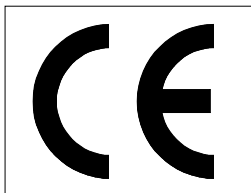
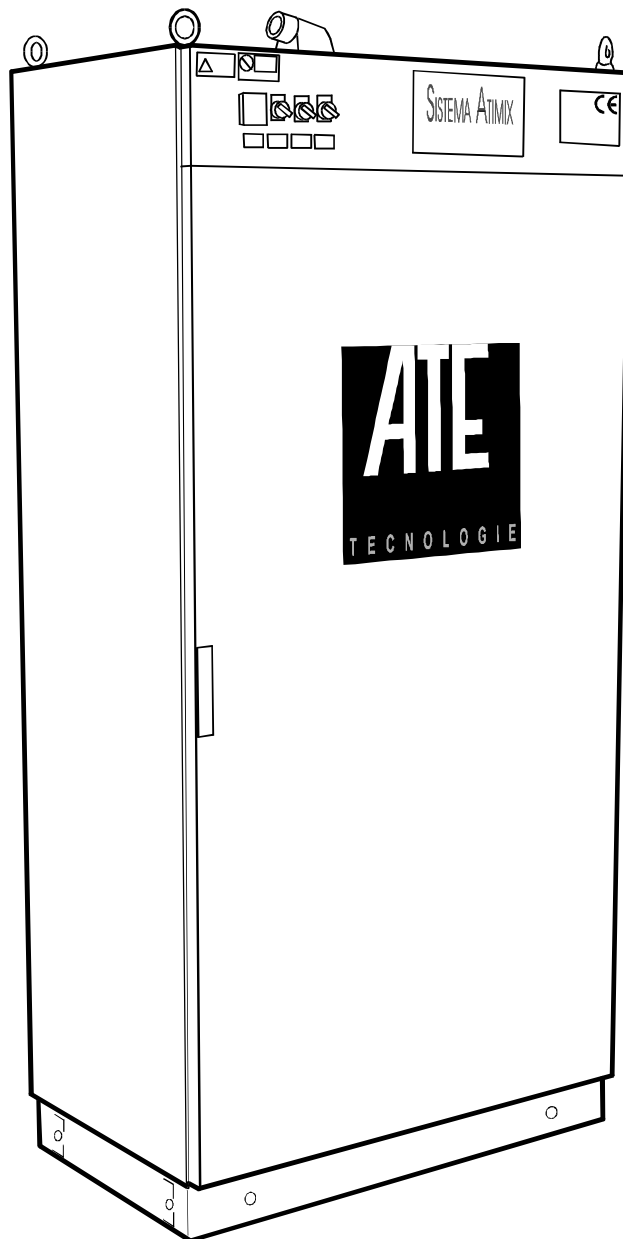

ATE s.r.l
via La Valle 76 - 22066 Mariano Comense - ITALY
Tel: +39 031/6879300 - Fax: +39 031/6879306
www.atesrl.it - info@atesrl.it

ATIMIX SYSTEM[®]

NEW TECHNOLOGIES IN THE ELECTROSTATIC PAINTING FIELD.
THE EASIEST AND MOST EFFECTIVE WAY TO OPTIMIZE THE
PRODUCTIVITY OF ALL MANUAL AND AUTOMATIC SYSTEMS,
POWDER AND LIQUID



MANUAL OF INSTALLATION, USE
AND MAINTENANCE

Dear Client,

To begin with, we wish to thank you for having chosen a piece of machinery from the A.T.E. production line.

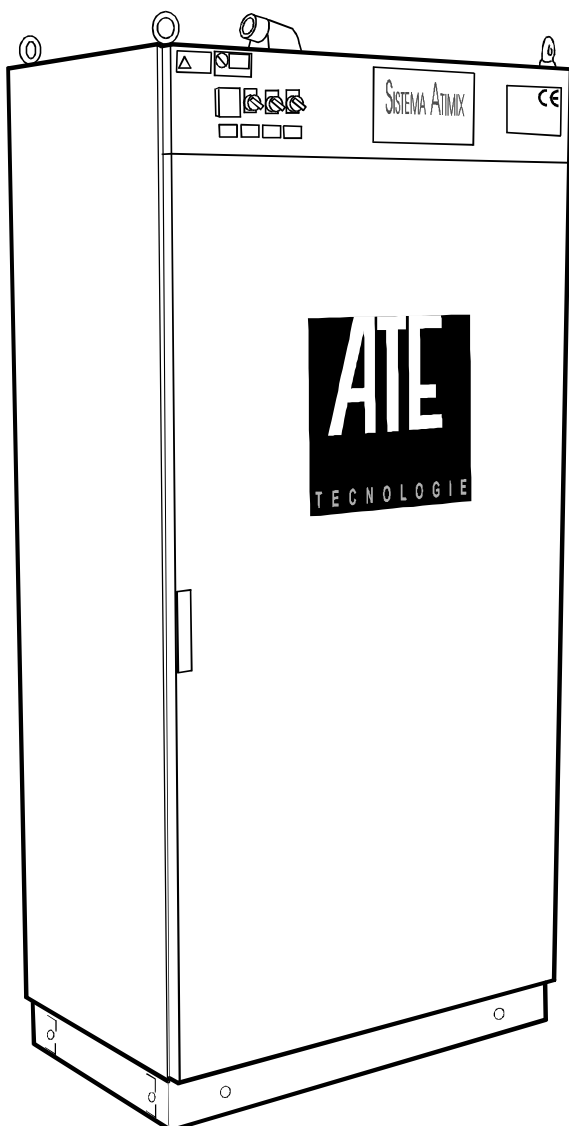
With this, we would like to invite you to carefully read our technical manual in order to ensure the machine's proper and efficient operation for a long time to come.

The information contained in this manual will allow you to discover new aspects of electrostatic painting, since thanks to new technologies brought about with the "Atimix System," it is possible to utilize any type of electrostatic painting system, powder or liquid, manual or automatic, to its full productive capacity, without bringing about any modification in the structures or to the same painting installation machinery.

In the event that you are doubtful or need clarification about the machine's installation, operation and maintenance, we invite you to contact our headquarters staff, who will make themselves available in order to provide you with all necessary information.

ATE Srl

ALL PIECES OF EQUIPMENT SUPPLIED BY THE A.T.E. COMPANY ARE IN STRICT CONFORMITY WITH ALL NATIONAL AND EUROPEAN (C.E.) ANTI-ACCIDENT AND SAFETY STANDARDS.



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



Modello	ATIMIX
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

TABLE OF CONTENTS

PAGE	5	- INTRODUCTION
PAGE	6	- THE ATIMIX SYSTEM APPLICATION ENVIRONMENTS
PAGE	7	- VERIFIABLE ADVANTAGES
PAGE	8	- PRINCIPAL ELEMENTS OF THE ATIMIX SYSTEM
PAGE	15	- ATIMIX SYSTEM CONNECTIONS
PAGE	23	- ATIMIX SYSTEM APPLICATIONS
PAGE	26	- STARTING AND OPERATING
PAGE	28	- TRANSPORT AND LIFTING
PAGE	29	- ELECTRICAL SYSTEM
PAGE	32	- ATIMIX SYSTEM MAINTENANCE
PAGE	33	- SAFETY STANDARDS

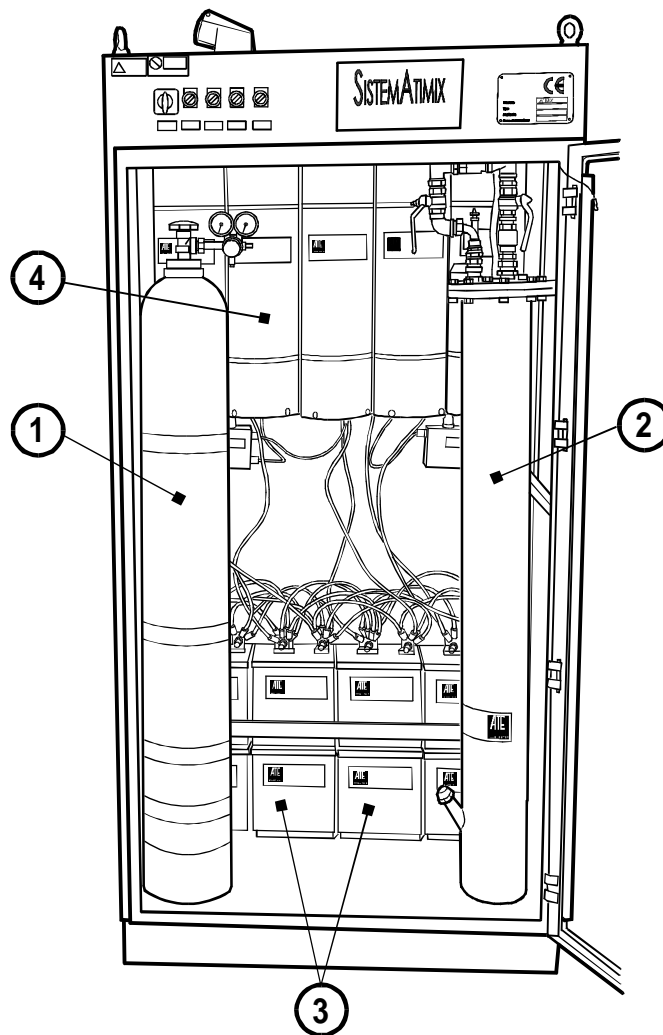
INTRODUCTION

ATIMIX SYSTEM

The "Atimix System" is a set of four industrial patents (Diagram 1) achieved in order to optimize the productivity of any electrostatic painting system, be it powdered or liquid, manual or automatic.

The "Atimix System" acts principally upon the painting system electrostatic field, permitting a better utilization of the electrostatic current.

DIAGRAM 1



- 1) Atimix gaseous mixture cylinder
- 2) Treated compressed air dispensing column
- 3) E.S.C.A.
- 4) Electrostatic current dispersers

THE "ATIMIX SYSTEM" APPLICATION ENVIRONMENTS

The "Atimix System" is compatible with any electrostatic painting system utilizing:

A) Diverse paint classifications:

-liquid paint: monocomponent, bicomponent, polyurethane, vinyl, metallic, catalytic and with any type of liquid resin

-powder paint: epoxy, epoxy-polyester, polipolyester and with any type of powdered resin

B) Diverse spraying technologies:

-with liquid paint: air mixture guns, Airmix; Airless, rotating cups and electrostatic discs

-with powder paint: corona and supercorona guns, and electrostatic discs

C) Any type of painting installation:

-with metal (iron or steel) or plastic (PVC or moplen) booths

VERIFIABLE ADVANTAGES

The main results obtainable by applying the "Atimix System" can be summed up as follows:

WET PAINTING

POWDER COATING

QUALITATIVE ADVANTAGES

- | | |
|---|--|
| <ul style="list-style-type: none">• better paint uniformity and stress-relieving on manufactured article (minor spillage and less heavy-laden bright edges);• better penetration and windin (attenuation of Faraday cage problem). | <ul style="list-style-type: none">• better paint uniformity and stress-relieving on manufactured article (less orange peeling and heavy-laden bright edges);• better penetration and winding (attenuation of Faraday cage problem). |
|---|--|

QUANTITATIVE AND ECONOMIC ADVANTAGES

- | | |
|--|---|
| <ul style="list-style-type: none">• reduced paint consumption;• reduced solvent consumption;• increased painting plant productivity (possibility of boosting assembly line speed);• possibility of reducing or eliminating occurrences of manual positioning touch-ups;• less production rejects;• reduced occurrences of booth cleaning (less overspray and less adhesion of paint to booth walls);• reduced smudges to get rid of. | <ul style="list-style-type: none">• reduced paint consumption;• increased painting plant productivity (possibility of boosting assembly line speed);• possibility of reducing or eliminating occurrences of manual positioning touch-ups;• cleaner internal oven structure and diminished occurrences of maintenance;• cleaner powder holding pipes with resulting reduction in electrostatic disturbances during operation of guns;• reduced color-changing times (less overspray and less adhesion of powders to booth walls);• reduced drip residue. |
|--|---|

ENVIRONMENTAL AND ECOLOGICAL ADVANTAGES

Reduced environmental pollution:

- diminished overspray effect (less dispersion of paint in booth, less emission of fumes and solvents);
- better use of high solid contents;
- possibility of reducing quantity of solvents contained in paint;
- reduced smudges to get rid of.

