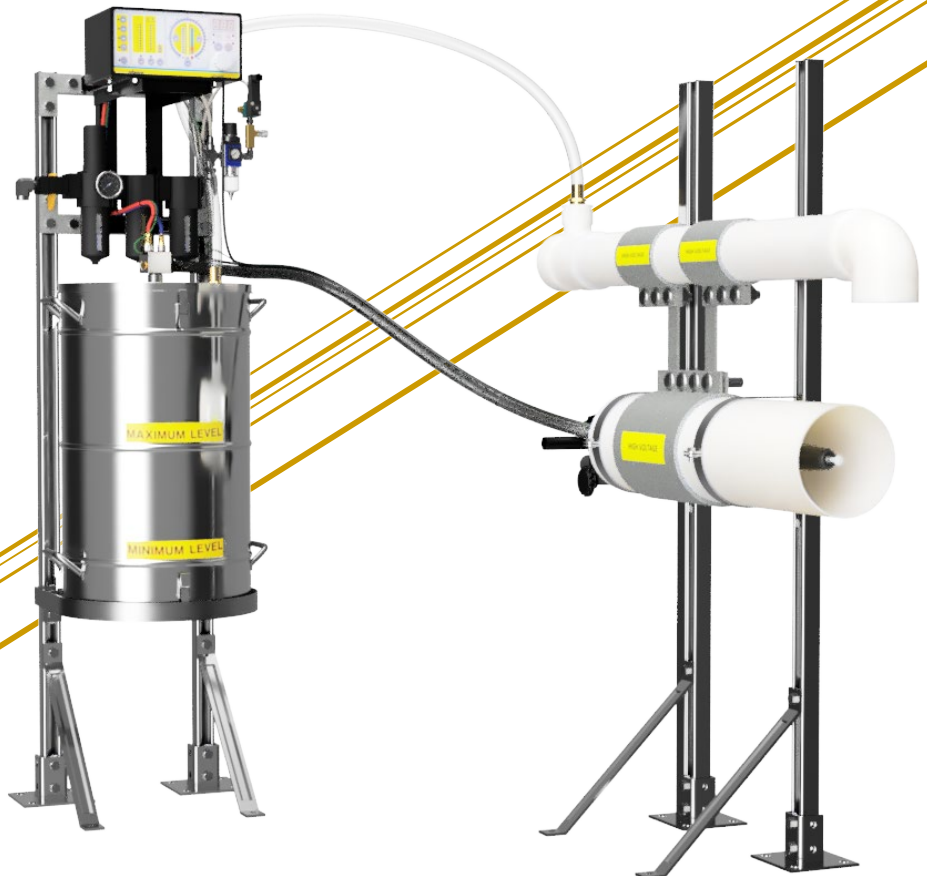




AMCOL CORPORATION  
3500E ELECTROSTATIC POWDER  
APPLICATION SYSTEM  
OPERATOR'S MANUAL



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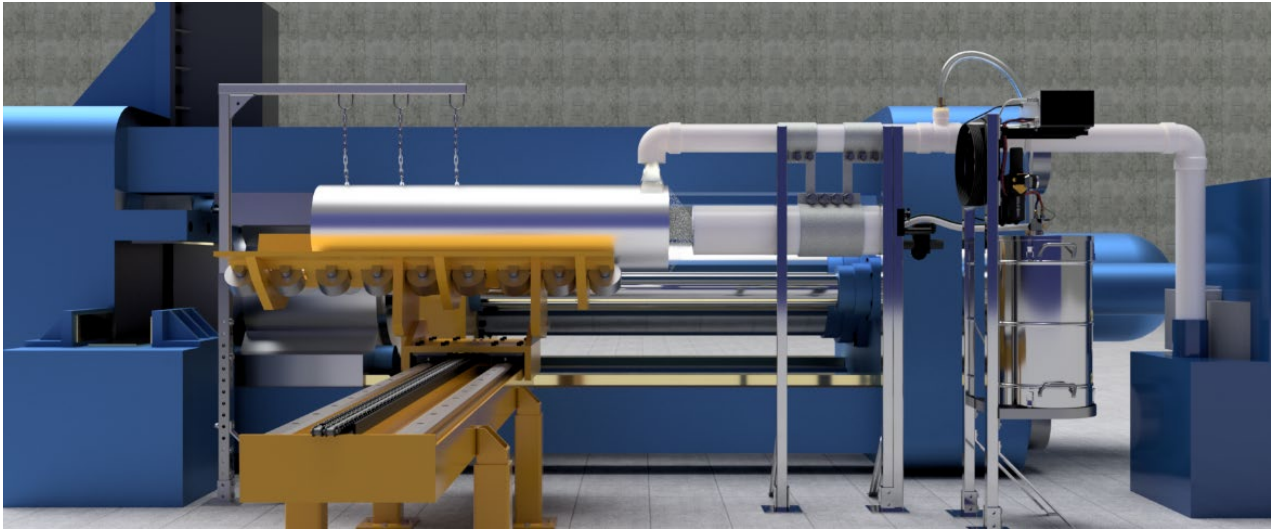
## **AMCOL Corporation**

