POWDER COATING EQUIPMENT USER'S MANUAL

E-COAT+3 MASTER

SERIES

USA Version

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1. Safety Regulations

This section sets out the fundamental safety regulations that must be followed by the user and third parties using the E-COAT+3 Master These safety regulations must be read and understood before the E-COAT+3 Master is used.

1.1. Safety Symbols

The following warnings with their meanings can be found in the Sistem Teknik Makina operating instructions. The general safety precautions must also be followed as well as the regulations in the operating instructions.

DANGER!
Electrical and moving parts pose a hazard.
Possible Consequences: Death or serious injury.

WARNING!
Improper use will damage the device or cause malfunction. Possible consequences: Minor injuries or damage to equipment.

1.2. Conformity Of Use

1. E-COAT+3 Master Manual Coating Equipment is built to the latest specification and conforms to the recognized technical safety regulations. It is designed for the normal application of powder coating.
2. Any other use is considered as non-conform. The manufacturer is not responsible for damage resulting from improper use of this equipment; the end-user alone is responsible. If the E-COAT+3 Master is to be used for other purposes or other substances outside of our guidelines then Sistem Teknik Makina A.Ş. should be consulted.
3. Observance of the operating, service and maintenance instructions by the manufacturer is also part of conformity of use. The E-COAT+3 Master should only be used, maintained and started up by trained personnel, who are informed about and are familiar with the possible hazards involved.
4. Start-up is forbidden until it has been established that the E-COAT+3 Master has been set up and wired according to the guidelines for machinery EN 60204-1 (machine safety) must also be observed.
5. Unauthorized modifications to E-COAT+3 Master exempt the manufacturer from any liability from resulting damage.
6. Relevant accident prevention regulations, as well as other generally recognized safety regulations, occupational health and structural regulations are to be observed.
7. In addition to above, country-specific safety regulations must be observed.

Explosion Protection Class of E-COAT+3 Master Controller Unit

Explosion Protection	Protection Type	Temp Class
Ex CE II 3(2)D	IP54	T6

Explosion Protection Class of E-GUN+3 C1 Powder Paint Gun

Explosion Protection	Protection Type	Temp Class
Ex CE II 2 D	IP64	T6

Explosion Protection Class of E-GUN+3 C3 Powder Paint Gun

Explosion Protection	Protection Type	Temp Class
Ex CE II 2 D	IP64	T6

*Note: **EN 60204-1 this standard includes the non-mobile machines electronic machines and programmable electronic hardware and systems.***

1.3. Technical Safety Regulations for Stationary Electrostatic Powder Spraying Equipment

1.3.1. General Information

The powder spraying equipment of Sistem Teknik Makina (Electron) is designed for safe use and to the latest technological specs. Electrostatic powder equipment could create dangerous situations unless it's used properly. In addition to that, there might be a danger to life and limb of the user or third party, a danger of damage to the equipment and other machinery that belongs to the user and hazards to the proper operation of equipment.

1. The powder spraying equipment should only be started up and used once the operating instructions have been carefully read. Apart from any usage from the user manual, there lies a danger of damaging the equipment and loss of control of the equipment.
2. Operational safety has to be observed before every start-up. Regular Servicing is the essence of working safely.
3. Local legislation should be considered for the safety.
4. The plug has to be disconnected before the machine is opened for repair.
5. The plug and socket connections between spraying equipment should only be taken out when the power is off.
6. The connection cables have to be installed in a manner that they wouldn't interfere or damage the normal machine operation. Also the local legislation should be observed for the installation.
7. Only original Electron spare parts should be used, because only the original products will guarantee the equipment's explosion protection. Any damage caused by other used parts is not covered by the guarantee.
8. If Electron powder spraying equipment is going to be used with other devices/machinery from other manufacturers, their safety regulations should be also considered.
9. Be cautious while working in a powder/air mixture area. In the right concentration the mixture would be flammable, thus smoking is forbidden in the entire plant area.
10. Rule of thumb says that any person who uses a pacemaker should NEVER enter a high voltage area or places with electromagnetic fields. Note that people with pacemakers ALSO SHOULDN'T work in powder spraying installations.

WARNING!
Only the cust omer itself is r esponsible for the safe usage of the equipment.
Sistem Teknik is not responsible for any damage resulted from the usage.

1.3.2. Consciously Working Safe

Every other individual who will be working for the assembly, start-up, operation, service and repair of powder spraying equipment must have read and understood the operating instructions and the "Safety Regulations". Operators have to be appropriately trained via Sistem Teknik assembly personnel and made aware of the possible danger of powder spraying equipment and the environment.

The control units for guns must only be set up and used in zone 22. The spray guns are permitted in the zone 21 which is created by them but only them.

Powder spraying equipment must only be used by trained and authorized personnel. This also applies for any kind of modification to the electrical equipment, which only should be carried out by a specialist.

It is essential that the operating instructions are understood before any kind of work is done with the equipment. All the procedures have to be done according to the instructions.

Powder spraying equipment can be turned off via the main power switch or the emergency shut down procedure.

1.3.3. Safety Regulations for the Operating Firm and/or Personnel

1. First of all, anything which would influence the equipment negatively should be avoided for the technical safety.
2. The machine user should be well informed about no other people than trained personnel would use the machine.
3. The employer has to provide an operating instruction manual for specifying the dangers for humans and the environment by handling dangerous materials, as well as all preventive measures and workplace behaviors. This "document" must be well written in an understandable form in the language that the person employed for the equipment.
4. The operator is obliged to check the equipment for external damage once every shift changed at the very least. The operation characteristic changes should also be reported.
5. Users should conform the satisfactory working conditions else the equipment should not be used.
6. The operating firm must ensure that the users wear protective clothing like facemasks and working suits.
7. The firm also guarantees the cleanliness of the workplace and proper checks for the powder spraying equipment.
8. Safety devices should be always on the equipment at all costs unless the equipment is going to be maintained or cleaned. After the maintenance all the devices should be put on the equipment. The users must be trained well for this purpose.
9. Powder fluidization or high voltage spray gun checks have to be done when the equipment is switched off.

1.3.4. Special Types of Hazard

1. ***Power*:** All the high voltage equipment should be unplugged before opened. This is a huge life risk thus it has to be taken under great care.
2. ***Powder:*** Powder/air mixtures could be ignited by sparks. Sufficient ventilation is a must while using powder spraying equipment. Powder, which is not swept from the floor creates risky environment.
3. ***Static Charges:*** These could result in the following: Charges to people, electric shocks, sparks. Charging of objects has to be avoided.
4. ***Grounding:*** All electricity conducting parts and machinery in the workplace must be earthed. Please connect a ground wire 1.5 meters before the entrance of the cabinet, in the middle of the cabinet and 1.5 meters after the exit of the cabinet. The grounding resistance must amount to a maximum of 1 MOhm resistance has to be tested regularly. The appropriate devices must be kept in the workplace for regular grounding checks.
5. ***Compressed Air*:** Compressed air could be created after long pauses of the equipment and this creates risk of pneumatic hose damage or uncontrolled release and improper use of compressed air. Compressed air should be drained properly.
6. ***Crushing and Cutting:*** There might be moving parts while operation (e.g. Conveyor Belt, Reciprocator). The operator must be trained to maintain the area safety and local security regulations.
7. ***Exceptional Circumstances:*** Local conditions must be met at all costs. Additional measures such as barriers can be used to prevent unauthorized access.
8. ***Conversions and Modifications to the Equipment:*** All conversions and must be asked to Sistem Teknik prior to the process and no process should be done without Sistem Teknik's permission. This is essential for the equipment safety and conformity. Powder coating equipment should never be used if damaged; these parts should be changed immediately with the original Sistem Teknik replacement. Other replacements then Sistem Teknik original equipment does not conform the guarantee, thus the guarantee will no longer be valid. Equipment repairs must be done only by specialist or at Sistem Teknik verified shops.

1.3.5. Safety Requirements for Electrostatic Powder Coating

1. All the equipment used for powder coating is dangerous unless the instructions are not conformed.
2. Every electrostatic conductive part must be earthed w ithin the 5 meter radius from the equipment.
3. The floor of the coating area should conduct electricity (Concrete is generally a conductive surface, check with your building project for more info)
4. The users should wear electricity conducting footwear.
5. The guns are earthed thus you must use them with your bear hands. If gloves are going to be used, make sure that they conduct electricity.
6. Grounding cable must be connected to the grounding screw of the electrostatic powder spraying hand appliance. It should have a good connection with the booth, hopper and conveyor chain (if used).
7. E-COAT+3 Master Device must be switched off while the hand gun is being cleaned.
8. The grounding must be checked every week. Remember that the grounding resistance must be 1 MOhm at a maximum.
9. The E-COAT+3 Master equipment should only be switched once the booth is working in proper conditions. If the booth malfunctions, E-COAT+3 Master should be turned off.
10. At nozzle changes, the E-COAT+3 Master device should be shut down.
11. Only use spare parts / attachments and accessories from Sistem Teknik's original parts page. This ensures the safety of the equipment and conformity of use.
12. Cleaning agents creates the risk of hazardous fumes. Please check the manufacturer's manual about more information about the cleaning agents if they are used in the site.
13. If there is any damage on the powder coating equipment or the spray gun, operators should stop using it.
14. Especially make sure that the environmental regulations and the manufacturer's instructions are being conformed while disposing the powder lacquer and cleaning agents.
15. Repairs have to be carried out via specialists of Sistem Teknik trained personnel and never to be done in the operating area under any circumstance.
16. Dangerous dust concentration levels should be avoided in powder spraying areas. There must be sufficient technical ventilation available (e.g. booth ventilation) to prevent a dust concentration of more than %50 of the lower explosion limit (UEG = max. permissible powder/air concentration). If the UEG is not known then a value of 10g/m3 should be used.

Standards Used for Complance:

2014/34/EU	The approximation of the laws of the Member States relating to apparatus and safety systems for their intended use in potentially explosive atmospheres.
TS EN ISO 12100	Machine safety
EN IEC 60079-0	Electrical equipment for locations where there is danger of explosion
EN 50050-2	Electrical apparatus for potentially explosive atmos- pheres - electro-static hand-held spraying equipment
EN 50177/A1	Stationary electrostatic spraying equipment for flammable coating powder
EN 16985	Coating plants - spray booths for application of organic powder coat-ing material - safety requirements
TS 3033 EN 60529	IP-Type protection: contact, foreign bodies and water protection for electrical equipment
EN 60204-1	VDE regulations for the setting up of high voltage electrical machine tools and processing machines with mains voltages up to 1000 V
FM 7260 (2022)	Examination Standard for Electrostatic Finishing Equipment

1.4. Product Specific Safety

If there is an installation work that will be done by the customer, the local regulations have to be considered.

The plant must be checked for any type of foreign objects inside the booth or in ducting, input and exhaust air before start up.

All equipment must be grounded according to the local regulations before start up as well.

