) Electric deionising device
10) Deionising air inlet
11) Deionising air outlet
12) Main electric switch
13) Deionising device fixing points
14) Deionising device plug
15) Simple-Paint system plug
16) Liquid control dip stick
17) Funnel
18) ¾ ' air connection section



INSTALLATION AND POSITIONING (diagram 1 page 6)

Put the cabinet (1) in the VERTICAL position and near the spray booth (outside the product firing kiln) at a minimum distance of 1 m from any switchboards.
Warning: if it were positioned inside the kiln, the firing temperature would increase the volume of air in the column thus exceeding the guaranteed 10.8 bar pressure safety limit. A.T.E. cannot be held responsible, if this directive is not respected.

ASSEMBLY (diagram 1 page 6)

Put the deionising device (9) on the cabinet (1) and
- pass the deionising device plug (14) through the hole (diameter 40 mm) in the upper left hand side of the cabinet.
- put the two deionising device fixing points (13) in the holes (diameter 20 mm) in the upper central part of the cabinet.
- fix the two fixing points (13) from the inside by putting on the two plastic nuts.
- connect the deionising device plug (14) to the socket in the upper left hand side of the inside of the cabinet.

CONNECTION TO THE GUN (diagram 1 page 6)

The air coming from the compressor (or freezer) must have a minimum air flow of ¾ ' and must be connected to the column air inlet (7).
Take the rigid ¾ ' piping (18) and connect the column air outlet (8) to the deionising air inlet (10)
Take a pipe (minimum external diameter 12 mm, internal 10 mm) and connect the deionising device air outlet (11) to the gun.
Warning: Observe the type of gun connected, more specifically

CUP GUN
Connect the air outlet of the deionising device (11) to the pressure regulator supplying the gun.

PUMP GUN
- if the gun is supplied with paint by a pump and there is only one air connection for both the pump and the gun, connect the deionising device air outlet (11) to the only connection on the pump-gun.
- if the gun has its own supply air and the pump has another, connect the deionising device air outlet (11) to the gun alone.

WARNING: Remove any filter between the Simple-Paint system and the gun.

Connect the power supply plug (15) of the Simple-Paint system to a 230 v power supply and turn the main electric switch (12).

TREATING THE AIR INSIDE THE COLUMN

Above the column there is an air inlet and outlet box regulated by two 3/4' valves. The air comes into the column from the "inlet air" indication on the external side of the cabinet (point 7 diagram 1 page 6).

Internal Easy-Paint tank.

The air enters the column, passes through an internal metal pipe and flows directly into the bottom where there is an internal tank.

The EASY-PAINT LIQUID (point 10 diagram 3 page 13) is let into this tank by the special coupling nozzle. The liquid "washes" the air by trapping the small particles of oil and other impurities (present in the air system piping) which may reach the column in spite of the presence of a freezer or various filters (these particles of oil are damaging because they change the magnetic fields).

Liquid breaking plates.

After having been "washed", the air (completely clean) rises in the column and strikes a system of liquid breaking metal plates. Their function is to drain the small amounts of Easy-Paint liquid, oil and other impurities, preventing them from wetting the filtering system above the plates.

Filtering system.

After this, the air rises in the column and meets a filtering system. These particular filters subject the air to a deionisation principle. The filters are not subject to wear and have an unlimited lifetime.
The air, already significantly deionised, comes out of the column and enters the deionising device. This device improves and guarantees the maintenance of the deionising effect on the air which continues to the external piping (metal or plastic) of the existing air system, up to a distance of 40 m from the Simple-Paint system.

Electrical resistance.

Incorporated in the cavity of two metal pipes, at a height of about 1 m from the base of the column, there is a 150 W electrical resistance with a timer which regulates the temperature of the pipe (which carries the air to the Easy-paint liquid tank) between 30 and 40°C.
The resistance keeps the temperature in the metal piping constant and maintains a uniform heat to the Easy-Paint liquid (particularly in the winter months keep the liquid at 20°C).

Resistance external indicator lamp

The electric resistance of the column is connected to an external indicator lamp (point 6 diagram 1 page 6). When the timer of the resistance measures a temperature lower than 30°C, it automatically provides the resistance with the signal to light up to take the temperature to the ideal level for use (between 30 and 40°C).
In this situation the operation of the resistance is indicated by the external indicator lamp lighting up. If the timer measures a temperature exceeding 40°C, the resistance does not receive any signal to light up and the indicator lamp remains off.