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# 1. Introduction

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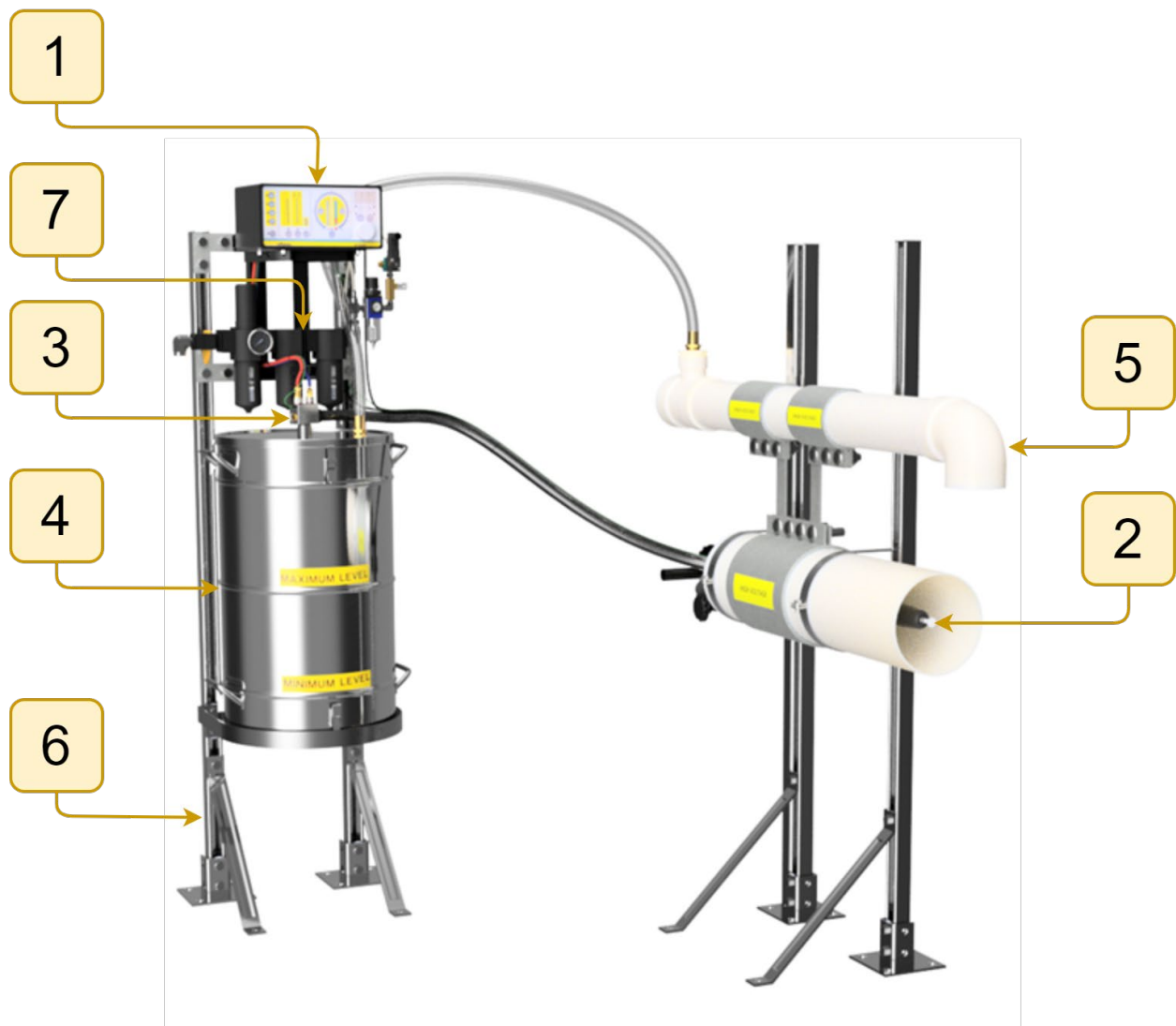
This manual features instructions regarding the installation, operation, and maintenance of the AMCOL 3500E Electrostatic Powder Application System. For more information on the system and its components, please refer to the AMCOL 3500E Electrostatic Powder Application System Technical Description.



