Automatic powder coating gun

Training - Sales
CONTENTS

:: MACH - JET
  • Introduction -------------------------------------------- 3
  • Gun ---------------------------------------------------- 4 - 7
  • Controller --------------------------------------------- 8 - 9

:: Gun reliability ------------------------------------------ 10

:: Customer benefits --------------------------------------- 11

:: Characteristics
  • Technologies ------------------------------------------ 12
  • Nozzles ----------------------------------------------- 13
  • Controller -------------------------------------------- 14 - 24
  • High Voltage ------------------------------------------ 25

:: References --------------------------------------------- 26 - 27
Introduction

The new gun is called the Auto Mach-jet. Of the same technology as the handgun, this applicator too, is controlled from the CRN 457 controller:

- **Reliability**
- **Time saving**
- **Robustness**
- **Comfort of use**
- **Transfer efficiency**

are the features offered by the Auto Mach-Jet. The installation of Auto Mach-jet systems is easy and affords our customers the best application results.
Auto-Mach-Jet comes in two versions:

(*) FCC = Fast Colour Change – Version for fast color changes
Auto-Mach-Jet:

Mounted on a metal rod, it permits easy and quick replacement in all existing systems, and obviously adapts easily to new systems. Installing the gun on the arm avoids unwanted loosenings of bolts.
Auto-Mach-Jet FCC*: This is a version specially designed for quick color change booths. Its design allows a perfect cleaning, in the shortest period of time. The gun's back body is screwed on the support tube. The same diameter along its whole length helps enhance the efficiency of the cleaning at time of color change. The tube helps routing the supply hose and LV connecting cable easily and cleanly to the rear of the gun. By which, the operator may easily access his connections from outside the booth.

(*) FCC = Fast Colour Change.
**New: Powder connector**

The « FCC » version on its 60mm Dia. holder arm features a quick disconnection of the powder tube (optional):

- Reduces maintenance downtime
- If needed, permits quick exchange of powder tubes
New electric and pneumatic controls are packaged in one smaller, new, user-friendly module

New CRN 457 module is very user-friendly.
Thanks to its large screen, handling is easy through graphic icons which are visual and understandable everywhere. Risks of misuse are considerably reduced and learning time is very short (very intuitive system)

= USER FRIENDLY
= SIMPLICITY
**Introduction**

The CRN 457 may be installed in three different ways:

1. Connected directly to the Mach-Jet gun
2. Local mode wiring: parameters are accessible on screen, and trigger control is automatic (for instance: REV600)
3. Remote mode wiring: Serial link with another control system
Applicator design for the best results

New HV cascade, extremely robust, 12 stages (10 for SRV 416)

Ergonomic design:
For extra efficient air blow cleaning

The quick-disconnect fitting on the powder hose, outside of the support arm, facilitates hose maintenance or color changes (optional).

New nozzles:
- for all applications
- adapted to all kinds of different powders
- Metallic powders compatible
- robust, very light weight and super efficient
- Do not build up powder
Introduction  Reliability  Benefits  Characteristics  References

Customers

Comfort of utilisation:

- Robust gun and support arm = Reliability
- Easy to clean assembly = Time saviour and productivity enhancer
- Q-D on powder hose, FCC version only = For quick color changes, and easy cleaning
- Use of an easy to remove counter-electrode = Saves time when alternate coating methods are needed
- New controller = Very simple adjustment of settings
- Personalized adjustment of electrical Characteristics
- Optimal electrostatic charge regardless of the type of powder and of parts shapes

Best safety: Adapts to industrial constraints:

- Meets new European norms requirements EN50050: 2001
- CE, ATEX
- Easy coating with metallics (standard nozzles)
- New nozzles have a superior air-powder mix pattern
- Consistancy
- Nozzles offer an enhanced resistance to abrasion
- Applicator's shapes are designed to facilitate exterior cleaning
**Auto-Mach-Jet Gun**

- Weight (w/o hoses): Approx. 850 g
- Powder flow (hose Ø12): Up to 30 kg/h (65lbs/h)
- LV cable CRN to gun: 18 m, 30 m (FCC)
- Max HV output: 95 kV
- Max current output: 110 µA