OPERATION

Preamble: How a static charge is generated

"The rubbing of two or more bodies generates static charges.
Some examples of the formation and presence of static charges on a body are:
- the charges which form on a television screen;
- rubbing a biro on a woollen cloth;
- the "shock" felt when you get out of the car (etc.).

How static charges are generated in the painting sector
In the painting field, the sprayed paint is applied by the operator to flat or curved metal, plastic, wood, glass and leather surfaces.
During this operation there are basically two moments when static charges are generated:

- the friction of the atomised paint when it passes through the nozzle of the gun
(low density charges form on the tip of the gun, where an accumulation of dirt can be seen)

- the rubbing of atomised paint pressed against the surface of the item during the painting process (this friction generates a greater amount of static charges and thus greater over-spray).

During the painting phase, the particles or paint dust are electrostatically charged because of this rubbing
This phenomenon creates various problems:
- difficulty of penetration in the corners and at depth (inside boxes, into the curves of a chair, etc.).
- difficulty in evenly distributing the paint (accumulation of the product on the edges)
- presence of paint residue on the product (the residue is attracted by the part, leaving traces of small bubbles and removing the gloss from glossy paints)
- paint rebound effect (the charged paint particles rebound on the product and dirty the environment and the operator).

USING THE SIMPLE-PAINT SYSTEM: ADVANTAGES

The deionised air produced by the Simple-Paint system has the property of preventing the static charges from forming on the tip of the gun and on the product surfaces, making the paint particles neutral and thus not carrying electrostatic charges.

Using the deionised air of the Simple-Paint system allows significant quality, application, environment and ecology results to be obtained:

1) Reduction of over-spray and rebound paint:
As the paint particles are now discharged/neutral, they will no longer need to discharge their static "energy" in the areas where there is less, hence their tendency to disperse in the environment where they are released will be less, thus reducing over-spray and preventing the paint rebounding towards the operator.

2) Fume reduction:
The deionised air has the capacity of improving the paint atomisation.
This allows the operator to gradually reduce the solvent parts or the gun air thrust.

3) Better use of the paint:
Increase in the amount of paint which actually settles on the item, because the paint particles will concentrate directly on the item rather than dispersing in the absence of static charges.

4) Easier application:
By optimising the use of paint (thanks to a greater percentage of paint deposited on the item), the operator has the concrete possibility of obtaining the same paint thickness with less coats, also thanks to the improved cohesion and adherence of paint on the item.

5) Improving the quality of the paint:
As the paint particles are neutral they will no longer need to concentrate in the peripheral areas of the products, improving the uniformity and paint coating thickness and reducing paint accumulation and running problems.

6) Reduction of dirtying
Paint particles will no longer carry static charges to the products, which will hence no longer attract the dirt falling nearby, greatly reducing dirt precipitations.

EASY-PAINT LIQUID: USE AND MAINTENANCE (diagram 2-3-4-5 page 13)

The Easy-Paint liquid is poured into the column internal tank and is capable of retaining particles of oil and other impurities reaching the column from the compressor, from the freezer and the various filters situated before the column.

Warning:

A) Check the level of the Easy-Paint liquid once a week with the system shut down by using a dip stick (point 11 diagram 4) which allows the quantity and the colour to be controlled.

B) The ideal operating level is 2 notches of the dip stick or 2 (two) 200 ml bottles of Easy-Paint liquid (1 notch of the dip stick = one 200 ml bottle of liquid).

C) Completely replace the liquid with 2 (two) 200 ml bottles of fresh liquid in no more than 4 (four) working weeks.

D) Completely replace the liquid within 4 (four) working weeks with 2 (two) 200 ml bottles of fresh liquid:
- if the liquid becomes darker, yellow or brown (because it contains oil)
- if the liquid increases volume and exceeds 2 notches on the dip stick (because it contains water and oil)

Completely replace the liquid in these cases to prevent the traces of oil and water from dirtying the filter located above the liquid.

E) WARNING: If oil or water foul the filter, the column loses its capacity to deionise the air.

HOW TO CHECK THE LIQUID LEVEL (Diagram 2-5 page 13)

1) Close the air inlet gate valve (5) located above the column.
2) Close the air outlet gate valve (4) located above the column.
2) Open the vent tap (2) located above the column to discharge the air inside it.
3) Remove the blue pipe (12) from the hose-holder of the outlet tap (10) located at the base of the column.
4) Open the outlet tap (10) and introduce the dip stick (11) to check the liquid level and colour.

