PI MARKETING
South Africa
Est. 1988

DISTRIBUTION ● EXPERTISE ● SATISFACTION

Quick reference guide

Powder Applicator

Powder Genie - Executive



POWDER GENIE

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Safety

General information

Safety Regulations for Product Use

This chapter outlines the essential safety regulations that users and third parties operating this product must strictly adhere to.

- It is crucial to read and fully understand these regulations before using the product.

The standards and guidelines followed during the development, manufacturing, and configuration processes are detailed in the declaration of conformity as well as in the manufacturer's declaration.

⚠ WARNING

Working Without Instructions

Engaging in tasks without proper instructions, or by relying solely on individual pages from the guidelines, can lead to property damage and personal injury if crucial safety information is overlooked.

- Before operating the device, ensure that you have all the necessary documents organized and review the "Safety Regulations" section.
- All tasks must be performed in accordance with the instructions outlined in the relevant documents.
- Always utilize the complete original document during your work.

Basic safety instructions

– This product has been developed to meet the latest specifications and adheres to recognized technical safety regulations, specifically designed for typical powder coating applications. Any alternative use is deemed non-
– compliant. The manufacturer assumes no liability for any damage resulting from such misuse; the user is solely responsible for their actions.

– If there is a need to use this product for purposes or substances beyond our guidelines, please consult PI Marketing.

– Starting up (i.e., executing intended operational tasks) is prohibited until it is confirmed that this product has been installed and wired according to the machinery guidelines. Additionally, the standard "Machine Safety" requirements must be followed.

Unauthorized modifications to the product release the manufacturer from any liability for resulting damages.

- It is essential to adhere to the relevant accident prevention regulations, alongside other widely accepted safety standards, occupational health guidelines, and structural regulations.
- Additionally, compliance with country-specific safety regulations is also required.

Product-Specific Security Regulations

- This product is an integral part of the equipment and is thus incorporated into the system's safety framework. If it will be utilized in a way that exceeds the intended safety parameters, appropriate precautions must be implemented.
- The installation tasks performed by the customer must adhere to local regulations.
- Before starting up, it is essential to ensure that all components are properly grounded in accordance with local standards.

⚠ WARNING

These general safety regulations must be carefully read and comprehended in all situations before commencing operations!

General information



This product is designed according to the latest specifications and complies with recognized technical safety standards, specifically for standard powder coating applications.

- Any other usage is not considered as intended.
- The manufacturer assumes no liability for damages resulting from such unintended use; the user is solely responsible for those actions.

It is essential to consult PI Marketing before using this product for any purposes or substances outside of those outlined in our guidelines.

Adhering to the operating, service, and maintenance instructions provided by the manufacturer is also part of the intended use.

Please ensure compliance with relevant accident prevention regulations, as well as other widely accepted safety, occupational health, and structural regulations.

Additionally, it is important to follow country-specific safety regulations. Further safety and operational information can be found on our website: www.pimarketing.co.za



General Dangers

- Start-up Restrictions: The operation of the equipment is prohibited until it has been confirmed that the product is set up and wired in compliance with EU machinery guidelines.
- Liability Disclaimer: Any unauthorized modifications to the product release the manufacturer from liability for any resulting damages or accidents.
- Operator Responsibilities: Operators must ensure that all users receive appropriate training for powder spraying equipment and are aware of potential hazards.
- Safety Precautions: Avoid any operating methods that could compromise the technical safety of the powder spraying equipment. For your own safety, only utilize accessories and attachments specified in the operating instructions. Using other parts may result in injury.
- PI Marketing Spare Parts: Only original PI Marketing spare parts should be used. Repairs must be conducted by specialists or authorized PI Marketing service centers. Unauthorized changes or modifications can lead to injuries, damage to the equipment, and void the PI Marketing warranty.