Reduced environmental pollution:

- diminished overspray effect (less dispersion of paint in booth, less emission of fine powders);
- reduced powder residue.

PRINCIPAL ELEMENTS OF THE ATIMIX SYSTEM

The Atimix System is principally constructed of four elements (Diagram 1).

- 1) ATIMIX GASEOUS MIXTURE CYLINDER;
- 2) TREATED COMPRESSED AIR DISPENSING COLUMN;
- 3) ESCA (Electrostatic and Stray Current Absorbers);
- 4) ELECTROSTATIC CURRENT DISPERSERS.

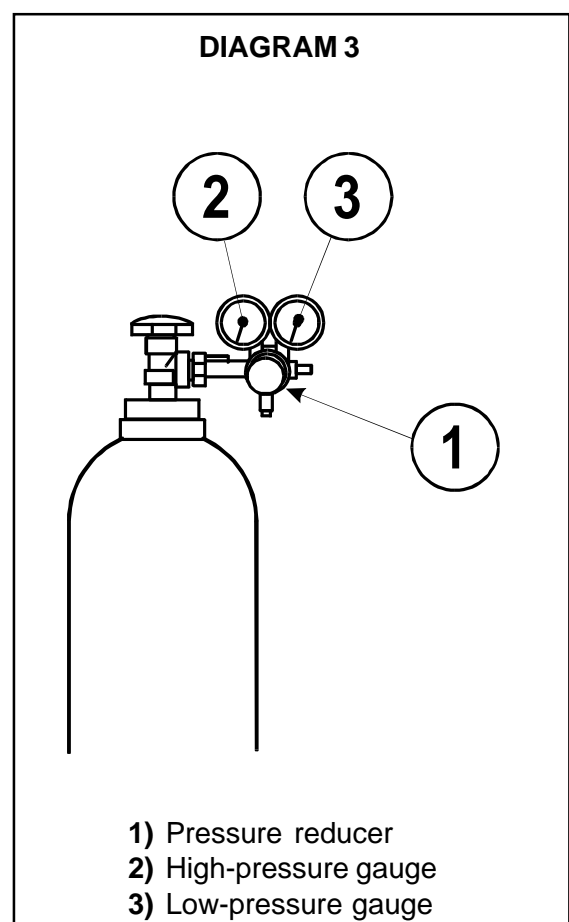
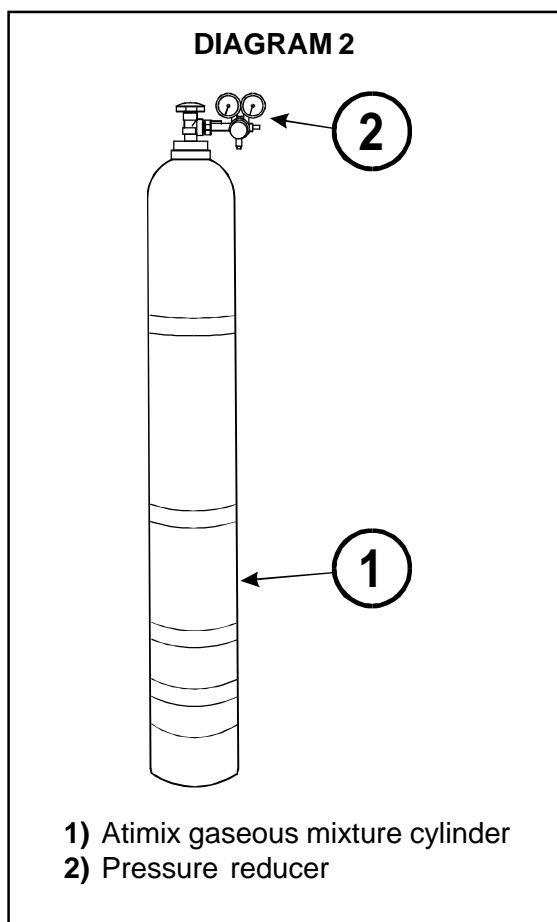
ATIMIX GASEOUS MIXTURE CYLINDER (Diagram 2)

The cylinder contains an homogenous mixture of nitrogen, argon and helium. It is equipped with a double-stage pressure regulator which guarantees a constant distribution of gas in time. The regulator possesses a crown wheel and pinion connector and does not necessitate any gasket. The pressure regulator has two gauges (Diagram 3).

- The first, a high-pressure one, indicates the cylinder pressure;
- The second, a low-pressure one, indicates the continuous pressure.

In order to guarantee a more precise measurement of the gas flow employed during the painting phase, the **flowmeter** or **flow regulator** comes into use.

This small device made of delrin permits lower quantities of gases to converge in the fluid bed, as compared with those quantities achieved by utilizing only the pressure regulator (maximum flowmeter output = $\frac{1}{4}$ liter per minute).



- Functioning and Characteristics:

The gases contained in the cylinder are three components existing within the air environment in which we live.

This gaseous formulation, immersed in small quantities in a painting system fluid bed, creates some precedents:

The Atimix gaseous mixture, when it becomes absorbed by the paint resins, diminishes the resins' tendency to accumulate at the bottom of its basin (with resulting fall-out reduction), increases their rate of slippage, and improves the polymer atomization in the application process.

The resin contained in the paint, by absorbing the gas, optimally acquires the electrostatic charge, permitting the principal result during the painting phase of a more homogenous and uniform paint distribution onto the manufactured article. Such results are visibly evidenced from a concrete decrease in fumes in the painting booth.

The Atimix gaseous mixture can be used with:

- **liquid paint:** monocomponent, bicomponent, polyurethane, vinyl, metallic, catalytic and with any type of liquid resin.
- **powder paint:** epoxy, epoxy-polyester, polipolyester and with any type of powdered resin.

- Consumption:

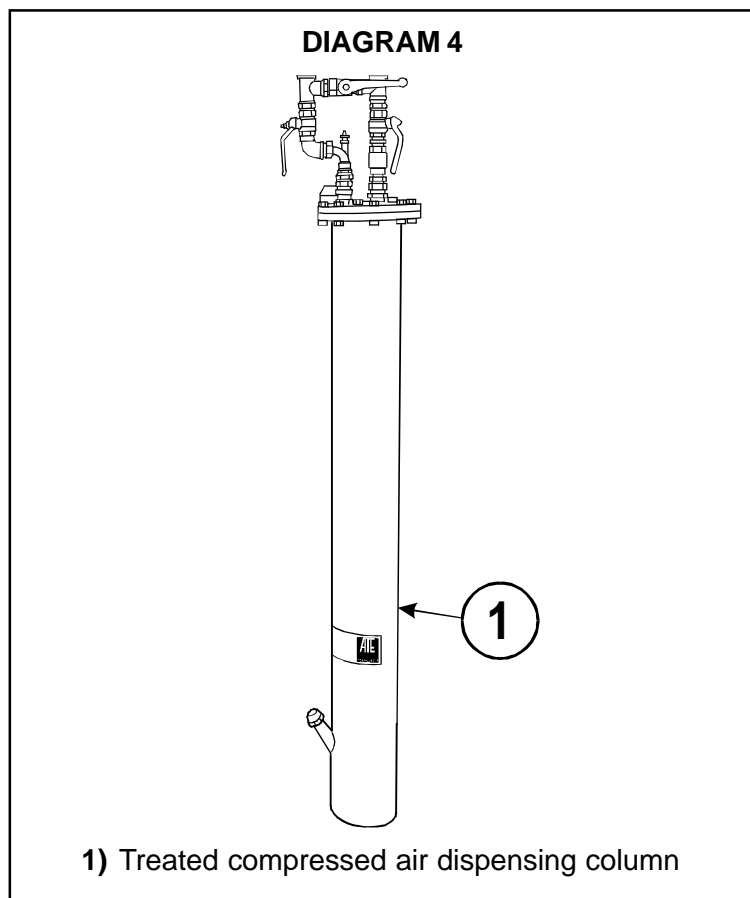
An Atimix gaseous mixture cylinder of 6,000 liters, by maintaining a constant, ¼ liter-per-minute gas flow rate, has an approximate 400 working-hour lifetime.

The Atimix gaseous mixture is produced and distributed exclusively under license from the A.T.E. Srl company.

TREATED COMPRESSED AIR DISPENSING COLUMN (Diagram 4)

The dispensing column is essentially constructed from a cylinder made of anticorodal aluminium equipped with:

- A simplex valve;
- A multilayered filter;
- A thermoregulator;
- A safety valve calibrated at 10,3 Bar;
- An air by-passage system composed of three sluice valves;
- A fitting at the bottom of the column for the Atimix liquid.
-



● **Functioning and Characteristics:**

The introduction of the dispensing column brings about a change in the usual path of the air in a painting system. With the application of the "Atimix System," the air coming from the compressor first passes through the dispensing column and only afterwards converges at the distributing guns.