If the volume of the liquid has increased (over two notches on the dip stick) or its colour becomes darker (yellow or brown), completely replace the liquid even if 4 (four) working weeks have not yet passed, by carrying out the following operations (diagram 2 5 page 13)
- re-connect the blue pipe (12) to the hose-holder of the discharge tap (10);
- close the vent tap (2);
- slightly open (with gentle prods) the air inlet gate valve (5) to release the liquid at the bottom of the column and send it directly into the special external container (7);
- close the air inlet gate valve (5);
- open the vent tap (2);
- remove the blue pipe (12) from the hose-holder of the discharge tap (10) and add 2 (two) bottles of Easy-Paint liquid to the column tank (diagram 3 page 13);
- re-connect the blue pipe (12) to the hose-holder of the discharge tap (10), close the tap;
- close the vent tap (2);
- open the air inlet gate valve (5) and the air outlet valve (4) to start up the system again.

NB: Once a year, completely empty the content of the column and pour in a litre of hot water to clean out any oil residue that may have built up during the year in the column tank.

Diagram 2

Legend: COLUMN BOX
1) Column
2) Vent tap
3) Shut off valve
4) Column air outlet gate valve
5) Column air inlet gate valve
6) One-way valve
7) External tank for liquid drainage
8) Easy-Paint liquid bottle
9) Funnel
10) Liquid inlet/outlet tap
11) Liquid control dip stick
12) Column tank blue pipe

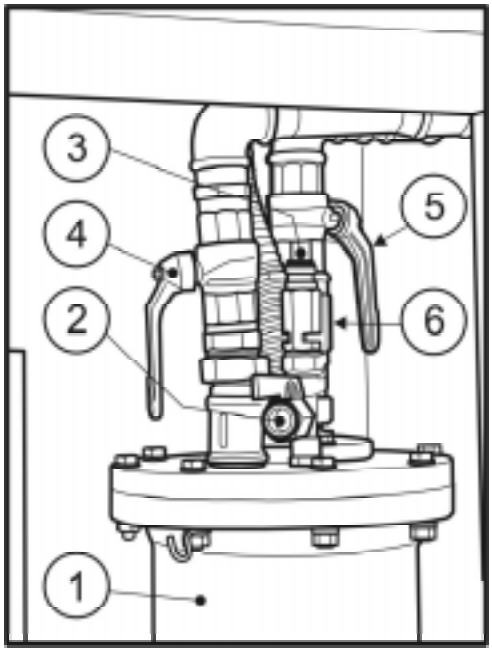


Diagram 3

ADD LIQUID

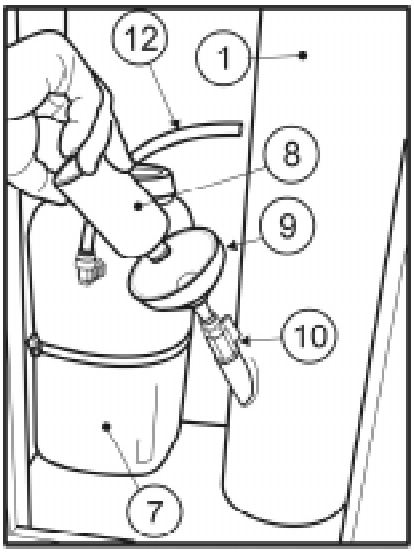


Diagram 4

CHECK THE LIQUID

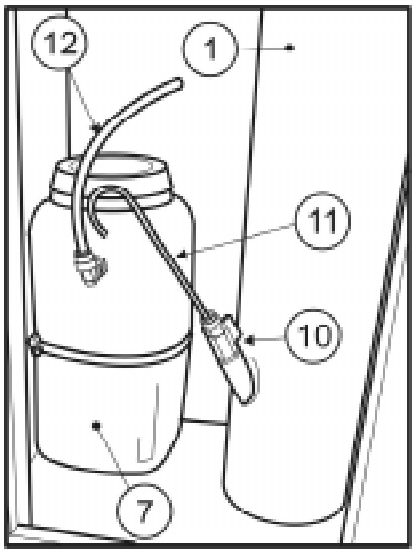
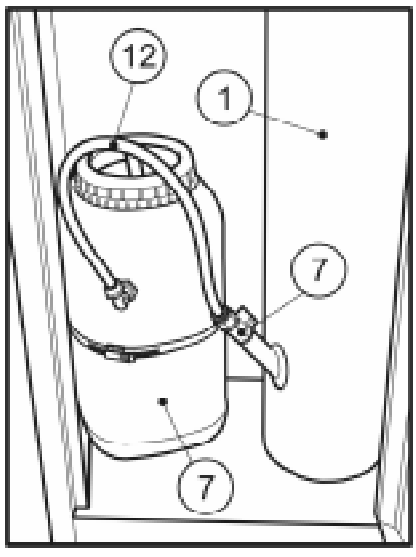


Diagram 5

VENT LIQUID



ELECTRIC SYSTEM

Power supply voltage = 220V. 50 Hz. Single phase to connect the electric system.