**CRN 457 Controller**

- **Dimensions**
  - in rack: 19” / 2U two controllers per rack

- **Pneumatics**
  - Max. Inlet pressure: 10 bar (150 psi)
  - Min. inlet pressure: 5.5 bar (82.5 psi)
  - Max air flow: 8 Nm³/h (4.71 cfm)

- **Electrical**
  - Max voltage output: 40 V rms
  - Max current output: 110 mA rms
  - Electrical supply: 90 through 270 V
  - Single phase: 50 / 60 Hz
  - Max power: 60 VA
  - Sealing rating: IP 54
Introduction

Reliability

Benefits

Characteristics

Nozzles
Controller in local mode
High Voltage

:: New nozzles, with homogeneous patterns:

ROUND spray
Deflectors
Ø12 mm
Ø16 mm
Ø20 mm
Ø25 mm

FLAT spray
End pieces
Narrow
Standard
Medium
Wide

Nozzle can rotate 360°

Swivel flat spray
OPTION

Quick disconnection of the powder tube (optional)

Auto Mach-Jet comes with flat spray nozzle and standard flat end piece. All others flat end-pieces, round spray and deflectors are optional.
The CRN 457 is the same size as the GNM: Compact and convivial

In local mode, controls the following functions:
- A choice of 9 pre-set application packages
- Powder flow adjustment, via:
  - Injection air = 31 air flow settings + 1 neutral
  - Dilution air = 7 air flow settings + 1 neutral
- A choice of 5 pre-set packages of U & I settings
- Personnal adjustment of the 5 (U & I) settings
- Manual stop of the applicator operation during production, with possibility of settings changes
- History of faults
- Screen adjustment (contrast, ...)

References

Characteristics

Nozzles
Controller in local mode 1/11
High Voltage

Nozzles

Twin controllers to 1 Rack (2U)
Once powered up, either in local or in remote modes, the main menu screen “H” comes on. It permits to set up the communication parameters. Then, six screens from A to H are accessible by the operator when the CRN457 is configured in LOCAL mode:

A = Adjustment of the powder flow, and selection of a pre-set U/I combo
B = Adjustment of the dilution air, and selection of a pre-set U/I combo
C = Manual adjustments (U/I)
E = History of faults (only if a fault occurs)
F = Screen adjustment (contrast)
H = For information only, Remote mode menu

• When in Remote mode, the keyboard is disabled (The CRN 457 is driven by PLC)
Introduction  Reliability  Benefits  Characteristics  References

Nozzles
Controller in local mode 3/11
High voltage

1

2
The front keyboard has 4 keys. They are identified with an icon located above each of them.

3
This display shows the status of changed functions, with keys from zone 2 ex: On screen « A », the program is the n°9 with following parameters:
• powder flow: 0 for the injection air and 3 for dilution air.
• an high voltage pre-set feature dedicated for metallic powders

When the gun is triggered, a flashing logo (arrow) displays HV in zone 1 (here, not activated).

4
This displays a bar graph indicating voltage and current values during coating operations.
Coating operation

Stop of spraying

Menu A:
Choice of program P1 Though P9

Menu B:
Modification of the application parameters associated to the Program

Menu C:
Modification of the pre-set characteristic

Menu E:
Displays faults history

Menu F:
Screen adjustment (contrast)

Menu H:
Remote mode information

Injection air adjustment, from 0 through 31

Dilution air adjustment, from 0 through 7

Pre-set characteristic adjustment (U/I), 5 choices

Voltage adjustment

Current adjustment

Controller in local mode 4/11
High Voltage

Nozzles

Flow chart
This zone permits to choose between 9 pre-selected programs, each with their own coating set-ups (powder flow, electrical settings), for different batches of parts.

- Choice of pre-programmed coating selections inferior to 9
- Choice of pre-programmed coating selections superior to 1

During coating, (HV is on and powder is flowing), pushing this key permits to de-activate manually the operation of the applicator connected to the CRN457. The screen displays:

Then, one can modify the parameters entered into programs 1 through 9. Pushing the key, reactivates the applicator within the selected coating program.

Push this key to access the next menu.