1.5. Scope of Delivery

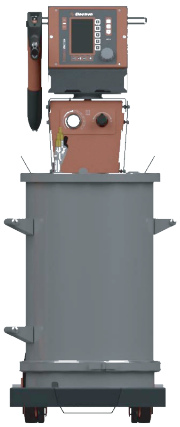
1.5.1 (A06ECA01A+3) E-COAT+3 MASTER A AUTOMATIC POWDER COATING DEVICE

- (B07EGC300+3) E-GUN+3 C3 AUTOMATIC POWDER COATING GUN
- E-GUN+3 C3 Automatic Gun Cable (12 m)
- E-FEED+3 INJ
- (B07ECMU01+3) E-COAT+3 MASTER CONTROL UNIT
- Regulator and Air Distribution Unit
- Hose Connection Accessories

1.5.2. (A06ECM01B+3-A110V) E-COAT+3 MASTER B MANUEL POWDER COATING DEVICE (A-110V)

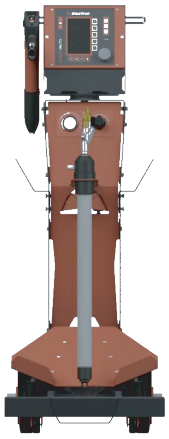
- (B07EGC100+3) E-GUN+3 C1 MANUEL POWDER COATING GUN
- E-FEED+3 INJ
- (B07ECMU01+3) E-COAT+3 MASTER CONTROL UNIT
- Regulator and Air Distribution Unit
- Hose Connection Accessories

1.5.3. (A06ECM01H+3-A110V) E-COAT+3 MASTER H MANUEL POWDER COATING DEVICE (A110V)



- (B07EGC100+3) E-GUN+3 C1 MANUEL POWDER COATING GUN
- E-FEED+3 INJ
- (B07ECMU01+3) E-COAT+3 MASTER CONTROL UNIT
- E-HOPP+3 50
- E-COAT+3 Mobile Trolley w/ Air Distribution Unit and Fluidization Control
- Hose connection accessories

1.5.4. (A06ECM01M+3-A110V) E-COAT+3 MASTER M MANUEL POWDER COATING DEVICE(A110V)



- (B07EGC100+3) E-GUN+3 C1 MANUEL POWDER COATING GUN
- E-FEED+3 INJ
- (B07ECMU01+3) E-COAT+3 MASTER CONTROL UNIT
- E-COAT+3 Mobile Trolley w/Box Holderand Suction Tube
- Hose connection accessories

1.6. Conformity Between Products

Electron (B07ECMU01+3) E-COAT+3 MASTER CONTROL UNIT can be used with:

•(B07EGC100+3) E-GUN+3 C1 MANUEL POWDER COATING GUN
•(B07EGC300+3) E-GUN+3 C3 AUTOMATIC POWDER COATING GUN
•E-FEED+3 INJ

Electron (B07EGC100+3) E-GUN+3 C1 MANUEL POWDER COATING GUN can be used with:

•(B07ECMU01+3) E-COAT+3 MASTER CONTROL UNIT
•E-FEED+3 INJ
•FastCorona™ Manual

Electron (B07EGC300+3) E-GUN+3 C3 AUTOMATIC POWDER COATING GUN can be used with:

•(B07ECMU01+3) E-COAT+3 MASTER CONTROL UNIT
•(B07ECPU03) E-COAT+3 PRO CONTROL UNIT
•E-FEED+3 INJ
•FastCorona™ Auto

2. Technical Data

2.1. Electrical Data

(B07ECMU01+3) E-COAT+3 MASTER CONTROL UNIT	
Nominal Input Voltage	100-240 VAC
Operating Frequency	50-60 Hz
Max. Input Power	150 VA
Gun Nominal Output Voltage	Max. 20 Vp-p
Gun Nominal Output Current	Max. 1,5 A
Auxiliary Output Type	24 VDC/max. 10W, 100-240 VAC/max.100W
Purge Output Type	24 VDC, max. 10W
Protection Class	IP54
Max. Operating Surface Temperature	85°C
Explosion Protection	Ex CE II 3(2)D

2.2. Pneumatic Data

(B07ECMU01+3) E-COAT+3 MASTER CONTROL UNIT	
Compressed Air Connection	8 mm
Input Pressure and Capacity	5,5-7,0 bar & 150-200 lt/dk
Max. Water Vapor in Compressed Air	1,4 g/m3
Max. Oil Vapor Content in Compressed Air	0,12 mg/m³

2.3. Powder Paint Output References

(B07ECMU01+3) E-COAT+3 MASTER CONTROL UNIT	
Powder Paint Type	Epoxy / Polyester
Powder Hose Type	Double Carbon De charge Connection Antistatic Hose
Powder Hose Length	7 m
Powder Hose Diameter Ø	11 mm
Powder Air Nozzle Diameter Ø	1,5 mm

2.4. (B07ECMU01+3) E-COAT+3 MASTER CONTROL UNIT with E-FEED+3 INJ Output

(B07ECMU01+3) E-COAT+3 MASTER CONTROL UNIT			
Total Air (lt/min)			
	50	75	100
% Paint	Powder Output (gr/min)		
20	10	15	40
40	30	85	155
60	72	253	295
80	156	312	353
100	225	355	425

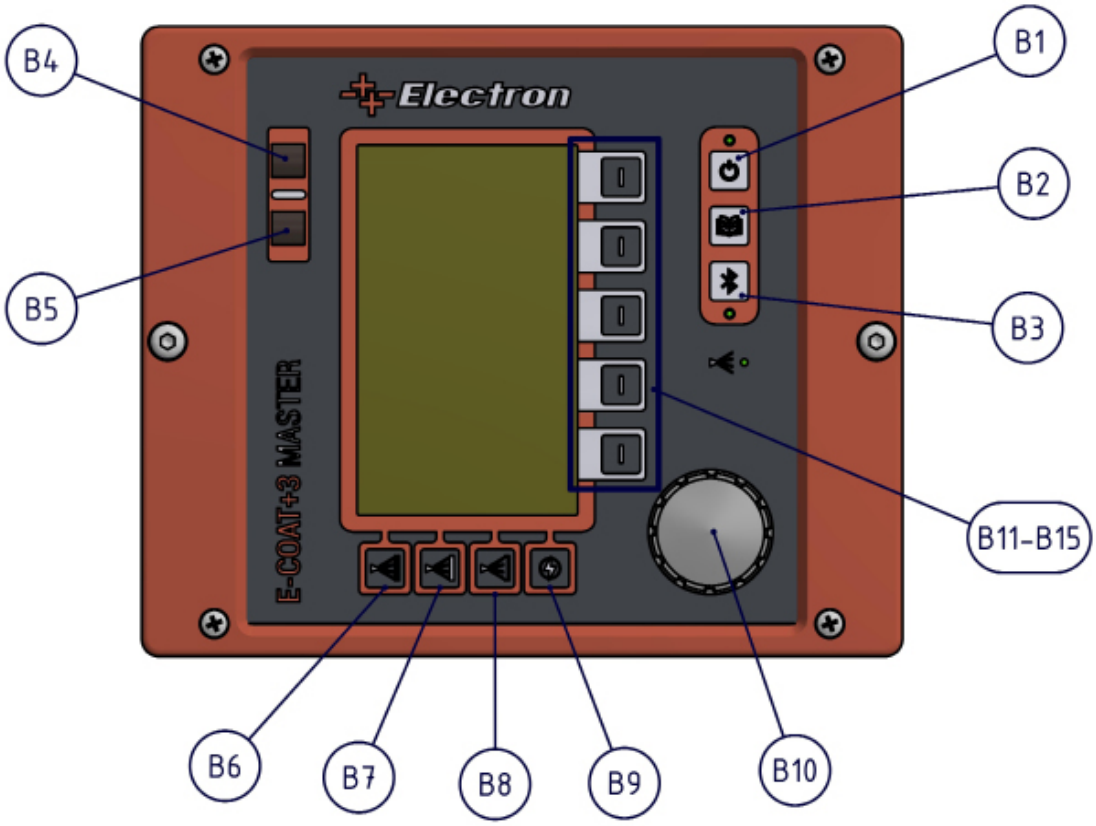
2.5. (B07ECMU01+3) E-COAT+3 MASTER CONTROL UNIT Air Flow Rates

(B07ECMU01+3) E-COAT+3 MASTER CONTROL UNIT	
Nozzle Air	0-16 lt/min (2 lt/min Factory Setting)
Supplementary Air	10-75 lt/min
Conveying Air	10-100 lt/min
Total Air	20-175 lt/min

2.6. Nozzle Air

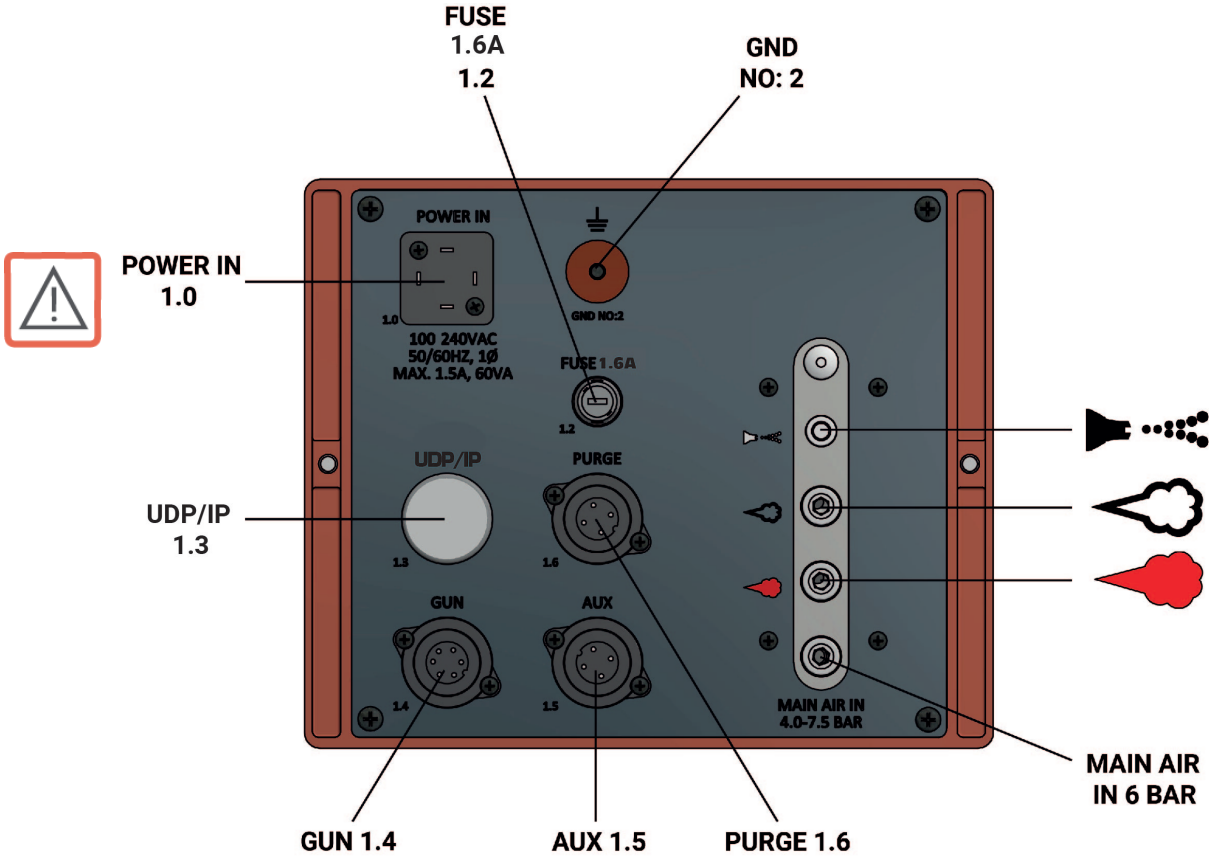
1) Front Panel
2) Display and Control Buttons
3) Casing
4) Back Panel and I/O

2.7. Front Panel and Input Buttons



Button	Definition
B1	Fluidization and Vibration Motor(Only Multicolor) & Autostart Active/Passive Button
B2	Menu Button
B3	Bluetooth Activation Button
B4	Power On Button
B5	Power Off Button
B6	Recipe Button 1
B7	Recipe Button 2
B8	Recipe Button 3
B9	Boost Mode Button
B10	Rotary Adjustment Knob
B11-B15	Segment Buttons

2.8. Back Panel and Connections



Back Panel Connections

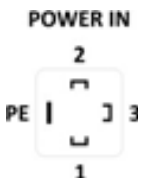
Connection	Function
1.0 POWER IN	MAIN POWER CONNECTION (100-240VAC, 50-60Hz) It is the general voltage value of the product. See the voltage input of the relevant parent product.
1.2 Fuse1.6A	Glass Fuse Holder 1.6A
1.3UDP/IP (Optional)	User Datagram Protocol
1.4 Gun	Gun Cable Connection
1.5 AUX	Fluidization Unit/Multicolor Unit Connection
1.6 PURGE (Optional)	Purge Valve Connection (Supplied with optional Purge Module)
MAIN AIR IN 5.5-7 BAR	Main Pressured Air Connection (5,5-7,0 Bar, Ø8 Hose)
	Nozzle Air Connection (Black Ø6 Hose)
	Supplementary Air Connection (Black Ø8 Hose)
	Powder Air Connection (Red Ø8 Hose)
	Earth Cable Connection

Back Panel Connection Table

Warning: AUX input lid should be closed if there is no connection.

