# SELECTION GUIDE

## ELECTROSTATIC
## POWDER COATING SOLUTIONS

Sames

*The finishing* ***experts***


The images are non-contractual - Marketing dept. Cyril B. - March 2013 - Printed in France

# Editorial

In order to permit you to increase your productivity and your competitiveness, Sames Technologies is dedicated to excellence every day in terms of reliability and innovation. We constantly improve our performances and the quality of your processes to satisfy your requirements.

Resulting in the development of reliable technologies, guaranteeing a quick ROI.

You will discover in this catalogue solutions responding to your needs in order to reach the application result you are looking for.

We also help you in determining choices of equipment, which permits your installation to respond to VOC directives. We are always ready to answer your questions and to assist you in defining your painting process.

Good reading.

Contents

# Contents












## Products

## A strong identity at your disposal

For several decades, SAMES Technologies has acquired a vast knowledge and has built up a unique know-how in lots of different fields of activity.
Numerous installations in the fields of car manufacturing, plastics engineering and in many other fields, are equipped with our electrostatic solutions.

This know-how is for you the guarantee that we are experienced people, able to understand your needs and to speak the same language.
It is also the guarantee for you to work with technicians who are able to lead you towards the best technical alternative and to offer you a reliable solution regarding your application.

You surely can rely on our know-how to enable you to reach your efficiency goals in a durable manner. SAMES will put itself on the line to find with you solutions to improve your competitiveness and to make your investments cost-effective.

We work in cooperation with our customers on different markets all over the world and contribute to the improvement of their competitiveness. This approach mainly comes in the following points:

> Increase the productivity = to increase the rates of production by cutting down on products and reducing maintenance operations

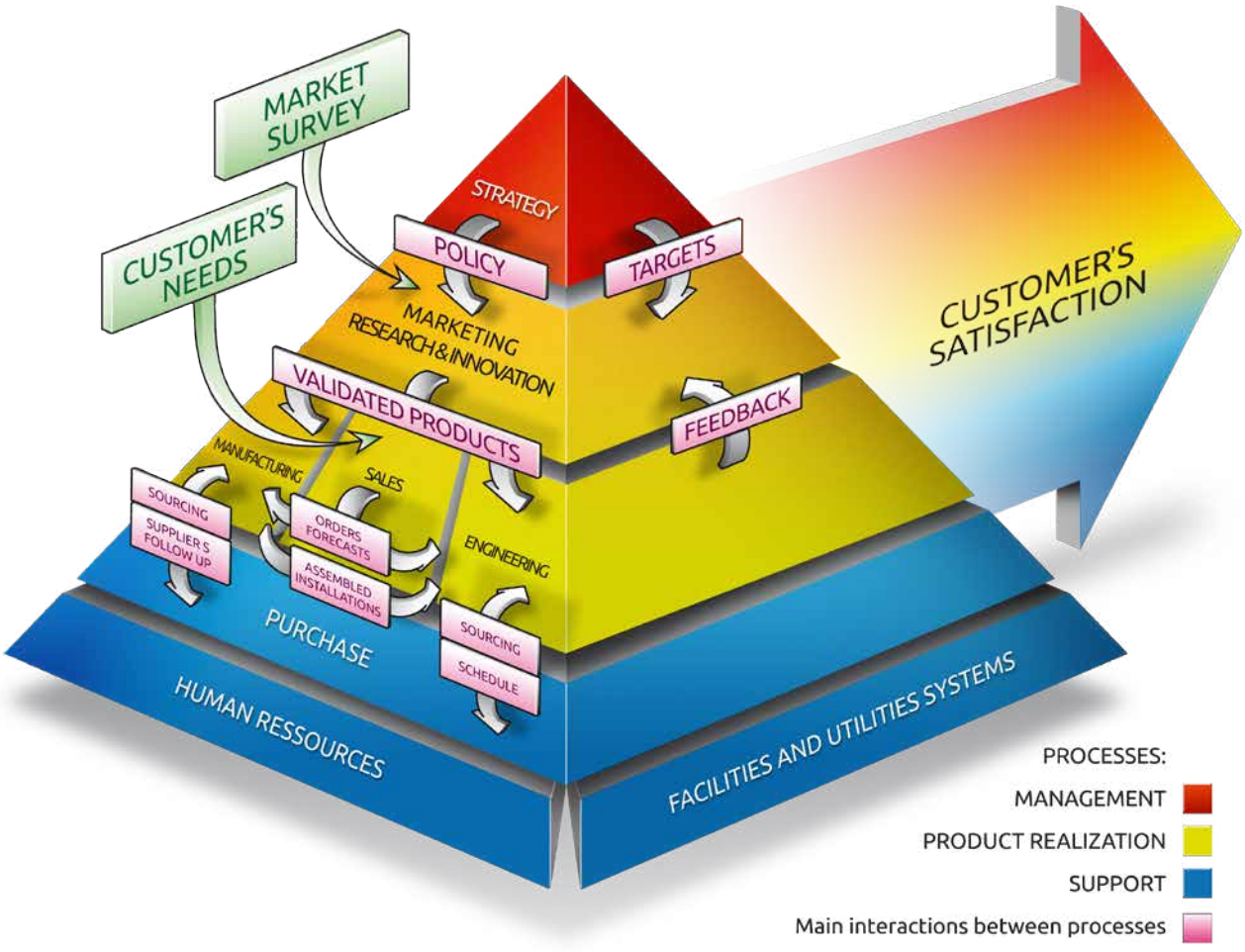
> Requirements for a high quality application

> Respecting the environment

## > Quality Assurance

In conformity with the ISO9001 standard - issue 2008, the requisite procedures and registrations are mastered. The seriousness with which SAMES' quality policy is dealt ensures you an optimum quality at each stage of the production and of the assembly of the components.

Our equipment is subjected to the following European directives:
- 94/9/CE Explosive atmospheres
- 2006/42/CE Machines
- 2006/95/CE Low voltage
- 2004/108/CE Electromagnetic compatibility
- 97/23/CE Pressurised equipment
- 2002/95/CE ROHS Limitation of dangerous substances
- 2002/96/CE ROHS Electrical and electronic waste
- 1907/2006/CE REACH Recording, evaluating and authorising of chemicals




Our pyramid of the in-house processes allows us to organise all the stages to satisfy our customers, while being very attentive to the various environments (customers, competition…), to the audits (internal and external) and to the indicators linked to the defined aims.

# Engineering Solutions

SAMES Technologies develops its engineering solutions closely with its customers in order to meet their specific requirements: Designed and developed to requirements, they provide precise responses to the expectations of the most demanding users: Reliability, quality of application and improvement of productivity are constantly aimed for.
The SAMES engineering teams share with our customers the fruit of their experience and place at their service all of their expertise and availability.
Each of our customers is guaranteed technical and commercial tracking in the running and development of their painting process, our staff are always available to provide rapid assistance and advice.

*Test and demonstration platform in MEYLAN - FRANCE*

Through these services, SAMES commits to the quality and reliability of its solutions and services, such as the improvement of:

> The performance (regularity and transfer rates of the equipment, output when changing colours, etc...)

> Compliance with safety and environmental rules

> Productivity (grouped colour batches, unhooking of hangers, etc...)

> Reduction of costs

> The automation of functions (detection of size, break between parts, automatic air blast of spray guns, proportional flow control, use of spray gun tables dedicated to families of products, etc...)

> The ergonomics of work stations

> The tracking and management of maintenance

# > Customer Services

SAMES Technologies offers a complete range of services, adapted to all your needs:

advice, repair, maintenance or intervention by a qualified technician. Whichever your request may be, SAMES Customer Service department, a team of 20 persons, is at your disposal to respond to your needs as soon as possible.

## >>ASSISTANCE AND TECHNICAL SUPPORT

+33(0)4 76 41 60 60

In order to gain the most from your installation, (paint or powder), the advice and expertise of specialists is essential. SAMES customer support will carry out a diagnostic survey of your installation, and will provide you with complete technical assistance for the improvement or the upgrade of your paint line.

**Services and technical assistance contracts:**
> Technical assistance on site
> Preventive maintenance
> Retrofit
> Audit and optimization of the Process

## >> REPAIR

+33(0)4 76 41 60 01

Regular maintenance by trained technicians or a retrofit of your equipment, is the best way to guarantee the correct running of your plant. To this end, contact one of our technicians:

> to have technical advice or technical assistance by phone
> to have one of your product repaired or controlled
> to carry out an upgrade

## >> SPARE PARTS

+33(0)4 76 41 60 60

Original spare parts guarantee the correct running of your equipment. We are there to deal with all of your requests for parts throughout the world. Thus, our aim is to rapidly supply you, at the best price, with the required part in order to guarantee the optimum and prolonged running of your powder application equipment.

## >> TRAINING

+33(0)4 76 41 60 22

SAMES Technologies is registered as a training centre by the French Ministry of Employment.

We design training courses that are tailored to your requirements, allowing you to learn the requisite knowledge to use during the maintenance of your equipment, these are organized throughout the year. A catalogue can be obtained upon request. You will then be able to choose among the proposed selection of training courses, the type of training that meets your needs or production aims. These training sessions can be organized within your premises or in our training centre located in our headquarters in Meylan, France.

# Powder coating

Decoration and protection of metals are always linked.
In this particular area, powder coatings fill in a large percentage.
The SAMES spraying equipments use the same electric field properties as those that have been used for many years in liquid coating, in fixed or mobile installations.
A cloud composed of charged powder particles is attracted by the object to be painted, surrounds it and is deposited on its surface, both on the front and rear. The powder particles that have not been deposited onto the part are thus recovered and recycled, thus virtually no powder is lost.
It is applied without using solvents.
There are no losses as the powder is a 100% dry extract after curing.
The electrostatic spraying technique permits a great variety of hot or cold surfaces to be coated with a very adhesive uniform layer of powder, an essential property that is used in all branches of industry.

## > Powder coating

The powders that are suitable for coating have very different natures. For each specific application, the product that will give the best result for the final purpose is chosen:

• **Protective coating:**
resistance to atmospheric or chemical corrosion (sea air, solvents, acid or basic solutions).

• **Electrical or thermal insulation:**
in general plastics insulate very well and have excellent resistance to low temperatures.

• **Cosmetic coatings:**
possibility of obtaining smooth and brilliant surfaces with many different colours.

• **Food compatible coatings:**
Certain plastics satisfy the regulations in force and may be used by food or pharmaceutical industries (plastifying of the inside of containers, metallic packaging, etc...).

**The typical composition of a powder coating is as follows:**

• 50 to 60% of binder, resin and hardener,

• 40 to 50% of binder, resin and hardener,

• 1 to 2% of additives designed to facilitate the flow, the gas release and the film finish.

The binders and all of the additives are in solid form. The constituents are weighed and mixed. This mixture is then extruded to allow the raw materials to be mixed correctly to form a homogeneous mass. The material is again crushed and ground to obtain a powder that is ready to use.

# Powder coating

## > The nature of the powders

The three types of following powders called "thermoset" or "thermosetting" are the most commonly used:
- Mixed or Hybrid (epoxy / polyester)
- Polyesters
- Epoxy

Next come powders called "thermoplastic" which are minor and include:
- Acrylics
- Nylon
- Vinyls
- Fluorocarbons, etc...

Powder enamelling finally, uses inorganic powder coatings.

## > Properties of the powders

**Epoxy**
These are the most well-known, and are available in a wide range of formulations. Used for their decorative (furniture, shelves and various instruments) and functional properties ("rebar" pipes, electrical equipment, primers and undercoats for automobiles).
They have very good resistance to corrosion, they can be specially formulated to resist extreme heat or chemical conditions. They are also suited to metallic supports and are mainly used for indoor equipment, as well as for electrical insulation. They may even be applied as an enamel coat. It is not always necessary to apply an undercoat.
It is possible to cure it for 3 minutes at 232°C up to 25 minutes at 121°C.

**Polyester**
They may be used alone or with other resins added in function of the applications, which has a very wide range.
They are very flexible, resistant and used for decorative application. They have very good weather and UV resistance. They are suitable for indoor and outdoor use. They dry quickly and are sold at moderate prices.
They are used for construction, industrial equipment, outdoor surfaces, bicycles, etc...
Curing is carried out between 10 and 30 minutes between 149°C and 204°C.

**Mixed or Hybrid**
They result from the combination of the Epoxy and Polyester powder properties.
They are resistant by compensating the UV "fragility" of Epoxy, but are not as hard and are more sensitive to solvents and metals.
They are also suitable for metallic supports, and the application of an undercoat is not always necessary for electrostatic application.
Used for office equipment, shelves for shops, etc...

**Acrylic**
These powders offer the best outdoor adhesion and coverage capacities, thanks to good durability, excellent chemical resistance to detergents, stains and corrosion.
They have excellent pigment retention and their hardness is also scratch resistance whilst conserving a brilliant, soft finish.
Depending on their formulation, the properties of these powders may be equivalent to liquid acrylic paints.
It is used exclusively as it is incompatible with the other powder coatings.
It is possible to cure it for 10 minutes at 204°C up to 30 minutes at 135°C.

**Nylon**
They are used to coat parts for trucks, hooks for foodstuffs, thesmoke and steam chamber racks and baskets, printing rollers, hospital equipment, shopping trolleys and shop fittings, door handles, lamp posts and equipment, rudders for aviation and maritime applications.
These powders are very reliable on metallic and non-metallic surfaces when applied onto a primer and are very durable.

# Powder coating

## > Properties of the powders

**Fluorocarbon**
They are the most solid and resistant. They have excellent properties, depending on their formulations. They may thus be prepared for chemical resistance, to solvents or sunlight.
They have similar qualities to those of the most efficient liquid coatings. They are cured between 163°C and 204°C between 8 and 20 minutes.

**Polyvinyl chloride**
PVC powders are used for: dishwasher trays, refrigerator shelves, play area equipment, bus passenger handles, garden equipment, letterboxes, etc...
Vinyl powder coatings are mainly applied in thick coats. They are brilliant and "silky", elastic, and have good resistance to shocks and electricity, as well as weather conditions. PVC coatings are generally formulated with plastic specialists to develop the compositions.

**Polyurethane**
Used for the transport industry (trains, trucks...), they are the most solid and resistant. They have excellent properties, depending on their formulations. They may thus be prepared for chemical resistance, to solvents or sunlight. They have similar qualities to those of the most efficient liquid coatings.

**Inorganic**
The powder is obtained by grinding and fusion of oxidised elements with base metals.
They have excellent chemical and mechanical properties. They are used to coat kitchen equipment, baths, shower trays, architecture (signs, street signs...), glass, cumulus, etc..., and their ranges of applications are increasing.
Curing is between 780°C and 830°C. This allows an enamelled coating to be obtained that can withstand temperatures of up to 450°C, thus also protecting the colour and against scratches.

## > Coating thickness

The adhesion of the powder sprayed onto the surface of the object improves with the increase in its resistivity. The attraction subsists for several hours.
• The part to be coated does not need to be preheated: When spraying is started, a uniform coat of powder is applied that adheres to its surface, then a repulsion phenomenon occurs between the powder mist and the object already coated. There is therefore an upper limit for the quantity of powder deposited. After fusion, a coating is obtained that has a uniform thickness that may vary from 30 to 80 microns for decorative type applications, from 200 to 500 microns for functional type applications and varies depending on the nature of the powders.
• With preheating:
- the part is preheated in an oven and the powder is sprayed onto the heated part. This temperature varies according to the shape of the part and the nature of the powder to be deposited: If the preheating temperature is higher than the fusion temperature of the powder, the particles melt when they come into contact with the part. In this case, it is possible to obtain a thicker film (5 to 10 mm or more) than when a cold part is used.
- The part may also be heated to a lower temperature than the fusion point of the powder to facilitate the flow of the electrical charges. Indeed the insulating particles sprayed are heated when they come into contact with the part and their conductivity increases. It is possible to deposit more powder than on a cold part.

# Powder coating

## > Paint curing

Various means may be used for the fusion of the powder deposit or its polymerisation:
:: Drying oven or continuous furnace,
:: Infrared heaters,
:: High frequency heating.

The temperature and fusion or polymerisation time essentially depend on the nature of the product and the part needs to be heated slightly above this temperature (10 to 20 °C) to obtain sharp fusion and smooth coating.

## > FAULTS
## Various faults may occur

• Blistering, that can come from:

- an excessive powder thickness, the air trapped by the grains that were not able to escape,

- the presence of humidity in the powder or in the compressed gas carrying it,

- gas release from the part, porous cast part, wood, ceramic.

• A stippled or "orange peel" surface: the fusion temperature is not high enough or the film is insufficient. Furthermore, it is very difficult to obtain a perfectly smooth surface with certain qualities of powders, that are of a low grade.

• Craters (small pocks on the surface of the coating):
may result from failed adherence if the part has not been correctly degreased, contains impurities.

## > Why choose powder coatings?

**To make savings**

• A single coat is sufficient
• The product is easy to recycle and therefore re-used
• Low maintenance (very little dirtying)
• Higher productivity
• Less parts rejected

**To improve the quality of the products**

• The finish resists longer
• Longer life (resistance to corrosion, UVs...)
• Improved resistance to impacts and chemicals

**To respect the environment**

• No Volatile Organic Compounds
• The powder equipment does not pollute the atmosphere
• Much lower waste and rejects

**Better working conditions**

• The product is not very inflammable, therefore safer
• Improved hygiene - cleaned with compressed air

**Simplified use**

• The powder technique is simple
• The powder equipment is sturdy, light and reliable
• Operators are trained quickly

*Application of a primer coat on aluminium wheels with Auto Mach-Jet sprayers*

# Electrostatic spraying

High voltage is generated by a cascade emitting a low-voltage signal frequency. This module supplies a stage voltage step which produces a high voltage.
The cascade, also known as "High Voltage Unit" is built into all of the spray guns.

There are several versions of the GNM controller:
• The GNM recognizes the type and model of guns and sprayers (UHT) when it is connected to it. The operating set up of the recognized cascade is then implemented by the dedicated GNM. During application, the electrostatic charge is optimum and several parameters may be adjusted by the operator to obtain the best result depending on the shape of the part, the characteristics of the powder coating, and the target distance...

The GNM power supply also includes features such as: over-current disjunction, DI/DT, and more, in order to optimize safety of the systems.

**GCU 400**

Used with the manual powder spraying range called "**e-Series**"

**CRN 457**

Used with the manual powder spraying range, the module has all of the high voltage and pneumatic functions of the **Mach-jet Gun.**

**TCR**


Used with the rotating bell spray gun, the module has all of the control functions (air, high voltage, rotation, powder feed...) of the **INOBELL** rotating bell spray gun

In the electrical cabinet version, a 2U plastron is used to integrate two **CRN457** modules to control the automatic spray gun **Auto Match-Jet**.

# Electrostatic spraying

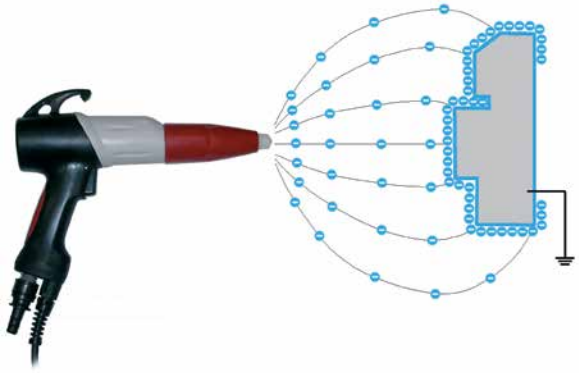
## > CORONA principle charge

There are two methods for adding a high charge to the powder particles.
A little physics: everywhere in the universe there is an elementary component of all matters that physicians call the electron. This grain of matter is extremely small but has the interesting property of carrying a negative electrical charge, it is the electron that creates an electrical current when it travels through a copper wire.
As you have undoubtedly observed, you do not receive an electrical discharge every time that you pick up an object. This is because another grain of matter exists called a proton and that in turn has an electrical charge of exactly the same value as that of the electron but that has a positive charge.
These positive and negative charges have the power of attraction between one another, even though the charges of the same sign repel each other. The matter therefore tends to group together with as many protons as electrons (plus other particles that are electrically neutral) as well as the positive and negative electrical charges in equal numbers, so we do not experience an electrical discharge.
Conventionally, the earth is considered as being 0 Volt, a particle (a drop of paint or a grain of powder) with a positive electrical charge will tend to join the closest negative particle or if there is not a particle with an opposite sign it joins the closest point at 0 volts.
Therefore to charge a grain of powder either a surplus of electrons is supplied which means that overall the particle becomes negative, or they are removed, which means there are more protons and the particle becomes positive.