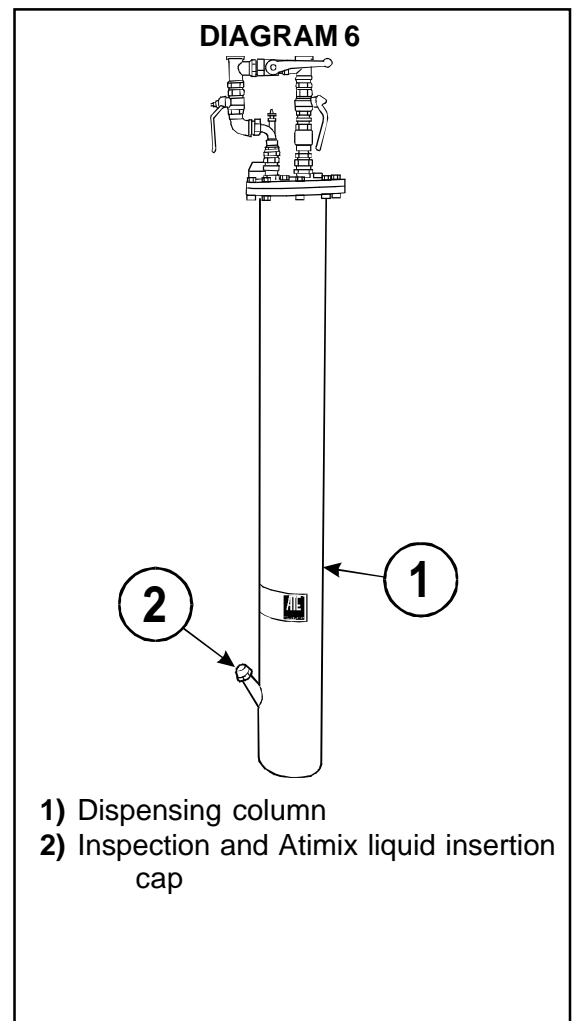
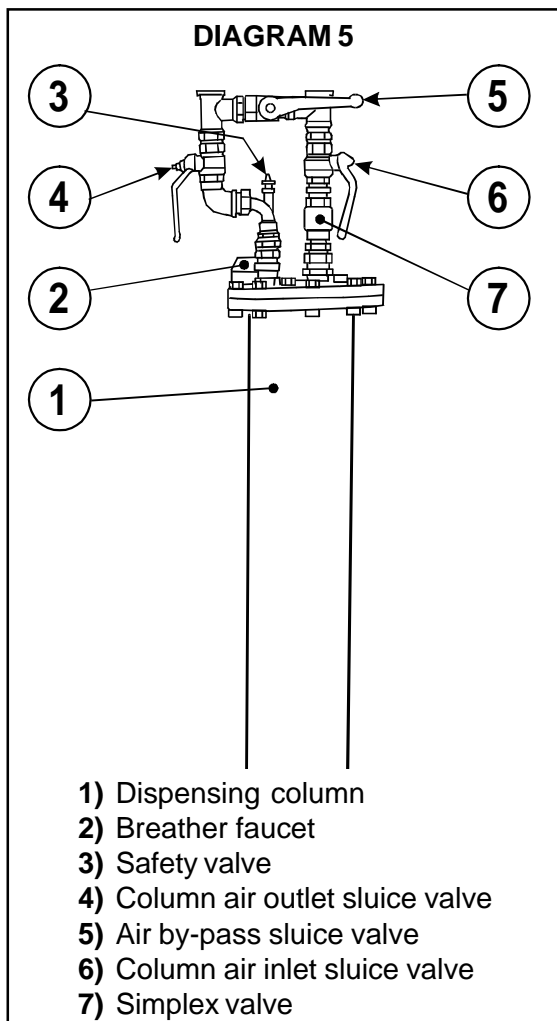
Structurally in the upper part of the column, a ¾' air-feed system is located at both inlet and outlet (Diagram 5).

The air, upon entering the column, is projected onto the bottom of the same, where the **Atimix liquid** receptacle is located (Diagram 6). The direct contact with this particular liquid provides the air with a better conductivity and a greater capacity for the reception of electrostatic charges.

Therefore, the airflow rises again towards the upper part of the column, passes through a series of multilayered filters, and exits from the same column for utilization in the painting phase.

The filtration systems contained in the dispensing column are pre-fitted so as to guarantee that the outgoing air is perfectly dry and does not present any oily traces or other impurities.

The air, treated in this way, is predisposed to favor a more efficient and immediate transport of electrostatic charges, inasmuch as the salts contained in the Atimix liquid, exiting from the column in the form of anhydride, enable the air to capture the electrostatic field in the gun cap, impeding the electrostatic activity from dispersing within the booth and thus permitting the operator to totally concentrate the electrostatic charge on the manufactured article to be painted.



The number of dispenser columns to be applied to a painting system varies in relation to the number of distribution guns – the higher being their number, the greater will be the delivery of air and, therefore, the number of columns to be utilized.

The Atimix Liquid is produced and distributed exclusively by the A.T.E. Srl Corporation.

- **Safety**

The dispensing column possesses an air by-passage system composed of three sluice valves, which permits a return to using at any moment the air originating from the painting system.

- **Consumption**

Atimix liquid: 2 bottles (200 ml each) per column every four/six working weeks.

ESCA (Electrostatic and Stray Current Absorbers) (Diagram 7)

The absorber is composed of more metallic masses capable of absorbing in real time the charges of an electrostatic and/or other nature present in the painting system and/or in the environment (charges that are in any case to be considered harmful and therefore undesirable).

Structurally, in the upper part of the ESCA, there are arranged two copper poles:

- one sized 50 x 10 represents the inlet, or rather the point at which the electrostatic charges converge in the absorber.
- one sized 30 x 8 represents the outlet and is directly connected to the insulated apposite copper cables to the electrostatic current dispersers.

Functioning and Characteristics

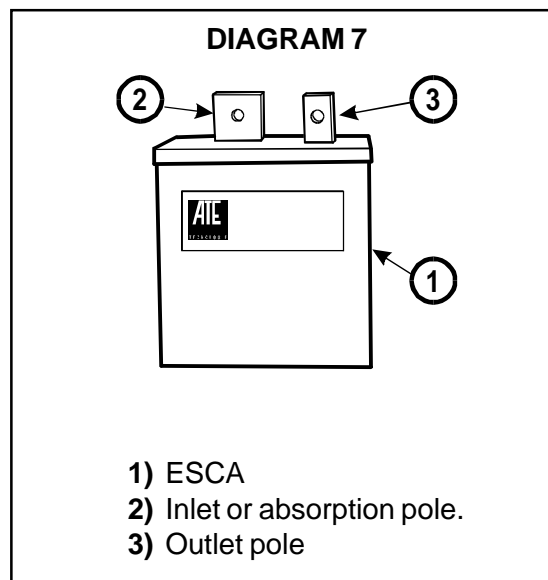
In electrostatic painting systems, the accumulation of static currents causes undesirable effects which disturb the painting phase, like the Faraday cage, a static phenomenon that forms every so often at the corners of an object when it is hit by an electrostatic flow.

When a manufactured article is electrostatically charged, a “repulsion barrier” is created around it which keeps the paint from being deposited. For this reason, the more numerous the electrostatic particles are which the operator converges onto the manufactured article in order to try increasing penetration, the stronger the repulsion barrier will become around the object.

This repulsion effect that comes to be created, tends to reflect onto the guns and onto the user all electrostatic particles sent to the manufactured article, in this way leading the paint to be dispersed into the environment.

The absorption action of the ESCA electrostatic currents allows for the attenuation of the Faraday cage problem by keeping the manufactured article constantly neutral and, therefore, always able to receive the electrostatic charge produced by the guns.

The number of ESCA applicable to a painting installation varies in relation to the number of guns which distribute the electrostatic charge.



ELECTROSTATIC CURRENT DISPENSERS (Diagram 8)

The Electrostatic Current Dispensers are a couple of devices which operate in precise contact with the ESCA, inasmuch as their main function is that of neutralizing the electrostatic currents accumulated in the absorbers.

Structurally, the dispensers are constructed of a mopen pipe (160 x 700), inside of which is located a friction device that utilizes an airflow created artificially from a ventilator located at the extreme bottom of the dispenser.

• Functioning and Characteristics

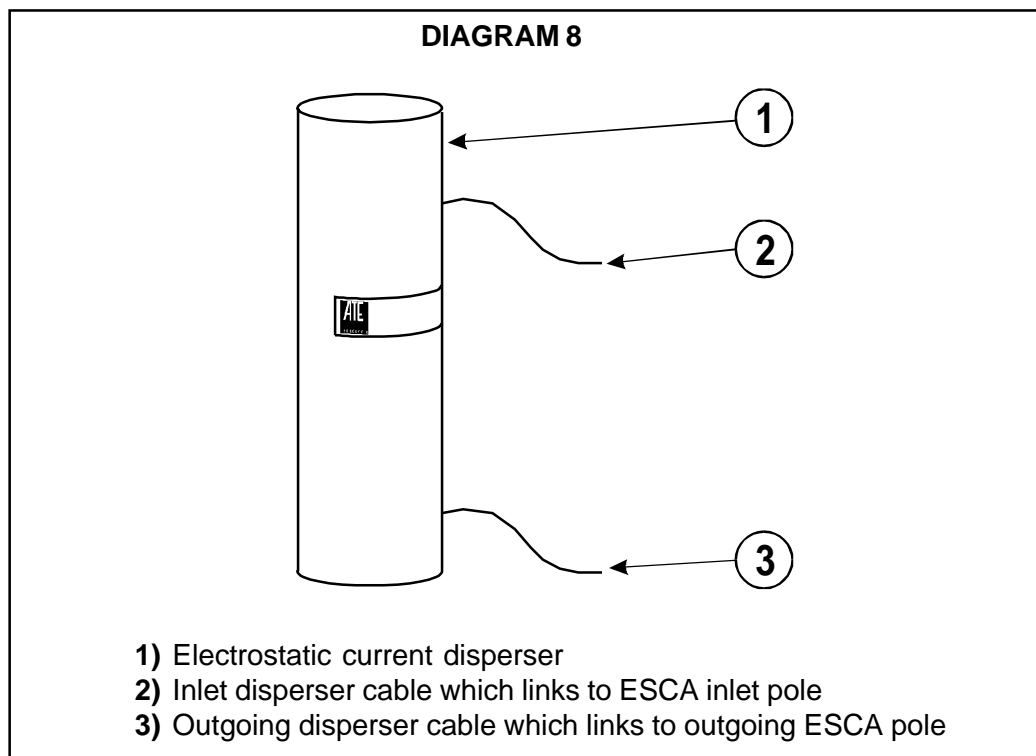
The dispenser receives the electrostatic current from the ESCA via the insulated copper cables; in this manner, the static charges enter the dispenser, pass through the friction device where they lose their static charge, and are therefore dispersed into the external environment without causing any danger to the machines or to persons in the vicinity.

The dispersion of the electrostatic charges into the atmosphere instead of in the ground permits exceeding all limits, owing to the progressive saturation of the ground that is checked when the static charges must be dispersed in great quantities, as occurs in the electrostatic painting processes environment.

The dispensers utilize air and not the ground as a receiving element because air guarantees a greater constancy and a better reliability of static charge dispersion; additionally, the employment of air eliminates all the problems encountered with rod-grounded systems currently in use, in which conditions in zones bordering the painting plant are unsuited, as a result of their geological nature or other reasons, for a proper dispersion of the static charges.

• Consumption:

The ventilators contained in the dispensers have 230 W monophase starters fed by a 0.22 A current, which develop an absorption power equal to 50 W to 50 Hertz and 46 W to 60 Hertz.



ATIMIX SYSTEM CONNECTIONS

The installation of the “Atimix System” in an electrostatic painting plant comprises the execution of three fundamental connections:

1) Atimix Gaseous Mixture Connection:

- Gas with air mixture, Airmix, Airless, rotating cups and electrostatic disc liquid guns;
- Gas with corona, supercorona and electrostatic disc powder guns.

2) Dispensing Column Treated Compressed Air Connection:

The air connection is the same for all the spraying technologies listed below.

- With air mixture, Airmix and rotating cup guns;
- With corona, supercorona and electrostatic disc powder guns.

3) ESCA Connection:

- The same for all painting installations and for all existing spraying technologies.

All the connections performed in the Atimix System installation process involve no modification to the painting plant structures or machinery to which the system is applied.