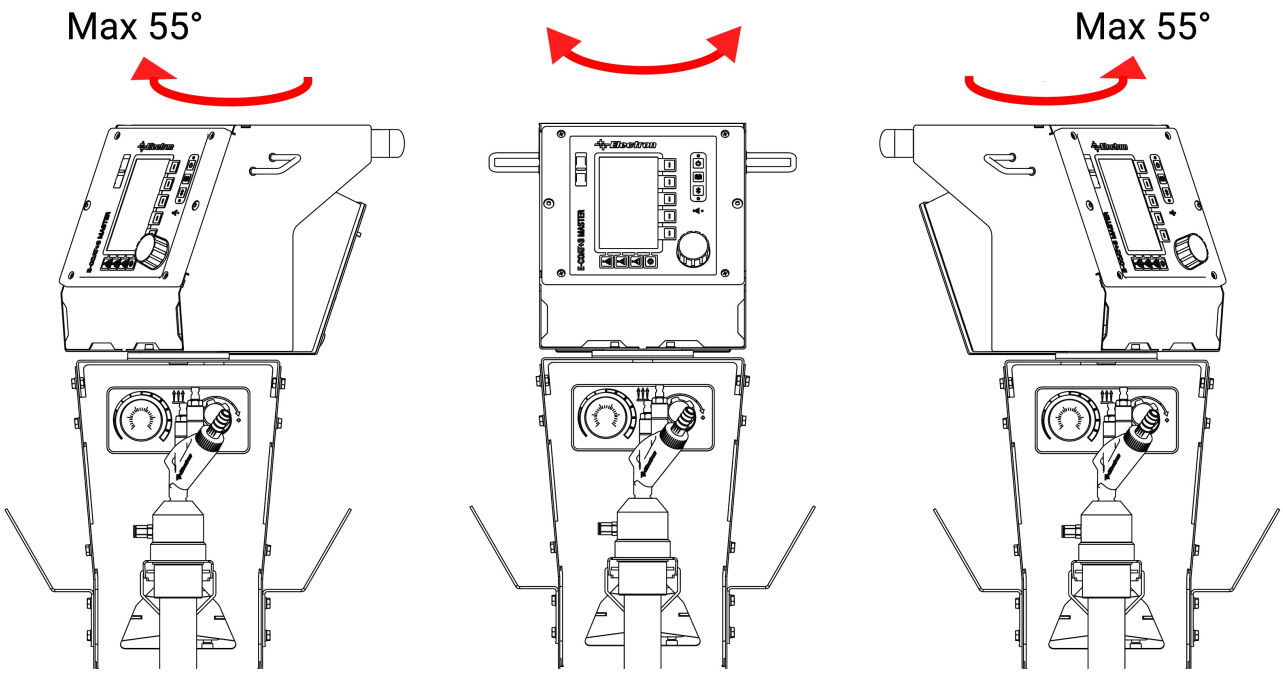
PIN Connection

1) "R",Phase (100-240 VAC)
2) "MP",Neutral
3) "T",Trigger (Phase Applied to Trigger-Only Automatic Mode)
PE) "GND",Grounding

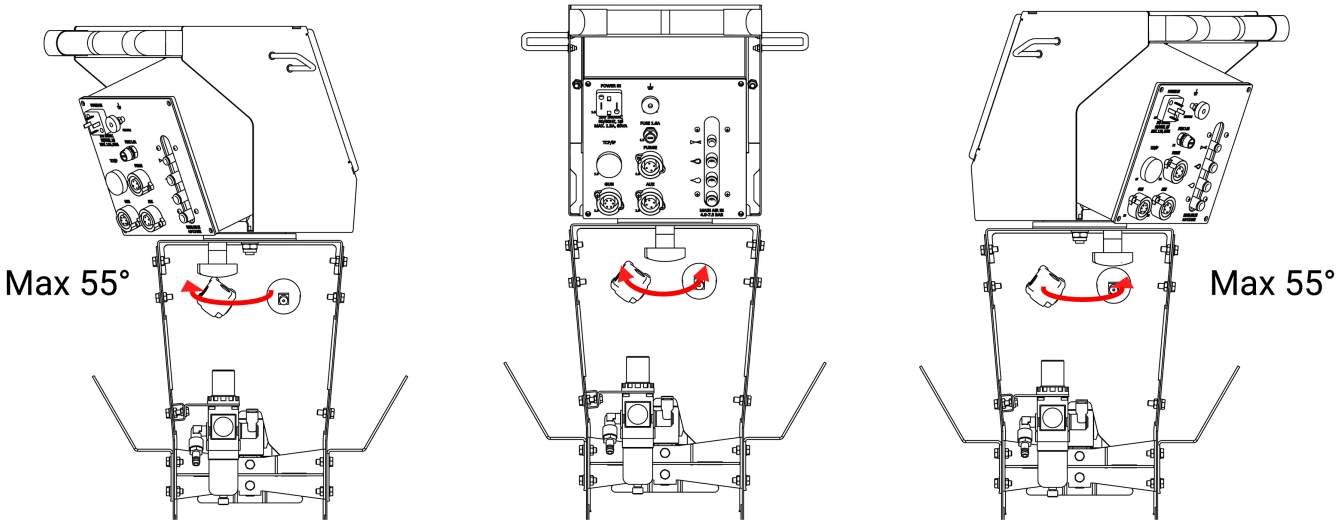


2.8.1 E-COAT+3 Master Mobile Trolley Control Unit Rotation

The control units in the mobile trolley can rotate max. 55 degrees to the right and left to provide ergonomic and practical use.



The fixing knob at the back of the trolley is used to rotate the device heads.



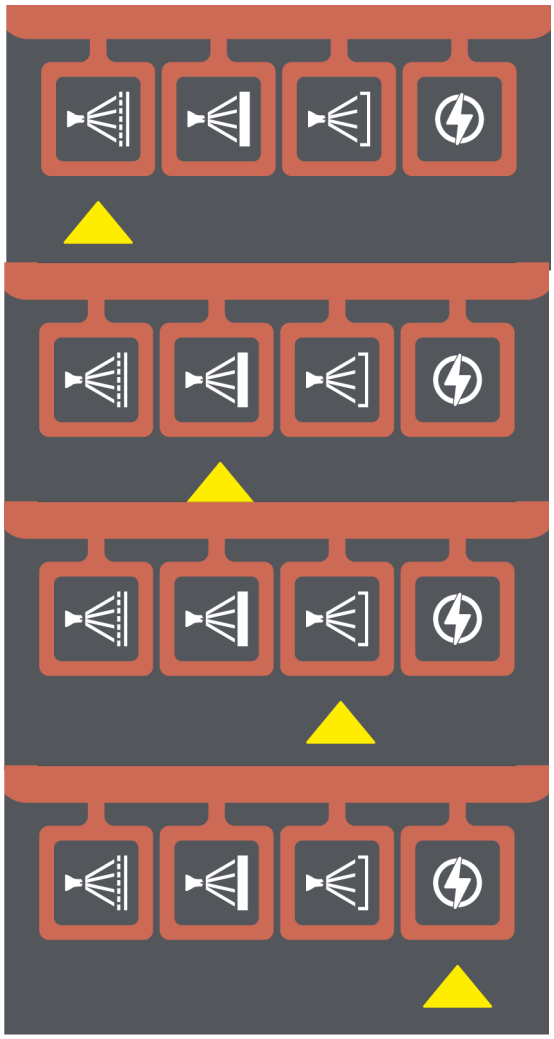
2.9. General Instructions

Usage Types

a. Automated Recipe Working Mode

This type of usage allows the customer to work with custom made recipes as well the three predefined recipes stated below:

1. Coating on Straight Faced Materials
2. Coating on Coated Materials
3. Coating on Notched Surfaces
4. Boost Mode

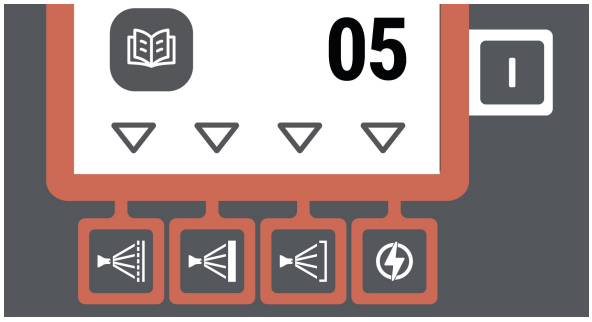


Predefined Recipe Buttons

Predifined Recipe Name	High Voltage (kV)	Output Current (µA)
Coating on Straight Faced Material	100	100
Coating on Coated Material	65	15
Coating on Notched Surfaces	100	20
Boost Mode	120	120

b. User Defined Recipe Working Mode

In this working principle, the user can save their own working parameters and change them. There can be 50 recipes starting from P01 to P50, four of which P01-02-03-04 are factory predefined recipes. These predefined recipes are explained in this manual. Users can manually define 50 different recipes of their choice.



Recipe Segment

c.Fast Purge Mode

Fast Purge mode uses the high pressured air to clean the Injector, Antistatic Coating Hose and E-GUN+3 Coating Path. A “FastPurge” sign will appear on the main screen of the E-COAT+3 Master when Fast Purge mode of the device is activated. E-COAT+3 Master Device’s Fast Purge mode can be activated by two different ways.

a. By pressing and holding the Page Button (B2 Button) for 3 seconds.

b. By pressing and holding the “P” button on the manual E-GUN+3 C1 gun for 3 seconds.

Fast Purge Mode Screen

In the new Fast Purge scenario, the purge mode can be set in 3 modes on the control unit. The "Disable Mode" set on the device indicates that the purge mode is not active. The "Enable A Mode" provides automatic purge of automatic and manual guns. The "Enable M Mode" provides the manual gun to be purged using the trigger.