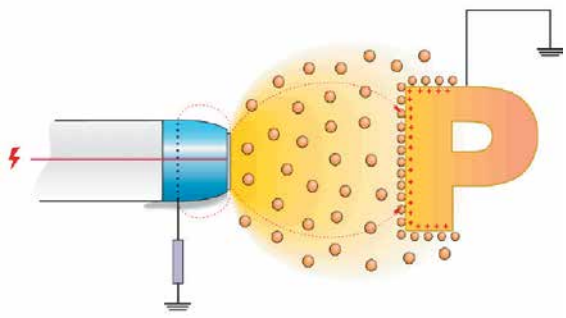
• When the particle has a surplus of electrons we use the CORONA principle.

## Ionic bombardment principle (or CORONA effect)

The powder coating is an extremely electrically insulating substance (resistivity > 107 MΩ.cm):
ionic bombardment is one of the best solutions of transferring these electrical charges to the particles.
During spraying, the powder particles are electrically charged using a high voltage generator (UHT) that supplies up to 85 kV. This generator creates an electrical field between the electrode of the spray gun and the earthed part, so the negatively charged powder particles move along the electrostatic lines of force. The powder coating is deposited uniformly on all of the faces of the part and there is a high deposit finish.



*Spraying with a manual gun*

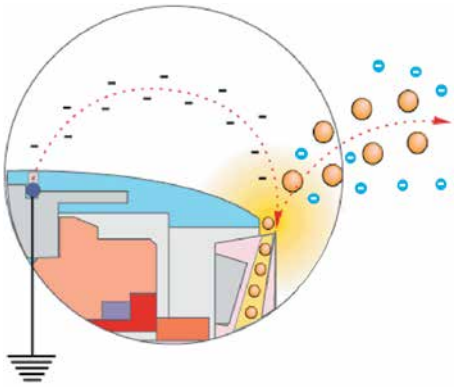


*Spraying with a rotary bell*

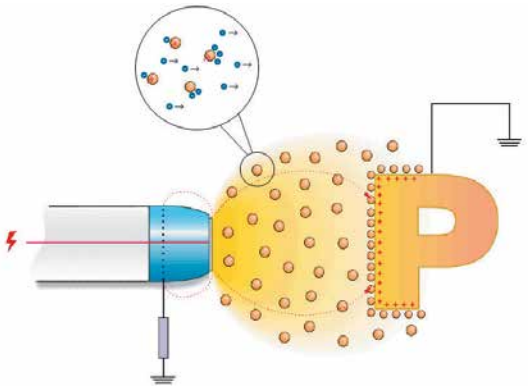
# Electrostatic spraying

## Ionic bombardment principle (or CORONA effect)

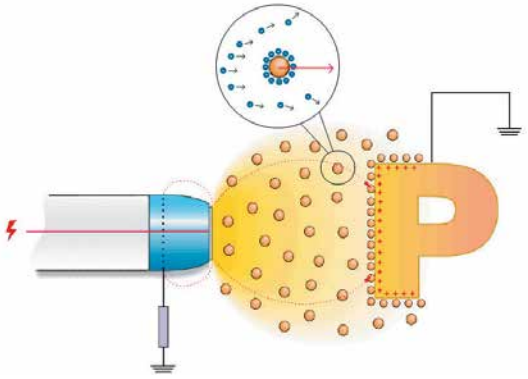
It may be observed on the edge of the nozzle or the bellcup that the electrical field is very intense (low curve radius). The ambient air is thus ionised. The air ions created are moved in the electrical field at high speed (~100 m/s), towards the part or any other mass (ex: counter electrode).
These ions create their own electrical field.



The air ions cross the path of the particles and catch them (the speed of the powder particles is much lower than that of the ions: several m/s). The powder particles are therefore subjected to ionic bombardment.
When an ion meets a particle, it fixes onto its surface and cannot be detached.
If the particle is very insulating, it "rolls" around so that it presents its face that has not yet been charged by the ion flow: the electrical charge increases until it reaches the part.



Before reaching the part, many ions fix onto the powder particle. Its electrical charge is then at its highest and the particle becomes very repulsive for the other ions in its path.
The charge by bombardment is effective regardless of the nature of the particle (conductive or insulating).



*N.B : the charge by bombardment is added to the charge by contact for a high speed rotary bell, both charge phenomena are complementary.*

# Electrostatic spraying

## > Benefits of electrostatic spraying

The technology favours paint savings, reduces overspray (pollution), and allows covering more easily the rear side of parts (wraparound effect).

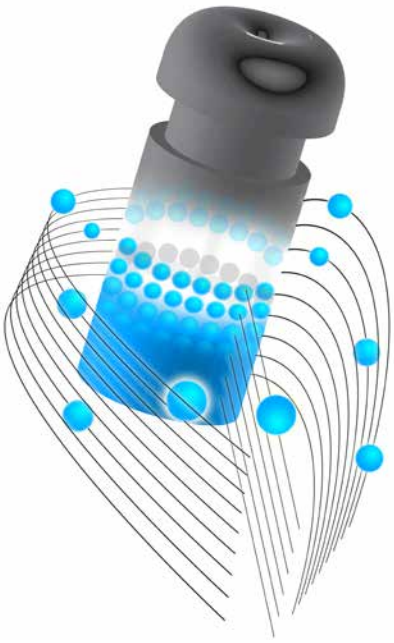
Spraying with electrostatic charge consequently:

• Increases transfer efficiency:
- Saves on paint
- Reduces booth residues

• Provides excellent finish quality:
- Provides uniform film built
- Provides coverage and even thickness

• Provides superior wrap:
- Reduces spray time
- Reduces the number of spray guns or operators.

**These advantages eventually reduce the operating costs of coating, and increase the productivity of the paint line.**



# Recommendation following type of parts to be coated

| Application process | Automatic electrostatic sprayer | | Electrostatic manual gun | |
|---|---|---|---|---|
| Application area | Inobell | Auto Mach-Jet | Mach-Jet | e-Series |
| Profiled sections | | | | |
| Household appliances Electrical apparatus | | | | |
| Non destructive inspection of metals | | | | |
| Metallic furniture | | | | |
| Motor Bicycles | | | | |
| Works machines, Agricultural machines, Large surfaces, Railway equipment, Aeronautical equipment | | | | |
| Industry Automotive Equipment suppliers | | | | |
| Cylindrical parts | | | | |
| Small parts | | | | |
| Fencing, Gates | | | | |
| Wood MDF | | | | |
| Coil coating Dry lub | | | | |

*This table presents general trends. It does not take in account particular cases which need specific survey.*

# The complete range

## Manual guns

**e-Series**
Manual electrostatic gun

**Mach-Jet Gun**
Remote control electrostatic manual gun

**e-Jet2** Manual powder coating equipment


e-Jet2 VT


e-Jet2 R

## Automatic sprayers

**Auto Mach-Jet**
"CORONA" Automatic electrostatic spray gun

**INOBELL**
Rotating bell automatic sprayer

**FCR**
Control cabinet for automatic installation

## Peripherals

**AS 100**
Powder fluidity meter

**CSV 600**
Powder distribution hopper

**MCR**
Installation application controller:
Auto Mach-Jet
INOBELL

**REV 600**
Installation application controller:
Auto Mach-Jet

**RFV 2000**
Electronically-controlled Reciprocator

**HVP 125**
High voltage meter

**ManuCompact**
Manual powder booth

**PVV EasyColor**
Quick colour change booth

**PVV EasyCompact**
Quick colour change powder coating booth

# e-Series manual gun

## Illustration

## Description of the product

The **e-Series** gun is used for manual application of powder paints for general industry.
Combined with the **GCU 400** controller and its exclusive "Total Energy Control" (**TEC**) system, it ensures optimum charging of the powder in all conditions.
The **TEC** system automatically limits the current according to the distance from the part to be painted, thus ensuring perfect application quality and less product waste. Two functions that are factory programmed (TEC1 and TEC2) allow you to easily adjust your settings to suit your application parameters.

*ATEX marking:*

| ***MG400 Gun*** | ***GCU 400(1) :*** |
|---|---|
| CE 080 Ex II 2 D | CE 080 Ex II (2) D |
| EEx 2 mJ | [EEx 2 mJ] |
| Sira03ATEX5416X | Sira03ATEX5416X |

*(1) : This control module pilots the UHT. It is a combined material that is part of the configuration of the certified equipment and that contributes to its good working. It has to be installed into a non explosive area.*

## Advantages

**Easy to use:**
• One of the best weight/balance ratios available (495 grammes) = Less operator fatigue.
• Disconnection system for cables and powder hose = Quick colour changes and very easy to clean.
• Air supply onto deflectors inside the nozzle = No accumulation of powder.
• A wide selection of nozzles and extensions = Covers all applications.

**Acknowledged performances and reliability:**
• Integrated generator power ensures good electrostatic efficiency.
• Clear and precise adjustment of all high voltage parameters via the digital display built into the GCU400 control module
• Operations on simple and very complex (cavity) parts are easy with the voltage adjustment= TEC 1.
• Metallic and hard to spray powders can be sprayed using the current adjustment = TEC 2

**Economical and quick color change:**
• Removable and stackable gravity feed powder cup to increase the capacity of the powder tank.
• Powder pump built into the gun, also removable to make cleaning easier.
• "Feed cup" powder hopper is sealed.

**Easy to transport:**
The compact cover of the equipment means that it can be easily transported to a workshop or be used for demonstrations when visiting customers.

# e-Series manual gun

## > e-Series offers a complete range of guns:

### Range

The e-Series gun is designed for spraying powder paint. Three powder feed systems are available:
The version with a fluidised hopper = e-Series 400 EH
The version with a vibrating table = e-Series 400 ED
The version with a feed cup hopper = Labo-Series

The powder is sprayed using a powder pump fitted with a venturi, a suction tube and a fluidising head. The powder is fluidised in the hopper or box before being transported via the venturi tube to the gun.
Note: the pump support is designed to house two pumps side by side, thus allowing two guns to be fed from a same box.

The LABO-SERIES manual powder equipment has been specially designed for low volume powder applications. This equipment meets the requirements of powder manufacturers and industrial users, and is suitable for the various test samples in workshops and laboratories, checking powder samples for customer assistance, ccoat pre-series, etc.

The e-Series trolley is designed to resist industrial conditions:
• Compact trolley fitted with 4 independent wheels;
• Optimised use of powder via:
- the tilting of the vibrating table and the presence of a "high efficiency vibrator" to minimise powder packing (in the vibrating table version)
- the storage capacity of the fluidised hopper (25 Kg ≈ 50 litres)

### Illustrations of versions

e-Series 400 ED

e-Series 400 EH

Labo-Series

# e-Series manual gun

## > Description of the GCU 400 control module

The control module GCU400 has the "Total Energy Control" electrostatic charging system (TEC). This permits the current to be automatically limited depending on the distance of the part, which optimises the electrostatic charge.
Simply press the control button to select either of the pre-set functions: TEC1 and TEC2.

**- TEC1 (initial mode):**
This operating mode has a maximum voltage setting (85 kV) and a current threshold of 50 µA. It is suitable for:
• the majority of applications (especially re-coating),
• most of the powders available.

**- TEC2:**
This function provides an operator setting of the output current up to a minimum threshold of 100 µA. This operating mode has been specially designed for:
• the application of metallic and hard to spray powders,
• the application onto complex shaped parts (cavities).


## Technical characteristic

| | **Gun MG400** | | **Hopper** | **Labo-Series** |
|---|---|---|---|---|
| Weight without cable and hose (g) | 495 | | | 9 kg (complete) |
| Length (mm) | 330 | | | 380 |
| Width (mm) | | | | 250 |
| Height (mm) | | | | 350 |
| Volume (litres) | | | 50 | 0.5 |
| Powder flow rate up to (kg/h) | 30 | | | |
| Standard powder hose (m) | 6 (internal ø 12 mm) | | | |
| Operating temperature (° C) | 0 to 40 - (32 to 104° Fahrenheit) | | | |
| **Pneumatic supply** | **GCU 400** | **Vibrating table** | **Hopper** | **Labo-Series** |
| Main air supply pressure (bar) | 7 bar max. ± 1 (105 psi) | | | |
| Air consumption (Nm3/h) | 10 | 15 | 15 | 15 |
| **Control module** | **GCU 400** | **Gun MG 400** | | |
| Maximum output voltage | 40 V rms | 85 kV | | |
| Maximum output current | 110 mA rms | TEC 1: 0 to 50 µA<br>TEC 2: 0 to 100 µA | | |
| Electrical power supply (V AC) | 100 to 240 | | | |
| Single phase (Hz) | 50 / 60 | | | |
| Power consumption (VA) | 45 | | | |
| IP | 54 | | | |
| General air supply hose | ø 8 mm | | | 1/4 BSP |

# e-Series manual gun

## > e-Series manual powder equipment

All of the equipment is supplied with:
- a MG400 gun
- a GCU 400 Control module
- a powder feed hose ø12x17 mm, 6m long (only on e-Series)
- a nozzle with fan spray tips (ø6 mm and ø4 mm)
- 3 round spray deflectors (small, medium and large)

### e-Series

| Illustration | Designation | Operator n° | Ref. # |
|---|---|---|---|
|  | e-Series 400 ED | 1 | EU75009002S |
| | Vibrating table | 2 | EU75009005 |
| | e-Series 400 EH | 1 | EU750008002S |
| | Fluidised hopper | 2 | EU75008005 |

### Labo-Series

| Illustration | Designation | Volume | Ref. # |
|---|---|---|---|
|  | Labo-Series | 0.5 litre | EU75016002S |

## > Manual powder equipment without trolley

Sets delivered with:
- a MG400 gun
- a GCU 400 Control module
- a powder pump

### Mini e-Series

| Designation | Installation of powder pump | Ref. # |
|---|---|---|
| Mini e-Series | for 100 litre hopper | EU75017011S |
| | for 50 litre hopper | EU75017013S |
| | for vibrating table | EU75017012S |

# e-Series manual gun

## Components

| Description of product | Ref. # |
|---|---|
| MG400 gun with cable and hose | EU73019001S |
| 50 litre fluidised hopper (single operator) | EU75008003S |
| GCU 400 Control module | EU72024002S |
| Hopper extension | EU2095030 |

## Powder hoses (e-Series)

| Description of product | Ref. # |
|---|---|
| Set of cable & powder hose length = 5 m | F3P PER 140 |
| Powder hose ø12/17 mm (per metre) | EU9001220 |

## Nozzle and deflectors

| Description of product | Type | Ref. # |
|---|---|---|
| Electrode assembly (to hold deflectors or tips) | | EU73016185 |
| Deflector for round spray nozzle | Small | EU3016200 |
| | Medium | EU3016201 |
| | Large | EU3016202 |
| Tip for fan spray nozzle | ø4 mm | EU3022019 |
| | ø6 mm | EU3019017 |

# Notes

# Mach-Jet manual gun

## Illustration

## Description of the product

The Mach-Jet gun is used for manual application of powder coatings for general industry.
Combined with the control module CRN 457 and its exclusive "**offset control**" DPCS system it ensures optimum charging of the powder. The user can easily select the programme to suit the various forms of the parts directly from the gun, which ensures:

- perfect application quality,
- substantial economy of powder,
- time saving,
- comfort of use.

*ATEX marking:*

***Mach-Jet Gun:***

CE 0080 Ex II 2 D
EEx 2 mJ
ISSeP04ATEX119

FM APPROVED When configured according to #800000045
For Electro. Fin. Appl. CL. II, Spray Matl.

***CRN457(1):***

CE 0080 Ex II (2) D
[EEx 2 mJ]
ISSeP04ATEX119

FM APPROVED

***CS130:***

CE Ex II 3 D c T 85°C

*(1): This control module allows piloting the UHT. It is a combined material that is part of the configuration of the certified equipment and that contributes to its good working. It has to be installed into a non explosive area.*

## Advantages

**Easy to use:**

- One of the best weight and balance ratios available = Less operator fatigue .
- Disconnection system for cables and powder hoses = Quick colour changeovers and very easy to clean.
- Rotation of powder hose = Flexible handle movement
- The controls are accessible on the gun = Time saving to modify the electrical settings during application
- Personalised adjustment of the characteristics = Optimised electrostatic charge regardless of the type of powder and the shape of the part to be coated

**Adaptation to industrial constraints:**

- Easy application of metallised powders (standard nozzle)
- Choice of nozzles with excellent distribution of the powder spray
- Nozzles have very good abrasion resistance
- The equipment is robust (gun, trolley)

# Mach-Jet manual gun

## > Mach-Jet Gun offers a complete range:

### Range

The Mach-Jet gun is part of the **e-Jet2 set.**

In this new version, **e-Jet2** is equipment whose parts and revolutionary shape make possible easy assembly, offering great storage space and many advantages:

> Single trolley that is functional, robust and compact

> New powder CS130 pump made of metal:
- Sturdy, easy to clean materials
- Quick release connectors
- Optimised pump assembly/dismantling
- Injector can be removed without tools
- Drastic reduction in wear parts
- Conductor outlet tip

> Removable support arm for accessing the work zone when changing over the colour

> Gun is safely attached on both sides

> Support for cables and hoses

> Air pumped at a regular flow rate for greater precision of application and a saving in the powder used

> Optimised time and quality of colour changeover:
- Quick and easy air blast system for the entire paint circuit: FAST-CLEAN
- Easy cleaning of support arm for better colour change quality
- New powder pump without retention

### Illustrations of versions

e-Jet2

Available in two versions:
• Vibrating table (e-Jet2 VT or VT2), perfect for frequent colour changes.
• Fluidised hopper (e-Jet2 R or R2), ideal for medium and large scale production and/or for powder coatings less suited to the vibration technique.

*e-Jet2 VT*
*"Vibrating table"*
*e-Jet2 VT2*
*"dedicated to dual operator use"*

*e-Jet2 R*
*"Fluidised hopper"*
*e-Jet2 R2*
*"dedicated to dual operator use"*

## Complements to the range:

*Mach-Jet CSV217*
*"Pressured tank"*

The hopper **CSV 217** has a capacity of 24 litres. It permits high flow rates but also very low flow rates especially dedicated to the application for the field of **non destructive inspection of metals**. This is also the system that provides the best quality and regularity of the thickness deposited.

*Mach-Lab*
*"Tank with cup"*

*Mini Mach-Jet*
*"Equipment without trolley"*

# Mach-Jet manual gun

## Differentiation of the nozzles:

The range of nozzles covers all applications.

Mach-Jet can cover all traditional applications (tubular parts, auto accessories, profiled sections, large flat surfaces, metal parts) and even more personalised requirements
(coating of complex shaped and voluminous objects, coating of cavities, penetration in recesses).
The new homogeneous powder spray nozzles will be adapted to all types of powders even metallised powders.