Column resistance

Inside the Simple-Paint System column (in the gap between two metal pipes), there is a 150 W 220 V electric emersion heater and a timer which regulates the temperature of the pipe (which takes the air to the base of the column) between 30° and 40°.
The timer and the resistance are connected to an external indicator lamp on the upper part of the cabinet. When the timer of the resistance measures a temperature lower than 30°C, it automatically provides the resistance with the signal to light up to take the temperature to the ideal level for use (between 30 and 40°C). In this situation the operation of the resistance is indicated by the external indicator lamp lighting up.
If the timer measures a temperature exceeding 40°C, the resistance does not receive any signal to light up and the indicator lamp remains off.

Electric deionising device.

When the external deionising device on the upper part of the cabinet lights up, it means that the deionising device is on.

Features of the static power supply contained in the deionising device:

Abs self extinguishing device	Voltage: W 8000 CA
Electrical features: power supply 220V	Power rating: 50 WA Max
Frequency: 50/60 HZ	Circuit breaker: 01 amp

CONSUMPTION

Resistance: 150 W x 220 V, consumption 0.1 KW / h.
Deionising device consumption: 50 WA Max
Liquid: 2 200 ml bottles per column every 4 weeks

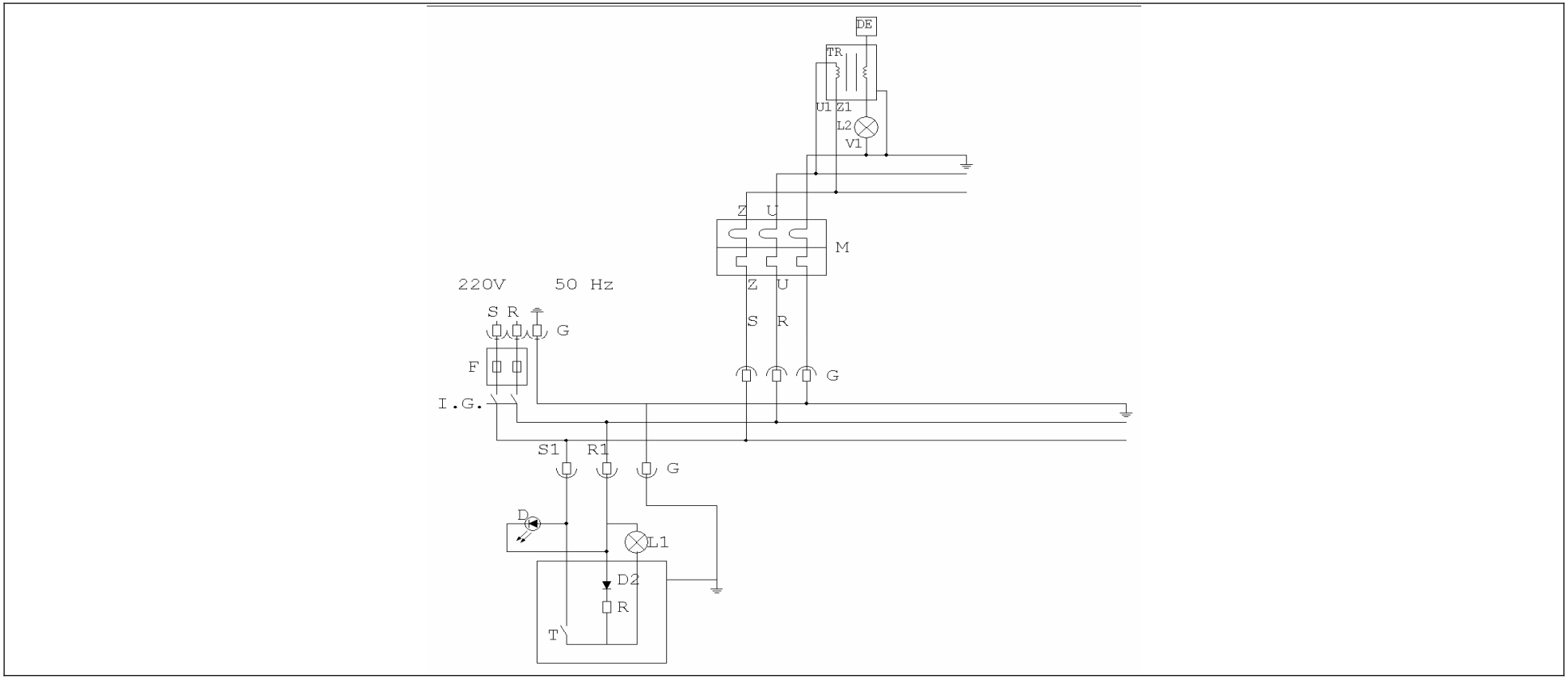
SUMMARY OF THE PANEL

MANUFACTURER	ATE S.R.L., Mariano Comense (CO), via della Valle 66, 22066
SERIES	Simple Paint
NOMINAL VOLTAGE	230V
FREQUENCY	50 Hz

	Diode led	**Lamp**	**Resistance**	**Trasformer**
POWERS	3.3 W	5W	150W	300W
CURRENTS	15mA	22mA	7mA	1,4A

TYPE OF LINE	
STRUCTURE OF PANEL	FORMA 1
GRADE OF PROTECTION	IP 55

ELECTRIC WIRING



TECHNICAL FORM

SYMBOL	COMPONENT	BRAND	VALOURS
G	Electric plug	SCHUKO KALTHOFF	10-16A 250V
	Insert taken	SCAME	
	Inserto plug	SCAME	
	Housing plug passes wall	SCAME	
	Housing taken pg11	SCAME	
	Custodia plug pg11	SCAME	
F	Port fuse	LEGRAND	500V
	Fuses	ITAL WEBER	10°C 500V P=1W
M	Mammut, electric juntion		
I.G.	General switch	LOVATO	Ui=690V 16°C
INT	Switch	MOELLER	AC=230/400/500V 6/4/2°C
D	Diode led	MOELLER	85/246V 5/25mA
D2	Diode	MOELLER	85/246V 5/25mA
L1	Green lamp	MOELLER	220V 5W
L2	Red lamp	MOELLER	220V 5W
T	Timer	AWN STYLE	20 AWG 300V 150°C
TR	Trasformer	ATE	Vi= 220V Vout=100V P=300W
DE	Deionizing	ATE	

SAFETY REGULATIONS