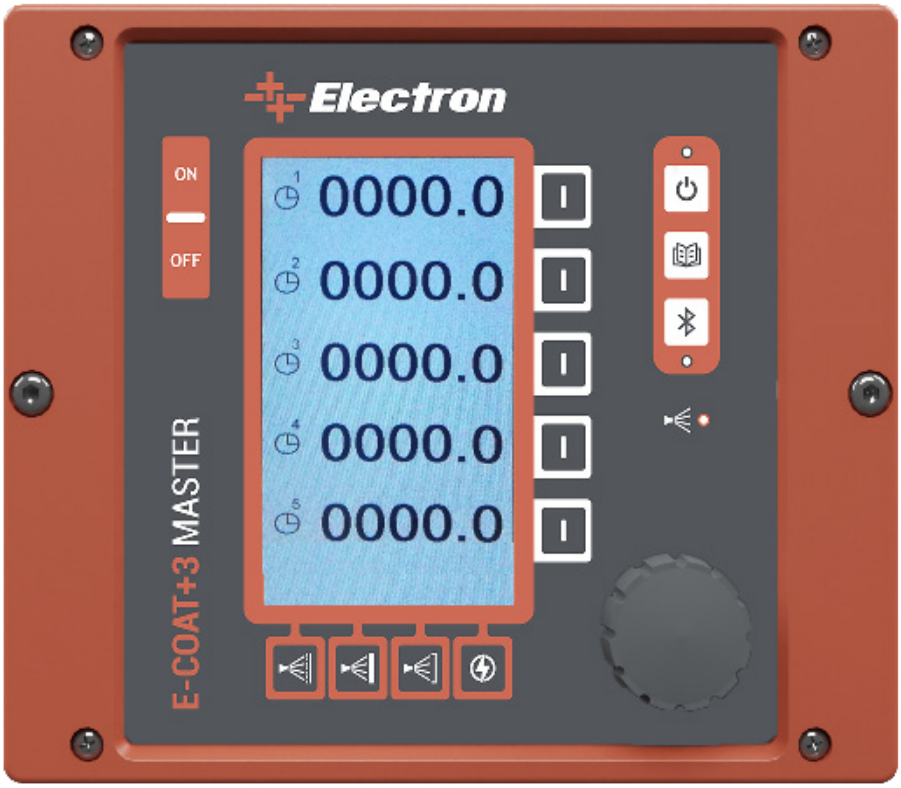
d. Remote Control with E-GUN+3 C1

The user can change the system parameters on E-COAT+3 Master via using the E-GUN+3 C1 The buttons which are marked “P”, “^” and “ˇ” are explained below

Button	Function
P	The user can change the system parameters on E-COAT+3 Master via using the E-GUN+3 C1 The buttons which are marked “P”, “^” and “ˇ” are explained below
v	Value decrease
^	Value increase

e.Consumable Counters

E-COAT+3 Master is designed with consumable counters so that the use would be always aware of the materials. You can open the counter via pressing the B2 button for two times. The user can also adjust the counters to create a warning when the consumables are about to finish or when they are finished. See the counters on the screen below.



Consumable Counters Screen

The user can differentiate between consumables and adjust five different consumables on the screen. The counters will warn the user when they reach to zero if they ar not reset. A "!" sign will lit and blink on the bottom of the main page when a counter has reached to "0" and the counter is not reset by entering into the counters page for acknowledgement. The blinking "!" sign will disappear from the screen when user enters to the counters page to acknowledge the counter alarm. The unit of the counters are "Days".

f.Screen Brightness Adjustment

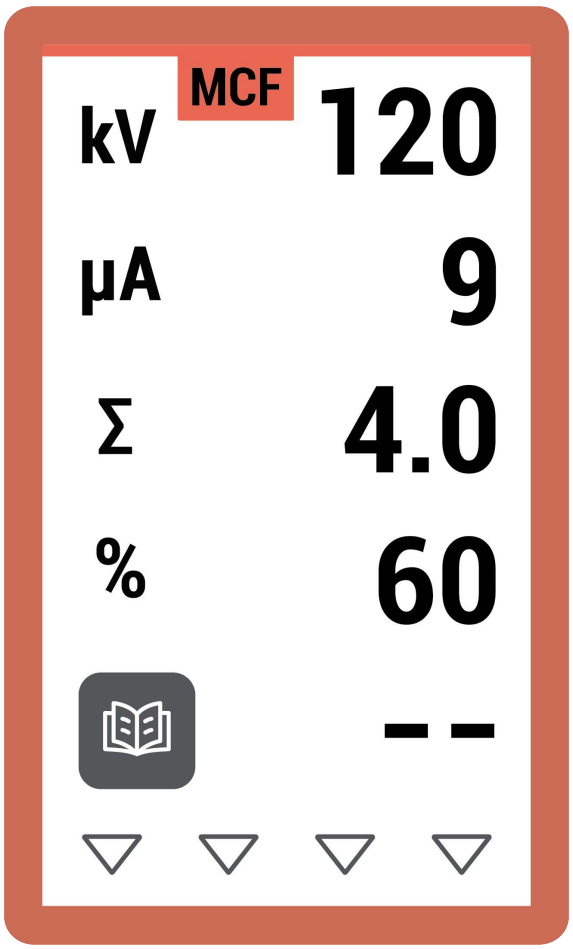
E-COAT+3 Master electrostatic powder paint control unit screen brightness can be adjusted by the user. The LCD screen allows the user to change the brightness from the B15 segment button shown below in the second part of the Main Page. Reaching to the second part of the Main Page is from pressing the B2 button once.

Part-2 Screen Brightness Segment

The screen brightness can be adjusted between the values 0 to 10, 0 showing the lowest brightness and 10 showing the highest.

Info: *E-COAT+3 Master control unit is installed with standby mode. If the buttons are not used on the control unit or on the E-GUN+3, the control unit changes the brightness level to 0. Any input while in standby mode switches the control unit to the normal mode and the brightness becomes to the normal level.*

g.Micro Charge Feedback



Micro Charge Feedback

When coating simple components with some complex geometries, the control unit setting can be set below 10 microamps to prevent overcoating. In this state, the control unit automatically switches to precise MCF (Mictro Charge Feedback) mode. With this mode, the control unit takes more current samples and the charge loaded on the paint can be controlled at the micro level and precise coating process can be performed. Although the µA value on the screen will vary when the gun is triggered, the setting will remain below 10 microamps in the background.

Communication with the Electron App

The control unit is prepared for communication* with the Electron App.

NOTE:
The Electron App is optimized for mobile devices with a screen diagonal up to 17 cm.

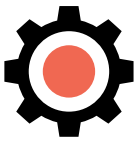
The app enables customers to improve their productivity by providing the following areas:

Application

All important application parameters are clearly displayed on the mobile device and can be adapted immediately.

Line management

The coating productivity data can be retrieved at any time. Statistics and cost estimates of the order are generated automatically. Maintenance can be scheduled.



Setup

This configures the E-Coat+3 Master control unit. The E-Coat+3 Master can be controlled individually or as a participant in a group.

Service

Enables direct access to the operating instructions of the system components and to the Electron website.

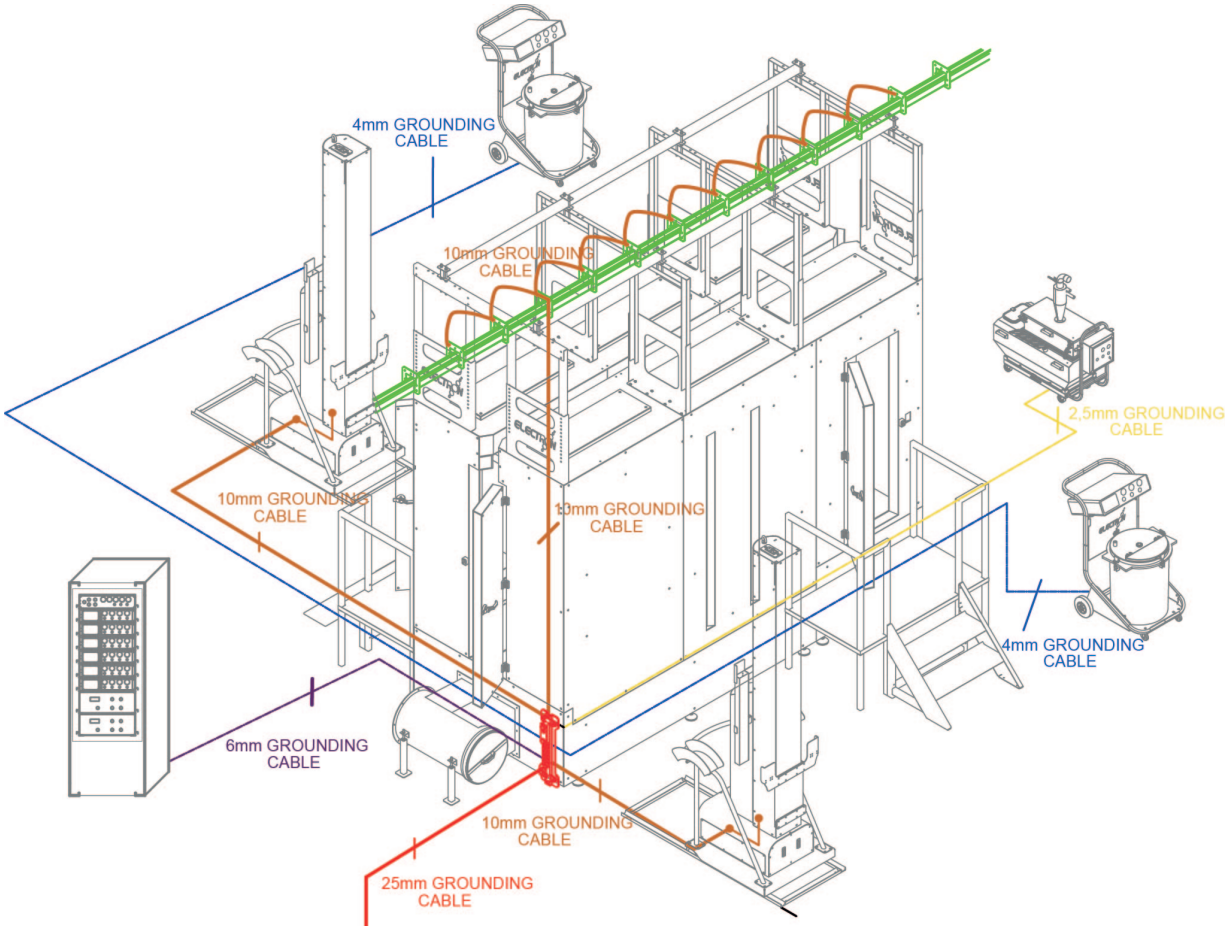
The secure connection between the control unit and the device can be established very easily with the help of the  key.

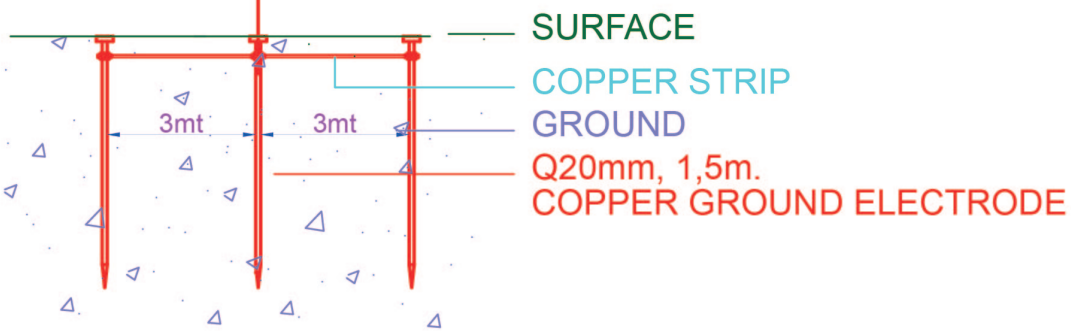
The prerequisite for this is that every control unit in the system already has its own Bluetooth ID number. See chapter "System parameter (Bluetooth ID no.)" on page 31.