Explosion Hazard

- Zone Regulations: Control units for spray guns must be installed and operated in zone 22, while spray guns themselves can be used in zone 21.
- OEM Parts Requirement: Only original PI Marketing OEM parts are guaranteed to uphold the explosion protection rating. If damages occur from using parts from other manufacturers, warranty or compensation claims will be void.
- Dust Concentration Control: Conditions that lead to hazardous dust concentrations in powder spraying booths or areas must be avoided. Adequate technical ventilation must be in place to prevent dust concentration from exceeding 50% of the lower explosion limit (UEG = maximum permissible powder/air concentration). If the UEG is unknown, a value of 10 g/m³ should be considered.
- Modification Restrictions: Unauthorised conversions and modifications to electrostatic spraying equipment are strictly forbidden for safety reasons. No safety devices should be disassembled or rendered inoperative.
- Clear Communication: Mandatory operational and workplace notices from the operating company must be clearly written in the language of the equipment operators and displayed prominently.



Electrical Danger

- Cable Installation: Ensure that the connecting cables between the control unit and the spray gun are installed in a manner that prevents damage during operation. Always adhere to local safety regulations.
- Power Supply Safety: Plug connections between the powder spraying equipment and the mains should only be disconnected when the power supply is turned off.
- Maintenance Protocols: All maintenance activities must occur with the powder spraying equipment powered down.
- Operational Protocol: The product should not be activated until the booth is operational. If the booth ceases to function, the product must also be powered down.

Static Charges

Static charges can lead to several potential consequences, including:

- *Charges on individuals*
- *Electric shocks*
- *Sparking*

To avoid objects becoming charged, it is essential to ensure proper grounding is in place.

Observe the grounding regulations



Grounding

All electrically conductive parts within a 5-meter radius of each booth opening, especially the objects to be coated, must be properly grounded. The grounding resistance for each item should not exceed 1 MΩ. This resistance should be checked and tested regularly before starting work.

Additionally, the attachments for workpieces and the hangers must ensure that the workpieces remain grounded. It is essential to have the appropriate measuring devices readily available at the workplace to verify grounding.

The floor of the coating area must have electrical conductivity (normal concrete is typically conductive). The provided grounding cable (green/yellow) should be connected to the grounding screw of the electrostatic manual powder coating equipment. This grounding cable must maintain a solid metallic connection with the coating booth, the recovery unit, and the conveyor chain, as well as with the suspension system for the objects.

Fire and smoke prohibition



Smoking and Open Flames

Smoking and the use of open flames are strictly prohibited in the entire vicinity of the system! Any work that could potentially generate sparks is also not allowed!

The stay for persons with cardiac pacemakers is forbidden



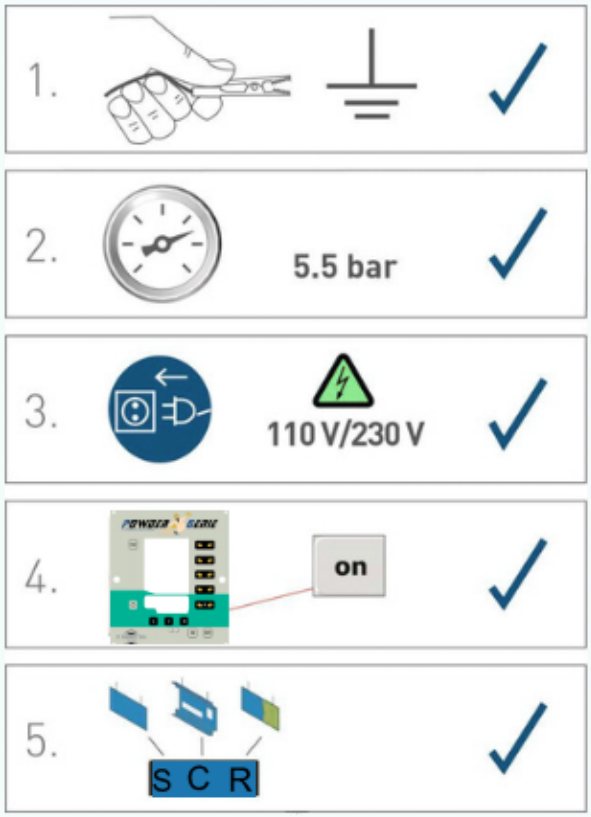
Safety Precautions for Individuals with Cardiac Pacemakers

As a general guideline for all powder spraying installations, individuals with pacemakers should avoid entering high-voltage areas or zones with electromagnetic fields. It is crucial that people with pacemakers do not enter areas where powder spraying installations are present!