Round spray nozzle — Deflectors

*Ø12mm* *Ø16 mm* *Ø20 mm* *Ø25 mm* *Ø16 mm HD** *Ø20 mm HD**

Fan spray nozzle — Tips

*Narrow* *Normal* *Medium* *Large*

*HD = High Durability, suitable for "abrasive/aggressive" powders except for enamel coating powder*

## Choice of nozzles

| Type of nozzle | Designation | Recommendations for use |
|---|---|---|
| Round spray nozzle | ø 12 mm | Suitable for small parts, rework or pre-touch in hard to reach spots. |
| | ø 16 mm and ***(supplied as standard)*** ø 16 mm HD* | Suitable for all types of parts and coatings, especially: large flat surfaces, tubular fittings and wire-made items. |
| | ø 20 mm, ø 25 mm and ø 20 mm HD* | Especially for parts with large surfaces to be coated |
| Fan spray nozzle | Narrow | Reworking and pre-touch |
| | Normal and Medium ***(supplied as standard)*** | Highly versatile: penetration in folds in sheet metal, cavities, flat furniture. Perfectly suited for use by sub-contractors (large variety of shapes of parts). The application may be at a greater distance if required. |
| | Large | Avoids problems of blasting powder onto the part. The distance of application may be reduced if required. Well suited for parts such as grills, welded joints and flat and large parts. |
| Extension (mm) | Versions 150 and 300 mm (JR/JP) | For coating voluminous parts and those with complex shapes. Provides access to the interior of the volume (tubular parts, cavities, etc.) |

*JR: round spray nozzle*
*JP: fan spray nozzle*
*HD = High Durability, suitable for "abrasive/aggressive" powders except for enamel coating powder*

# Mach-Jet manual gun

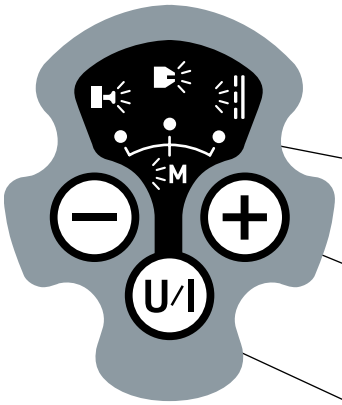
## > Exclusive DPCS system (Digital Pre-set Coating System)

**The controls are accessible at the rear of the gun =**

Less time required to change settings during application:

• **Adjustment of the flow rate** of the powder on the part as required with **one hand**

• Choice of 4 electrical characteristics
Pre-set voltage (U) and current (I)




The characteristic chosen is indicated by a LED

Adjustment of the powder flow rate

Change of pre-set characteristics [U/ I]

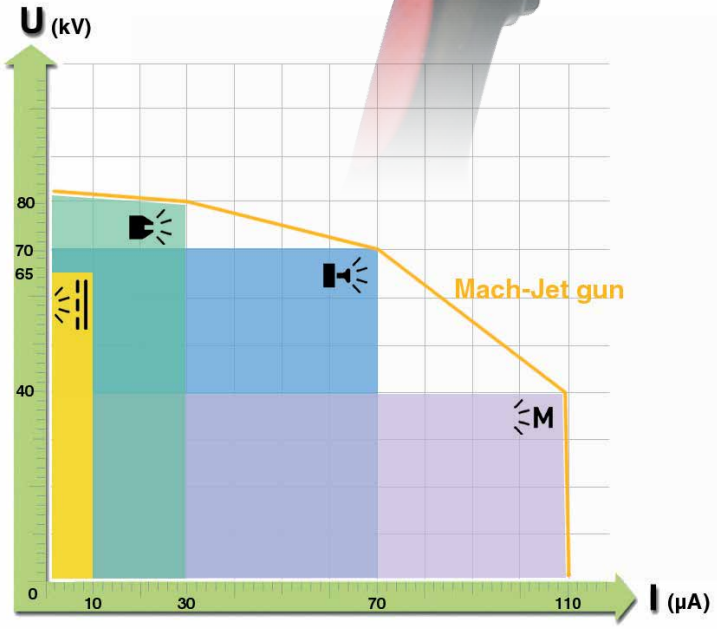
## > Choice of electrical parameter presets

Application with a round spray nozzle:
• Improves the particle charge
• Improved bypassing and transfer efficiency
• Very homogeneous spray on complex or simple parts

Application with a fan spray nozzle:
• Very good coverage and performance on flat parts
• Easy coating of cavities
• Very penetrating jet on complex or simple parts

Adapted application with round or fan spray nozzle:
• Re-coating
• Large thicknesses (> 100 µm)
• Low conductivity materials (glass, wood, ...)

Adapted application with round or fan spray nozzle:
• Metallised powder
• The voltage (U) may be increased to improve the application output




*These parameters can be adjusted by the operator to obtain the best and highest electrostatic efficiency.*

# e-Jet2 manual equipment

## The most practical, lightweight and reliable trolley available

e-Jet2 VT

Removable support arm
Improved quality when changing colours

Powder pump: CS130

> Its design reduces maintenance costs:
- Metal pick-up tube
- Quick release sturdy connectors
- Reduction in wear parts

> Improved colour change performances

New fluidisation tube, reduced diameter

New vibrating table, built in FAST-CLEAN air blowing system

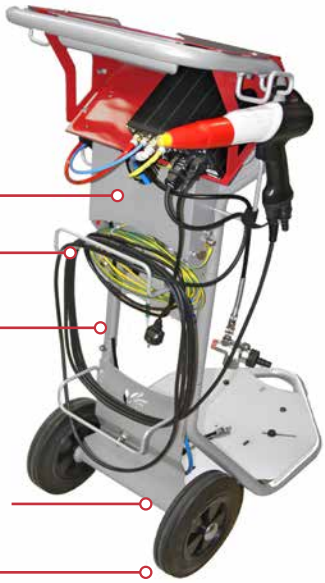
e-Jet2 R

Visual ergonomics of the display and controls

Filling hole

Handles

Stable hose



Accessibility of the connectors

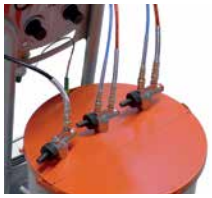
Cable and hose winder

dismountable trolley

Angled support zone for tipping

Better handling,
4 castors, 2 swivelling

## > e-Jet2 VT2 or R2 dedicated to dual operator



## > An air blowing system integrated

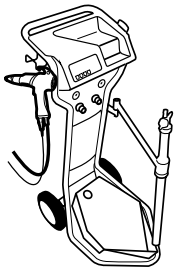
The "FAST-CLEAN' system allows the interior of the powder coating circuit to be cleaned from the end of the pick-up arm up to the gun. The operator positions the cane on the FAST-CLEAN system and presses to carry out perfect cleaning of the internal circuit. Air blasting is carried out immediately and just a few seconds are sufficient to clean the system efficiently.

The operation of the **FAST-CLEAN** is associated to the cleaning screen of the CRN457 control module.

# Mach-Jet manual gun

## > **e-Jet2** manual powder coating equipment

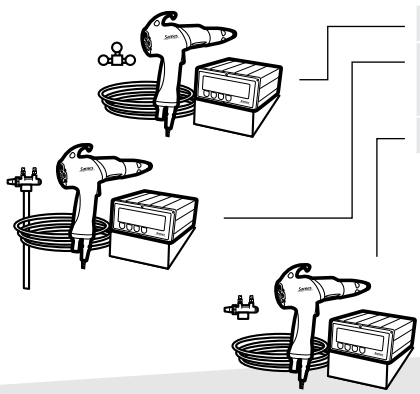
All of the equipment is supplied with:
- a Mach-Jet Gun
- a CRN457 control module
- FAST-CLEAN system (only with vibrating table)
- a powder hose ø11x15 mm
- CS130 powder pump (2 pumps with e-Jet2 dual operator set)

| Illustration | Designation | N° of guns | Hoses length | Ref. # |
|---|---|---|---|---|
|  | E. e-Jet 2 **VT** | 1 | 6 m | 910014683 |
| | | | 12 m | 910014684 |
| | E. e-Jet 2 **VT2** (dual operator) | 2 | 6 m + 12m | 910015631 |

| Illustration | Designation | N° of guns | Hoses length | Ref. # |
|---|---|---|---|---|
|  | E. e-Jet 2 **R** | 1 | 6 m | 910014685 |
| | | | 12 m | 910014686 |
| | E. e-Jet 2 **R2** (dual operator) | 2 | 6 m + 12m | 910015632 |

## > **Mini Mach-Jet** manual powder coating equipment (without trolley)

All of the equipment is supplied with:
- a Mach-Jet Gun
- a CRN457 control module
- wall bracket
- a powder hose ø11x15 mm,
- equipment including either:
  - a pneumatic control CS 206
  - a pick-up tube CS 130

| Illustration | Designation | N° of guns | Hoses length | Ref. # |
|---|---|---|---|---|
|  | E. Mini Mach-Jet [CS 206] | 1 | 6 m | 1526448 |
| | E. Mini Mach-Jet [CS 130] | 1 | 6 m | 1527296 |
| | | | 12 m | 1527297 |
| | E. Mini Mach-Jet for retrofit | 1 | 6 m | 910000122 |

# Mach-Jet manual gun

## > Manual powder coating equipment **Match-Jet pressure tank**

All of the equipment is supplied with:
- a Mach-Jet Gun
- a CRN457 control module
- a trolley type RFV 476
- hopper CSV 217 of 24 litres with 3 possible uses:
  - for high powder flow rate (ø hose 8/12 mm)
  - for low powder flow rate (ø hose 6/9 mm)
  - for NON DESTRUCTIVE INSPECTION OF METALS application (ø hose 7/10 mm)

| Illustration | Designation | Use | Hoses length | Ref. # |
|---|---|---|---|---|
|  | E. Mach-Jet CSV 217 | high & low flow rate | 6 m | 910000194 |
| | | Non destructive inspection of metals | 6 m | 910003579 |
| | | | 12 m | 910003579-12 |

## > Manual powder coating equipment **Mach-Lab** with tank powder cup

This equipment is supplied with:
- a Mach-Jet Gun
- a CRN457 control module
- a Mach-Cup (0.2 litres) tank equipped with a powder pump and air supply hoses (length = 6 m)

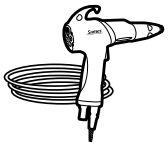
| Illustration | Designation | Ref. # |
|---|---|---|
|  | E. Mach-Lab | 910006496 |
| | Mach-Cup | 910007106 |

*Mach-Cup*

# Mach-Jet manual gun

## Components

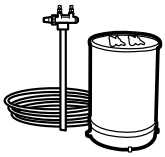
### Mach-Jet Gun

| Illustration | Designation | Length | Ref. # |
|---|---|---|---|
|  | Mach-Jet Gun | 6 m | 1524463 |
| | | 12 m | 1524463-12 |
| | | 18 m | 1524463-18 |

### Control module

| Illustration | Desig. | Ref. # |
|---|---|---|
|  | CRN 457 | 1523297 |
| | wall fixing | 822542 |

### Hoppers

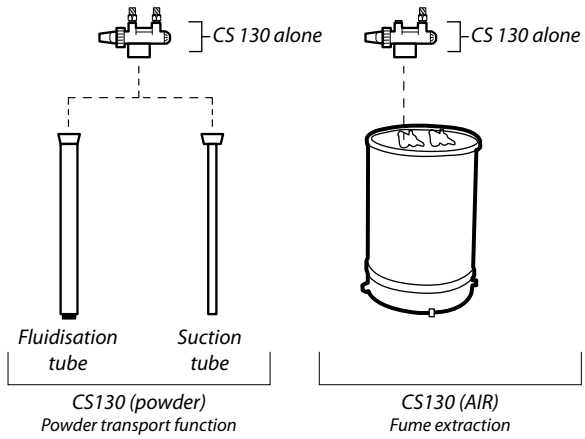
| Illustration | Designation | Ref. # |
|---|---|---|
|  | Hopper for equipped e-Jet2 | 910014682 |
| | CSV 216 | 1504721 |
| | CSV 600 | 752894 |

### Tank with cup

| Illustration | Designation | Ref. # |
|---|---|---|
|  | Mach-Cup | 910007106 |

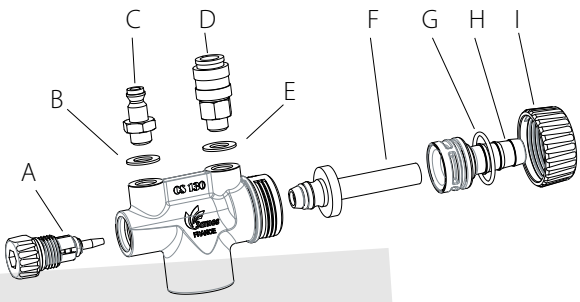
Mach-Cup is formed by:
0.2 litre hopper
+ air supply hoses , length = 6 m
+ powder pump

### Powder pumps

| Illustration | Designation | Ref. # |
|---|---|---|
|  | CS 130 alone - POWDER | 910013775 |
| | CS 130 alone - AIR | 910014333 |
| | Fluidisation tube for e-Jet2 VT | 910013651 |
| | Suction tube for e-Jet2 R | 910008159 |
| | Tube for CS 600 | 1526399 |



### Powder components CS130

| Illustration | Designation | item | Ref. # |
|---|---|---|---|
|  | Metallic air injector | A | 910014654 |
| | Red washer 1/8 | B | EU9000853 |
| | Quick release connector 1/8 | C | EU9001083 |
| | Releasable connector 1/8 | D | F6RAJR025 |
| | Blue washer 1/8 | E | EU9000854 |
| | Venturi tube assembly | F | 910014388 |
| | O-ring-Black viton | G | J2FTDF273 |
| | Anti-static outlet tip | H | 900008907 |
| | Connection nut | I | 900008904 |

# Mach-Jet manual gun

## Accessories

### Powder hoses

| Designation | Type | Ref. # |
|---|---|---|
| Powder hose | ø 11x15 mm | U1FGBA092 |
| | ø 12x17 mm | U1FGBA034 |

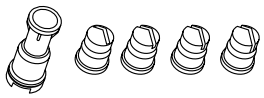
### Round spray nozzles

| Illustration | Designation | Model | Ref. # |
|---|---|---|---|
|  | Round spray nozzle support | | 1525493 (1) |
| | Deflector | ø 12 mm | 1411500 |
| | | ø 16 mm | 1409259 (1) |
| | | ø 20 mm | 1409260 |
| | | ø 25 mm | 1411993 |
| | | ø 16 mm HD | 9080026 (2) |
| | | ø 20 mm HD | 9080027 (2) |

#### Extension nozzle ø16

| Version (mm) | Ref. # |
|---|---|
| 150 | 910006971 |
| 300 | 910006970 |

### Flat spray nozzles

| Illustration | Designation | Model | Ref. # |
|---|---|---|---|
|  | Fan spray nozzle support | | 1525492 (1) |
| | Tip | narrow (grey) | 1311409 |
| | | normal (yellow) | 1315957 (1) |
| | | medium (white) | 1313519 |
| | | large (red) | 1311793 |

#### Extension nozzle

| Version (mm) | Ref. # |
|---|---|
| 150 | 910004126 |
| 300 | 910004125 |

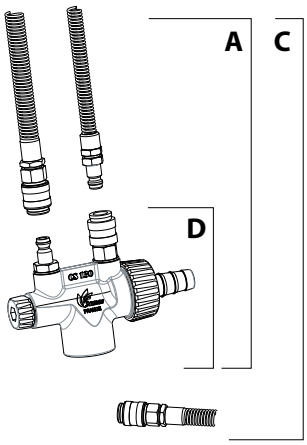
*(1): supplied with the Mach-Jet Gun as standard*
*(2): HD = High Durability, suitable for "abrasive/aggressive" powders except for enamel coating powder*

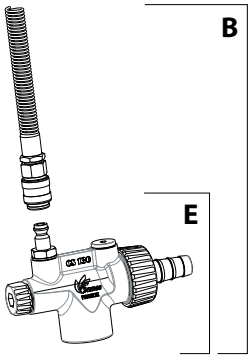
# Mach-Jet manual gun

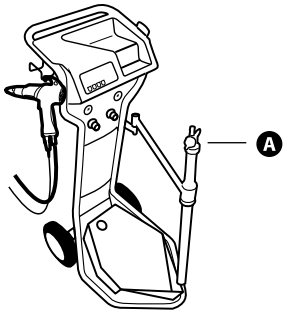
## Retrofit solution for CS130 powder pump

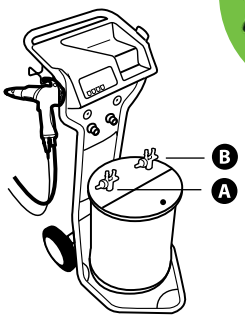
The kit "CS130 powder" allows a CS127 pump dedicated to transporting the powder to be changed (see A)
The kit "CS130 air" allows a CS127 pump dedicated solely to fume extraction to be changed (see B)

| Designation | Item | Ref. # |
|---|---|---|
| Retrofit kit CS130 powder | A | 910015295 |
| Retrofit kit CS130 air | B | 910015296 |
| Retrofit kit CS130 for CS238VT | C | 910015452 |
| Pump CS130 powder | D | 910013775 |
| Pump CS130 Air | E | 910014333 |




## Technical characteristics

| | Mach-Jet Gun | e-Jet2 | | |
|---|---|---|---|---|
| Weight actually carried (g) | 660 | approx. 40 kg | | |
| Dimensions (mm) | 305 (length) | 101 x 44 x 65 cm | | |
| Powder flow rate up to (kg/h) | 24 | | | |
| Standard powder hose (m) | 6 (ø11 mm internal ) | | | |
| Operating temperature (° C) | 0 to 40 | | | |
| **Pneumatic supply** | **CRN 457** | | **CS 130/237/238** | **CSV 427** |
| Air supply pressure (bar) | 7 +/- 1 (150 psi) | | | |
| Max. air consumption (Nm3/h) | 15 | 18 | 2 to 6 | 3 to 6 |
| **Electrical supply** | **CRN 457** | | **Mach-Jet Gun** | |
| Maximum output voltage | 40 V rms | | 80 kV (+5; -9) | |
| Maximum output current | 110 mA rms | | 110 µA (+/- 10µA) | |
| Electrical power supply (V AC) | 90 - 270 | | | |
| Single phase (Hz) | 50 / 60 | | | |
| Maximum power rating (VA) | 60 | | | |
| IP | 20 | | | |

# Auto Mach-Jet automatic sprayer

## Illustration

AUTO/MACH-JET

*ATEX marking:*

***Auto Mach-Jet & Auto Mach-Jet FCC***

CE 0080 Ex II 2 D

EEx 2 mJ
ISSeP04ATEX119

When configured according to #800000045

For Electro. Fin. Appl. CL. II, Spray Matl.

***CRN457[1]:***

CE 0080 Ex II (2) D

[EEx 2 mJ]
ISSeP04ATEX119

FM APPROVED

***CS130:***

CE Ex II 3 D c T 85°C

*(1): This control module allows piloting the UHT. It is a combined material that is part of the configuration of the certified equipment and that contributes to its good working. It has to be installed into a non explosive area.*

## Description of the product

Auto Mach-Jet sprayer is designed for powder coating in general industrial applications.

It is generally used with a sweeping machine (type RFV 2000) or as a fixed station in a powder coating booth such as a PVV EasyCompact booth with rapid colour change.

Auto Mach-Jet sprayer can easily apply all types of powders to a wide variety of parts. Associated to the CRN 457 control module, the unit permits improved management of the application parameters and an efficiency of transfer that are among the best on offer.

The electrical and pneumatic controls are integrated into the CRN 457 control module, thus allowing the size of the installation to be reduced. Fitted with a large back lit screen, the settings are easily adjusted by means of graphic icons that are understood by all: learning is intuitive and the operator masters its use very quickly.