## 2. Included Components

Each 3500E comes standard with the following components:

1. Wagner EPG SPRINT Controller
2. Wagner PEA-C4 Powder Gun
3. Wagner PI-F1 Injector
4. Stainless Steel Hopper
5. 3500A-01-R Dust Collection
6. 3500-MA Mounting Assembly
7. 3500-AT Air Treatment



## 3. Assembly and Installation

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### *Prior to Getting Started*

- **WARNING! DO NOT DISASSEMBLE, REPAIR, OR REPLACE COMPONENTS OR SUBASSEMBLIES OF THIS SYSTEM WITHOUT FIRST DEENERGIZING THE SYSTEM AIR SOURCE WITH LOCK AND TAG; THIS CAN BE TESTED BY VISUALLY INSPECTING THE PRIMARY AIR GAUGE OF THE AIR TREATMENT ASSEMBLY TO BE AT 0 PSI AND MANUALLY ATTEMPTING TO ACTUATE THE SOLENOID VALVE.**
- **WARNING! DO NOT STAND NEAR THE POWDER GUN WITHOUT ENSURING THE WAGNER CONTROLLER IS OFF AND POWER IS LOCKED AND TAGGED.**
- **WARNING! DO NOT ATTEMPT TO ADJUST OR MODIFY THE SPRAY GUN POSITION, WHICH WILL BE WITHIN THE GUARDED AREA, WITHOUT DEENERGIZING AIR TO SYSTEM AND POWER TO THE WAGNER CONTROLLER.**
- **WARNING! BE SURE THAT THE PRESS IS PROPERLY GUARDED IN ORDER TO AVOID INADVERTENT OR UNINTENDED ACCESS TO THE SPRAY GUN BY UNTRAINED PERSONNEL. REFERENCE ANSI B11.17 OR SIMILAR PRESS GUARDING STANDARD.**
- **WARNING! THE WAGNER POWDER GUN CREATES A HIGH VOLTAGE FIELD. READ AND UNDERSTAND ALL RELEVANT WAGNER INSTRUCTIONS BEFORE OPERATING.**
- **WARNING! WEAR SAFETY GLASSES AT ALL TIMES.**