CONNECTION FOR ATIMIX GASEOUS MIXTURE INPUT IN SYSTEMS WITH AIR MIXTURE, AIRMIX, AIRLESS, ROTATING CUP AND ELECTROSTATIC DISC LIQUID GUNS. (DIAGRAM 9)

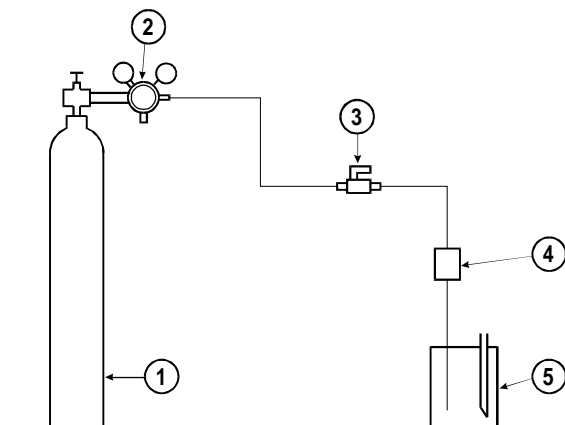
Connection Procedures (Diagram 9)

- 1) Connect pressure reducer (2) to gas cylinder (1).
The pressure reducer connection (2) is crown-wheel-and-pinion, therefore it is necessary to tighten the shoulder nut well; the pressure reducer (2) does not need any sealing. Make sure that there are no gas leaks present.
- 2) Connect pressure reducer outlet (2) to interceptor tap (3) with 6x4 diameter pipe.
- 3) Connect interceptor tap outlet (3) to end of flowmeter (4) with 6x4 diameter pipe.
- 4) At other end of flowmeter (4), attach 6x4 diameter pipe and place it in interior of paint receptacle (5).

In the event that system to which the "Atimix System" is applied possesses additional paint receptacles (Diagram 10), some deflectors (3) are fitted for placing downstream from pressure reducer (2) and proceeding with gas connection in same manner as described above.

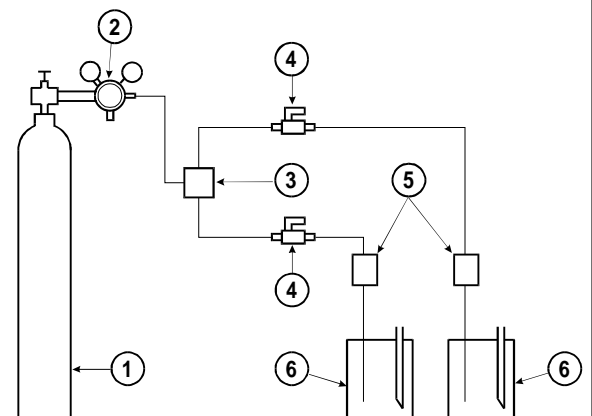
CONNECTION FOR ATIMIX GASEOUS MIXTURE INTAKE IN SYSTEMS WITH AIR MIXTURE, AIRMIX, AIRLESS, ROTATING CUP AND ELECTROSTATIC DISC LIQUID GUNS.

DIAGRAM 9
GASEOUS MIXTURE FEED TO SINGLE PAINT RECEPTACLE



- 1) Gas cylinder
- 2) Pressure reducer
- 3) Interceptor tap
- 4) Flowmeter
- 5) Paint receptacle

DIAGRAM 10
GASEOUS MIXTURE FEED TO ADDITIONAL PAINT RECEPTACLES



- 1) Gas cylinder
- 2) Pressure reducer
- 3) Deflector
- 4) Interceptor taps
- 5) Flowmeter
- 6) Paint containers

CONNECTION FOR ATIMIX GASEOUS MIXTURE INPUT IN SYSTEMS WITH CORONA, SUPERCORONA AND ELECTROSTATIC DISC POWDER GUNS (DIAGRAM 11)

In powder painting systems, the use of the Atimix gaseous mixture is directly linked to the functioning of a **pneumatic valve** (Diagram 13), since the gas leaving the cylinder, before converging in the fluid bed, passes through such a device.

The pneumatic valve is normally closed. Its opening and, therefore, the passage of the gas flow come about only when the gun is in operation; at the instant that the gun terminates the painting process, the valve automatically closes and, consequently, the flow of gas is also interrupted.

Functioning of the Pneumatic Valve:

The opening of the valve depends on the functioning of the distributor guns:

- When the guns paint, from the gun control console leaves a flow of air which goes to the Venturi tube via the air thrust pipe. Thanks to a three-way deflector purposely linked to this pipe, there is drawn a quantity of air that converges at the pneumatic valve upper connector; this small quantity of air generates an impulse that causes a spring to contract inside the valve, determining its opening.

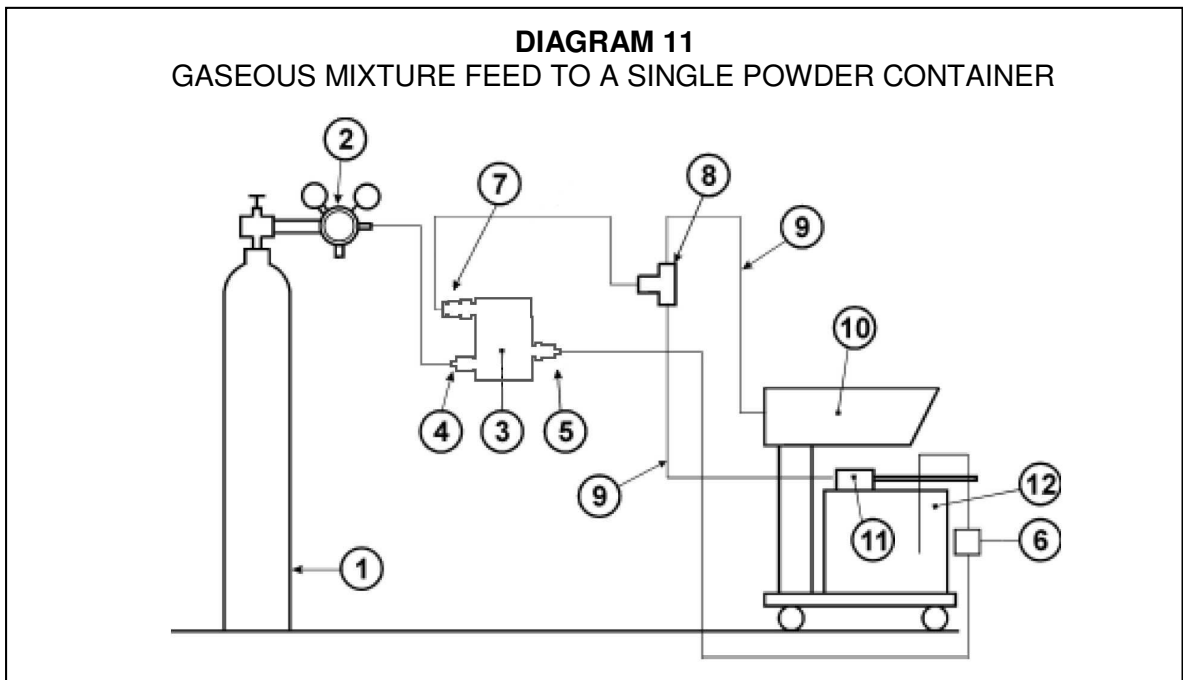
Connection Procedures (Diagram 11):

- 1)** Connect pressure reducer (2) to gas cylinder (1).
Pressure reducer connection (2) is a crown-wheel-and-pinion one, therefore it is necessary to tighten shoulder nut well; pressure reducer (2) does not need any sealing. Make sure that there are no gas leaks present.
- 2)** Connect pressure reducer outlet (2) to hose coupling (4) of pneumatic valve (3) with 6x4 diameter pipe.
- 3)** Connect hose coupling (5) located at other end of pneumatic valve (3) with 6x4 diameter pipe to flowmeter (6), generally located 2/3 meters from paint container (12).
- 4)** At other end of flowmeter (6), attach 6x4 diameter pipe and place it in interior of paint receptacle (12).
- 5)** For operation of pneumatic valve (3), connect pneumatic valve upper connector (7) with 8x6 diameter pipe to central point (or indirect part) of three-way deflector (8).
It is advisable to position three-way deflector (8) at interior of gun control console (10).
- 6)** Insert three-way deflector (8), connecting two side ends, into air thrust pipe that passes from gun control console to Venturi tube (9).

In the event that system to which the "Atimix System" is applied has additional paint receptacles (Diagram 12), some deflectors (3) are fitted for placing downstream from pressure reducer (2) and proceeding with gas connection in same manner as described above.

CONNECTION FOR FEEDING THE ATIMIX GAS MIXTURE INTO PLANTS USING CORONA GUNS, SUPERCORONA GUNS, AND ELECTROSTATIC POWDER DISKS

DIAGRAM 11
GASEOUS MIXTURE FEED TO A SINGLE POWDER CONTAINER



- 1) Gas cylinder
- 2) Pressure reducer
- 3) Pneumatic valve
- 4) Valve intake with gas hose connection
- 5) Valve outlet with gas hose connection
- 6) Flow meter
- 7) Upper valve connection
- 8) Three-way pipe-fitting
- 9) Air thrust hose at the outlet on the gun control panel
- 10) Gun control panel
- 11) Venturi
- 12) Paint container
- 13) Deviator

DIAGRAM 12
GASEOUS MIXTURE FEED TO ADDITIONAL POWDER CONTAINERS

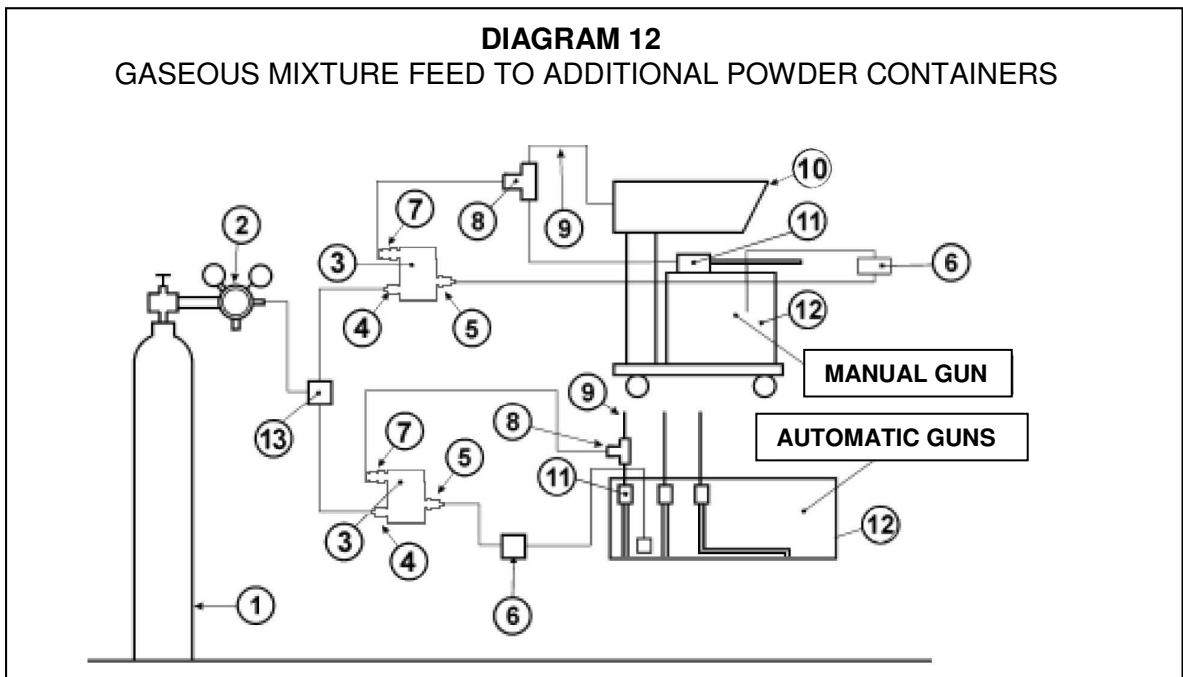
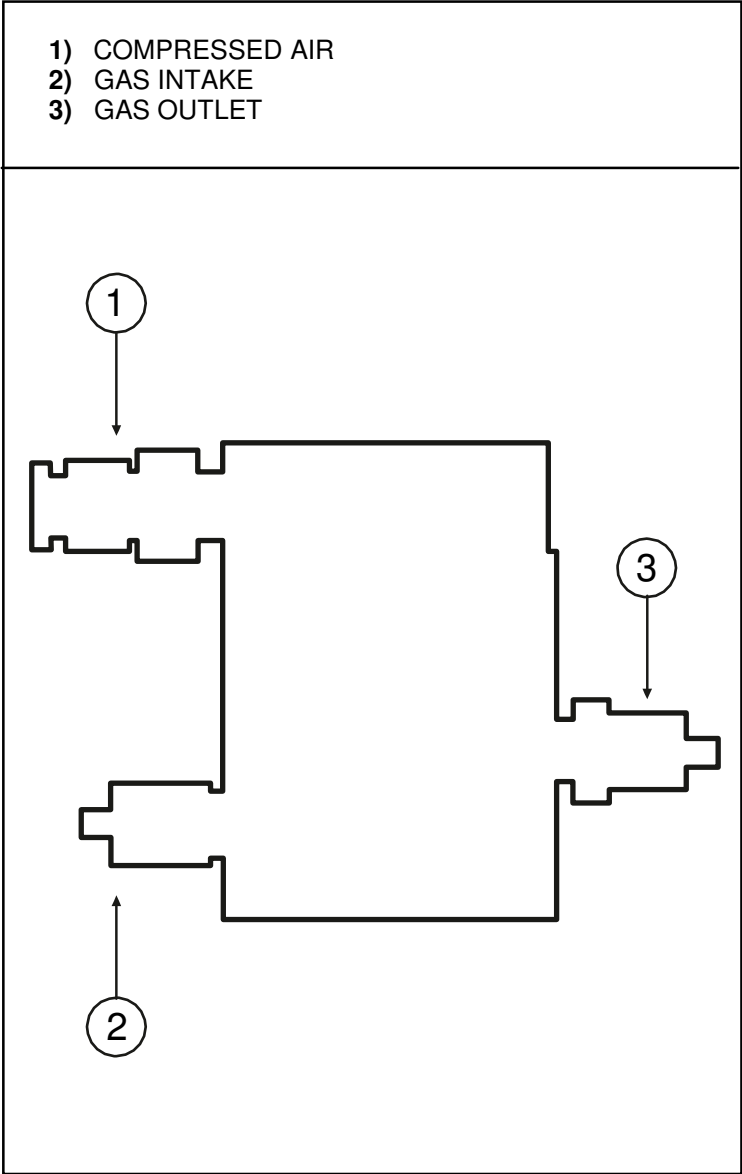