The profiled construction of the Auto Mach-Jet allows it to be cleaned very quickly, with a minimum consumption of air with a simple air blast. **The sprayer thus permits faster colour changes, more efficient and higher productivity for your production line with no residual pollution.**

# Auto Mach-Jet automatic sprayer

## Advantages

> Auto Mach-Jet combines high application performance, easy cleaning and simplicity of use to allow you to increase your productivity and change colours more quickly and efficiently.

**Spray gun:**
• Very easy servicing: easily dismantled
• Q/D on powder connection
• High shock resistance.
• Large selection of nozzles.
• Quick disconnect counter electrode
• Improved coating finish

**Assistance for management of batches of parts:**
• In manual mode, up to 9 spray tables can be stored without a PLC: production time saved.
• 5 pre-set characteristics that can be adjusted by the operator:
- Round spray
- Fan spray
- Re-coating
- Metallic powders
- Counter-electrode

**Electrostatic efficiency:**
• The control module adjusts the voltage (kV) and the current (µA) precisely: by thus adapting the parameters to the powder coating conditions (form of the part to be coated, distance of application, powder flow rate...), the spray gun improves the penetration on complex parts, optimising bypasses, easy reworking of parts that have already been coated, so that you always obtain the best quality and finish of application.

• At high powder flow (> 20 kg/h), the spray gun still charges as efficiently the powder and allows an excellent output to be maintained due to its high electrical power.

**Adaptation to industrial constraints:**
• Application of metallised powders made easier with the standard nozzle.
• New nozzles with excellent distribution of the powder spray:
- Adapted to all types of application
- Compact, robust and lightweight
- Avoids the powder build-up
- A swivel nozzle may be fitted in option
• Nozzles are highly resistant to abrasion
• The profiled design of the spray gun makes cleaning very easy, perfectly adapted to colour changeovers.

## Range

The spray gun is available in two models:
**• Auto Mach-Jet:**
Equipped with a support arm (metal bar) onto which the Auto-Mach-Jet is attached, this makes it can be changed or fitted quickly and easily to all existing booths. In this version, the assembly may also be fitted onto new installations.
**• Auto Mach-Jet FCC*:**
This version is dedicated to quick color change booth. Its profiled assembly means that it may be cleaned perfectly in a very short space of time. The rear casing of the spray gun is screwed onto the support arm. This diameter is constant along the entire length. It provides the most efficient colour change. The tubular arm is also used to channel the hoses and the electrical connections directly and tidily to the rear of the sprayer.

## Illustrations of versions

Auto Mach-Jet

Auto Mach-Jet FCC

**FCC: Fast Colour Change*

# Auto Mach-Jet automatic sprayer

## Differentiation of the nozzles

The range of nozzles covers all applications.

Auto Mach-Jet suits all the traditional applications (tubular parts, auto accessories, profiled sections, large flat surfaces, metal parts) and meets personalised requirements (coating of objects with complex and voluminous shapes, coating of cavities, penetration into corners).
The homogeneous powder spray nozzles will be adapted to all types of powders and the use of metallised powders.

Round spray nozzle — Deflectors

*Ø12mm* *Ø16 mm* *Ø20 mm* *Ø25 mm* *Ø16 mm HD** *Ø20 mm HD**

Fan spray nozzles — Tips

*Narrow* *Normal* *Medium* *Large*

## > Options

Swivel nozzle

Counter-electrode

The grounded counter-electrode captures virtually all of the free ions of the electrical field, thus avoiding Faraday cages and "orange peel" type finishes. The level of the finish is this considerably improved.

Quick release connector

## Choice of nozzles

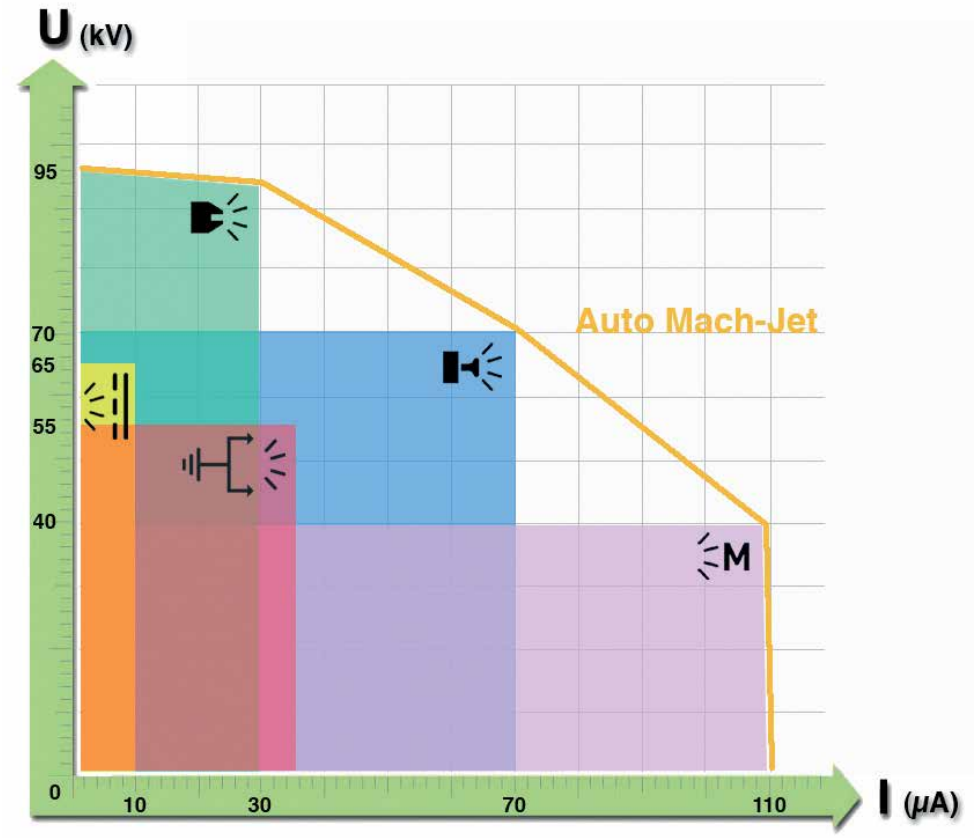
| Type of nozzle | Designation | Recommendations for use |
|---|---|---|
| Round spray nozzle | ø 12 mm | Suitable for small parts, rework or pre-touch in hard to reach spots. |
| | ø 16 mm (supplied as standard) et ø 16 mm HD* | Suitable for all types of parts and coatings, especially: large flat surfaces, tubular fittings and wire items. |
| | ø 20 mm, ø 25 mm and ø 20 mm HD* | Especially for parts with large surfaces to be coated |
| Fan spray nozzle | Narrow | Reworking and pre-coating |
| | Normal and Medium (supplied as standard) | Highly versatile: penetration in folds in sheet metal, cavities, flat furniture. Perfectly suited for use by sub-contractors (large variety of shapes of parts). The application may be at a greater distance if required. |
| | Large | Avoids problems of blasting powder onto the part. The distance of application may be reduced if required. Well suited for parts such as fences, welded joints and flat and large parts. |
| Extension (mm) | Versions 150 and 300 mm (JR/JP) | For coating voluminous parts and those with complex shapes. Provides access to the interior of the volume (tubular parts, cavities, etc....) |

*JR: round spray nozzle*
*JP: fan spray nozzle*

*HD = High Durability, suitable for "abrasive/aggressive" powders except for enamel paint powder*

## Auto Mach-Jet automatic sprayer

> Choice of the pre-set electrical characteristics




Application with a round spray nozzle:
- Increases the charge of the particles
- Improved the wraparound effect and transfer efficiency
- Very homogeneous spray on complex or simple parts

Application with a fan spray nozzle:
- Easy coverage and performance on flat parts
- Facility of powder coating of cavities
- Very penetrating spray on complex or simple parts

Adapted application with round spray or fan spray nozzle:
- Re-coating
- Large thicknesses (> 100 µm)
- Low conductivity materials (glass, wood, ...)

Adapted application with round jet or fan spray nozzle:
- Metallised powder
- The voltage (U) may be increased to improve the transfert efficiency

Application with a fan spray nozzle:
- Counter-electrode

*These parameters can be adjusted by a PLC or manually to optimise the electrostatic efficiency*

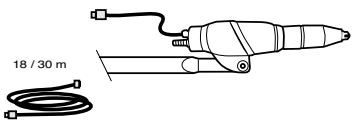
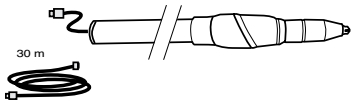
# Auto Mach-Jet automatic sprayer

## Technical characteristics

| | **Auto Mach-Jet** | **CRN 457** | |
|---|---|---|---|
| Weight of spray gun (without hoses) | 850 | | |
| Dimension (in rack) 2 modules on front face | | 19" / 2U | |
| Powder flow rate (hose ø11 mm): up to | 24 kg/h | | |
| Low voltage cable CRN457/spray gun in m.: | 18 and 30[1] | | |
| N° of spray guns per installation | 12 | | |
| *(1): for the spray gun version Auto Mach-Jet FCC* | | | |
| **Pneumatic supply** | | **CRN 457** | **CRN 457** |
| Air supply pressure (bar) | | 7 +/-1 (105 psi) | 2 to 6 |
| Air consumption (Nm3/h) | | 8 | |
| **Electrical supply** | **Auto Mach-Jet** | **CRN 457** | |
| Maximum output voltage | 95 kV (+ 5kV ; - 9kV) | 40 V rms | |
| Maximum output current | 110 µA (+ or - 10µA) | 110 mA rms | |
| Electrical power supply (V AC) | | 90 to 270 | |
| Single phase (Hz) | | 50 / 60 | |
| Maximum power rating (VA) | | 60 | |
| IP | | 20 | |
| **Pneumatic connection** | | **CRN 457** | |
| Main air supply hose ø (mm) | | 10 ext. | |
| Injection air supply hose ø (mm) | | 8 ext. | |
| Dilution air supply hose ø (mm) | | 6 ext. | |
| Auxiliary air supply hose ø (mm) | | 8 ext. | |

## Materials

### Auto Mach-Jet sprayer

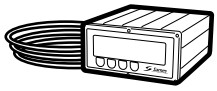
| Illustration | Designation | Length [2] | Ref. # |
|---|---|---|---|
|  | Auto Mach-Jet | 18 m | 1527340 |
| | | 30 m | 910000100 |
|  | Auto Mach-Jet FCC[3] | 18 m | 1527318 |

*(2): Length of low voltage cable*
*(3): FCC: Fast Colour Change*

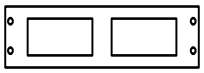
# Auto Mach-Jet automatic sprayer

## Materials

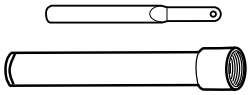
### Control module

| Illustration | Designation | Ref. # |
|---|---|---|
|  | CRN 457 | 1523297 |
| | Cable for trigger control in remote control (5 metres) | 910000092 |

### Front face for CRN457

| Illustration | Designation | Ref. # |
|---|---|---|
|  | front face in rack (1 module) | 1526286 |
| | front face in rack (2 modules) | 1526284 |

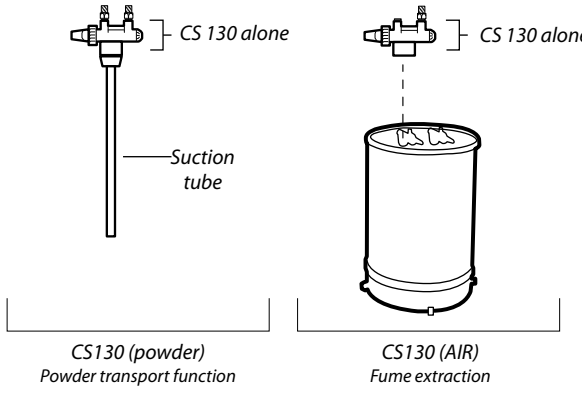
### Support arm

| Illustration | Designation | Ref. # |
|---|---|---|
|  | Metal arm ø30mm | 1527291 |
| | Tubular arm FCC ø60mm | 1411605 |

### Bracket

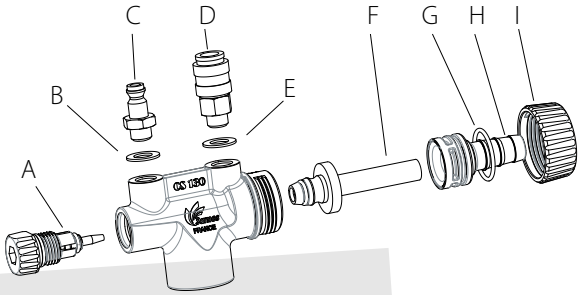
| Illustration | Designation | Ref. # |
|---|---|---|
|  | Nut ø 50 x 30 mm | 749805 |
| | Nut ø 50 x 60 mm | 1204441 |

### Powder pumps

| Illustration | Designation | Ref. # |
|---|---|---|
|  | CS 130 alone - POWDER | 910013775 |
| | CS 130 alone - AIR | 910014333 |
| | Suction tube | 910008159 |
| | Tube for CSV 600 | 1526399 |



### Powder components CS130

| Illustration | Designation | Item | Ref. # |
|---|---|---|---|
|  | Metallic air injector | A | 910014654 |
| | Red washer 1/8 | B | EU9000853 |
| | Quick release connector 1/8 | C | EU9001083 |
| | Releasable connector 1/8 | D | F6RAJR025 |
| | Blue washer 1/8 | E | EU9000854 |
| | Venturi tube assembly | F | 910014388 |
| | O-ring-Black viton | G | J2FTDF273 |
| | Anti-static outlet tip | H | 900008907 |
| | Connection nut | I | 900008904 |

# Auto Mach-Jet automatic sprayer

## Accessories

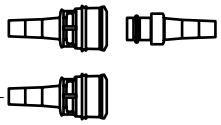
### Powder hoses

| Designation | Type | Ref. # |
|---|---|---|
| Powder hose | ø 11x15 mm | U1FGBA092 |
| | ø 12x17 mm | U1FGBA034 |

### Quick-release fitting

| Designation | Ref. # |
|---|---|
| Complete powder hose connector | 1527393 |
| Powder connector | 1411501# |

*# = set containing 10 units*



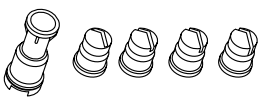
### Round spray nozzles

| Illustration | Designation | Model | Ref. # |
|---|---|---|---|
|  | Round spray nozzle support | | 1525493 (1) |
| | Deflector | ø 12 mm | 1411500 |
| | | ø 16 mm | 1409259 (1) |
| | | ø 20 mm | 1409260 |
| | | ø 25 mm | 1411993 |
| | | ø 16 mm HD | 9080026 (2) |
| | | ø 20 mm HD | 9080027 (2) |

### Extension nozzle ø16

| Version (mm) | Ref. # |
|---|---|
| 150 | 910006971 |
| 300 | 910006970 |

### Fan spray nozzles

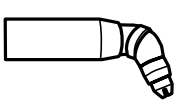
| Illustration | Designation | Model | Ref. # |
|---|---|---|---|
|  | Fan spray nozzle support | | 1525492 (1) |
| | Tip | narrow (grey) | 1311409 |
| | | normal (yellow) | 1315957 (1) |
| | | medium (white) | 1313519 |
| | | large (red) | 1311793 |

### Extension nozzle

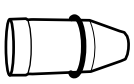
| Version (mm) | Ref. # |
|---|---|
| 150 | 910004126 |
| 300 | 910004125 |

*(1): supplied with the Auto Mach-Jet sprayer as standard*
*(2): HD = High Durability, suitable for "abrasive/aggressive" powders except for enamel coating powder*

### Swivel nozzle

| Illustration | Ref. # |
|---|---|
|  | 1527292 |

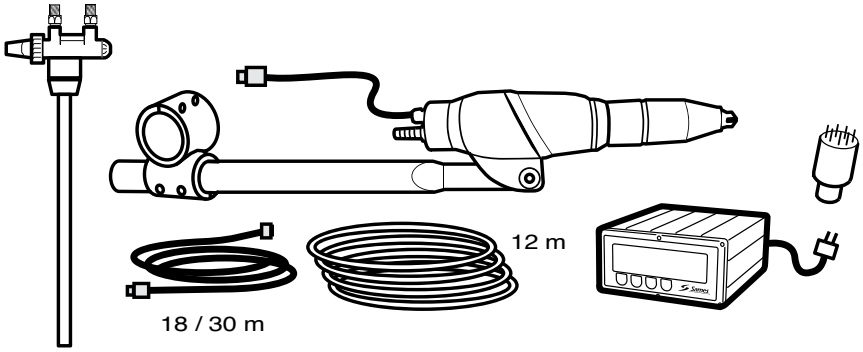
### Counter-electrode

| Illustration | Designation | Ref. # |
|---|---|---|
|  | Counter-electrode | 1527017 |

# Auto Mach-Jet automatic sprayer

## > Equipment AUTO MACH-JET

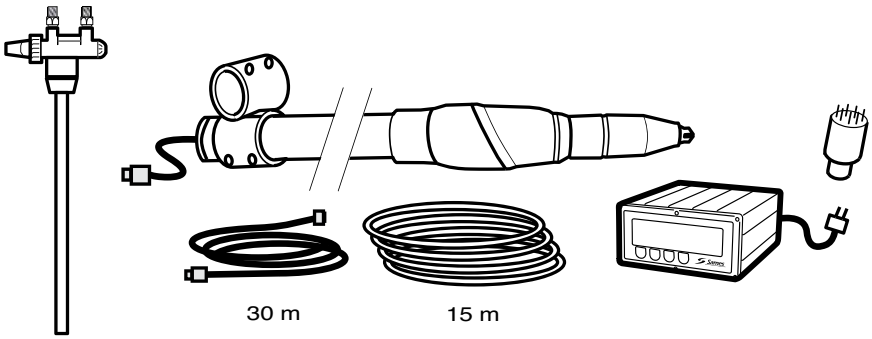
This equipment is supplied with:
- an Auto Mach-Jet sprayer
- a CRN457 control module
- bracket ø50x30 mm
- a new CS 130 powder pump
- a powder hose ø11x15 mm (length = 12 m)
- air supply hoses (length = 12 m)
- electrical connection for trigger control (18 m)

| Illustration | Hoses length | Ref. # |
|---|---|---|
|  | 18 m | 1527386 |
| | 30 m | Contact us |



## > Equipment AUTO MACH-JET FCC

This equipment is supplied with:
- an Auto Mach-Jet sprayer
- a CRN457 control module
- a bracket ø50x60 mm
- a new CS 130 powder pump
- a powder hose ø12x17 mm (length = 15 m)
- air supply hoses (length = 15 m)
- electrical connection for trigger control (30 m)

| Illustration | Hoses length | Ref. # |
|---|---|---|
|  | 18 m | 1527382 |
| | 30 m | Contact us |



## Complements

| Designation | Ref. # |
|---|---|
| Hopper CSV 600 (120 L.) | 752894 |
| Supply kit 24 V | 910000129 |