### *Installation Procedure*

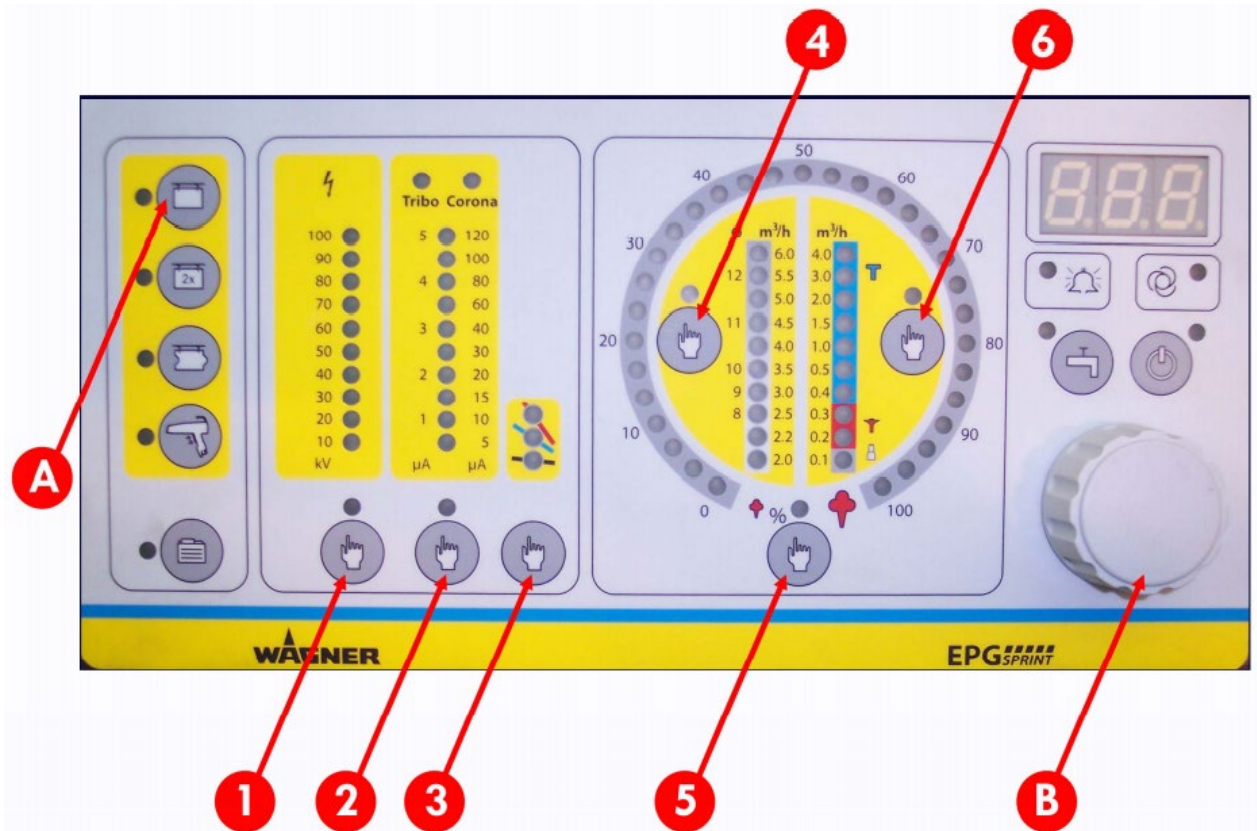
1. Review complete system to ensure that damage has not occurred in shipment. All components come preconnected for ease of install. If the components cannot be mounted together, they can be individually mounted within 10 feet of each other.
2. Before installing, **read Wagner Operating Manuals** for system components as supplied with the system. Be sure to observe all safety warnings as addressed in these manuals.
3. Before installing, review appropriate safety standard (ANSI B11.17 in the USA) to ensure proper guarding and gating is in place to follow the required lockout and tagout procedures during installation and subsequent repair.
4. Mount system in a position such that the gun can be centered and located approximately **4-6"** from the stationary billet. The overspray cover should be as close as possible to the billet during the spray cycle. Use ½" lag bolts (at least twenty) to properly secure system to the floor. Unit should be properly shielded from water and/or oil contamination. Air movement or turbulence should be minimized at the point of application. If possible, shorten the powder feeding hose to eliminate any kinks or looping of the hose.
5. Confirm the billet conveyor is properly grounded by checking continuity and/or resistance to a known ground. A resistance of <1MΩ is sufficient for powder coating applications. All ground connections should connect to the ground lug on the back of the controller.

6. Connect fluidizing air valve (110v or 24v) to conveyer PLC.
7. Connect spray actuation contact closure (referenced as "remote" in **Wagner Operating Manuals**). **Warning:** Do not use a powered control signal. The controller provides its own 24V DC power on pin 4, which should be connected to pin 3 through a contact closure.
8. Properly guard and label as "High Voltage" working area.
9. Connect a clean dry ½" NPT air supply (10 scfm) to the air purification and dryer supplied with the controls. **Warning:** Use clean dry air because contaminants (i.e., water) destroy the powder and fluidizing bed.
10. Connect system operating power (110v grounded), referenced as "Mains Power" in **Wagner Operating Manuals**.
11. The system may now be filled with 410 BNP EJECTEZE powder and operated according to the Operating Parameters (below). **Warning:** Be sure to observe the minimum and maximum powder levels in hopper.
12. (Optional) Connect the dust collection system to a Donaldson Torit VS 550 to operate the dust collection system.