DIAGRAM 13 PNEUMATIC VALVE



AIR CONNECTION FOR SYSTEMS WITH AIR MIXTURE, AIRMIX, ROTATING CUP LIQUID GUNS AND WITH CORONA, SUPERCORONA, ELECTROSTATIC DISC POWDER GUNS (Diagram 14)

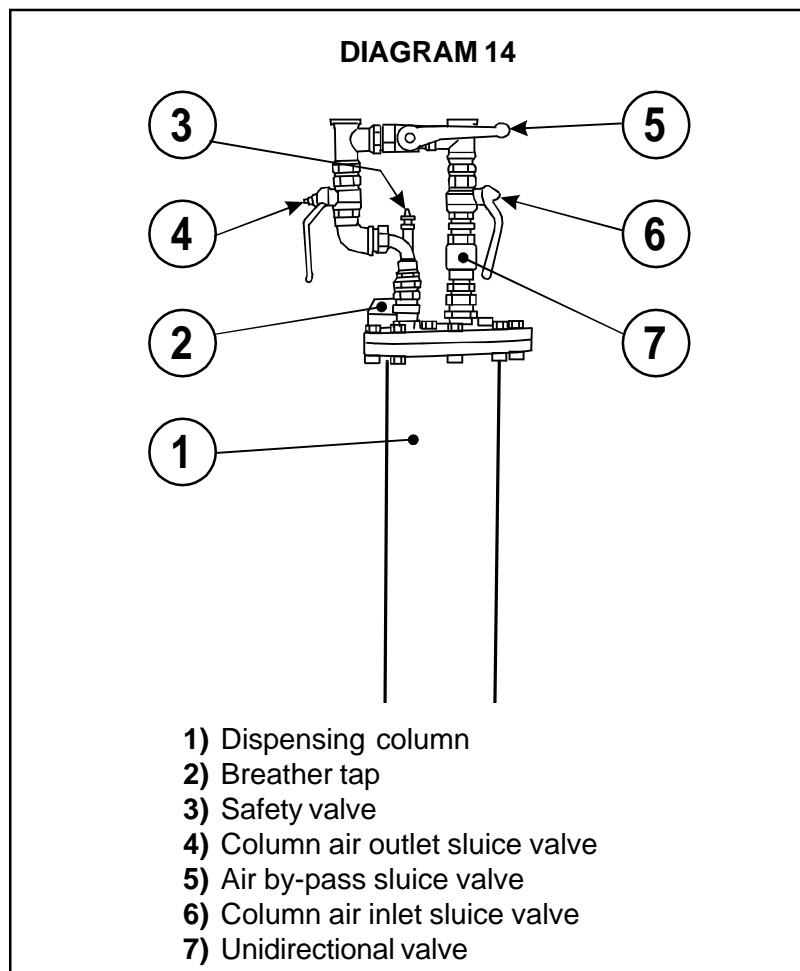
Connection Instructions:

- 1) Attach mains air pipe to dispensing column(s) inlet (1), located in metal cabinet. Inlet is distinguished in any case by a unidirectional valve (7).
- 2) Connect column outlet (4) either to general inlet of gun control console or to atomization air pipe of guns.

For maintenance of dispensing column, three sluice valves (**By-Pass System**) are fitted:

- one at column inlet (6);
- one at column outlet (4);
- other located as indicated at point (5).

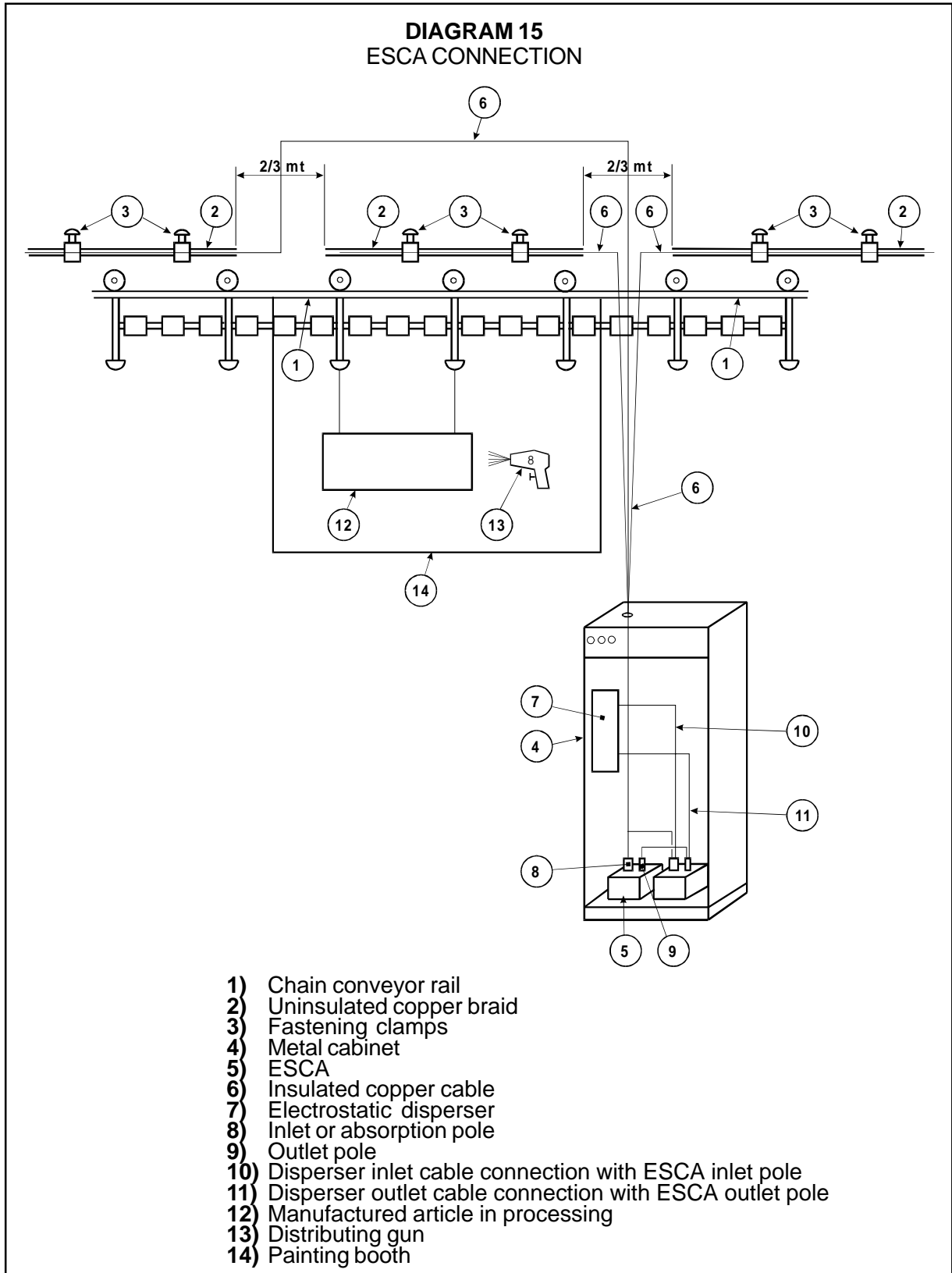
By opening sluice valves (4) and (6) and closing valve (5), the column is in operation. In order to By-Pass column, close sluice valves (4) and (6) and open valve (5), in such a way excluding mains air of column without interrupting airflow to guns.



ESCA (ELECTROSTATIC & STRAY CURRENT ABSORBERS) CONNECTION (Diagram 15)

The ESCA connection is adaptable to all existing painting systems.

The absorbers (5) are located at the interior of the metal cabinet (4) and are connected, with apposite insulated copper cables (6), from one side to the painting installation and from the other to the electrostatic current dispersers (7).



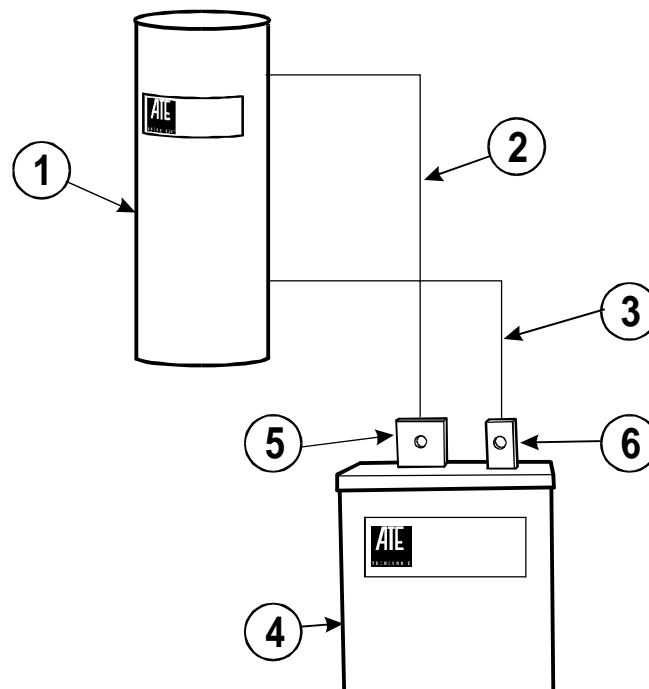
ESCA Connection with electrostatic current dispersers (Diagram 16):

To complete the ESCA connection to the painting system, it is necessary to connect the absorbers (4) to the electrostatic current dispersers (1).