NOTE:
A description of the app can be found in a separate manual.

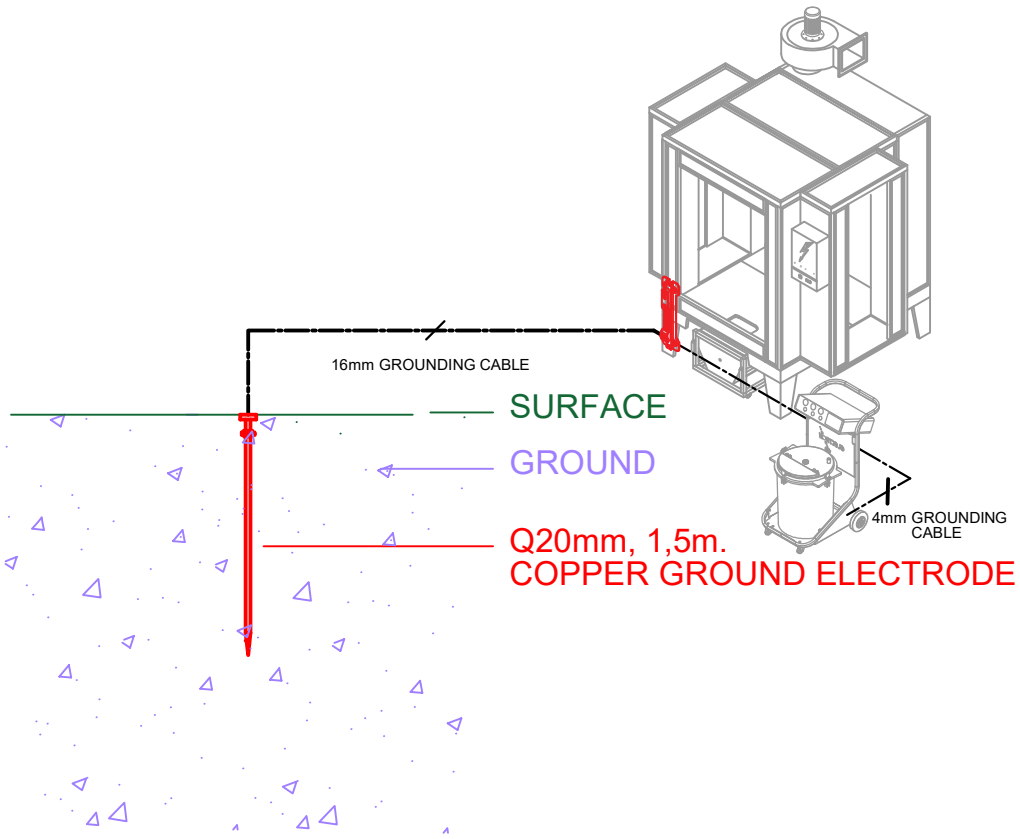
3. Start Up

3.1. Grounding





DEVICE QUANTITY	SPIKE AMOUNT	CABLE THICKNESS
⩽4	1	16 mm²
4< ⩽8	2	16 mm²
8 < ⩽12	3	25 mm²
12< ⩽16	4	25 mm²+16 mm²
16< ⩽20	5	25 mm²+16 mm²
20< ⩽24	6	25 mm²+25 mm²
24< ⩽28	7	25 mm²+25 mm²
28< ⩽32	8	25 mm²+25 mm²
32< ⩽36	9	50 mm²+25 mm²

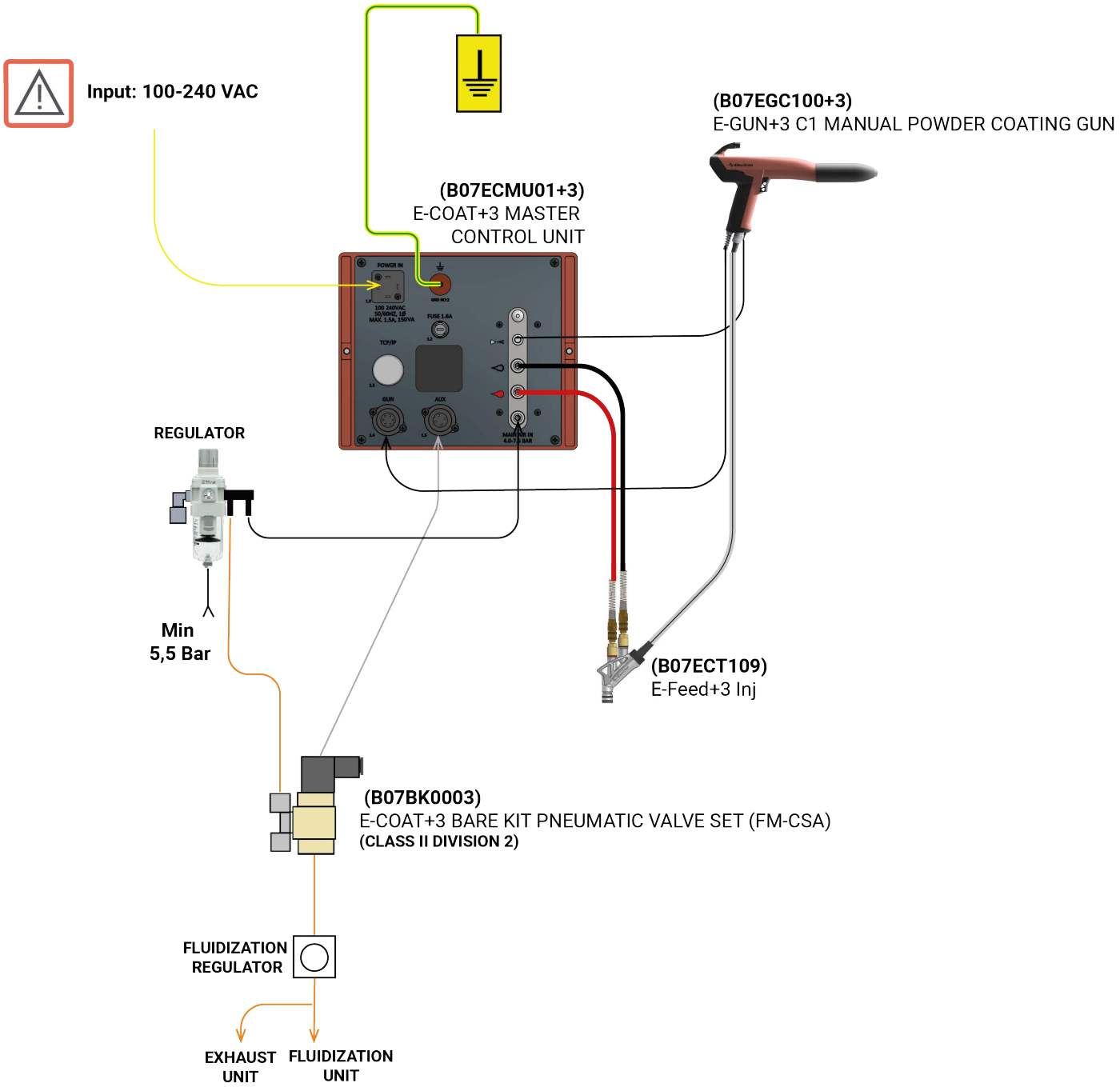


All electricity conducting parts and machinery in the workplace must be earthed. Please connect a ground wire 1.5 meters before the entrance of the cabinet, in the middle of the cabinet and 1.5 meters after the exit of the cabinet. The grounding resistance must amount to a maximum of 1 MOhm resistance has to be tested regularly. The appropriate devices must be kept in the workplace for regular grounding checks.

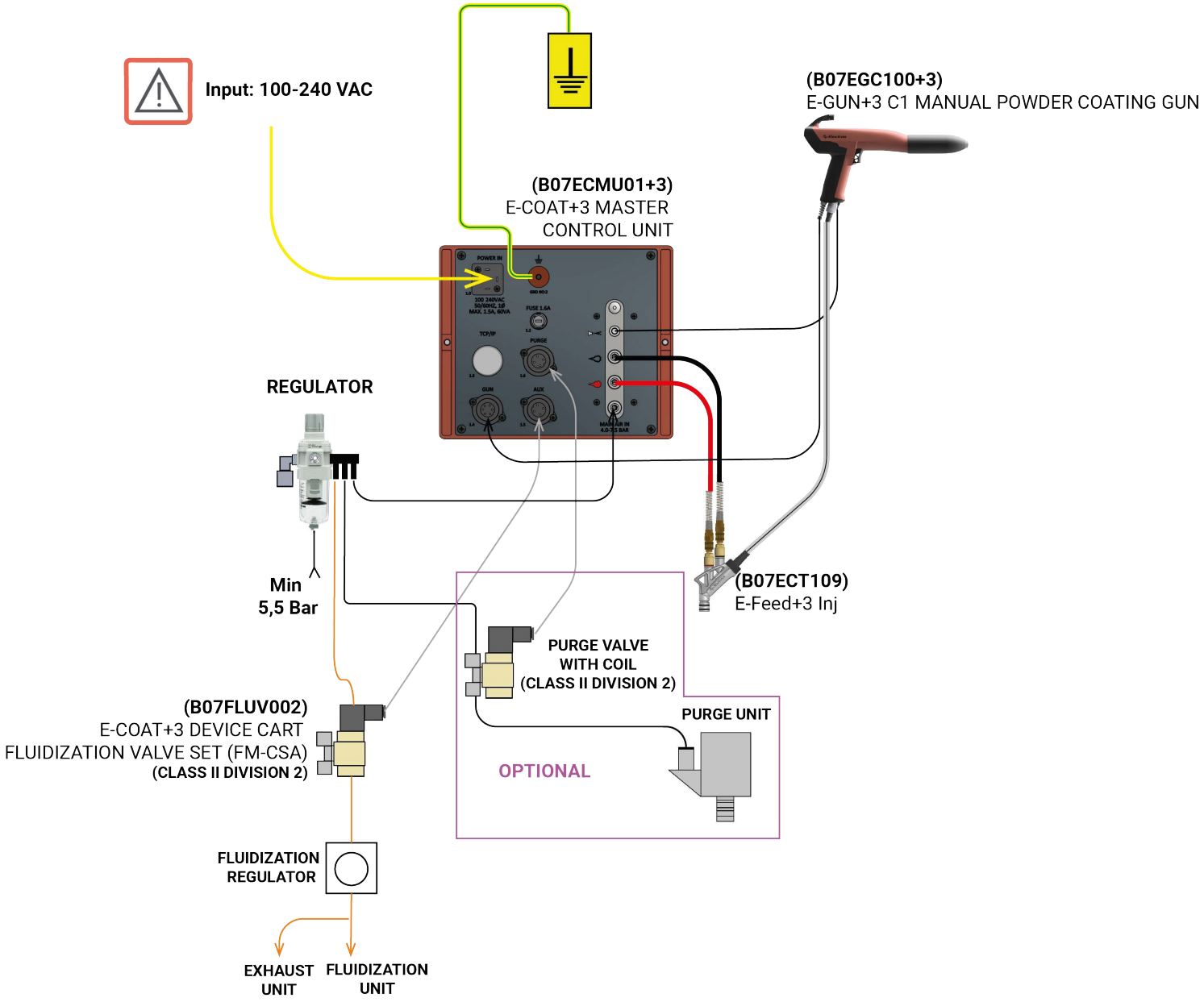
Grounding cable must be connected to the grounding screw of the electrostatic powder spraying hand appliance. It should have a good connection with the booth, hopper and conveyor chain (if used).