The system has been manufactured in compliance with the "CE" regulations, we therefore recommend operation in conformity with the following recommendations:

1) It is forbidden to disconnect the blue pipe located in the lower part of the column when the vent tap (point 12 diagram 5 page 13) is open.
Before opening the outlet tap (point 10 diagram 4 page 13), remove the inlet mains air to the column and vent the air contained in the column by means of the vent taps (point 2 diagram 2 page 13).

2) The system has a safety valve calibrated to 10.8 Bar (point 3 diagram 2 page 13).

3) The electrical system of the machine has been manufactured according to the "CE" regulations.

4) Keep the electrical part away from water.

5) Only supply the Simple-Paint System with Easy-Paint Liquid manufactured by A.T.E.

6) Position the Simple Paint System outside the firing kiln (see page 7)

OPERATING TECHNICAL RECOMMENDATIONS

DIRT PRECIPITATION
When installing the Simple-Paint system two things must be controlled:

A) spray gun air pipe
Check the pipe which conveys air to the gun because oil and dirt deposits are created. The special air deionisation treatment of the Simple-Paint System makes it possible to clean and keep clean the inside of the pipe.
As dirt gradually comes off the internal walls of the pipe, it comes out of the gun creating dirt precipitations. For this reason, during the installation phase of the Simple-Paint System, it is necessary to blow deionised air to guarantee greater cleanliness of the pipe and a better operating guarantee.

B) Pressure reducer
Check the pressure reducers as dirt and oil residues may deposit inside them. If it is not completely removed, it reaches the gun and creates dirt precipitations.

FUME REDUCTION
When using the Simple-Paint System, the following issued must be addressed in order to reduce fumes:

A) Reduction of the quantity of solvents.
The Simple-Paint System makes it possible to reduce the quantity of solvents used in the paint.
Solvent reduction must be gradual, at the operator's discretion (we recommend you start with small 5% reductions).
This operation makes it possible to reduce fumes in the booth along with the risk of paint running.

B) Reducing propulsion air.
If the operator using the Simple-Paint System is unable to reduce the solvent quantity, he can regulate the gun air propulsion pressure.
As for solvents, the reduction of the airflow has to be carried out gradually, at the operator's discretion.