Start-up

Initial start-up

In the event of a malfunction, please refer to the troubleshooting guide and the operating manual for the gun control unit!



The rest of the start-up process for the gun is clearly outlined in the operating instructions for the Powder Genie executive manual powder gun control unit, specifically in the chapters titled "Initial Start-Up" and "Daily Start-Up"!

Operation

⚠ WARNING

Improper Gun Handling

When not held by its designated handle, which is grounded, the gun can inadvertently discharge along the body of the coater during the coating process.

- Always grip the firearm solely by the handle!
- Avoid touching any other components of the gun!

Operation

⚠ CAUTION

Important Dust Formation Warning!

Using manual equipment for coating without a strong suction unit can stir up dust from the coating powder, potentially causing respiratory issues or slip hazards.

1. Swivel the fluidizing/suction unit to the side.
2. Position the open powder container on the vibrating bed.

⚠ CAUTION

Hand Injury Alert!

- Be careful when placing containers on the vibrating plate; fingers may get trapped, causing severe injury.

Maximum container weight: 30 kg.

Instructions for Coating Process

3. • Position the fluidizing/suction unit onto the powder.
4. • Configure the coating parameters.

Choose a predefined operating mode (Preset Mode)

1. To activate the gun control unit, press the **ON** key.
2. Then, select the appropriate application key. The arrow above the chosen button will illuminate.



The predefined application modes come with preset values for high voltage and spray current:

Application mode		Preset kV	Preset µA
S	Flat parts	**80**	100
C	Complicated parts	100	22
R	Re-coat	100	12

3. The air values for total air, powder output, and electrode rinsing air can be set individually and are stored within the programs.

Starting the individual adjustable programs

1. Activate the gun control unit using the ON key.
2. Press the P program key
3. Select the preferred program (01-20)

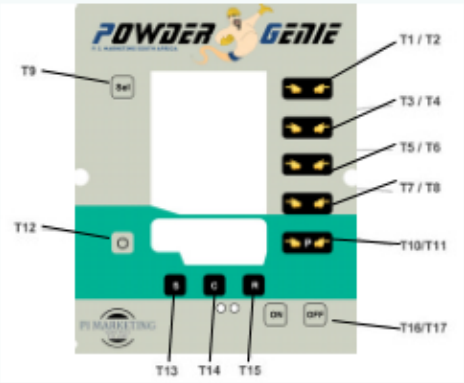


Program 20 active

4. Adjust the coating parameters as needed.

> ***Programs 01-20 come preconfigured from the factory, but they can be adjusted at any time. Once modified, these changes are automatically saved.***

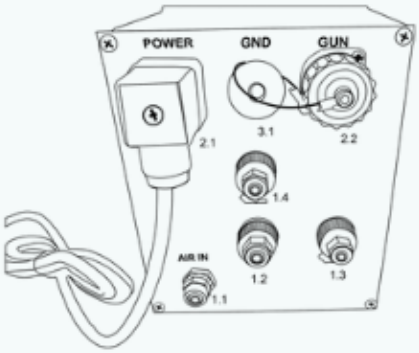
Description		Presetting
	Powder output	60 %
	Total air	4.0 Nm³/h
kV	High voltage	80 kV
µA	Spray current	20 µA
	Electrode rinsing air	0.1 Nm³/h
	Fluidizing air	1.0 Nm³/h (for device type F) 0.1 Nm³/h (for device type B and S)