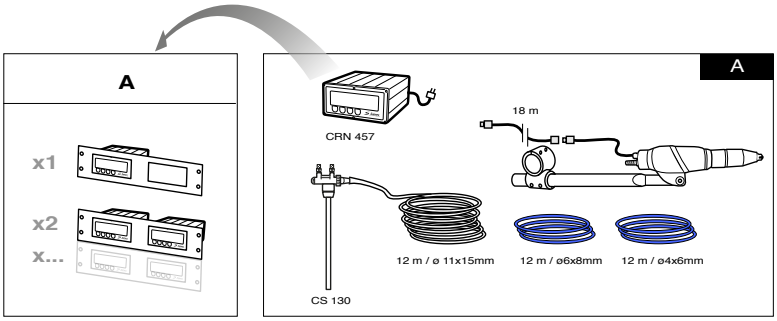
# Auto Mach-Jet automatic sprayer

## > AUTO MACH-JET sets

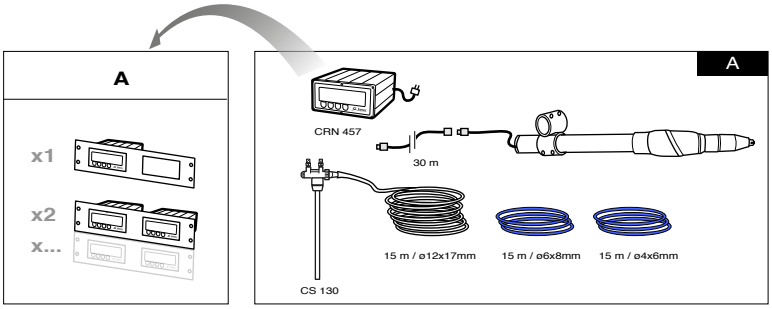
The assemblies are supplied with:
- Auto Mach-Jet or Auto Mach-Jet FCC equipment (see previous page)
- configurations A:

A = Assembly for cabinet with **front face with racks**

## AUTO MACH-JET




## AUTO MACH-JET FCC



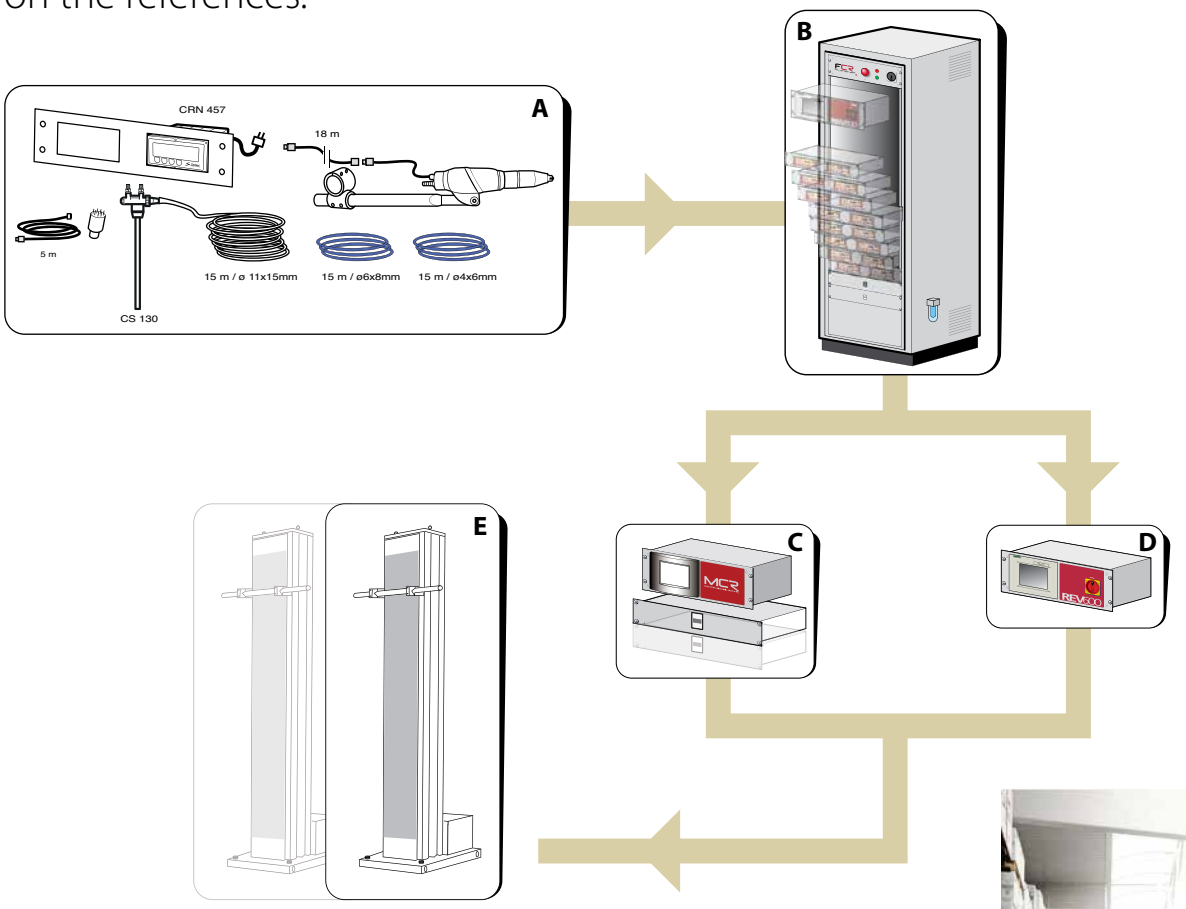

| Designation | Number of sprayer | A |
|---|---|---|
| Auto Mach-Jet assembly | 1 | Contact us |
| | 2 | 910001001 |
| | 4 | Contact us |
| | 6 | |
| | 8 | |
| | 10 | |
| | 12 | |
| Auto Mach-Jet FCC assembly | 1 | Contact us |
| | 2 | |
| | 4 | |
| | 6 | |
| | 8 | |
| | 10 | |
| | 12 | |

# Auto Mach-Jet automatic sprayer

## > AUTO MACH-JET installations

The Auto Mach-Jet unit may also be used for complete powder coating systems.
Simply order the number of units required with the FCR control cabinet, as well as the control modules required for your line.

Please contact us for further information on the references.




**A**: Auto Mach-Jet set
**B**: High cabinet with hopper fluidisation control
**C**: MCR supervisor module
1 axis or 2 axes = x1 VCR;
3 or 4 axes = x2 VCR
**D**: REV600 supervisor module
**E**: RFV2000 reciprocator

# INOBELL rotating bell sprayer

## Illustration

## Description of the product

INOBELL is a high output electrostatic spray gun with a rotating bell, with high finish quality and that is easily integrated. It can be used to spray all types of surfaces and is very efficient on flat surfaces. It can be used to spray different types of powders with a regularity of the thickness to within 5 microns.
The implementation is usually done with a reciprocating machine or in fixed station.

*ATEX marking:*

***INOBELL***
CE 0080 Ex II 2 D
EEx < 350 mJ
ISSeP09ATEX027X

***CRN458[1]:***
CE 0080 Ex II (2) D
[EEx < 350 mJ]
ISSeP09ATEX027X

***CS130:***
CE Ex II 3 D c T 85°C

***Powder Turbine Supply:***
CE 0080 Ex II (2) D
ISSeP09ATEX027X

*(1): This control module allows piloting the UHT. It is a combined material that is part of the configuration of the certified equipment and that contributes to its good working. It has to be installed into a non explosive area.*

## Fields of application

The technology used by **INOBELL**: rotating electrode associated to a counter-electrode, for maximum efficiency when charging the powder. The performance is particularly efficient on large flat surfaces with very good regularity of the paint deposited.
**INOBELL** is especially suited to the following industrial fields:

- Coil coating,
- Application of flat conveyors,
- Profiled sections,
- Metallic furniture,
- Wood and MDF furniture,
- Metal panels for suspended ceilings,
- Radiators,
- Fences, gates,
- Automobile equipment: wheel rims...
- And more generally all types of flat surfaces.

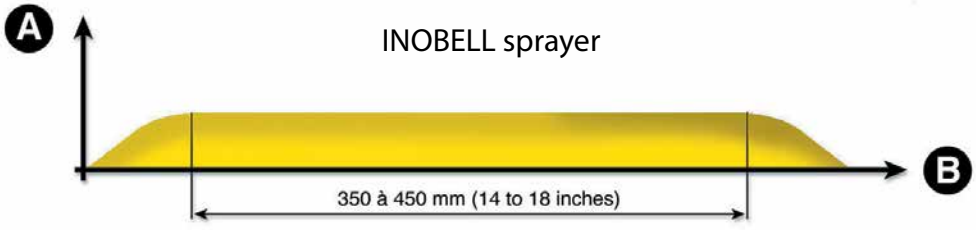
# INOBELL rotating bell sprayer

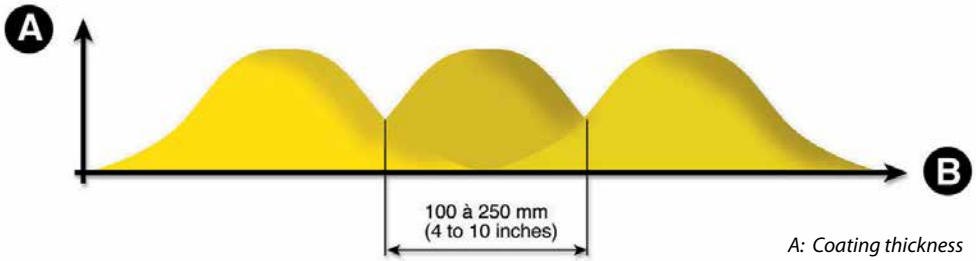
## Advantages

**> Aspect of application:** The technology used (rotary bell) associates an optimal electrostatic charge and a large, enveloping impact. Quality of finishing meets the most severe criteria of surface tension and DOI (Distinctness Of Image-brilliance quality).

- **regularity** of the film built,
- counter-electrode to avoid orange peel effect,

- large (from 300 to 450 mm) and **adjustable** impact.




*A: Coating thickness*
*B: Length of the part*

**> High flow rates and reduced equipment numbers:**
A powder bell can replace two guns as it efficiently applies a powder flow rate of over 500 g/min (30 kg/h).

**> High transfer efficiency:**
Powder savings of 15 to 20 % compared to automatic sprayer. Very good regularity of the film = saving of powder with thinner mean thickness.

**> Easy maintenance:**
The parts can be dismantled in a matter of seconds, with no special tools required: they are easily cleaned with an air gun. The bell is very wear resistant and can easily last for more than a year in normal operating conditions.

# INOBELL rotating bell sprayer

## TECHNOLOGICAL INNOVATIONS

**Integrated high voltage unit (UHT165)**
No high voltage cable:
• Less maintenance,
• Easy to install,
• Staff safety.

**New removable cartridge turbine:**
Integrated & variable shaping air (proportional adjustment on TCR module),
• Removable powder bell cup,
• Improved bearing protection,
• Improved motor efficiency.

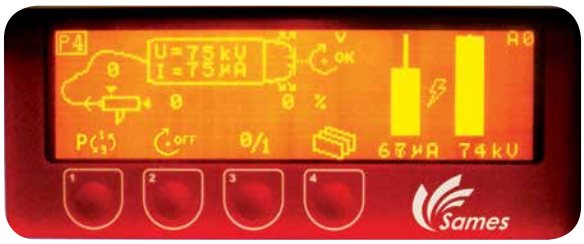
**Simplified design:**
• Number of parts reduced,
• Access and wiring improved
• Equipment simple to install,
• Compact and ergonomic system.

**New speed measuring system:**
• Greater precision in the application of the paint.

**Flexible air shroud:**
This permits a fast and marked variation of the size of impact. Controlling the jet permits the width of the impact to be proportionally adjusted during application.

**Control module that controls everything:**
• storing of parameters,
• clear and visible user interface,
• accessible and user friendly,
• adjustment of all functions on screen,
• simplified adjustment of powder flow rates,
• adjustment of shaping air supply (variable impact),
• turbine rotation is pre-set and controlled,
• 9 spray presets.

• 2 operating modes available:
- local mode (screen and/or piloting by wire connected triggers),
- remote mode (monitoring via a series connection).
• Easy to wire in.
• Easier to integrate:
- standard size 19" - 2U,
- Complete unit ready to integrate,
- no work required on the software,
- simplified wiring between the module and the sprayer



# INOBELL rotating bell sprayer

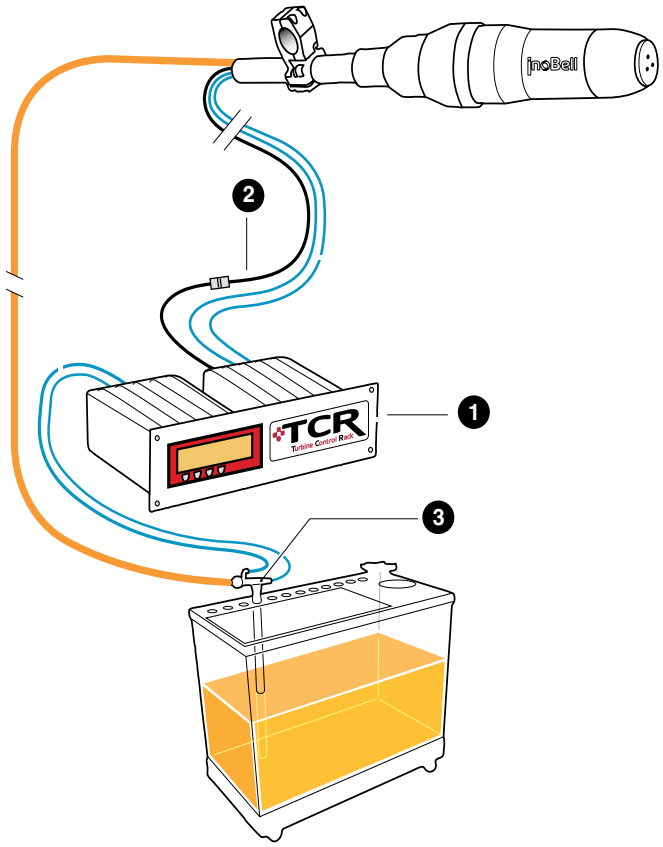
## General description

> The INOBELL sprayer is equipped with a mechanical bearing turbine. It may have a fixed mounting due to its large impact or on a reciprocator.

> This sprayer is piloted by the TCR module **(1)**. It reads and regulates the rotation speed of the turbine used to spray powder coatings at all times on the digital display on the front face. This module is equipped with a grounded cable, a plug for local command and two **(2)** connections to pilot the spray gun and a sensor to measure the speed of rotation.

> The powder supply is made thanks to a CS130 pump **(3).**

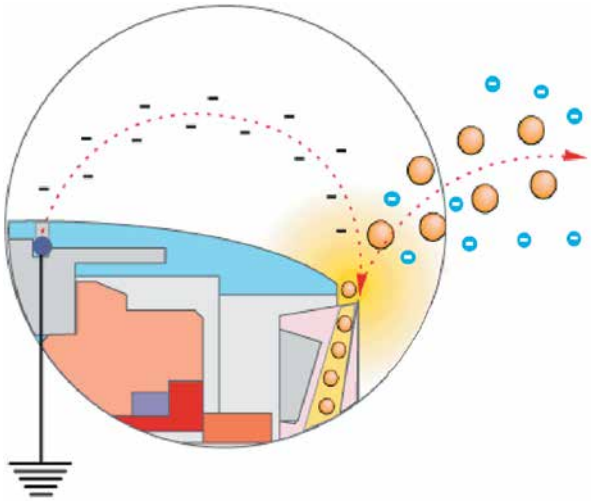
> The powder is brought to high voltage by contact with the bell cup through an integrated high voltage unit into the sprayer. The low voltage is supplied through a specific cable **(2)** that arrives inside the INOBELL.



# INOBELL rotating bell sprayer

## Advantages of the rotating bell

> The powder is supplied via the central tube and is rotated by the bell cup. It is electrically charged when it leaves the bell and heads towards the object to be coated in a very wide and enveloping spray. The powder is both electrically charged and sprayed by this flat shaped bell, that rotates at high speed. The bell itself acts as an electrode by bombarding the powder particles with ions, thus providing the powder with a high charge.



> The rotary bell cup associated to the high voltage ensures:

- A high level of productivity (paint flow of over 500g/min).
- Homogeneous coating.
- An adjustable spray paint pattern.
- A maximum coverage of parts to be paint (the electrostatic wrap round effect permits a transfer of paint behind the part).
- An economy of paint (the transfer efficiency is high, and can reach over 80%) thanks to the high transfer charge.

> The precise control of the coating thickness made possible by the powder bell powder is economised.

The counter-electrode built into the sprayer prevents excessive generation of ions, the final aspect of the part is thus improved.

## Technical characteristic

### INOBELL sprayer

| | |
|---|---|
| Spray gun weight (without hose): | 3.6 kg |
| Max. powder flow rate. hose ø12): | up to 30 kg/h |
| Low voltage cable: | 15 or 30 m |
| Maximum output voltage: | 75 kV |
| Maximum output current: | 100 µA |
| Pre-set rotation speed: | 7500 rpm |
| *(Vmin = 6500 and Vmax = 8500 rpm)* | |
| Shaping air flow: | 0 to 80 Nl/min |
| *(proportional from 0 to 100%)* | |
| Bearing protective air flow: | 60 Nl/min |
| Air supply turbine rotation: | |
| *(at stabilised operating speed)* | 40 Nl/min |
| *(at transitory operating speed)* | 100 Nl/min |

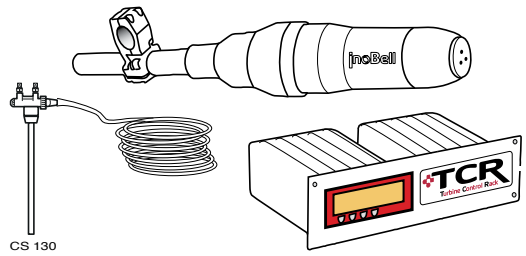
### Control module TCR

| | |
|---|---|
| ***Dimensions*** | |
| On rack: | 19" / 2U |
| ***Pneumatic*** | |
| Air supply pressure: | 6 mini / 8 maxi |
| Max. air consumption: | |
| As standard | 350 Nl/min |
| ***with high flow rate kit (optional)*** | ***380 Nl/min*** |
| ***Electric*** | |
| Supply | 90 to 270 V AC |
| Frequency: | 50/60 Hz |
| Maximum power rating | 90 V.A |

# INOBELL rotating bell sprayer

## Materials

### INOBELL sprayer

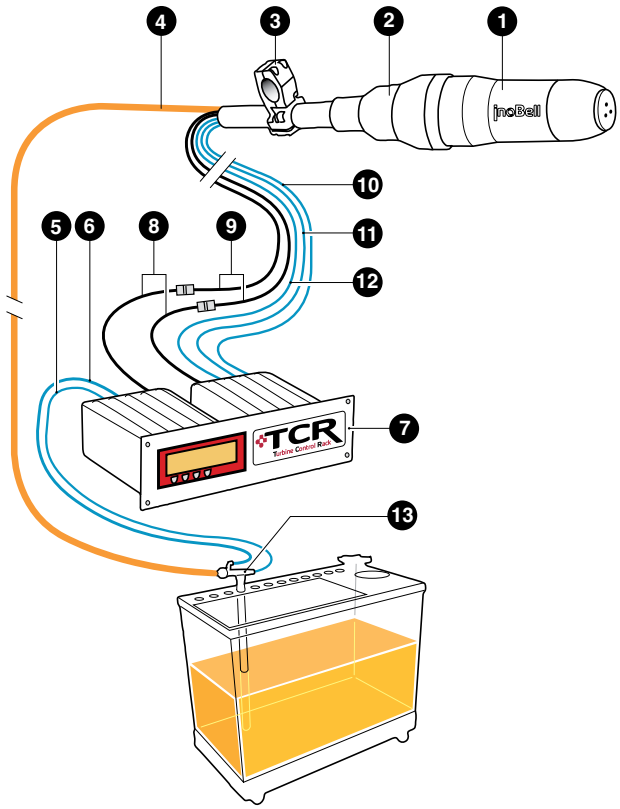
| Illustration | Designation | Ref. # |
|---|---|---|
|  | E. INOBELL | 910008096 |



*The equipment is composed of a sprayer, a TCR control module, an bracket ø50/60 mm, a speed regulator, a low voltage connection (15m) to connect the module to the UHT, a hose for transporting the powder ø12x17 mm length =15m and a powder pump CS130.*

## Components

| N° | Designation | Ref. # |
|---|---|---|
| 1 | INOBELL sprayer alone | 910 007 600 |
| 2 | Special support arm | 900 004 036 |
| 3 | Bracket ø27/60 mm | 1 204 441 |
| 4 | Hose Ø 12/17 mm opaque grey, (15 m) | U1F GBA 034 |
| option | Hose Ø 11/15 mm clear | U1F GBA 092 |
| option | Hose Ø 13/18 mm green | U1F GBA 226 |
| 5 | Injection air (Ø 6/8 mm), (15 m) | U1C BBT 003 |
| 6 | Dilution air (Ø 4/6 mm), (15 m) | U1C BBT 001 |
| 7 | TCR Control module | 900 005 533 |
| 8 | High voltage and speed sensor pilot cable , length. 2 x 2 m | 910 007 567 |
| 9 | Extensions TCR/Inobell, (15m) | 110 000 972 |
| 10 | Operating air (Ø 5,5/8 mm), (15m) | U1G LBT 142 |
| 11 | Shaping air (Ø 5,5/8 mm), (15 m) | U1G LBT 142 |
| 12 | Air for protecting bearings (Ø 5,5/8 mm), (15m) | U1G LBT 142 |
| 13 | CS130 Powder pump | 1 526 400 |
| | **Tooling kit** | **910008097** |



# AS 100

## Instrument for powder fluidity measurement

### Illustration

### Description of the product

AS 100 fluidimeter has been designed for the specific purpose of determining the capabilities of powder to be fluidised. I n the powder coating process the powder is transported and projected on the part by suspending it in air. However, powders react very differently to this suspension depending on their grain size, degree of humidity, formula, etc.
The AS100 fluidimeter demonstrates this behaviour and indicates immediately whether a powder is suitable for spraying purposes. It is a valuable aid in product quality control for both powder paint manufacturers and other laboratories. This is the first elec trostatic powder coating apparatus to be covered by a registered French standard (T 30 A doc 396).