- Pushing the key maintains the selection of program (P1 à P9) and accesses the next menu « B ».
This zone permits to change the entered adjustments, from key No 3:

- for programs No 1 et 2: decrementation of the rev.
- for program No 3: decrementation of U/I characteristics
- For programs No 1 et 2: incrementation of the rev.
- For program No 3: incrementation of U/I characteristics

This key permits to select one of 3 programs:

1° - Adjust the Injection air between 0 and 31
2° - Adjust the Dilution air between 0 and 7
3° - Choose one pre-set (U/I) package: 5 choices

Pushing this key brings up an arrow which indicates the setting to change

Push this key to go to the next menu:

- Pushing this key permits to validate parameters. The U/I characteristic remains unchanged and one accesses the next menu « C ».
Nozzles
Controller in local mode 7/11
High Voltage

Screen « C », displays your personal settings of HV and current, from the package selected from menu « B ».

> This key is to change HV or current:

- HV or current setting goes down when the flashing cursor is in front of the parameter to change.
- HV or current setting goes up when the flashing cursor is in front of the parameter to change. When changing values, a hand appears next to U or I.

If reinstating the original value, the hand goes away.

> This key to select (U ou I)

For modification =

The screen displays:

> Push this key to go to the next menu.

- Pushing this key permits to validate parameters, and access the next menu « E », in case of a history of faults or « F », if none.
> This zone displays the history of faults. The screen shows the last of the occurred faults, with on its left an aging level which commences with « 0 ». Pushing the keys:

1. Displays faults from the most recent to the oldest.
2. Displays faults from the oldest to the most recent.

> Push this key to go to the next menu.

When there are no faults logged in, screen « E » does not come on. When a fault is logged in, HV and powder flow are deactivated. A screen displays which fault happened. The operator must validate with key « 3 » to acknowledge his reading.
Introduction  Reliability  Benefits  Characteristics  References

Nozzles
Controller in local mode 9/11
High Voltage

Screen « F », Screen adjustment (contrast)

> This zone permits to modify the contrast on screen. Pushing the keys results in:

1. Reducing the contrast, the screen gets clearer
2. Augmenting the contrast, the screen gets darker

> This zone permits to change the colors on screen

3. Pushing this key results in reversing colors on the display
   - either orange over a black background
   - or black over an orange background

> Push this key to go to the next menu

- Pushing the key validates the settings and accesses the next menu “H”.

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Introduction  Reliability  Benefits  Characteristics  References

Nozzles
Controller in local mode 10/11
High Voltage

> When wired for remote control, this zone displays information on the communication parameters originally entered.

Slave No « Slave: 1 by default or + »

Transmission speed: « Speed: 9600 by default and + or - »

Additional (annexe) solenoid air valve in use, when the spray trigger is actuated:
« EV Annexe: 0 by default or 1 »

> Push this key to go to the next menu.

• Pushing this key from menu « H » goes to menu « A ».
:: Back plate:

1 = air inlet (inlet ø8/10 mm)
2 = injection air (outlet ø6/8mm)
3 = dilution air (outlet ø4/6mm)
4 = On/Off switch
5 = power switch (90 to 270V ac)
6 = ground terminal
SA = Auxiliary air (outlet)

- Vibrating table: air to vibrator, and suction tube fluidisation
- hopper: fluidisation and fumes extraction
A = LV connection to handgun
B = connection port RS485 (to PLC)

CRN 457 V.....
### Introduction

#### Reliability

- Characteristics
- References

#### Benefits

:: Mapping of the electrical performances of SAMES equipment:

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<table>
<thead>
<tr>
<th>Technologies</th>
<th>Nozzles</th>
<th>Controller in local mode</th>
<th>High Voltage</th>
</tr>
</thead>
</table>

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#### Coating with round nozzle:
- Increases particles charge
- Better wrap-around and higher transfer efficiency
- Very homogeneous pattern on complex or simple shaped parts

#### Coating with fan nozzle:
- Very good coverage and efficiency on flat parts
- Easy coating in hollows
- Very good penetration in complex parts

#### Other applications for round or fan nozzle:
- Re-coating
- High thickness of powder (> 100 µm)
- Coating of low conductive parts (glass, wood, …)

#### Additional feature: coating with round or fan spray nozzle:
- Metallic powder

#### Special feature with fan spray nozzle:
- Counter electrode

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**Diagram:**

![Diagram showing electrical performances](image)
Introduction  Reliability  Benefits  Characteristics  References

The Mach-jet line

Contacts

All part numbers for ordering purposes are available from the SAMES Sales Department and from the Marketing & Communication Department.

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