Input keys and switches

Designation	Function
T1-T8	Input keys for desired values and system parameters
T9 (Select)	Switch between display levels
T10-T11	Program change
T12	Switching on and off the fluidization Switching on and off the spray gun (auto mode)
T13	Preset mode for flat parts (fixed values)
T14	Preset mode for complex parts with depressions (fixed values)
T15	Preset mode for overcoating parts already coated (fixed values)
T16/T17	Power switch On/Off

1.3 1.4 2.1	Supplementary air connection / Dosing air
Power IN	connection Electrode rinsing air connection
2.2 Gun	Mains cable connection Gun cable
3.1	connection Grounding connection



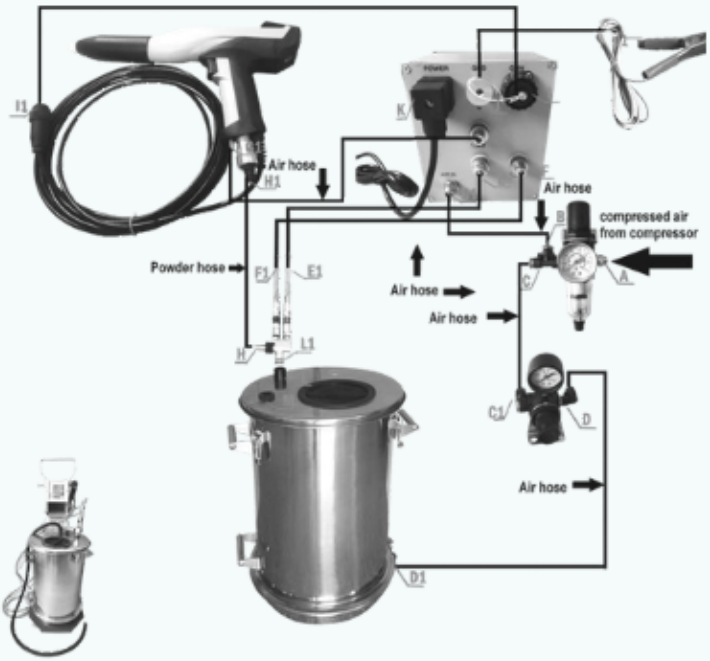
Powder spray gun



Installation Instruction

1. Deflector Tip
2. Gun Body
3. Back Cap of Gun
4. Trigger
5. Pistol Plug
6. Powder Pipe Connector
7. Static Pad
8. Power Cable
9. Auxiliary Air Inlet

A) Compressed Air → A) Oil-water separator
B) Oil-water separator → B1) Air in
C) Oil-water separator → C1) Pressure Adjuster
D) Pressure Adjuster → D1) Powder Hopper
E) Conveying Air → E1) Powder Injector
F) Dosing Air → F1) Powder Injector
G) Auxiliary Air → G1) Powder Spray Gun
H) Powder Injector → H1) Powder Spray Gun
I) Spray Gun Connection → I1) Spray Gun
J) Grounding Bolt → J1) Earthing Pole
K) Power Supply



Setting Powder Output and Powder Cloud

The powder output is determined by the chosen percentage of powder output, while the powder cloud relies on the total air volume selected.

As a standard factory setting, it is recommended to use a powder rate of 50% along with a total air volume of 4 Nm³/h.

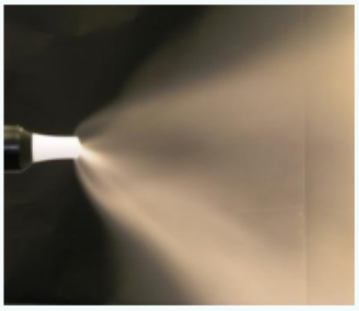
- If values are entered that the gun control unit cannot execute, the operator will be alerted through a blinking indicator on the relevant display, accompanied by a temporary error message!