### Operation

The powder is placed in suspension in the porous-bottomed cylinder, by means of a controlled air flow. Successively the height of fluidised powder bed is measured, in the fluidised state (H1), then the height at rest (H0) and the weight (P) of the fluidised powder that flows 30 s through the calibrated opening. It is thus possible to define a "projectability" factor, a characteristic of the powder:

**R = P x ( H1 / H0 )**

For information, for epoxy powders with a density of between 1.3 and 1.6, experience shows that results in function of R are as follows:

| R | Rating |
|---|---|
| > 140 | Very good |
| 120 to 140 | Good |
| 80 to 120 | Mediocre |
| < 80 | Poor |

| Designation | Ref. # |
|---|---|
| Fluidimeter AS 100 | 451 195 |

### Characteristics

- Min. feed pressure:1 bar
- Maximum air flow: 500 l/h
- Air inlet connector: Fluted ø4 mm
- Weight: 5 kg

*Warning: the operator must collect a sample of paint so as to control it obligatory outside from the ATEX zone.*

# HVP 125

## Instrument for high voltage measurement

### Illustration

*To use only in no explosive atmosphere (ATEX).*

### Description of the product

This meter accurately measures in kV the high voltage at the end of the spray gun. First ensure that the electrical connection is earthed, then place the spherical end of the meter in contact with the bellcup (INOBELL), or with the electrode at the nozzle tip (manual or automatic guns: Mach-Jet, Auto Mach-Jet, etc.).

| Designation | Ref. # |
|---|---|
| HVP 125 | R9KVXM030 |

# "CSV 600" powder distribution hopper

## Illustration

## Description of the product

The CSV 600 powder distribution hopper is designed to supply powder to the SAMES range of automatic powder spray guns, mainly the Auto Mach-Jet and INOBELL spray guns in all automatic electrostatic powder coating installations.
The CSV 600 hopper can operate either solely with new powder, or with a mixture of new powder and powder collected from a recycling circuit. In this case it is designed to be fitted with a complete sieving system for the recycled powder.

## Operation

CSV 600 powder hopper consists mainly of a wheelmounted mobile fluidised bed. A porous plate at the bottom of the hopper ensures an excellent distribution of air over its entire surface, to ensure a perfectly homogeneous powder bed.
Its lid can receive CS 130 powder pumps, which draw the fluidised powder and deliver it to the automatic guns (Auto Mach-Jet, etc.)

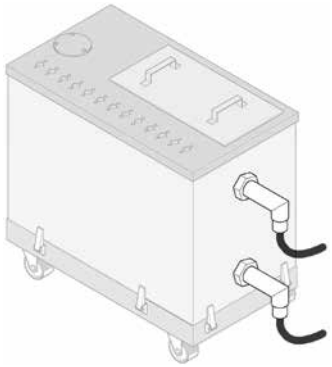
Each pump is fitted with two air intakes corresponding to:

> an injection circuit that doses and carries the powder,
> a dilution circuit that ensures a uniform spray of powder over the complete allowable flow range.
A suction venturi fitted on the lid, draws off fluidised powder from inside the hopper. This creates a slight negative pressure, which prevents powder leakage.
The pneumatic settings are adjusted from the installation's main control cabinet.

# "CSV 600" powder distribution hopper

## Optional complementary equipment

### > High and low powder level detectors



E.g.: in the case of new powder supply, either a timer is used when filling (alarm) with low level detection or a single detector for the upper level.

### > Powder recycling equipment with vibrating sieve and recycling hopper

The recycling hopper (**A**) is supplied with compressed air (**H**: pneumatic control) via the porous base. The air current rising from this base fluidises the powder in the hopper. A pump is fitted to the hopper cover (**B**) to transport the powder to the mini cyclone (**C**) on the sieve.
The sieve (**D**), fixed onto the mobile support by rubber mounts, is moved by a vibrator (see wiring diagram on next page). The powder recycled by the mini cyclone (**C**) enters the sieving machine (**D**) through a flexible sleeve. This powder leaves the sieve after passing through a screen (400 µm as standard) and is collected in the CSV 600 hopper (**F**) to be fed to the powder spray guns with the CS130 pump (**G**).

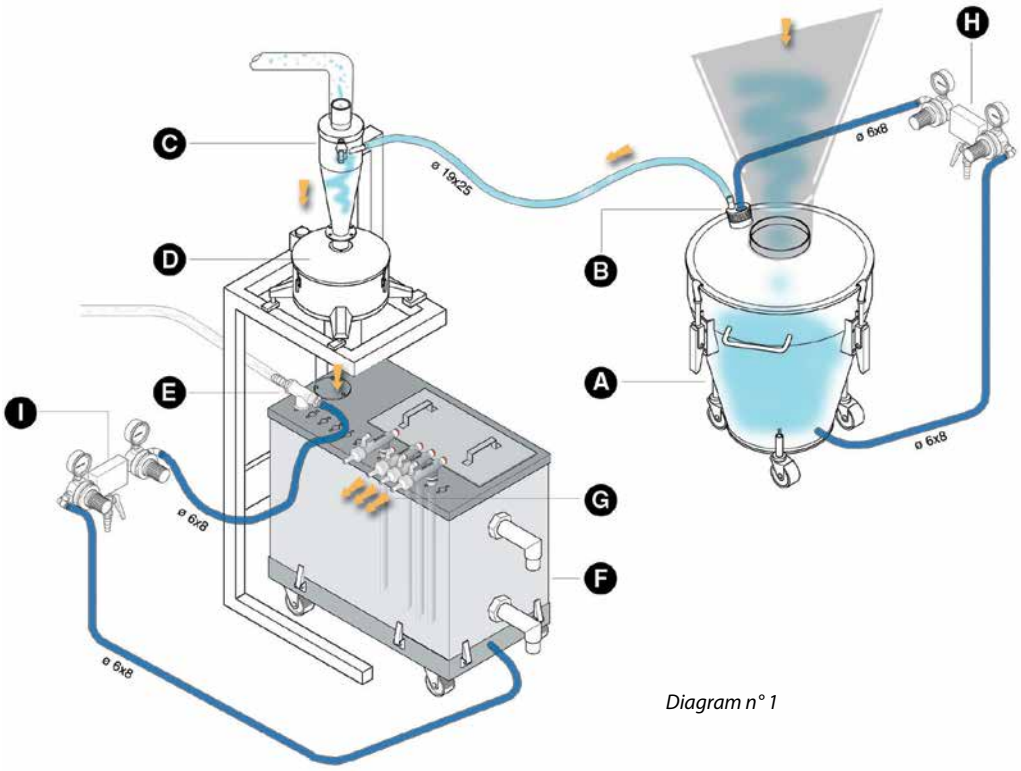
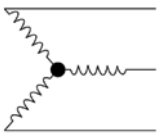


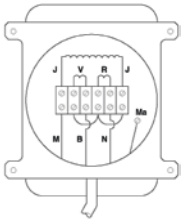

*Diagram n° 1*

# "CSV 600" powder distribution hopper

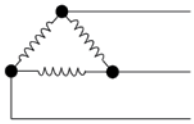
## Wiring of sieve vibrator

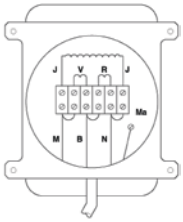
Star connection - 380 V three phase





Delta connection - 380 V three phase





## Technical characteristics

| | **CSV 600** | **Recycling hopper** |
|---|---|---|
| Weight (without equipment) (kg) | 50 | |
| Length (mm) | 810 | |
| Width (mm) | 410 | |
| Height (mm) | 700 | 460 |
| Effective volume (litres) | 120 (or approx. 60 kg of fluidised powder) | |
| Max. number of plungers (CS 130) | 12 | |

| **Pneumatic supply** | **CSV 600** | **Fume extraction venturi** |
|---|---|---|
| System air supply pressure (bar) | 5 (75 psi) | |
| Settings air pressure (bar) | 0.5 to 1 | 1 |
| Air consumption ($Nm^3/h$) | 12 to 15 | 5 to 7 |

| **Connection** | **CSV 600** | **Mini cyclone** | **Recycling hopper** |
|---|---|---|---|
| Fluidisation hose supply (mm) | ø 6/8 | | ø 6/8 |
| Powder supply hose (mm) | | ø 19 / 25 | |
| Fumes extraction venturi Pump supply (mm) | ø 6/8 | | |
| Recycling hopper powder Pump supply (mm) | | ø 6/8 | |

| **Connection** | **Level detector** | |
|---|---|---|
| Supply voltage (V AC/DC) | 20 - 250 | |
| Holding output current (mA AC) | 350 (+50 °C(+122 °F)) | |
| (mA DC) | 100 | |
| Maximum output current (mA) | 5 | |
| Residual current | < 2.5 mA / 250 V AC | |
| | < 1.3 mA / 110 V AC | |
| | < 0.8 mA / 24 V DC | |
| Switching frequency | 25 Hz AC / 30 Hz DC | |
| Ambient temperature (°C) | -25 to +80 (+176 °F) | |
| Protection degree | IP 65 | |

# "CSV 600" powder distribution hopper

## > Powder hopper and pump

| Designation | Item | Set of | Ref. # |
|---|---|---|---|
| Hopper CSV 600 (120 L.) | A | | 752894 |
| Fume extraction pump | B | | 455455(1) |
| CS130 Powder pump alone | C1 | | 910013775(2) |
| Plunger tube | C2 | | 1526399 |
| CS 206 | D | | 1502844(3) |
| Level detector kit- option | E | | 855392(4) |

*(1): this supply is part of the hopper CSV 600.*
*(2): this supply is not part of the hopper CSV 600. Depending on how it is used, the number of pick-up required is to be defined on the order.*
*(3): this pneumatic control CS 206 feeds the fluidisation of the hopper CSV 600 and the air injection of the fume extraction pump.*
*(4): this kit includes a detector*

Illustration

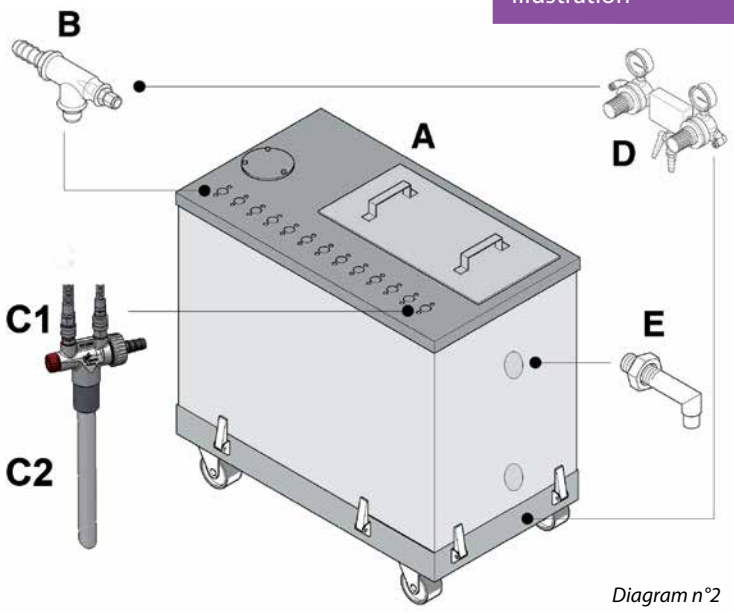



*Diagram n°2*

## > Powder recycling and sieving system

| Designation | Minicyclone | Hopper(5) | Ref. # |
|---|---|---|---|
| Siever 1501 + Support + | - | | 1 508 692(6) |
| | 1 input | | 1 508 695(6) |
| | 2 inputs | | 1 508 694(6) |
| | 1 input + | 1 | 1508693(6)+(7) |
| | 2 inputs + | 1 | 910007470(6)+(7) |

*(5): recycling hopper 1601 with cyclone (see diagram n°3)*
*(6): the assemblies are supplied with the cables & air hoses*
*(7): the powder pump (ref : F4SPDR019) that integrates the recycling hopper as well as the pneumatic control (ref : 458532) are supplied with this package.*

# "CSV 600" powder distribution hopper

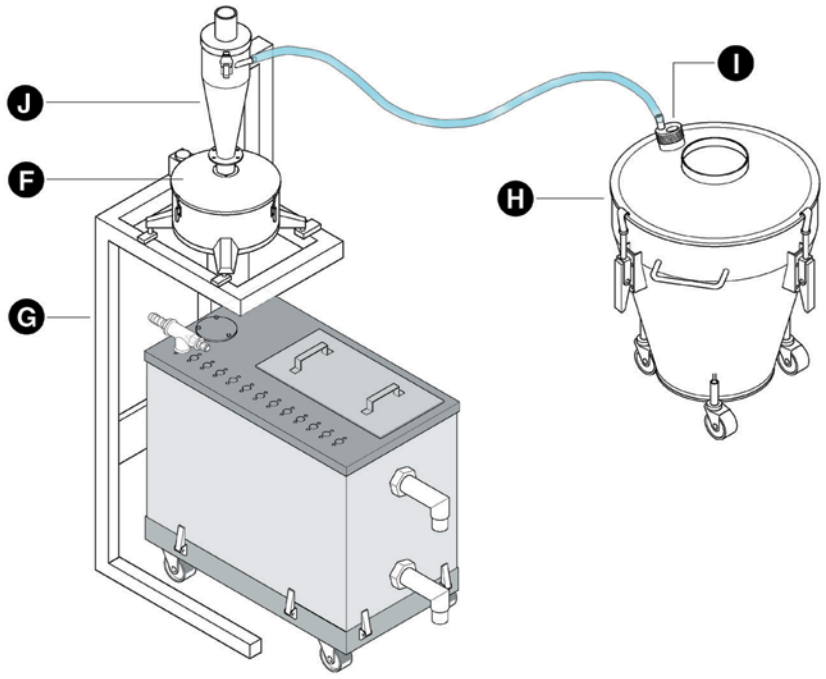
## Powder sieve and recycling system components

| Designation | Item | Ref. # |
|---|---|---|
| Sieve 1501 | F | V4TTAM062[10] |
| Sieve stand (adapted CSV 600 only) | G | V4TTPR063 |
| Recycling hopper 1601 | H | F4SSTV018 |
| Powder pump for recycling hopper | I | F4SPDR019 |
| Mini cyclone 1 input | J | V5DETL006 |
| Mini cyclone 2 inputs | J | V5DETL007[8] |
| Pneumatic hopper control | - | 458 532[9] |

*(8): a second input allows the CSV 600 to be fed with another new or recycled powder.*
*(9): this pneumatic control is used to supply the fluidisation air to the recycling hopper and to supply the powder pump to transport the powder to the mini cyclone. (see diagram n°1 item ref. H)*
*(10): three phase supply voltage 380 V or 230 V, to be defined on order*

| Designation | Passage of powder | Ref. # |
|---|---|---|
| Sieve synthetic screen (µm) | 125 | V5TTPR013 |
| | 160 | V5TTPR029 |
| | 200 | V5TTPR033 |
| | 250 | V5TTPR014 |
| | 400 | V5TTPR015[11] |

*(11): standard screen, comes with item F in diagram 3*



# Notes

# REV 600 control module

## Illustration


## Description of the product

The REV 600 module is intended to drive an automatic powder or paint installation. It can operate:
• the "raise and lower" axis of one or two robot(s) type SAMES RFV 2000,
• sprayer activation and the input/output interfacing with the installation.

The REV 600 also manages the parts parameters required by the application via an integrated PLC:
• sweeping movement with parameters defined for one to three zones: speed change and reversing points,
• zone speeds adjustable from 0 to 60 m/min. stop/start running up to six spray guns per robot,
• management of ten memorized programmes (production runs for parts for painting).

The REV 600 module is interfaced with the installation to:
• detect the presence of parts,
• detect external faults,
• check the both is operating correctly: conveyor belt and ventilation,
• managing faults: signalling system and external output authorizing start up (example: conveyor belt)
• manage time-outs for the application between parts, between two robots and three spray gun configurations.

## Advantages

The REV 600 module allows the operator to run his installation extremely simply:

• Very user friendly: the learning process is quick and intuitive - graphic icon display.

• Reliability of the system: the system is managed by a programmable logic controller (PLC).

• easy to use: the intuitive interface simplifies the selection from each menu to the maximum.

• Time saving: easy calibration of the high and low points and the robot axis. The table parameter choice can be made on line during production, without stopping the conveyor belt.
• Ergonomics: touch screen controls make action inputting simple and fast.

## Technical characteristic

| **Supply** | **REV600** |
|---|---|
| Input voltage (V) | 230 single or three-phase |
| Input frequency (Hz) | 47 - 63 |
| Input current (A) | 16 |
| API supply (V) | 24 |

| **Dimensions** | |
|---|---|
| Weight (kg) | 11.2 |
| Height (U) | 4 |
| Width (in) | 19 |

| **Protection degree** | |
|---|---|
| Rack version | IP65 (front face) |
| | IP20 (rear face) |
| Box version | IP54 |

| **Control screen** | |
|---|---|
| Screen | backlit 5.6 inches |
| Display | resistive analogue touch screen. Controlled by touch (finger, or object, not sharp) and a glove. |

| **Conditions of use** | |
|---|---|
| Ambient temperature (°C) | < 45 |
| Ambient humidity | < 85 % without condensation |
| Installation | in non-explosive zone |

# REV 600 control module

## > Functions

The REV 600 integrates the basic functions of an application process:
- 2 "raise and lower" type reciprocators - 1 axis
- 3 sweeping zones per reciprocator
- 6 spraying controls/reciprocator
- 10 parts production runs/reciprocator

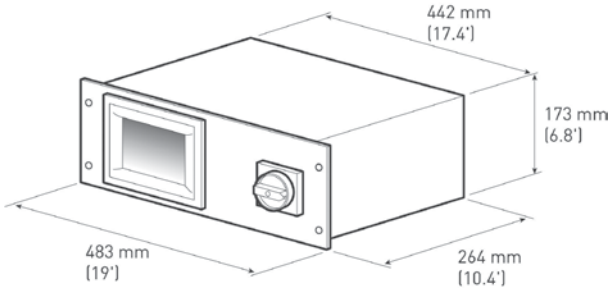
The 19 inch standard dimensions of the REV 600 module allows easy integration into a modular cabinet and connection to the various SAMES sprayer control modules.