## 4. Programming the EPG Sprint Controller



To program the ideal settings for AMCOL 410 BNP EJECTEZE (units ship preprogrammed):

1. Press button A and see that the digital read-out says P1.
2. Select button 1 and adjust knob B to 80kV, then hold button A for 2 seconds.
3. Select button 2 and adjust knob B to 100  $\mu\text{A}$ , then hold button A for 2 seconds.
4. Select button 3 until it is on the "Red" slope, then hold button A for 2 seconds.
5. Select button 4 and adjust knob B to 6.0  $\text{m}^3/\text{hr}$ , then hold button A for 2 seconds.
6. Select button 5 and adjust knob B to 18%, then hold button A for 2 seconds.
7. Select button 6 and adjust knob B to 0.3  $\text{m}^3/\text{hr}$ , then hold button A for 2 seconds.

All the above parameters are now saved as P1.

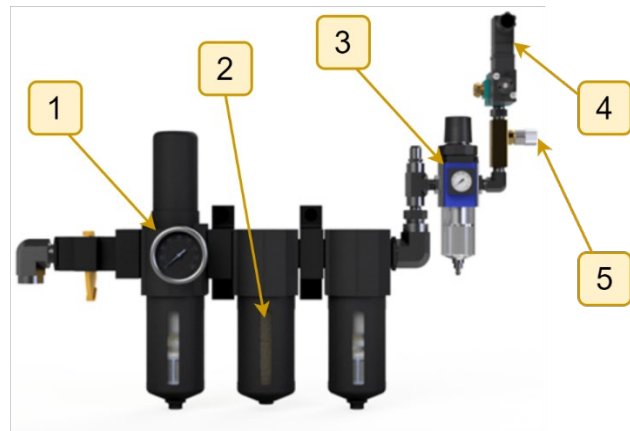
## 5. Operating Parameters

### Wagner Controller

- Mains Power = 110V AC (Grounded plug)
- High Voltage LED = 80 kV
- Corona Scale = 100  $\mu$ A
- Slope = Red
- Powder Quantity = 18.0%
- Overall Air = 6.0m<sup>3</sup>/hr
- Atomizing Air = Red – 0.3m<sup>3</sup>/hr

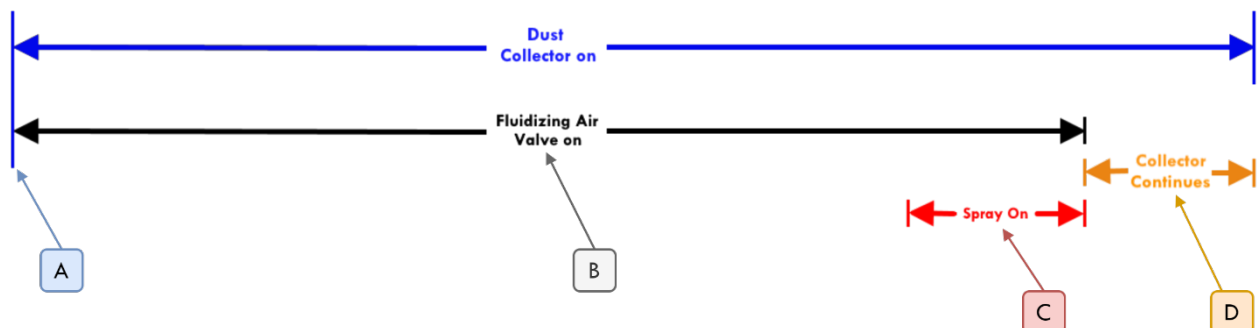
### Air Treatment

1. Inlet Air Pressure = 50 psi.
2. Desiccant: yellow = fresh, blue = requires replacement.
3. Regulated Air Pressure to Hopper = 20 psi.
4. Fluidizing Air Time = at least 3 seconds (actuate before spraying begins).
5. Fluidizing Air Flow = 2.5 Turns (Flow Control to Hopper).



### Spray Cycle

- A. The fluidizing air valve opens, allowing air to flow to the fluidizing bed. The dust collector should also turn on if one is connected.
- B. The fluidizing air valve stays open before spraying (2.5s before spraying recommended).
- C. While the fluidizing air valve is still open, the spray gun sprays (0.5s recommended, can be longer for larger profiles).
- D. After spraying, the dust collector should remain on to collect any overspray.