Setting the total air volume

Adjust the total air volume according to the specific coating requirements.



correct powder cloud

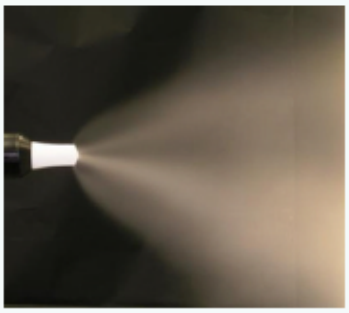


too little total air

Setting the powder output



Too much powder



Too little powder

Modify the powder output volume based on the desired coating thickness.

The factory default setting of 50% is suggested for initial use.

The operation ensures that the total air volume remains consistently regulated by the control unit.

▶ ***To attain optimal efficiency, we suggest minimizing excessively high powder volumes whenever possible!***

2. Powder Fluidization and Output Check
3. Inspect the fluidization of the powder within the container. Aim the gun into the booth, turn it on, and visually assess the powder output.

Setting the fluidization

Fluidization can be modified on the manual units via the hopper regulator. The fluidization of the powder is influenced by several factors, including the type of powder, air humidity, and ambient temperature. To initiate fluidizing and vibration, simply turn on the control unit.

Maintenance / Repairs

Cleaning

ATTENTION

Unauthorized modifications and alterations to the product are strictly prohibited for safety reasons. Such actions will also void the manufacturer's liability for any resulting damage!

▶ ***Regular and diligent cleaning and maintenance enhance the product's lifespan while ensuring consistently high-quality coatings!***

– The components that need to be replaced during maintenance are readily available as spare parts. You can locate these parts in the designated spare parts list!

⚠ CAUTION

Large Dust Formation Alert!
When cleaning the product, if a dust mask is not worn or if the mask does not meet the required filter class, the dust stirred up from the coating powder may lead to respiratory issues.

The ventilation system must be activated during all cleaning tasks. A dust mask that meets filter class FFP2 or N95 standards is required.

Gun cleaning

ATTENTION

Impermissible Solvents
The solvents listed below are prohibited for use in cleaning the gun:

▶ Ethylene chloride, acetone, ethyl acetate, methyl ethyl ketone, methylene chloride, premium gasoline, turpentine, tetrachloromethane, toluene, trichloroethylene, xylene!

Before you clean the powder gun, ensure that the control unit is turned off. Additionally, the compressed air used for cleaning should be free from oil and water!

Daily:

- Clean the exterior of the gun by blowing off any debris and then wiping it down thoroughly.

Weekly:

- Cleaning Procedure for Powder Hose and Spray Gun
- Detach the spray nozzle from the gun and clean it using compressed air.
- Blow through the gun** with compressed air, starting from the connection and moving in the flow direction.
- If necessary, clean the integrated gun tube with the supplied brush.
- Blow through the gun with compressed air once more.
- Clean the powder hose.
- Reassemble the gun and reconnect it.

Cleaning the fluidizing/suction unit

ATTENTION

Damage to the fluidizing pads

► Never clean the fluidizing parts with solvents or water!

Step-by-Step Cleaning Instructions

- Remove the injector.
- Detach the fluidizing/suction unit.
- Use compressed air to clean the fluidizing/suction unit; also, blow out the suction tube with compressed air.
- Clean Injector block.

Reassemble all individual components.

Cleaning the injector

ATTENTION

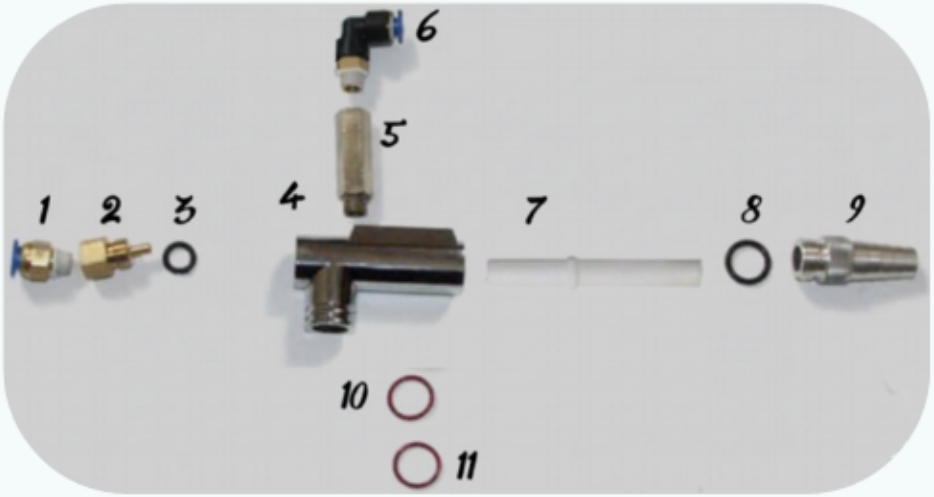
Injector parts may be damaged during the cleaning process.