3.2. Installation

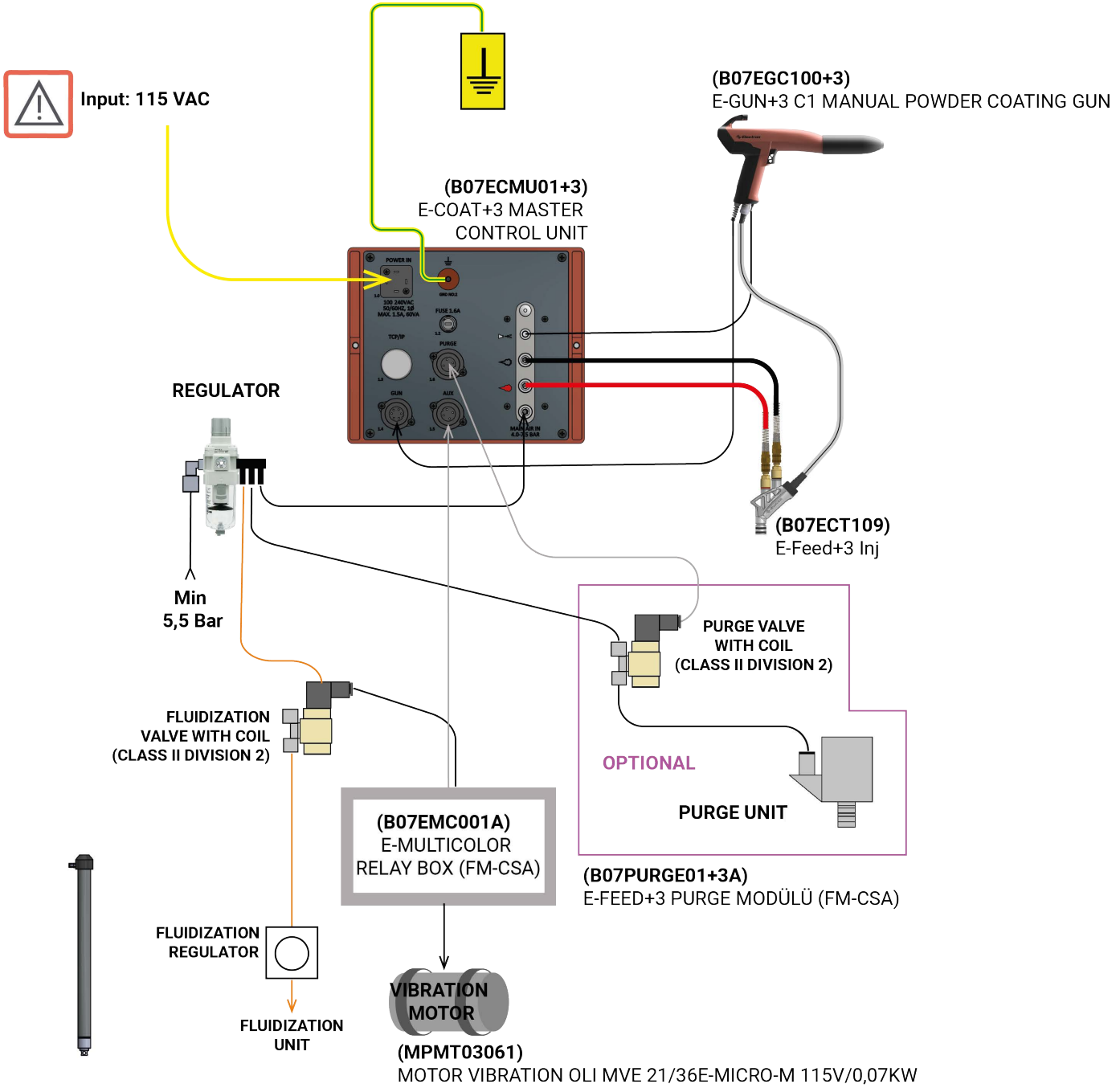
a. (A06ECM01B+3-A110V) E-COAT+3 MASTER B MANUAL POWDER COATING DEVICE (A-110V)



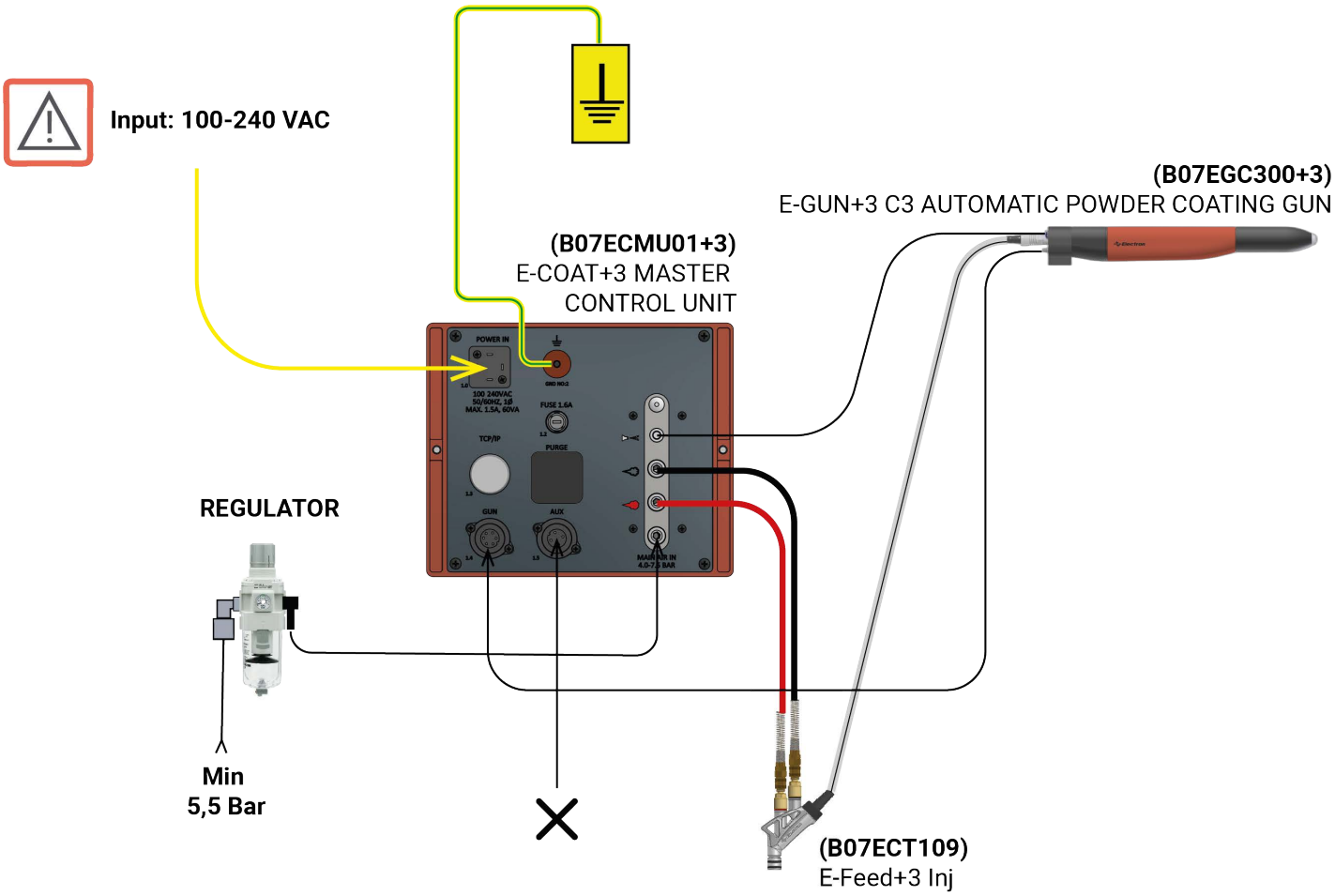
b. (A06ECM01H+3-A110V) E-COAT+3 MASTER H MANUAL POWDER COATING DEVICE (A110V)



c. (A06ECM01M+3-A110V) E-COAT+3 MASTER M MANUAL POWDER COATING DEVICE (A110V)



d. (A06ECM01A+3) E-COAT+3 MASTER A AUTOMATIC POWDER COATING DEVICE



Note: ✕ *Don't use with (A06ECA01A+3) E-Coat+3 Master A Automatic Powder Coating Device configuration.*

3.3. Set Up

Info: *E-COAT+3 Master Powder Coating Control unit always starts with the last used configuration preferences.*

In the above "System Connections" all the electrical and pneumatic connections are shown. After correctly connecting the device, the user can press the "Main Switch" to start the control unit. The below procedure should be done at the first Start up.

E-COAT+3 Master should be calibrated according to the products that are going to be powder coated before the start up. Once you are in the "Main Page" Press the B1 interface button for 2 seconds and the Setup Page will appear. The B1 button can be used to return back to the Main Page. B1 button also works as a "Save and Exit" button to save the changes in the SETUP PAGE.

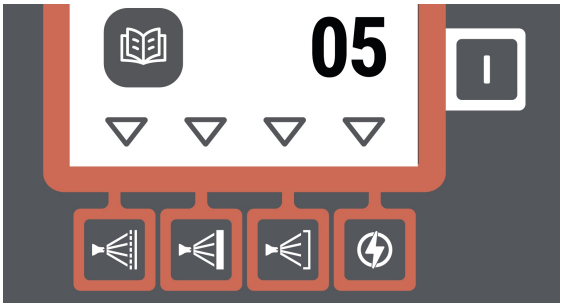
The available calibrations for the "Calibration Pages" are stated in the below table

Calibration Preferences

Code	Code Info	Preferences	Factory Preset
C-1	Control Type Selection (MODE)	0 = Automatic 1 = Manual w/ Hopper 2 = Manual w/ Multicolor	1
C-2	Gun Type	0 = Corona 1 = Tribo	0
C-3	AUX Delay (output latency after trigger release (s))	0-100	2
C-4	Pneumatical Control Type	0 = Proportional 1 = Independent	0
C-5	Pneumatical Flow Units	0 = lt/m 1 = Nm3/h 1 = Cfm	1
C-6	Purge Valve Opt.	0 = Disabled 1 = Enabled M 2 = Enabled A	0
C-7	Gun Cable Length (m)	5-25	7
C-8	Language	0 = English 1 = Türkçe 2 = German 3 = Chinese 4 = Russian	0
PCF1	Min. Powder Corr. Factor (lt/m)	12 - 50	12
PCF2	Powder Output Corr. Factor	50 - 150	100

3.4. Operation

a. Creating and Saving a User Recipe

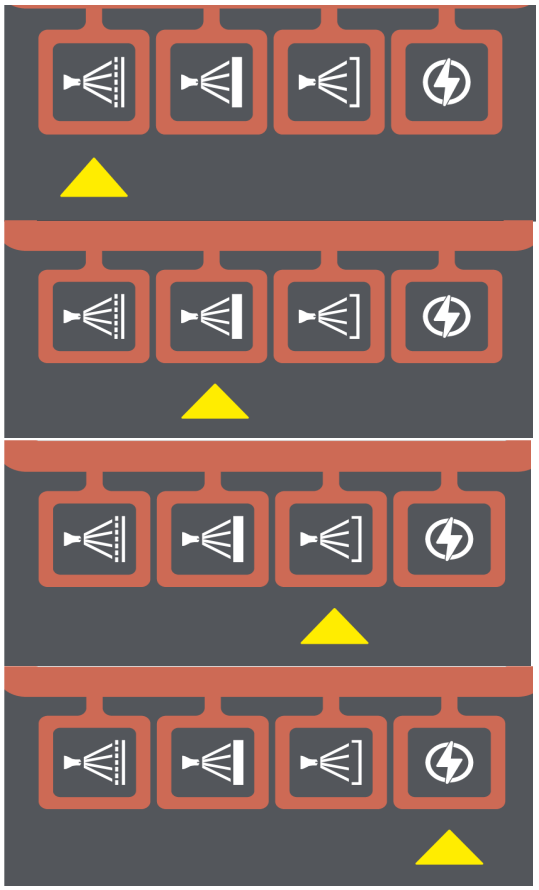


Recipe Segment

After adjusting the values from the control unit, the user can save the recipe for future usage. To save the current recipe, press and hold the B15 segment button for 2 seconds. You will see the recipe number flashing every 500ms. The user then chooses the recipe number for the current or new recipe. Turn the knob until the desired recipe number is selected. Once the number is selected the recipe can be saved.