Such an operation is very simple as far as:

- the cable located in upper section of disperser (2) is connected to ESCA inlet (5) (bigger pole);
- the cable located in lower section of disperser (3) is connected to ESCA outlet (6) (smaller pole).

DIAGRAM 16
ESCA CONNECTION – ELECTROSTATIC DISPERSERS



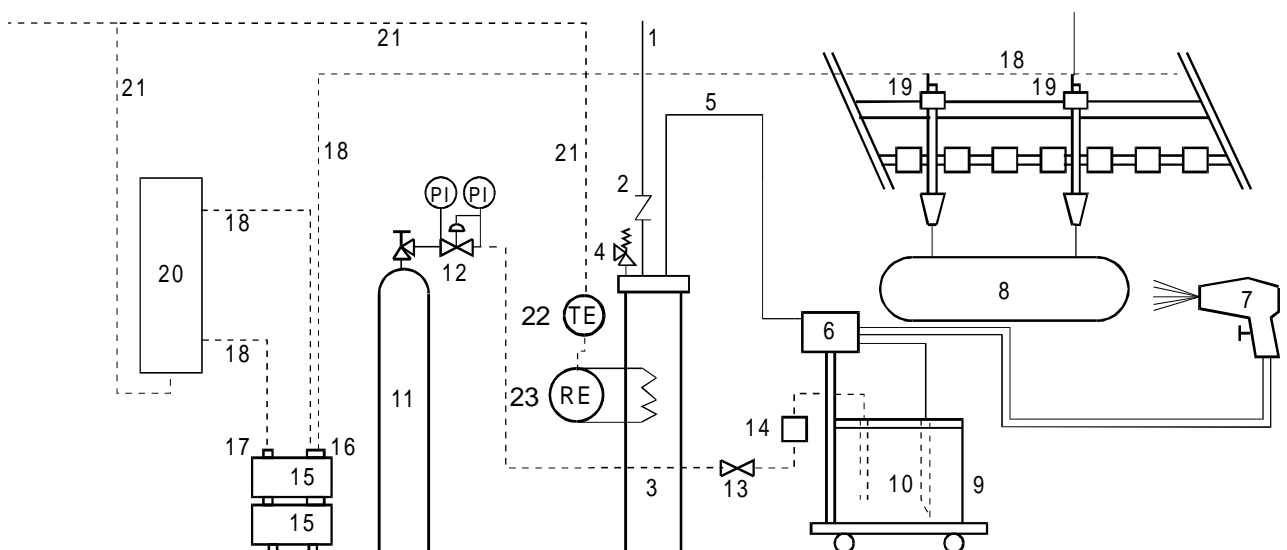
- 1) Electrostatic disperser
- 2) Disperser inlet cable connection with ESCA inlet pole
- 3) Disperser outlet cable connection with ESCA outlet pole
- 4) ESCA
- 5) ESCA inlet or absorption pole
- 6) ESCA outlet pole

CHARACTERISTICS OF THE “ATIMIX SYSTEM” CONNECTED TO AIR MIXTURE PNEUMATIC, AIRMIX AND ROTATING CUP LIQUID GUN SYSTEMS (Diagram 17)

The Atimix System has introduced substantial modifications that decidedly improve the electrostatic deposition production efficiency of a traditional plant.

- A)** The compressed air, immersed in the dispensing column, enters in contact with the Atimix liquid, passes through a series of multilayered filters and exits the column in order to be used during the painting phase.
This treatment permits having air perfectly dry and free of oily traces and other impurities; moreover, thanks to the salts contained in the Atimix liquid, the air takes on the power of uniformly collecting the electrostatic current.
- B)** The Atimix gaseous mixture immersed directly in the painting receptacle optimizes the atomization of the product being applied.
This new fluid (formed from paint, gaseous mixture) results in ideal conditions for the maximum absorption of the electrostatic charges in the distributing guns.
- C)** The electrostatic charges are first absorbed by the ESCA and then neutralized by the dispersers. This process allows to eliminate all interference of an electrostatic nature which negatively impact upon the proper painting procedure.
The paint deposition phase is improved, thanks to the weakening of the Faraday cage, thus resulting in a better penetration, uniformity and stress relieving in the applied paint.

**ATIMIX SYSTEM
DIAGRAM 17**
SYSTEM DIAGRAM WITH AIR MIXTURE, AIRMIX AND ROTATING CUP LIQUID GUNS

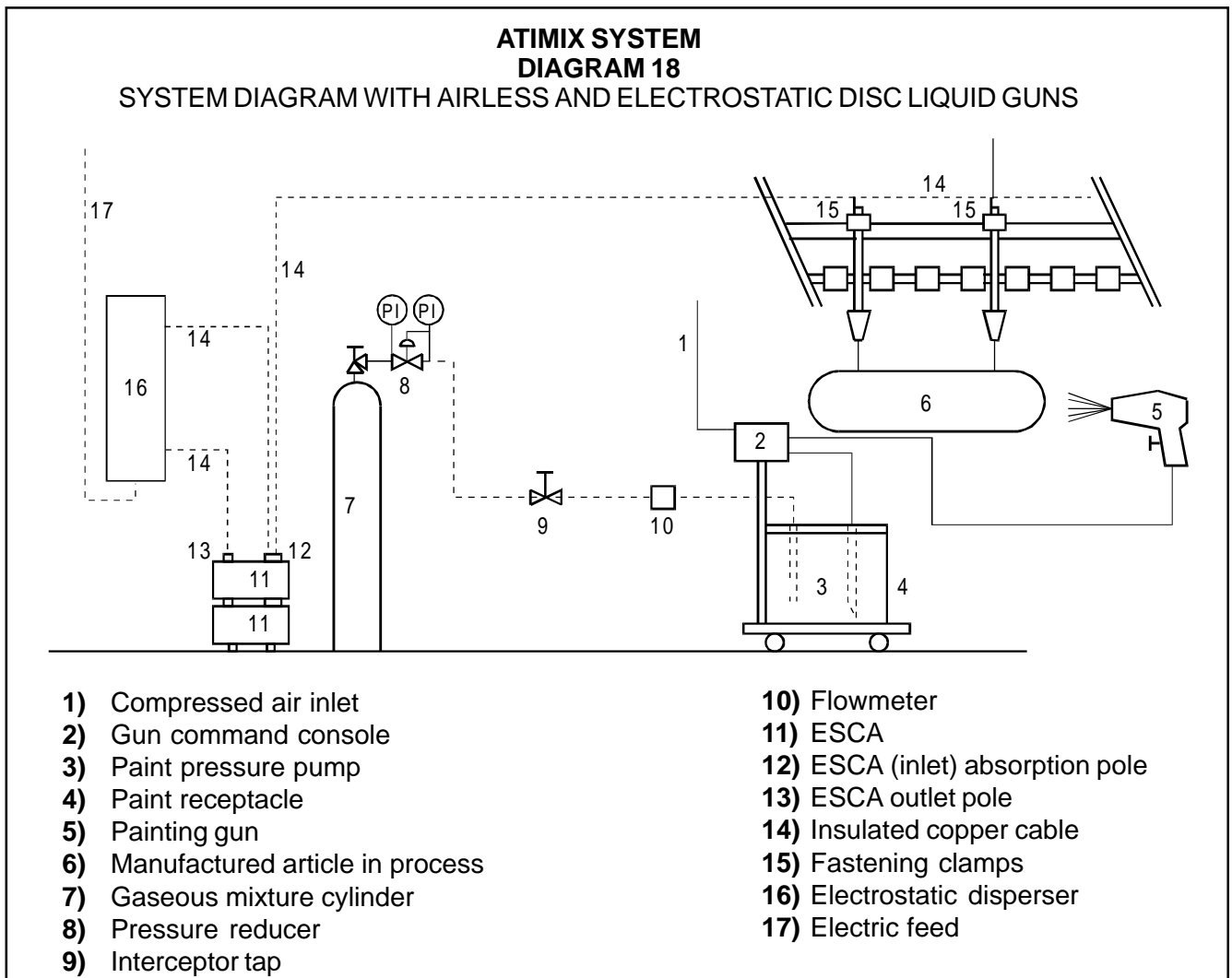


- | | |
|---|---|
| 1) Compressed air inlet | 13) Interceptor tap |
| 2) Unidirectional valve | 14) Flowmeter |
| 3) Dispensing column | 15) ESCA |
| 4) Safety valve | 16) ESCA (inlet) absorption pole |
| 5) Treated compressed air outlet | 17) ESCA outlet pole |
| 6) Gun command console | 18) Insulated copper cable |
| 7) Spray gun | 19) Fastening clamps |
| 8) Manufactured article in process | 20) Electrostatic disperser |
| 9) Paint receptacle | 21) Electrical feed |
| 10) Paint pressure pump | 22) Column thermoregulator |
| 11) Gaseous mixture cylinder | 23) Column resistance |
| 12) Pressure reducer | |

CHARACTERISTICS OF THE “ATIMIX SYSTEM” CONNECTED TO AIRLESS AND ELECTROSTATIC DISC LIQUID GUN SYSTEMS (Diagram 18)

The Atimix System has introduced substantial modifications that decidedly improve the electrostatic deposition production efficiency of a traditional plant.

- A)** The Atimix gaseous mixture immersed directly in the painting receptacle optimizes the atomization of the product being applied.
This new fluid (formed from paint, gaseous mixture) results in ideal conditions for the maximum absorption of the electrostatic charges in the distributing guns.
- B)** The electrostatic charges are first absorbed by the ESCA and then neutralized by the dispersers. This process allows for the elimination of all interference of an electrostatic nature which negatively impact upon the proper painting procedure.
The paint deposition phase is improved, thanks to the weakening of the Faraday cage, thus resulting in a better penetration, uniformity and stress relieving in the applied paint.

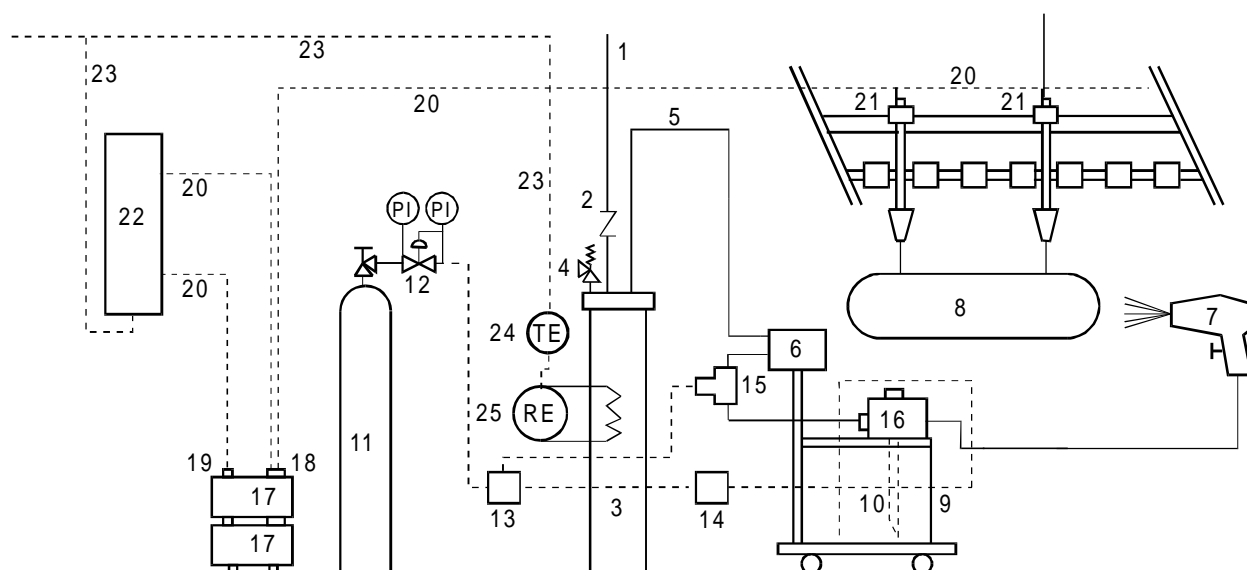


CHARACTERISTICS OF THE "ATIMIX SYSTEM" CONNECTED TO CORONA, SUPERCORONA AND ELECTROSTATIC DISC POWDER GUN SYSTEMS (Diagram 19)

The Atimix System has introduced substantial modifications that decidedly improve the electrostatic deposition production efficiency of a traditional plant.