## 6. System Troubleshooting

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**Check in order as listed**

### *No Powder*

- Hopper is empty or low. Fill.
- Hoses are connected incorrectly or are clogged or kinked. Reconnect.
- Contact closure at the back of the controller is not connected or programmed correctly.
- Powder has been contaminated by air source. Replace.
- Powder injector malfunctioning. Replace.

### *Too Much Powder*

- Spray time is too long.
- Spray nozzle is too large for profile. Reduce to decrease excess spray.

### *Too Little or Inconsistent Powder*

- Hoses are clogged or kinked.
- Spray time is too short.
- Spray nozzle is too small for profile. Increase.

### *Powder Does Not Stick to Profile*

- Ensure the spray gun is mounted in line with the profile at a distance of 4"-6".
- Confirm programmed controller settings are correct.
- Check if the profile is grounded. Suitable ground resistance for powder coating is <math><1\text{M}\Omega</math>.
- Spray gun malfunctioning. Replace.

## 7. Maintenance

### Recommended Spares

	Description	Part Number	Quantity
	Replacement Desiccant (0.25 lb. bag)	4834K21	2
	Primary Fuse	1AT	1
	Automatic Electrostatic Gun with Small Powder Spray Nozzle	PEA-C4-A1	1
	Wagner EPG SPRINT Controller	2324731-AC	1
	Dosage Air Hose – Blue – U42	407721	10 ft.
	Feed Air Hose – Red - 336	37112	10 ft.

	<p>Powder Feeding Hose – Clear</p>	<p>9987071</p>	<p>10 ft.</p>
	<p>6mm Atomizing Air Tubing - Black</p>	<p>POL-2512</p>	<p>10 ft.</p>
	<p>8mm Natural Tubing</p>	<p>POL-2502</p>	<p>10 ft.</p>
	<p>Powder Feed Pump with Injector</p>	<p>0241622</p>	<p>1</p>
	<p>6 pin Trigger Cable</p>	<p>CBL0610</p>	<p>50 ft.</p>
	<p>C4 Deflector Cone</p> <p>*20mm 28mm 38mm</p> <p>*Standard</p>	<p>*0390207 0390208 0390209</p>	<p>1</p>

# Preventative and Predictive Maintenance

## Daily

- Observe desiccant in back-up dryer to be effective and spray gun to be operating correctly. Fresh desiccant is yellow in color and will turn blue when it needs to be replaced.
- Inspect gun mount and all hoses.

## Weekly

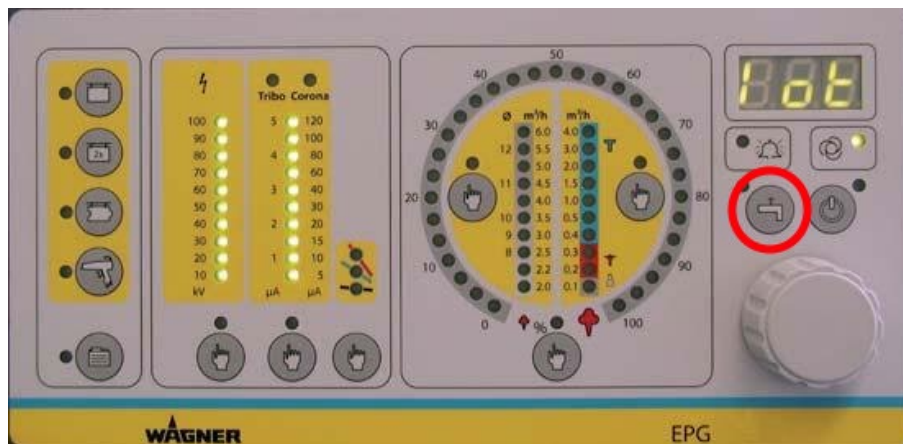
- Observe powder level in hopper.
- Inspect hopper to be operational.

## Monthly

- Observe hopper and feed hose to be clean and operational.

## Manual Spray Gun Purge

The EPG SPRINT controller features a manual spray gun purge that clears all powder from the spray gun, hose, and powder injector. Ideally, this should be performed weekly. Ensure the dust collection system is operating to collect the excess powder from the gun.



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