- ► Clean the component parts with compressed air.
- ► Do not use acetone, do not scrape or scrub.

The effectiveness of cleaning is influenced by the type of powder used. For the best cleaning results, we suggest completely disassembling the injector into its removable components.

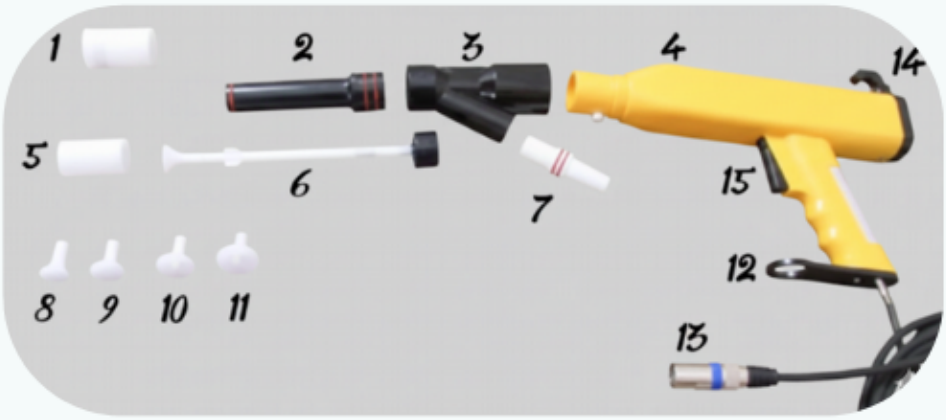
- **Remove the injector.**
- **Detach the powder hose from the hose connection.**
- **Use compressed air, free of oil and water, to clean the hose connection and inspect it for wear.**
- **Clean the injector body with compressed air that is also free of oil and water.**

ATTENTION



1) Conveying air inlet to injector connector
2) Air injector
3) Air Injector "O" ring
4) Powder injector block main body
5) Non-return valve
6) Dosing air inlet connector
7) Injector wear sleeve
8) Injector sleeve "O" ring
9) Injector sleeve lock-in powder hole connector
10) Injector to hopper "O" rings

Spare parts list



1)	Slot nozzle combination	9)	Round Deflector 20 mm
2)	Black Nozzle extension 110 mm long	10)	Round Deflector 24 mm
3)	Powder mixer unit	11)	Round Deflector 27 mm
4)	Gun Body assembly	12)	Powder Hose guide
5)	Round nozzle directional tube	13)	Gun trigger control plug to control box
6)	Static electrode shaft with mount	14)	Gun hanging hook
7)	Powder pipe connection	15)	Gun operating trigger
8)	Round Deflector 18 mm	16)	Auxiliary air in to gun connection