An autonomous, box version of the REV 600 is also available.

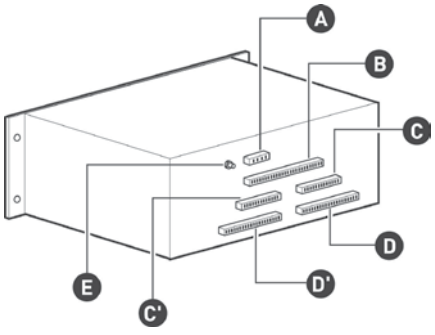
With the following functionalities, the REV 600 module interfaces easily with an industrial application:
- Possible automated spraying by detecting parts for painting using sensors or photo-electric cells.
- Emergency stop input
- External fault input
- External fault output
- Ventilation input during operation
- Conveyor input during operation
- Authorization output for conveyor belt operation

## > REV 600 control module

| Designation | Ref. # |
|---|---|
| REV 600 rack version | 1523227 |
| REV 600 sealed box version | Contact us |
| Sealed enclosure only (for explosive zone) | 1524220 |
| Screen protection sheet (x10) | E1AAUZ090 |




## Connections




| Designation | Item | Function | mm² | Ref. # |
|---|---|---|---|---|
| Electrical supply | A | | 4G1.5 | E2CDKR004 |
| Inputs | B | Emergency stop | 2x1 | E2LAAB100 |
| | | Conveyor belt running | 2x1 | E2LAAB100 |
| | | Operating ventilation | 2x1 | E2LAAB100 |
| | | External faults | 2x1 | E2LAAB100 |
| | | Parts detection | 3G0.75 | E2LDAC075 |
| Outputs | B | Conveyor belt autorisation | 2x1 | E2LAAB100 |
| | | Function OK | 2x1 | E2LAAB100 |
| Spray gun control (1) | C-C' | | 2x1 | E2LAAB100 |
| Motor control | D-D' | Motor | 4G1.5 | E2BAAD150 |
| | | Pre-cabled, lg = 30m | | 1411222 |
| | | Temperature sensor | 2x1 | E2LAAB100 |
| | | Pre-cabled, lg = 30m | | 1411223 |
| | | Potentiometer | 4G0.75 | E2BAAD075 |
| | | Pre-cabled, lg = 30m | | 1409971 |
| Grounded | E | Via supply cable | | |

*(1) cable by the metre necessary for one spray gun, the C-C' connection can run 6 triggers*

# "MCR" control module

## Illustration


## Advantages

**Easy to use:**
The MCR module allows the operator to drive the installation extremely simply: PC screen controls make action inputting simple and fast.

**Versatile use:**
MCR manages simultaneously two types of different sprayers (INOBELL and Auto-Mach-Jet) in a same application table. Each sprayer may be parametered independently and when the part to be coated is identified, the powder coating will be deposited precisely and regularly.

**Time saving:**
MCR ensures the robot (high and low points), with the equipment installed.
During production, it is possible to change you the parameters of each table, without stopping the conveyor. A corrective coefficient is also provided to adjust the parameters more quickly without modifying the tables (e.g.: increase of the powder flow rate by 10% of all the spray guns instantaneously).

**Preventive maintenance:**
A production summary counts the hours of operation of the spray guns and the robots.
The alarm threshold settings will sound the warning when the maintenance time is reached, in order to check:
• the electrode of the Auto-Mach-Jet
• the powder feed
• the movements of the robot

## Description of the product

The new MCR control module **(2)** accurately supervises all of the parameters of an automatic powder coating installation.

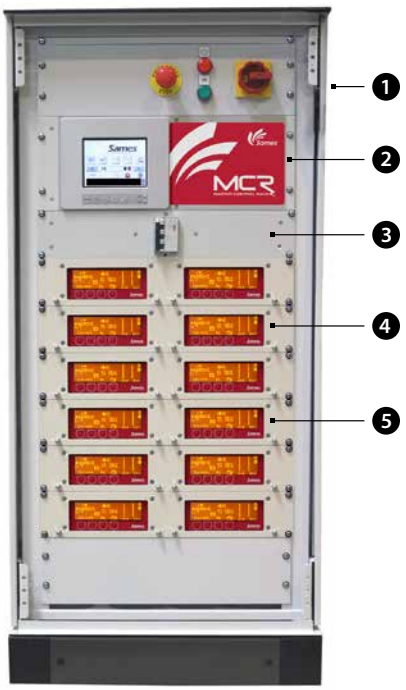
MCR is a 19-inch rack mounted product, designed to be integrated into the FCR modular cabinet **(1)**. It manages application processes, from the simplest to the most complex, and can be associated to control modules such as:

• The VCR converter control robot module **(3)** for managing the sweeping and positioning of the RFV2000 reciprocator.

• The TCR module **(4)** for the INOBELL sprayer controls (that manages the powder flow rates, the speed of rotation, high voltage, etc).

• The CRN 457 module **(5)** for the Auto Mach-Jet sprayer controls.

• The interface with the customer installation to detect the part, authorise the conveyor operation, etc.



# "MCR" control module

## > Numerous functions in the powder coating application

The module MCR manages the parameters required for the application of the parts to be coated. Here are the numerous possibilities:

**1/** Manages up to two Sames RFV reciprocators, the axes may be configured as follows:
- no robot
- if the requirement is ≤ 2 axes = x1 VCR
  - 1 robot with one axis (vertical sweeping)
  - 1 robot with two axes (sweeping and gauge)
  - 2 robots with one axis (vertical sweeping)
- if the requirement is > 2 axes = x2 VCR
  - 1 robot with one axis (sweeping or gauge) + 1 robot with two axes
  - 2 robots with two axes (sweeping and gauge)

**2/** Manages the ON/OFF command for up to 24 (FCR high Version) spray guns, only by series connection.

**3/** The ON/OFF control of the spraying is distributed over 3 plans per robot (one timer delay per plane).

**4/** Manages up to 64 different tables/ robot (batch of parts). The table contains all of the parameters for the movements, of spraying, high voltage and of detection and setting of the shaping air and turbine rotation for the INOBELL sprayer.

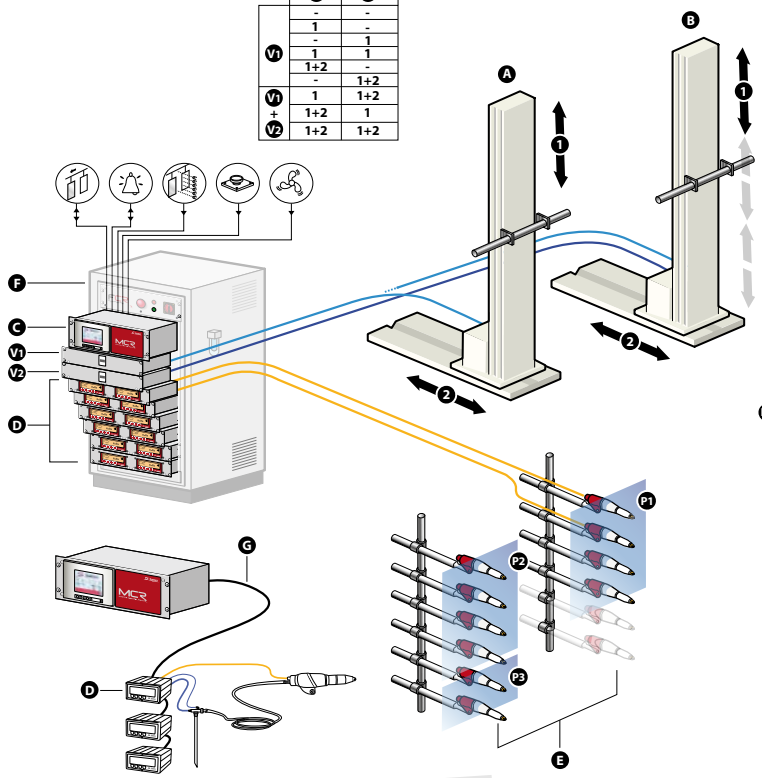
**5/** Possibly to launch one cycle inward/backward pf gauge and of stroke in order to permit the blowing of all powder sprayer.

**6/** The module is interfaced with the customers' installation:
> Inputs:
- detection on the height axis
- cell (1) for recognition of parts
- identification of parts on gauge axis
- external fault input
- ventilation input during operation
- conveyor input during operation
- Emergency stop input

> Outputs:
- external fault output (signal or other)
- authorisation output for conveyor belt operation

## > Integration diagram

| | A | B |
|---|---|---|
| V1 | - | - |
| | 1 | - |
| | - | 1 |
| | 1 | 1 |
| | 1+2 | - |
| | - | 1+2 |
| V1 + V2 | 1 | 1+2 |
| | 1+2 | 1 |
| | 1+2 | 1+2 |




- A 1st Robot RFV2000 type
- B 2nd Robot RFV2000 type
- 1 Height movement: 1 zone with 1 powder robot
- 2 Foward/Backward movement (gauge)
- C MCR Module
- D CRN 457 or TCR Modules
- E 24 spray guns max. dispatched between 1 or 2 robots
- F FCR Modular cabinet
- G ON/OFF control (serial link)
- V1 VCR Module (manages up to 2 axes)
- V2 VCR Module (manages 4 axes if V1 + V2)
- P1→P3 Example of spraying plans
- conveyor Input during operation (1) and authorisation output
- external fault Input/output (1)
- Part detection input with 1 cell or recognition
- emergency stop Input (2)
- Ventilation input during operation (1)

*(1): Interaction of input status on the process: the conveyor is stopped after the spraying and default verification*

*(2): Stop of reciprocator, of conveyor and after spraying default verification*

# "MCR" control module

## > References

| Designation | Ref. # |
|---|---|
| MCR Module for cabinet | 910004516 |
| VCR Module for modular cabinet | 910004517 |
| Connector between the MCR and VCR module | 110000524 |

## Technical characteristics

| **Supply** | **MCR** | **VCR variator module** |
|---|---|---|
| Input voltage: | 230 V single | 230 V tri |
| Input frequency: | 47 - 63 Hz | |
| Input current: | 1 A | 10 A |
| Ambient temperature | < 40°C | < 40°C |
| Ambient humidity without condensation | < 85% | < 85% |
| Installation zone: | No ATEX area | No ATEX area |

**Digital outputs**

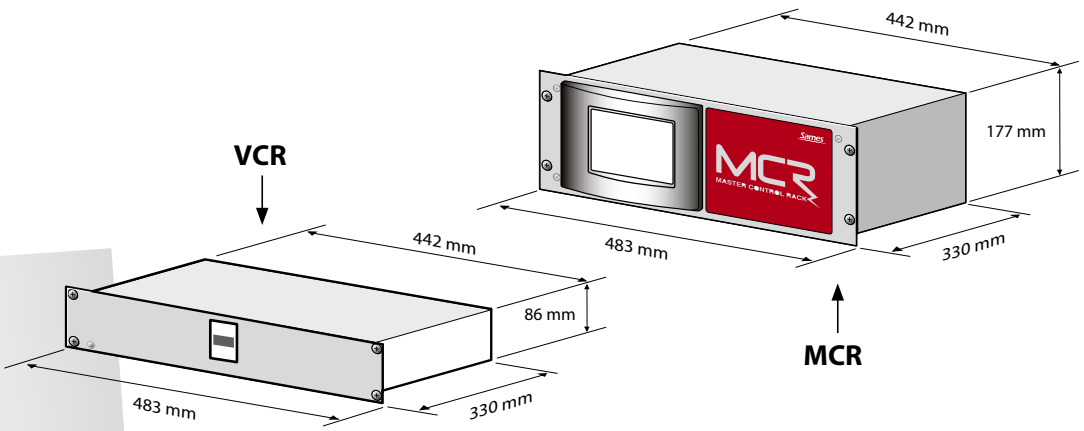
| | | |
|---|---|---|
| Nominal / max. switchable voltage | 250/250 V AC | |
| Nominal / max. current | 7A / 15A | |
| Maximum load | 1750 VA | |
| Nominal charge | 350 VA | |
| Stop power in DC1 | 30 / 110 / 220V : 7 / 0.25 / 0.12 A | |
| Min. switchable charge | 300 mW (5V/5mA) | |

**Digital inputs**

| | | |
|---|---|---|
| Nominal input voltage | 24VDC (min -3VDC max 30 VDC) | |
| Nominal input current | 3mA min (18VDC) / 3.9mA (24VDC) / 4.5mA (30VDC) | |
| Lower level voltage | UL max < 5 V | |
| Upper level voltage | UH min > 15 V | |

**Dimensions**

| | | |
|---|---|---|
| Weight | 10.8 kg | 8.8 kg |
| Height: | 4 U | 2 U |
| Width: | 19 inches | 19 inches |
| Protection degree: | IP 20 | IP 20 |
| Screen: | 5.6 inches, colour | |



# "MCR" control module

## **Comparison** of the major functions of the **REV600** and **MCR** modules

| Characteristics | REV 600 | MCR |
|---|---|---|
| *Gun tables* | | |
| Number of tables | 10 | 64 |
| Ref. values per robot: | | |
| number of sweeping zones | 3 | 1 |
| consign speed of zone | ✓ | ✓ |
| consign height of zone | ✓ | ✓ |
| consign gauge | - | ✓ |
| Consign of powder application per robot: | | |
| on/off trigger by zone | ✓ | ✓ **(1)** |
| selection of sprayer | - | ✓ |
| powder injection | - | ✓ |
| powder dilution | - | ✓ |
| voltage | - | ✓ |
| current | - | ✓ |
| air shroud (INOBELL) | - | ✓ |
| turbine rotation (INOBELL) | - | ✓ |
| Number of guns max. | 12 | 24 |
| Trigger control | ✓ | - |
| Serial link control | - | ✓ |
| *Control of robot movements* | | |
| No robot | - | ✓ |
| Height of 1 robot | ✓ | ✓ |
| Height and gauge 1 robot | - | ✓ |
| Height of 2 robots | ✓ | ✓ |
| Height and gauge 2 robots | - | ✓ |
| Operation with module VCR | - | ✓ |
| Speed from 5 to 25 m/min (powder) | ✓ | ✓ |
| Speed from 5 to 60 m/min (liquid) | ✓ | - |

| Characteristics | REV 600 | MCR |
|---|---|---|
| *Other functions* | | |
| Parts detection: | | |
| by position (dry contact or cell) | ✓ | ✓ |
| by height and gauge **(2)** | - | ✓ |
| Conveyor speed data: | | |
| Fixed value | ✓ | ✓ |
| Real value | - | ✓ |
| Screen | Level of blue | Colour |
| Number of languages | 5 | 14 |
| Flip/Flop movement | Yes | No |
| (integrated into the table of spraying) | | |
| Production summary ( robots and sprayers): | | |
| Hours of function | - | ✓ |
| Cleaning: | | |
| Sprayer's interior blowing | - | ✓ |
| Sprayer's exterior blowing | - | ✓ |

*(1): serial link only*
*(2): cells permit the recognition of the shape to be coat. For each cell, a sprayer or a consign of gauge axis is associated.*

# RFV2000 Electronically-controlled reciprocator

## Illustration

## Description of the product

The RFV 2000 reciprocator drives the movement of every SAMES automatic sprayers and other brands.

*ATEX marking:*

*RFV2000 (liquid paint)*
CE Ex II 2 G c II B T4
Technical file: RFV

*RFV2000 (powder paint)*
CE Ex II 3 D c T125°C
Technical file: RFV

## Operation

The RFV 2000 reciprocator comprises a vertical frame set into a horizontal base on wheels for ease of movement along the ground. Two optional rails can be added to improve guiding, for displacement perpendicular to the conveyor belt axis or for use over grating.
The frame constitutes a vertical rolling track along which the carriage holding the powder or paint spray guns and the balancing counter-weight moves. The carriage is driven by a transmission chain, an asynchronous electric motor and a reduction gear located on the base.
A potentiometer is used to link the sweeping movement to the control devices. All the controls are grouped in the REV 600 box which can be located remotely from the robot.
A second version is available as an option with a second motorized axis (RFV "forward-back" positioning).

## Advantages

> Extremely simple construction and operation (very long service life).
> Sweeping stroke and speed adjustable remotely over a very wide range.
> Optimum safety : the reciprocator is CE approved.
> Reduced maintenance: limited to cleaning the chains and transmission parts.
> Installation requiring no special provision (the robot can be positioned or displaced manually without effort).