- A)** The compressed air, immersed in the dispensing column, enters in contact with the Atimix liquid, passes through a series of multilayered filters and exits the column in order to be united, thanks to a Venturi tube, with the paint coming from the storage receptacle. This treatment permits having air perfectly dry and free of oily traces and other impurities; moreover, thanks to the salts contained in the Atimix liquid, the air takes on the power of uniformly collecting the electrostatic current.
- B)** The Atimix gaseous mixture immersed directly in the painting receptacle optimizes the atomization of the product being applied. This new fluid (formed from paint, gaseous mixture) results in ideal conditions for the maximum absorption of the electrostatic charges in the distributing guns.
- C)** The electrostatic charges are first absorbed by the ESCA and then neutralized by the dispersers. This process allows for the elimination of all interference of an electrostatic nature which negatively impact upon the proper painting procedure. The paint deposition phase is improved, thanks to the weakening of the Faraday cage, thus resulting in a better penetration, uniformity and stress relieving in the applied paint.

**ATIMIX SYSTEM
DIAGRAM 19**
SYSTEM DIAGRAM WITH CORONA, SUPERCORONA AND ELECTROSTATIC DISC POWDER GUNS



- | | |
|----------------------------------|----------------------------------|
| 1) Compressed air inlet | 14) Flowmeter |
| 2) Unidirectional valve | 15) Three-way deflector |
| 3) Dispensing column | 16) Venturi tube |
| 4) Safety valve | 17) ESCA |
| 5) Treated compressed air outlet | 18) ESCA (inlet) absorption pole |
| 6) Gun command console | 19) ESCA outlet pole |
| 7) Painting gun | 20) Insulated copper cable |
| 8) Applied manufactured article | 21) Fastening clamps |
| 9) Paint receptacle | 22) Electrostatic disperser |
| 10) Paint pressure pump | 23) Electric feed |
| 11) Gaseous mixture cylinder | 24) Column thermoregulator |
| 12) Pressure reducer | 25) Column resistance |
| 13) Pneumatic valve | |

STARTING AND OPERATING THE ATIMIX SYSTEM.

Once all the Atimix System installation procedures are completed (ESCA connection, treated compressed air, Atimix gaseous mixture), the start-up phase begins.

Procedures to follow for operating the Atimix System:

- 1)** Open Atimix gaseous mixture cylinder.
- 2)** Adjust pressure regulator outflow to a value between 0.1 Bar and 0.2 Bar.
- 3)** Open dispensing column inlet and outlet sluice valves in order to aerate system.
- 4)** Turn on electrostatic disperser motor ventilator by turning switch located in front of system.

After carrying out all these procedures, it is necessary to work for some days with the same parameters as before, while the Atimix System begins to act upon the electrostatic field of the painting system.

More in detail, the ESCA need a certain amount of time in order to attract and absorb all the electrostatic current generated from the painting equipment and the nearby production plants: it is well known that all this generates energy, part of which is static.

As for painting equipment, there are several sources of static charges:

- guns and discs, because they emit static charges during their operation;
- reciprocators and robots, since their movements create friction and therefore electrostatic currents;
- powder tubes in powder coating plants, because the powder which flows through these tubes generates friction and therefore static charges.

Besides painting installations, electrostatic charges are generated also in the plants and machines located nearby, such as those for moulding, extrusion of plastic or metal, and conveyor chains or rollers.

Considering the extension of surface to be neutralized and the fact that the ESCA have to attract not only the electrostatic currents that are generated every day, but also the "past" ones, generated previously, it can be understood why the process of neutralizing static charges may be slow.

Simultaneously with the action of the ESCA, the column operates on the compressed air. The air which is delivered from the column is much drier and electrostatically conductive compared to the normally used air.

The Atimix gaseous mixture acts on paint, improving its chargeability.

After a certain amount of time ESCA, treated compressed air and Atimix gaseous mixture modify the painting conditions, allowing the operator to fully exploit the performance of the guns.

The Painting Process with the “Atimix System”

When using the “Atimix System,” the operator must modify some painting set-up parameters in order to permit the System to fully act on and express its potential and to obtain the results already fully described during the painting process. More precisely, **it is necessary:**

1) To reduce the flow rate of secondary air.

In order to increase penetration, the operator does not have to increase the thrust of air and of paint because by working, thanks to the presence of the ESCA in a neutral electrostatic field, one possesses a better-than-average painting deposition with a resulting increase in winding and in thickness.

2) To reduce the flow rate of principal air and paint.

In the initial Atimix System start-up phase, the operator will find that s/he has manufactured articles heavily laden with paint. In order to diminish the thickness, s/he will need, therefore, to reduce the flow of principal air and the amount of paint.

3) To increase the voltage (kV) of the guns.

Generally, the guns are never used to their maximum electrostatic potential; the operator tends to use low values of voltage because of the presence of extraneous currents or interference.

With the Atimix System, the operator has the possibility of increasing the quantity of emitted current, thus improving paint penetration and distribution, without having problems with paint distension and orange-peeling.

TRANSPORT AND LIFTING

The "Atimix System" comes furnished in metal cabinets whose dimensions, in proportion to the number of contained elements, vary according to three standard formats:

- 2000x400x600 Cabinet
- 2000x600x600 Cabinet
- 2000x600x1000 Cabinet

"Atimix System" Transport Instructions (Diagram 20)

The "Atimix System is delivered completely assembled.

For transport and moving, use elevator lift by placing the forks in the positions shown by the arrows.

Always maintain System in upright position as indicated by arrows located on packaging.

After delivery, unwrap and notify factory of any assessed damages.





ELECTRICAL SYSTEM

Feed voltage = 220 V. 50 Hz. monophase in order to connect electrical system.

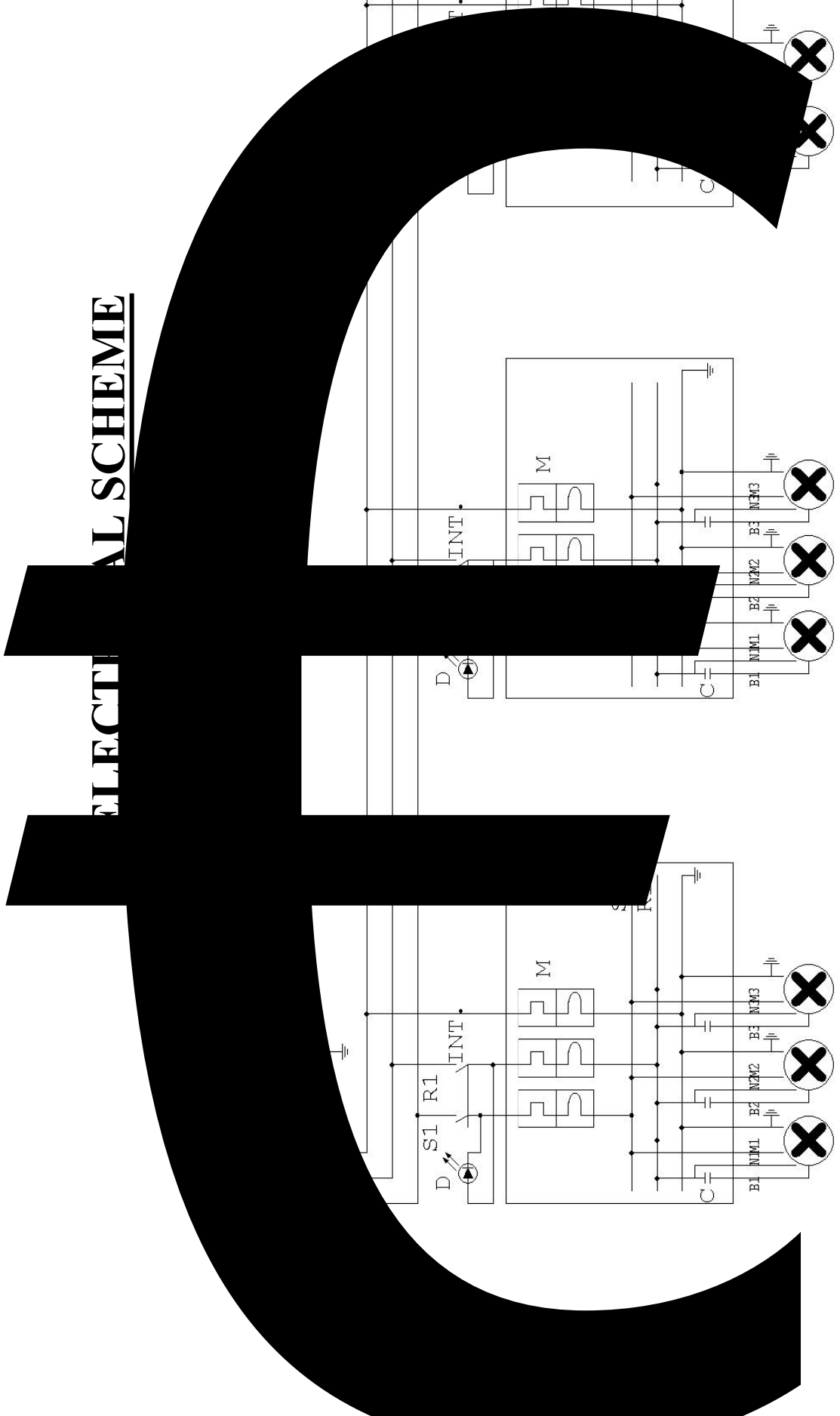
- 1 - Provide current via tapping located in upper exterior section of command unit.
- 2 - Turn general switch, making electric console "live."
- 3 - For every column present in interior of command unit, there is a green luminous selector; turn selector to activate resistance inside column.
- 4 - To turn on disperser, turn apposite selector that starts up gauge box inside disperser.