To save the recipe, press and hold the same segment button for 2 seconds and the recipe will be saved successfully. If instead of pressing and holding for three seconds, the user presses the button, the current recipe will not be saved and the screen will turn to its first position.

b. Predefined Recipe Usage



Predefined Recipe Recall Buttons

Pressing the first predefined recipe on the B6 button calls the “Coating on Flat Surfaces” for the surface coating applications. After pressing, the screen automatically brings the P01 recipe and the LED indicator will lights up. Similarly, if the user presses the button B7, the control unit brings up the P02 recipe which is the “Coating on Coated Surface”, and if the user presses the B8 button the “Coating on Notched Surface”. Recipe will be recalled and the proper LED will light up. If the user presses B9 button, the control unit brings up the P04 recipe which is the Boost Mode activates maximum output voltage and maximum current.

Predefined Recipe Working Parameters are located below

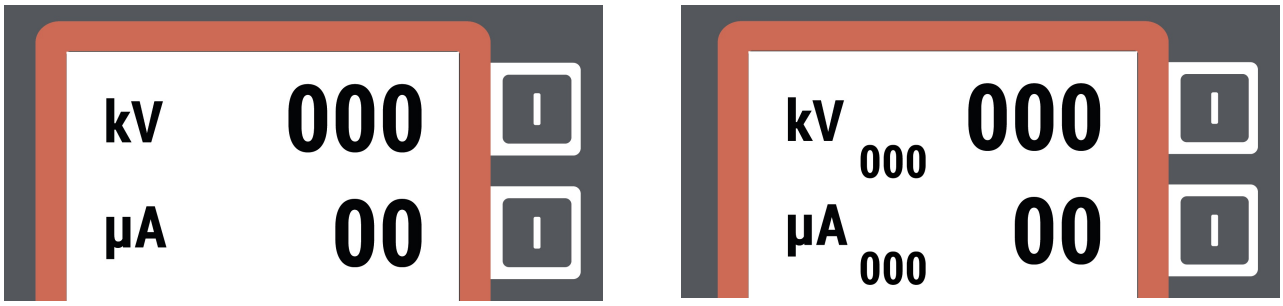
Predifined Recipe Name	High Voltage (kV)	Current (µA)
Flat Surface Application	100	100
Coating on Coating Application	65	15
Notched Surface Application	100	20
Boost Mode	120	120

c. High Voltage Preferences:

There are two different methods in E-COAT+3 Master to change the High Voltage and Gun Output Current. These are as follows:

1. Using the front panel interface of E-COAT+3 Master
2. Using the E-GUN+3 C1 Manual type back side interface

As it is shown in the below figures, the values can be changed on the B11 and B12 segment buttons. Once the value the values can be changed on the B11 and B12 segment buttons. Once the value segment is selected, the user can adjust the values via rotating the knob on the device.



High Voltage and Current Adjustment Segments

The adjustments set the upper limits of both the High Voltage and Current Values. The values can change while gun operation, according to the coating application, and the type of workpiece. These values will also change according to the length between the workpiece and the tip of the gun. Once the gun is triggered the values can be read on the same segment. The “Orange” coloured parts show the adjusted values on the selected recipe and the “Black” co-loured numbers show the real time usage values.

Info: The upper limit of the High Voltage is 120kV and the current output limit is 120µA.

Air and Powder Adjustments:

Main Page Air/Powder Ratio Control Segments

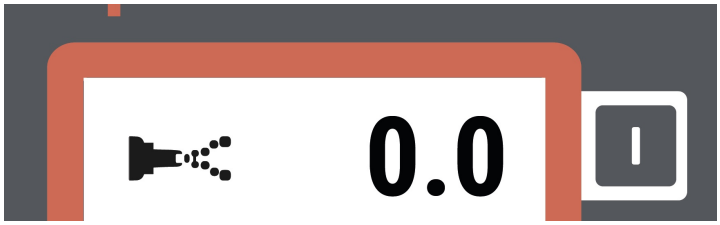
Picking the second option which is the Controlling via Air Flow, the user will see the below icons on the segments, Powder Transfer Air and Auxilary Air will be set independently. This method is mostly used on Manual System Configurations.

Suggestion: *For the best surface finishing in automatic systems, it is best to adjust the air flow with Ratio Control.*

Info: *Air Flows can be selected from C1-4 parameter and also can be seen as Nm3/h lt/min.*

Info: *Air Flows Control mode (as explained on installation) can be adjusted with C1-3.*

The E-COAT Corona type powder gun includes High Voltage output the tip of the nozzle, powder output nozzle and nozzle air. This nozzle air can be adjusted. It should be noted that every other nozzle types' optimal adjustment values are different. Nozzle air adjustment can be made from the second page of the interface from the segment. Like the other air adjustments the user can also see the values in Nm3/h or lt/min.



Nozzle Air Adjustment Segment

Suggestion: *As Factory Preset, for the Flat type nozzle groups the Nozzle Air Flow is set to 0,2 Nm3/S, for the Circle type and Deflector type nozzle groups it is set to 0,5 Nm3/S.*

Correctional Factor Adjustment:

On the E-COAT+3 Master configuration screen, PCF1 and PCF2 includes two different powder ratio correction factors. One of the correction factors is to adjust the minimum powder level and the other one is to synchronize the system if there is more than one control unit available for use. The firstparameter adjustment is 4.0 Nm3/S of total air and the powder ratio is %0 while there is 10gr of powder output. This ensures a better curve on the powder ratio control graphic and removes the "dull" zone. The second parameter is needed because of the multiple gun usage and the different sizes of the gun hoses in the automatic systems. PCF2 removes the possibility of different flow output rates on different guns in the same system thus a better surface finish.

The user should follow the procedure below when adjusting the correction factors.

1. The "FLOW CONTROL" parameter must be set to "Proportional". Press and hold the B1 interface button on the Main Page for 5 consecutive seconds and reach the SETUP PAGE. Then, press B1 button again to get back to the Main Page after making related changes.

2. On the Main page, the Total Air Flow must be adjusted to 4.0 Nm3/h or 67 lt/min. The "Powder %" must be set to % 0.

3. Put a filter type-powder bag at the tip of the gun.

4. Press the trigger or trigger the device externally (if it is an automatic type) for a whole 60 seconds and stop triggering.

5. Weigh the net weight of the powder that is dissipated by the gun in to the powder bag at the end of 60 second.

6. The targeted net weight of the powder inside the bag must be 10-15 grams.

7. Decrease the PCF1 value if the powder is too much. Increase the PCF1 value if the powder amount is too low.

8. Optionally, after adjusting the Total Air to 4.0 and Powder Amount to % 0, the user can just trigger the device and can easily do that PCF1 adjustment in real time without any powder bag just by adjusting the PCF1 value while watching the powder amount that is being dissipated at the tip of the gun. The correct amount of paint can be barely seen as a little fog at the tip of the gun.

DO NOT FORGET TO PRESS B1 BUTTON ONCE TO RETURN BACK TO MAIN PAGE AFTER MAKING ANY ADJUSTMENTS IN THE SETUP PAGES. B1 ALSO WORKS AS A SAVE BUTTON!

PCF-1 Correctional Factor Reference Table

Gun	Maximum Powder Output Correction Factor PCF1			
	Before Correction		After Correction	
1	PCF1 = 5 lt/min	22 gr.	PCF1 = 2 lt/min	13 gr.
2	PCF1 = 5 lt/min	14 gr.	PCF1 = 5 lt/min	14 gr.
3	PCF1 = 5 lt/min	3 gr.	PCF1 = 15 lt/min	12 gr.

After adjusting the PCF1 Minimum Powder Output Correction Factor, the user can adjust the PCF2 Powder Output Equalization Factor (%) procedure. This procedure is as follows:

1. On the Main Page, the Total Air Flow should be adjusted to 4,0Nm3/h or 67lt/min.
2. Also the Powder Ration should be adjusted to %80.
3. While on Main Page, Press and hold the B1 interface button for five (5) seconds to reach the Calibration Page
   After this step, you must use a filter type powder bag to measure the powder output in one (1) minute.
4. Put the powder bag at the tip of the gun.

Info: Before putting the bag on, measure the weight of the bag to make a better calculation. Press the trigger for a whole 60 seconds and stop the trigger.

5. Press the trigger for a whole 60 seconds and stop the trigger.
6. Release the bag from the tip of the gun and weight it.
7. After measuring all the automatic guns' output, proceed to the next step.
8. Make the below calculation for all the automatic guns and get the necessary C-9 parameter.

$$\text{PCF-2} = \frac{\text{Minimum Powder Output (g/mn)}}{\text{Measured Powder Output (g/mn)}} \times 100$$

9. Input the calculated parameter on the control unit.
After the input procedure, there will be a similar table like below

PCF-2 Correctional Factor Reference Table

Gun	Minimum Powder Output Correction Factor PCF-2			
	Before Correction		After Correction	
1	PCF2 = %100	220 gr.	PCF2 = %100	220 gr.
2	PCF2 = %100	255 gr.	PCF2 = %86	220 gr.
3	PCF2 = %100	275 gr.	PCF2 = %80	220 gr.

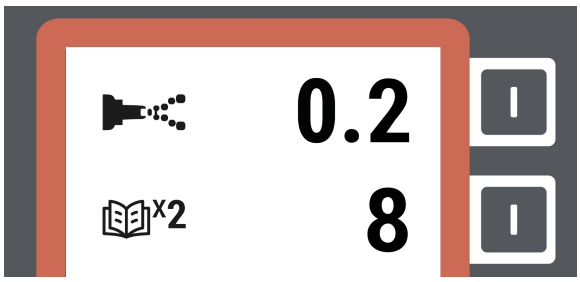
Double-Triggering and Sub-Recipe System

The E-COAT+3 Master controller unit gives the opportunity to jump between two recipes to its users. The user can switch between any two recipes in a blink of an eye without any need to reach the main controller interface during operation. A recipe can be switched to its sub-recipe such as a “complex parts” recipe when needed. Also, similarly, the sub-recipe can be switched back to its main one just by double-triggering again.

The sub-recipe of each main recipe can be set in the second segment on the second page of the controller. The controller jumps to the sub-recipe desired when “double-triggered” on the manual gun during operation after setting the sub-recipe of any main recipe and saving it.

The “—” symbol defines that “double triggering” option is deactivated so that the recipe cannot be changed into any other one even though the manual gun trigger is double-pressed. The recipe should be saved again into a desired number after any change is made to the double-triggering recipe number on the second page. The main reason for re-save is same as other parameter changes where the user goes out of any saved recipe by changing a parameter which is already saved in the main recipe just like other parameters in the main screen.

The main recipe, where the user reached from the sub-recipe, can be called back jus by double-triggering again after finishing working withe the sub-recipe.