# RFV 2000 Electronically-controlled reciprocator

## Range

The RFV reciprocator 2000 is intended to equip automatic installations for painting or powder coating.
There are two types of reciprocators that comply with ATEX:

**1 >** For **powder coating** applications, machanics is in zone 22 to note that the regulation nevertheless considered that the equipment is approved, category = 2 instead of 3.
It is used to drive vertical reciprocal movements of powder spray guns such as:
- 4, 6, 8 or 10 **Auto Mach-Jet** powder sprayers
- 2 or 4 **INOBELL** turbine powder sprayers

**2 >** For **liquid coating** applications, mechanics is usually located in zone 1, which determines a category for which the equipment is approved, category = 2.
It can lead to a combination of paint sprayers such as:
- 2 or 4 **PPH 308** bell paint atomizers
- 1 or 2 **PPH 707 EXT-ST** bell paint atomizers
- 4, 6 or 8 **TRP 501** paint spray guns
- 2, 4 or 6 **VORTEMAIL VEC** paint sprayers

The RVF 2000 reciprocator is controlled by:
- a REV600 or MCR control module
- PLC in the case of a more complex automated installation

## Illustration

## Technical characteristic

| | RFV 2000 for application of **liquid coating** | RFV 2000 for application of **powder coating** |
|---|---|---|
| Effective stroke (mm) - Reference: A | 1000 to 3000 depending on the version | |
| Sweeping speed (m/minute) to 50 Hz | adjustable up to 60 | adjustable up to 25 |
| Floor surface | 0.55 x 0.70 m | |
| | | |
| Power of motor (w) | 750 | 375 |
| Robot weight (kg) | approx 230 | |
| Single phase supply | 220 V / 50-60 Hz | |
| Eyebolts | ø 28 mm | |

# RFV 2000 Electronically-controlled reciprocator

## > ATEX certified «RFV 2000» reciprocator mechanism

| Designation | Item | Effective stroke (cm) | Ref. # |
|---|---|---|---|
| RFV 2000 for application of liquid paint | 1 | 200 | 910006928-200 |
| | | 80 < xx0 < 340 | 910006928-xxx |
| RFV 2000 for application of powder paint | 1 | 200 | 910006929-200 |
| | | 80 < xx0 < 340 | 910006929-xxx |

*XX0 = Effective stroke in cm, ex: 280 cm*

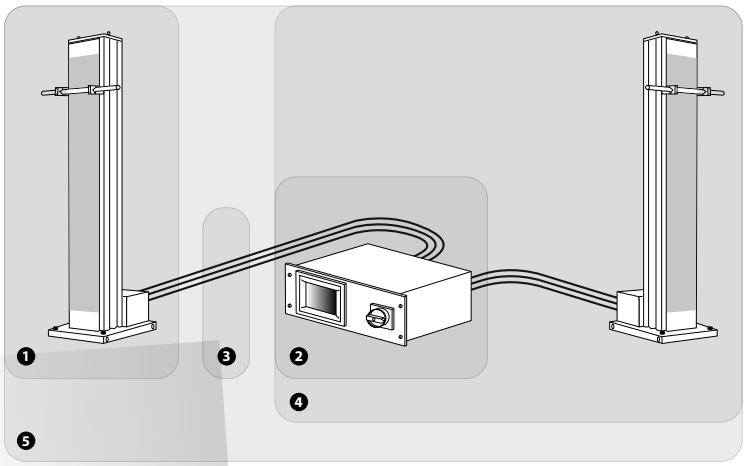
*It is best to choose a standard robot (200 cm effective stroke), even if the sweeping stroke is greater than the height of the pieces to be painted, it can adapt as the process develops. Otherwise, the choice will be made either because of environmental constraints.*
*(ex. a cabin height of less than 3.4 m) or to the height of the components to be painted exceed's 2 m.*

## > RFV 2000 reciprocator mechanism + REV 600 control module

The set includes the electrical control cables (approx. 30 m)
and the REV 600 (delivered as a rack version)

| Designation | Item | Pilot of | RFV version | Effective stroke (cm) | Ref. # |
|---|---|---|---|---|---|
| REV 611 | 4 | x1 RFV one axis | liquid coating | 200 | 910002370 |
| | | | powder coating | 200 | 910002373 |
| REV 621 | 5 | x2 RFV one axis | liquid coating | 200 | 910002371 |
| | | | powder coating | 200 | 910002374 |

### Illustration




1. = zone 1 or 2 (RFV for liquid coating)
   Zone 22 (RFV for powder coating)
2. = REV 600 orMCR: External to ATEX zone or zone 1/2 and 22 with explosion proof module
3. = electrical connections for 1 x RFV2000:
   **Ref 910003807** =
   motor cable, ref. **1 411 222** (4G1.5 mm2)
   + sensor cable, ref. **1 411 223** (2x1mm2)
   + potentiometer cable, ref. **1 409 971** (4G0,75 mm2)
4. = REV 611 (RFV 2000 + REV 600)
5. = REV 621 (2 x RFV 2000 + REV 600)

# RFV 2000 Electronically-controlled reciprocator

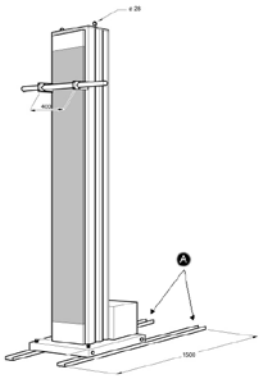
## Components

### REV 2000 robot components

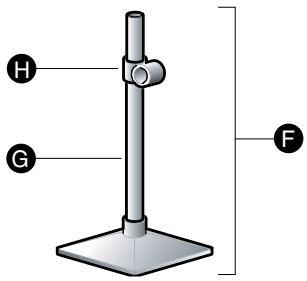
| Illustration | Designation | Length (mm) | Ref. # |
|---|---|---|---|
|  | Unwinder kit | Hoses < 2000 | 1514325 |
| | | Hoses > 2000 | 1525208 |

*The reference includes a single unwinder (provide for 2 unwinders per reciprocator)*

### Guide rail kit

| Illustration | Designation | Item | Length (mm) | Ref. # |
|---|---|---|---|---|
|  | 2 rails and fixing | A | 1500 | 1525228 |

### Components for fixed spraying

| Illustration | Designation | Item | Length (mm) | Ref. # |
|---|---|---|---|---|
|  | Fixed foot (base + pipe) | F | 1500 | 459127 |
| | Pipe only | G | 1200 | 744097 |
| | | | 1500 | 1410592 |
| | Nut ø 50x50 mm | H | | 429104 |

# Modular manual electrostatic powder booth

## Illustration

CE Ex II 3 D Ex tD A22 IP65 T200°C
-10°C < Ta < 40°C


## Description of the product

MANUCOMPACT is a powder coating booth that is able to extract and filter the powder-laden air.

## Use

MANUCOMPACT booth is intended for use in manual powder coating systems. Ideal for use in restricted spaces, this booth is perfect for small and medium production series.
It can be used for powder coating a prototype or samples and can also be adapted for use with a conveyor.

The booth can cater for parts or objects up to 1.2 m high, 1m wide and 0.65m deep.

## Advantages

To provide you with complete satisfaction, we propose a compact, mobile booth that is suited to automatic production lines.

# Modular manual electrostatic powder booth

## > Optimum safety and comfort conditions

• The perfectly regular horizontal air flow and low noise level of the installation help to create a nuisance free atmosphere in the work zone.
• The control unit integrates all of the electrical and pneumatic functions, reading of charge losses and cartridge cleaning for simplified use.
• Regulation, purified air must be expelled to the outside of the building where the booth is installed, whilst respecting the environmental protection rules.
• The booth is very compact and has been designed to optimise the space available in the workshop and fit into an automatic line. The footprint of the booth is reduced.
• The booth can be quickly integrated into your production due to its mobility and is easy to connect.
• Manufactured in stainless steel, this booth only requires reduced maintenance and servicing.
• When the MANUCOMPACT is used for a single colour, you can collect the powder that has not been deposited onto the parts.

### Technical characteristics

| | **MANUCOMPACT** | **Parts to be coated** |
|---|---|---|
| Overall height (mm) | 3117 | 1200 |
| Working height (mm) | 460 | |
| Width (mm) | 2240 | 1000 |
| Depth with table closed (mm) | 1500 | 650 |
| Depth with table open (mm) | 1900 | |
| Weight (kg) | approx 450 | 30 |
| Filter cartridge (number) | 4 | |
| Filtering surface area of a cartridge ($m^2$) | 80 | |

| **Pneumatic supply** | |
|---|---|
| Ventilation air flow rate ($m^3/h$) | 4500 |
| Average air consumption (unclogging) ($Nm^3/h$) | 18 $Nm^3/h$ at 5 bar |
| Solenoid valve supply hose (mm) | external ø 10 |

| **Electrical supply** | |
|---|---|
| Fan rating (kW) | 3 |
| Electrical supply of fan (V) | 230 V / 400 V |

Installation of electrical, housing outside of ATEX zone

# Modular manual electrostatic powder booth

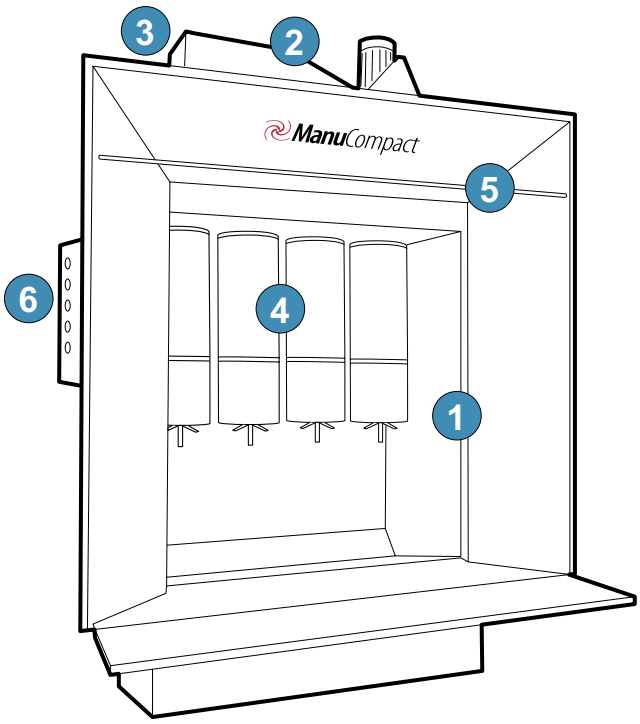
## > Description and operation

MANUCOMPACT is composed of a powder coating enclosure (**1**), a ventilation-filtration system (**2**), a filter cleaning system (**3**) and cartridge filters (**4**) to collect the powder that has not been deposited onto the parts. These elements form the essential environment required to implement the application equipment.

The parts or groups of parts are fixed to a bar in front of the booth (**5**) then coated with powder in the centre section. A horizontal air flow prevents the powder polluting outside of the powder coating enclosure.

The over-sprayed powder is collected by four filter cartridges. They are cleaned at regular intervals by opposing a pressurised air in the opposite direction to the ventilation system.

The powder is collected by a large capacity rolling hopper, that extends laterally. The control box (**6**) of this booth thus allows the cartridges to be used and cleaned.




## > Manual booth

| Designation | Ref. # |
|---|---|
| Manucompact booth CVM-4 | 130000277 |
| Filter cartridge | Contact us |

# Notes

# PVV Easycolor
## Quick colour change booth

### Description of the product

The PVV Easycolor booth is fully modular.
Its composite structure allows colours to be changed over very quickly (6 to 12 min). The PVV Easycolor system ensures a finish that meets your expectations for industrial requirements.

> Manual and ventilated access to work stations
> Vertical ventilation
> Automatic cleaning function using a pressurised air system that carries out the cleaning:
- venturi feed pumps.
- powder hoses and inside of sprayers.
- a reclaim powder hose.

> The external cleaning of the sprayers is carried out inside the booth
> Flat base that facilitates access for cleaning and maintenance operations
> The central powder supply unit PCE 2500 is fully automated
> The control cabinet with an internal PC equipped with a colour touch screen
> Cyclone with integral sieve and filter that prevent the powder from polymerisation of powder
> It is possible to add a detector to check the size of the parts.

### Illustration

# PVV Easycompact
## Quick colour change booth

### Description of the product

EasyCompact automatic powder coating solution
Optimise your paint line and your production !

**EasyCompact can be integrated quickly and easily into new or existing installations; its compact size means that it may be commissioned very quickly.**

Its performances for changing over colours can increase your coating productivity significantly, as well as that of the rest of your production, provided that the stages prior to the booth (assembly of parts, surface treatment) and after the booth (hoven) allow it!

**The booth permits access to 2 manual rework stations, either BEFORE OR AFTER the automatic station.**

Changing over colours becomes quick and easy. The booth is cleaned from the outside, there is no need to go inside it once the manual and double doors have been closed.

The booth structure is made of composite materials specially created for this solution, that provides the following advantages:

- Light weight
- Rigid
- Easy to clean

Finally, this structure provides advantageous mechanical properties (good resistance to abrasion buckling in particular), easy implementation, attractive appearance.

### Illustration

# PVV Easycompact

## Quick colour change booth

### > Perfect powder coating conditions

The air flow passes under the floor along the length of the booth through a central opening. This design permits a homogeneous flow inside the booth that satisfies the application and cleaning criteria.
The design of the booth, thanks to its flat floor in the manual zone and the internal separation deflectors, permits the operator to enter sufficiently inside the booth for more ergonomic and cleaner use in production. These deflectors are covered by a patent by SAMES Technologies, and can be oriented to facilitate cleaning from the outside of the booth.

The two manual powder coating stations and the output area are equipped with swing doors and permit, when closed, a reduction of the opened surfaces of the booth and therefore to increase the air speeds to limit the powder outputs during cleaning operations.

# PVV Easycompact

## Quick colour change booth

### > Perfect powder coating conditions

High quality application: The AutoMachJet automatic sprayers are the most efficient available, their performances are acknowledged by all for the quality of application and productivity, permitting a maximum deposit of the powder the first time it passes through the booth.
When changing over colours, the AutoMachJet can be cleaned easily automatically and quickly with an airblowing system. These sprayers are economical thanks to their performances, and may also be in use as they are very robust and contain very few wear parts.

Many industrial customers and partners over the world have placed their trust in SAMES and EasyCompact, thus confirming the advantages provided by this colour changing solutions, that is quick, economical and flexible. Many of our customers have benefited from personalised tests in our laboratory; Come and join us and see for yourself the coating of your parts. Together we can define the configuration that is the most suitable to your requirements and demands.

# Engineering solutions

## Description of the product

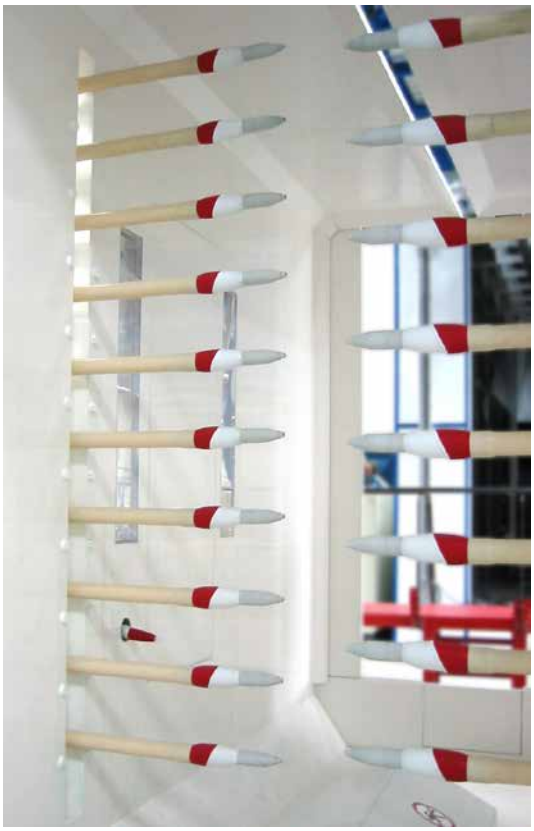
SAMES Technologies develops its engineering solutions closely with its customers in order to meet their specific requirements: Designed and developed for each individual ca, they provide precise responses to the expectations of the most demanding users: Reliability, quality of application and improvement of productivity are constantly aimed for.

The SAMES engineering teams share with our customers the fruit of their experience and place at their service all of their expertise and availability. The experience of the SAMES staff comes from the most advanced technological sectors such as Automobile and Plastics processing industries. The skills acquired in these fields and the latest innovations allow our customers to benefit from the most advanced techniques in the field of electrostatic coating.

Each of our customers is guaranteed technical and commercial tracking in the running and development of their painting process, our staff are always available to provide rapid assistance and advice.

Through these services, SAMES commits to the quality and reliability of its solutions and services.

## Illustration



# Engineering Solutions

## Suction cyclone:

*This determines the output of the installation.*
*Its form and diameter are calibrated to suit the context of the installation to guarantee very good separation performances.*
*The built in sieving system is patented and combines fine filtration and high flow rate.*

## Sieve to recover the powder:

*Very efficient and durable, the perforated plate is fitted between the base of the cyclone and the Sieve.*

## Complete powder coating system:

*MCR "Master Control Rack" allows many different functions to be controlled in the powder coating application prcocess:*
- *sweeping and positioning robot, type RFV (add VCR)*
- *management of the installation interface (inlet conveyor, etc…)*
- *detection or identification of parts*
- *piloting the starting and stopping of the powder spray guns*
- *complete management of the parameters through the spray guns (flow rate, high voltage, …)*

## Filter group:

*It controls the quality of the air expelled either inside or outside of the workshop as required.*
*Its anti-clogging control system checks the water column permanently. This method permits good speeds to be maintained inside the powder coating chamber, whilst ensuring long life for the filter cartridges.*

## Its assets:

*> Easily integrated (standard size 19")*
*> Operator interface is simple, visible and very quick to use*
*> It permits the simultaneous control of two types of sprayers (INOBELL and Auto-Mach-Jet) on a same application table*
- *management of application table (parts production runs, …)*

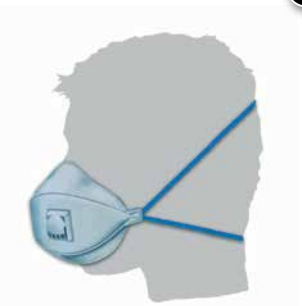
## Powder supply centre:

*The central powder feed unit is ventilated by the general filter group :*
*- the central unit is more compact*
*- the powder lost is centralised in the general group*
*- reduced maintenance = no filter cartridge in the central unit and recovery of the powder lost in the general group.*

# Protective equipment

**2** **Cotton cap**, grey (one size)

**4** **Particulate proof respirator**



Meets European standard EN-149-2001, class FFP2. Provides protection only from wearer from mechanically and hermally produced particulates. May be used to protect against concentrations up to 10 times the Average Exposure Value (AEV), Belgium upper limit (VLB).

**1** **Anti-static work-suit**, size 2 to 6. Grey.
Extremely sturdy, recommended for liquid coatings. Contamination limited, reduced risk of electrostatic charge accumulation.

**5** **Gas/Vapour particulate proof respirator**

Complies with European standard EN 405:2001. Protection against most vapours/gases and particles such as :
• **Inorganic** vapours and acid gas, up to 1000 ppm or 10 x VME/VLB, taking the lowest of the 2.
• Particles up to 50 x VME/VLB

**3**

Shoes' protection (one size)

## Protective equipment

**6** **Nitrile gloves** (one size)

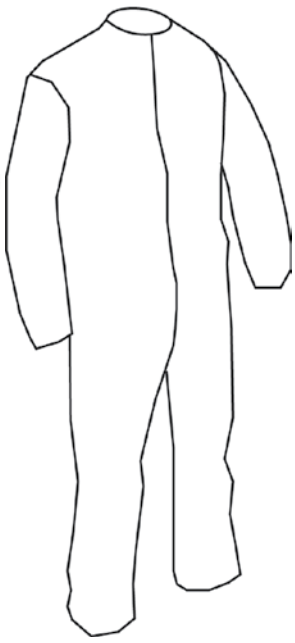
One size fits all
Provide protection against numerous chemicals such as alcohols, aromatic and chlorinated solvents (within the provisions of the chemical resistance chart).
Meet the dispositions of European directive 89/686/CEE.

**7** **Neoprene gloves** (one size)

One size fits all, length 38 cm (15 inches).
Supplied with a 0.7mm thick, cotton-flock liner provide protection against mechanical, chemical and micro-organic hazards during general cleaning operations.
Meet the dispositions of European directive 89/686, code EN 420 (level 5) and codes EN 388 and EN 374.


**8** **Everclean Hand**

Protective cover for hand gun, made of woven paper. Very resistant, for perfect hand protection.



**9** **Light work-suit Protection against dirty marks**

Woven paper overall very sturdy, one size fits all. The use of overalls is recommended to protect against micro-particles, splashing and spray dust,
depending on the degree of toxicity of the products and working conditions .
Complies with European standards EN 13982/1 and EN 13034.
Certified types 5 and 6.

| N° | Ref. # |
|---|---|
| 1 | (T2) W5G MAS 059 |
| | (T3) W5G MAS 060 |
| | (T4) W5G MAS 061 |
| | (T5) W5G MAS 062 |
| | (T6) W5G MAS 063 |
| 2 | W5G MAS 070 |
| 3 | W5G MAS 071 = x10 |
| 4 | W5G MAS 018 |
| 5 | W5G MAS 035 |
| 6 | W5G GAM 039 |
| 7 | W5G GAM 040 |
| 8 | 100,000,081 |
| 9 | W5G MAS 024 |

*1: Anti-static work-suit, size T2, 3, 4, 5, 6*

Index

# INDEX



Index

## P



## Q



## R



## S



## T



# Notes

*The **finishing** experts*

## INNOVATION FOR THE PLANET

## INNOVATION FOR ALL PROTECTION

Thanks to our 60 years of know-how, our customers achieve the best quality in the coating industry by saving paint, increasing their productivity, protecting environment.

Product performance, reliability and ergonomics are constantly being improved in the spirit of innovation which has made the name of SAMES famous.

For more information about us:

www.sames.com

Find your local contact by flashcode:

**SAMES** Technologies
B.P. 86 - 13 Ch. de Malacher - Inovallée - 38243 Meylan Cedex - FRANCE
Tel: +33 (0)4 76 41 60 60 - Fax: +33 (0)4 76 41 60 90