PROBLEMS AND REMEDIES

PROBLEM EXPERIENCED	REASON	REMEDIES
Unit not working	*Not plug in* *Fuse burnt out* *Unit not switched on*	*Plug unit in* *Replace fuse* *Switch unit on/Replace switch*
Gun Trigger not Starting Unit	*Gun control plugged out* *Gun control wire broken* *Gun micro switch faulty*	• *Plug gun in* • *Repair wire* • *Replace micro*
No Static at Gun *(High Voltage)*	*High voltage generator faulty*	• *Loose wire* • *Dirt/ Gun not cleaned on regular basis*
Unit works but Powder will not come out	*Injector block dirty/ worn* *Air pipes not fitted* *Powder air to low*	• *Remove and clean/replace* • *Refit air* • *Increase air supply*
Air Blowing into Hopper when pulling the Trigger	*Diffuser air set too high* *Injector sleeve dirty/worn*	• *Reduce dose air* • *Clean sleeve with 6mm drill* • *Replace sleeve*
Powder Blowing out of Hopper	*Hopper fluidising air set too high*	• *Reduce hopper air*
Low Powder output from Gun	*Gun or Injector block dirty* *Powder air low/ diffuser air high*	• *Clean gun or block* • *Reset unit air settings*
Poor Powder attraction to Work piece	*Incorrect voltage at gun* *Poor Earthing* *Dirty jigs* *Powder diffuser air too high* *Gun distance from work piece incorrect* *Poor jig design*	• *Clean & replace gun - Check voltage* • *Clean earth & jig* • *Clean / replace jig* • *Reduce powder air* • *Reset gun distance* • *Re-design jigs*
Low film Thickness on Work piece	*Powder delivery too low* *Coating duration too short* *Faraday cage effect* *Jigs too big for work piece*	• *Set powder air up* • *Injector block too small or not clean* • *Increase spray speed or reduce line speed* • *Adjust voltage & powder*

	Low static setting *Damp powder*	*air-reset gun* • *Re-design jigs & make smaller* • *Replace powder & store in dry place* • *Increase voltage setting*
Film Thickness too High	*Excessive powder* *Gun voltage too high* *Spray movement too slow* ***Coating too slow*** *Work piece too hot*	• *Reduce powder air* • *Increase distance between gun & work* • *Increase voltage* • *Increase speed of line or spray action* • *Reduce pre-heat time* • *Speed up coating speed*
Surging of Gun	*Damp air supply* *Dose air too low.*	• *Clean water traps* • *Set up dose air* • *Fit air dryer*
	Variable air supply *Damp powder*	• *Compressor too small* • *Remove powder & replace with sealed bag of powder.* • *Do not store powder in hopper overnight* • *Check ratio between virgin & recovered powder*
	Powder too fine	• *Have supplier check powder specification*
Powder does not come out	*Equipment badly installed*	• *Check that the flow connections are made correctly.*
	Faulty Fuse	• *Check 2 fuses*
	Powder Injector not in place	• *Put the Injector back in place.*
	Lack of air in the compressed air network	• *Feed the equipment under minimum 5 bars.*
Solenoid does not work		*While pressing on trigger, check electric supply on solenoid coil. If it is 220V, change the coil. If not, repair the Electronic card.*
	Lack of injection air	• *Adjust the air Regulator* • *Clean the Injector and the*

		Injector air circuit.
	Too much dilution air	• Reduce or close the dilution air and then increase injector air.
	Plunger tube sucks only air	• Add powder.
Powder comes out in spurts or beats dilution air	Lack of, or too much air	• Adjust the dilution air • Clean the porous ring
	Lack of powder in Injector	• Add powder to the reservoir. • Adjust the Fluidized air Regulator
Powder comes out in spurts	Lack of Injection air	• Adjust the Injection regulator • Clean the injector and the injection air circuit.
Powder does not stick to object	Objects badly earthen	Check the earth connection between equipment (terminal bottom unit), pieces to be powder coated, the booth and the work's general earth in particular. • Check that the supports are clean.
	Contact between Nozzle and Barrel not secure	• Tighten the Nozzle nut
	High voltage too low	• Check the potentiometer
	Electronic card	• Replace card
	Gun cable	• Check for continuity
Too little powder	Lack of injection air	• Adjust the injector air, regulator • Clean the injector and the injector circuit.
Too much dilution air		• Decrease or close the dilution air regulator and then increase injection air.
	Worn injector sleeve	• Change injector sleeve
Too great a load in powder hose		• Powder hose too long or the diameter is too small. • Clogged hose: clean it or change it.