ELECTRICAL CHARACTERISTICS OF THE MOTOR VENTILATOR

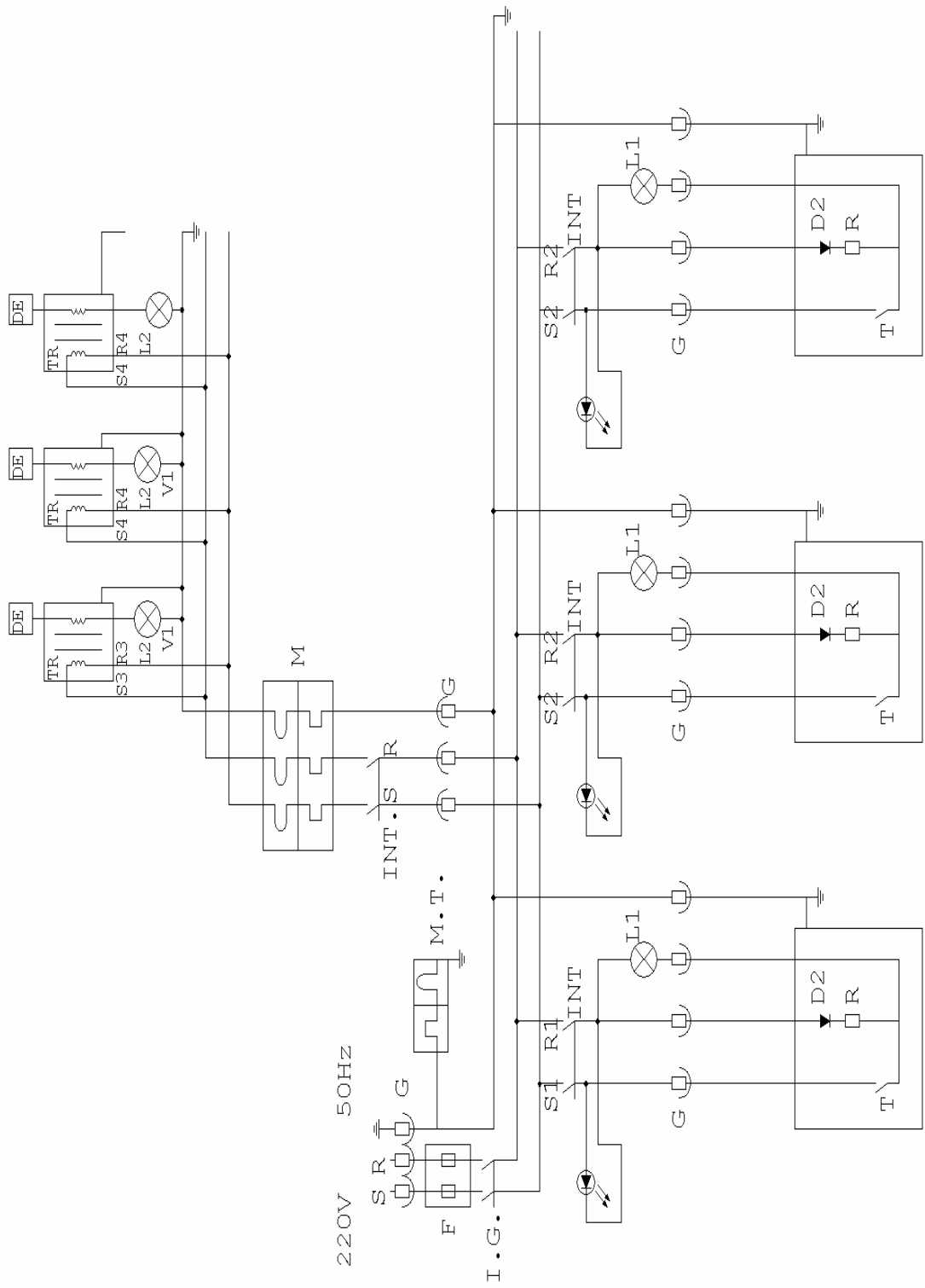
FEED VOLTAGE:	220 V.
FREQUENCY:	50 Hz.
SPEED:	2650 Min.
POWER:	46 W.
ABSORPTION:	0.22 A.

- Electrical system is protected by a bipolar fuse carrier containing 220 V. – 2 A. fuses;
To change fuses:
- Switch off voltage to console;
- Unscrew two nuts which remove front panel;
- Open fuse carrier.

ELECTRICAL SCHEME



ELECTRICAL SCHEME (columns and deioniser)



ATIMIX SYSTEM MAINTENANCE

There are principally three maintenance procedures that must be carried out periodically in order to guarantee the complete functionality and efficiency of the "Atimix System":

A) Checking of Atimix Liquid Level

In order to carry out this maintenance procedure correctly, it is necessary to follow these instructions:

- 1) close sluice valve to dispensing column inlet;
- 2) close sluice valve to dispensing column outlet;
- 3) open by-pass tap;
- 4) let out air contained in dispensing column;
- 5) unscrew inspection cap located in lower section of dispensing column;
- 6) check level of Atimix liquid with apposite small dipstick:
 - **ideal functioning level is 2 (two) notches;**
 - if level is too low (less than 2 notches), add another bottle of Atimix liquid until two (2) notches are achieved;
 - if level is too high (more than 2 notches), do not add additional bottles and wait until level falls to 2 (two) notches.
- 7) restore operation of dispensing column.

NOTE: The quantity of liquid recommended is 2 bottles every 4-6 working weeks of "Atimix System" use. We recommend to check the level of liquid every 15 days with the dipstick.

B) Replacing the Atimix Gaseous Mixture Cylinder

During the Atimix gaseous mixture cylinder replacement phase, it is necessary to ensure that:

- 1) crown-wheel-and-pinion coupling of pressure regulator is perfectly clean;
 - 2) connection of cylinder to pressure regulator is carried out in correct position.
- These two simple maintenance procedures are very important, inasmuch as proper attention and use are indispensable for the prevention of possible gas leaks.

C) CLEANING OF ELECTROSTATIC CURRENT DISPERSERS

Periodically, a cleaning procedure must be carried out on the internal parts of the electrostatic current dispersers. This maintenance task must be executed according to the following instructions:

- 1) turn off electrostatic current dispersers;
- 2) blow compressed air inside each disperser (both into the bottom and the top opening of the disperser);
- 3) turn on electrostatic current dispersers again.

SAFETY REGULATIONS



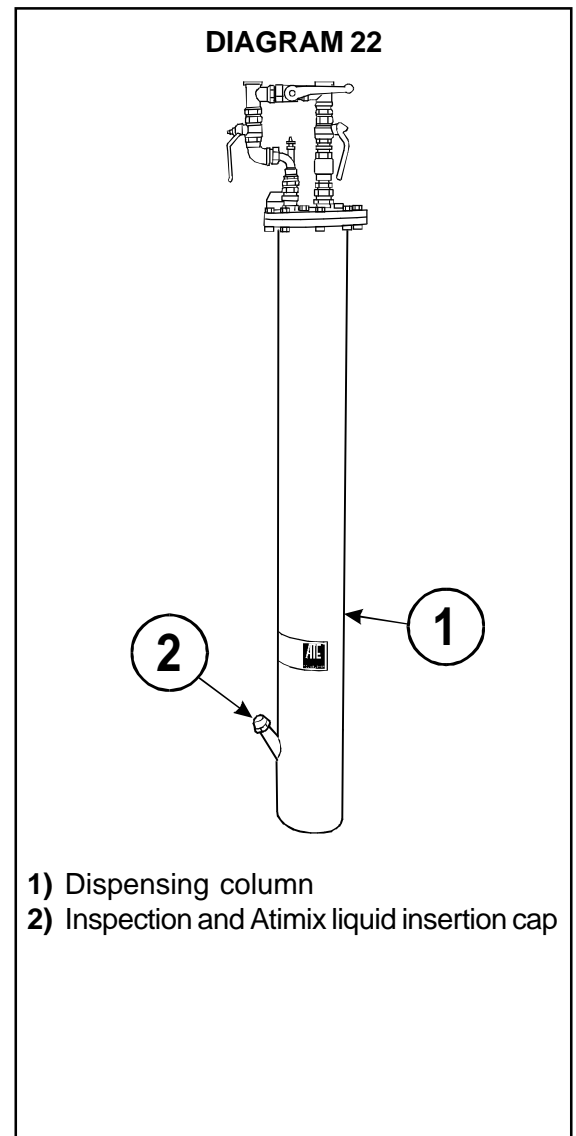
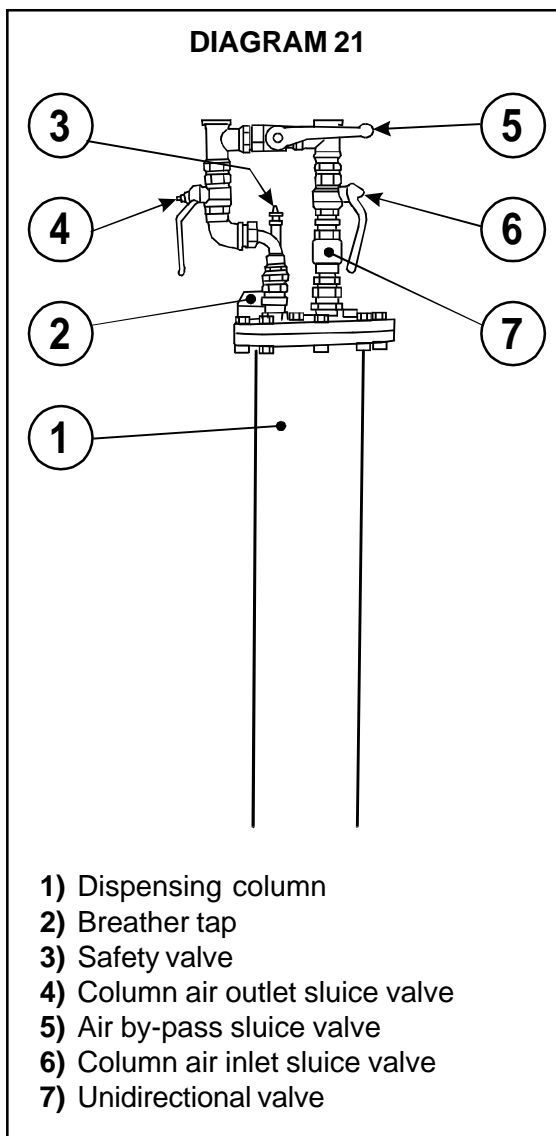
(See Diagrams 20-21)

The system has been constructed in conformity with "CE" specifications; therefore, operation is recommended according to the following regulations:

- Do not unscrew inspection cap (Item 2, Diagram 22) below dispensing column when column is under pressure.

Before unscrewing cap for inspection of column, empty out mains air in column inlet and un-aerate column from apposite sluice valve (Item 2, Diagram 21).

- All fittings used are at high-pressure, with a safety valve calibrated to 10,3 Bar.
- Electrical system of machine has been realized per "CE" regulations.
- Entire machine structure is protected against short-circuiting contact by means of grounded system having conductors with proper diameter.
- Always bind cylinder to interior of cabinet with apposite chain, after replacement of same has occurred.
- **Do not let ESCA come into contact with water.**



PRACTICAL ADVICE FOR USE:

- At end of day, always close Atimix mixture cylinder.
- In liquid gun systems, remember to close interceptor tap during work downtimes.

TROUBLESHOOTING TIPS:

- 1** - There exists excessive consumption of Atimix gaseous mixture:
the pressure regulator is not screwed on tightly to the cylinder.
Check couplings on reflectors, on pneumatic pump and on mixers.
Silicon tube (in case of powder systems) of pneumatic pump is broken; replace it.
- 2** - Air is not reaching the painting system:
Check that column inlet has not been switched with column outlet.
- 3** - The electrical system is not working:
Fuses are burned out; replace them.
- 4** - The luminous selector indicators do not activate:
Bulbs are burned out; replace them.