TCP/IP Communication and Master/Slave Option:

E-COAT+3 Master controller unit has an optional connection to an automation system or to any other E-COAT+3 Master device. In this case, the parameters of the controller can be controlled by any TCP/IP based automation system or by any other E-COAT+3 Master device which is set as a “Master” in its network settings. Similary, The E-COAT+3 Master Device can be set as a “Master” to be able to control other E-COAT+3 Master devices’ parameters where the other devices are set as “Slave” in their network settings of the network parameters can be reached in the second page of the “Configuration Parameters”.

NOTE: *The E-COAT+3 Master device does not include the Network Connector on itself as default. The “E-COAT ETHERNET SOCKET MODULE WITH PATCH CABLE” with order code “B07140513” should be ordered as an optional part for TCP/IP Network communication if needed.*

Code Info	Preferences	Factory Preset
IP Address	IP Address of the device itself.	192.168.0.110
Subnet Mask	Subnet Mask of the Network which the device is connected.	192.168.0.1
Gateway	Gateway of the Network which the device is connected.	255.255.255.0
Master/ Slave	Master = The device is set as a commander in a network where the operational parameters of this device is sent to other devices. Slave = The device is set as a listener in a network where the operational parameters of the device is cop- ied from a desired master device.	Slave
Master IP	Valid only when the device is set as a “Slave” in the network. The operational parameters of the device is copied from the Master device of which the IP parame- ters is pointed in this setting.	192.168.0.100
Network	OFF = Network Communication Disabled ON = Network Communication Enabled	OFF

3.5. Trigger

When triggered the Electrostatic Powder Application Control unit will start applying static electricity to the sprayed powder paint.

The trigger configuration can be done in two different ways.

1. Using the Gun Trigger (In a manual configuration)
2. If the POWER IN socket on the control unit is fed from the number three (3) meaning the terminal control unit's POWER IN socket number 3 feed, starting up a preconfigured equipment will be done via pressing the B1 interface button. If the control unit is active, led will be lit. If the number three (3) cable socket is fed the powder paint will be blown it will be statically loaded.

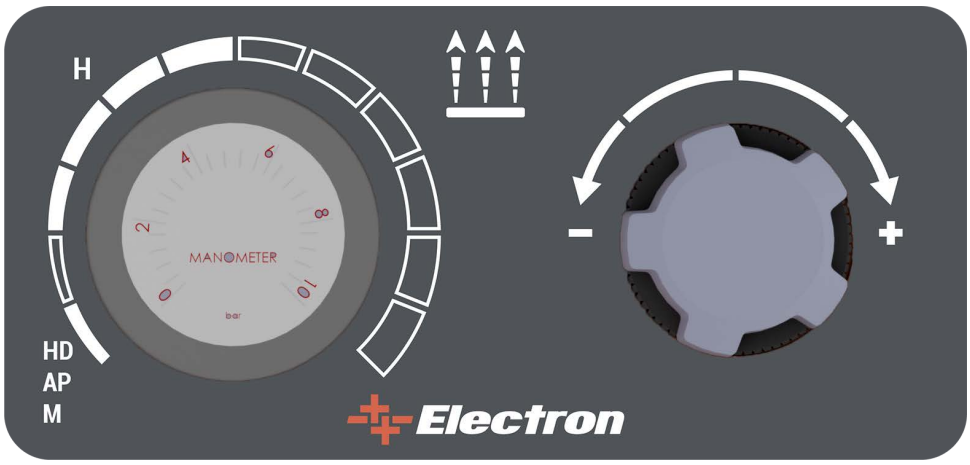
Warning: *The 1.0 coded POWER IN socket's inner connections and the fuse connections at the other end should be done by the ELECTRON technicians at the installation. Electron does not accept any responsibility for the possible damage if the equipment is altered or used before installation.*

C1 Parameter	B1 Button Status	System Operation
0 = Automatic	Enabled	The device is ready to be triggerred. The device will be triggerred when mains phase voltage is applied to pin #3 of POWER IN socket.
	Disabled	The device is disabled to be triggerred. The device will not be triggerred when mains phase voltage is applied to pin #3 of POWER IN socket.
1 = Manual (w/or w/out hopper)	Enabled	AUX socket is powered continously.
	Disabled	AUX socket is disabled.
2 = Manual (Multicolor/Stirrer)	Enabled	AUX socket is powered depending on triggering. AUX is kept powered during triggering and turns off after the time defined in parameter C3 following trigger release.
	Disabled	AUX socket is disabled.

B1 Button Function Table

Pressing the gun trigger on the manual gun or using the electrical trigger on the automatic gun, if the high voltage and the air/powder ratio adjustments are done, the guns will be spraying statically loaded powder paint. The user can observe this occurrence from the green lit led (D-T marked) in front of the control unit.

3.6. Fluidization



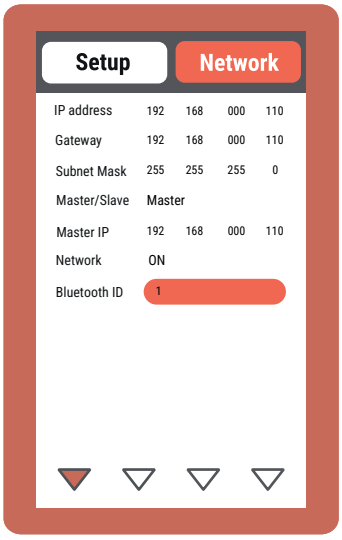
Fluidization Control Panel

A "Fluidization Control Panel" is placed on the mobile device carrier for the operator to easily adjust the fluidization pressure for H type devices with hopper or M type devices with box fluidizied suction tubes. Turning the regulator knob counter-clockwise will degrease or clockwise will increase the applied pressure to the fluidization nozzle in the system. The orange and white areas are signed to indicate the approximate operating pressure values for the fluidization air. The fluidization will start in parallel with the vibration motor when the device is triggered if the B1 button is enabled for "M" type multicolor sets. The fluidization will be activated all the time when the device is energized and the B1 button is enabled for "H" type hopper sets.

3.7. Connect the E-Coat+3 Master control unit to the phone via Bluetooth

3.7.1. System parameter (Bluetooth ID no.)

The Bluetooth ID number is determined with this parameter. An individual Bluetooth ID number must be assigned to each gun control unit that is to be accessed via the Electron app.



The Bluetooth ID of E-Coat+3 Master control unit is defined as proceed follows:

1. Open the control unit
2. Keep the key on the control unit pressed for three seconds
3. Press
4. Select Network: Network
5. Select a Bluetooth ID value from 1-32 using the rotary button.

NOTE:
Important points to note

3.7.2. Pairing of the Bluetooth module with a mobile device

The first connection setup in which Bluetooth devices are coupled is also called pairing.

Following conditions have to prevail:

- the Electron app has already been downloaded and installed from an app distribution platform
  (App Store App Store Keyword "**Electron_App**")
  (Google play Google play Keyword "**Electronapp**")
- ID number set in System parameter (Bluetooth ID no)
- Bluetooth activated on mobile device

To use Electron App, proceed as follows:

1. Start the Electron App
2. Keep the key on the control unit pressed for two seconds
3. Press application: Application
4. Select the Bluetooth ID that the control unit has.

NOTE:
More information on how to use Electron App can be found in a separate manual.
Devices can be controlled via Bluetooth at a distance of up to 10 meters in an open area.

For the step to group the control units in the Electron application:

1. Start the Electron App
2. Keep the  key on the control unit pressed for two seconds
3. Press application: 

4. Please select the Bluetooth IDs of the control unit that you wish to group.
5. Press Add New Grup: 

NOTE:
More information on how to use Electron App can be found in a separate manual.

4. E-FEED+3 INJ Product Description

4.1. Usage Area

The E-FEED+3 INJ Injector is used for conveying the organic type of powder paint used in the industry from any paint hopper to the spray gun where the application is made. E-FEED+3 INJ powder paint injector is supplied ready to use together with special PTFE material made of Teflon bushing and filter module.

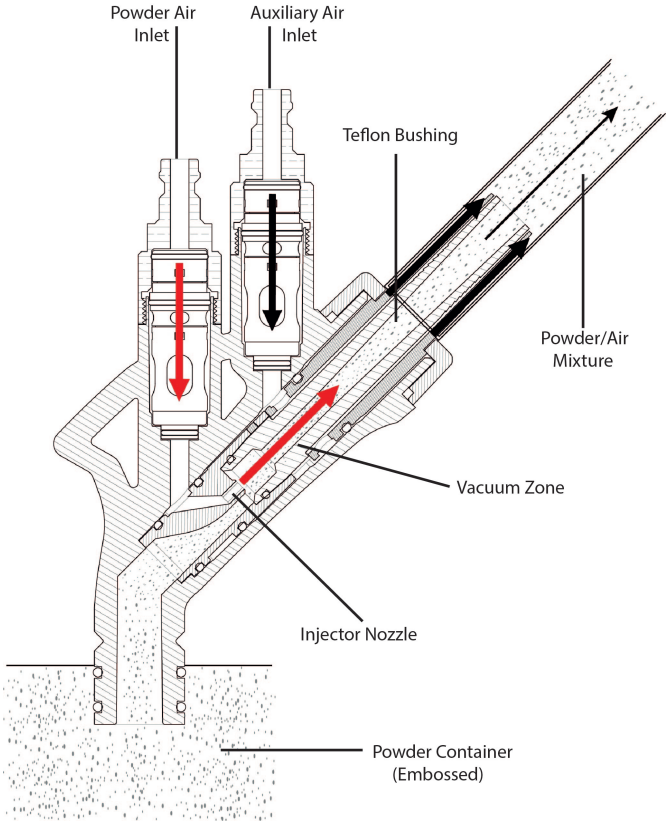
E-FEED+3 INJ Powder Coating Injector

Explosion Protection	Zone
CE Ex II 3 D	22

NOTE:
The explosion protection class mentioned above is only valid if the E-FEED+3 INJ Powder Coating injector is used with "Anti-Static with Discharge Line"type powder paint hoses and the electrical resistance from the injector body to the application field is below 1Mohm.

4.2. Injector Structure and Powder Coat Transfer Principle

As a result of aerodynamic rules, the air exiting a nozzle creates a vacuum at the recess inlet, which is proportional to the fluid velocity when it is directed from the suction line to a narrower recess as shown in the picture below. This vacuum allows the powder paint to be sucked into the recess through the chamber where the fluid velocity is low and rapidly enters into the line leading to the gun. This physical condition, also known as the venturi effect, allows the powder coating to be dispensed from a desired reservoir to the application gun.



Injector Working Principle and Pneumatic Flow Paths

As can be seen in the picture above, the powder caoting / air mixture is sucked from the powder coating hopper and carried to the paint hose and then to the powder paint application gun. The paint density of the powder coating / air mixture coming out of the gun tip is adjusted with the “Auxiliary Air” and “Paint Air” settings, and the paint quality, injector teflon bushing abrasion rate, hose metering, hose curl and turn number, hose diameter, gun outlet nozzle type and height varies between the injector and the gun. As a general rule, the Teflon bushing, which has the highest effect on the powder output rates, should be specifically monitored and repla-ced as a consumable material.

Pneumatic conveying of very thin solid materials such as powder coating in the hose is achieved by ensuring the correct air flow rates in the hose and the optimum levels of these flow rates vary according to the hose diameters. According to the experimental data in powder coating applications, this air flow rate is approximately 67 lt/min (4 m^3/s) in a Ø11 mm hose. “Paint Air” is used to adjust the powder coating / air mixture coming out of the gun tip and it is requested to make paint. Reducing the paint air will result in a 67 l/min flow rate in the air filter coming out of the hose, which may result in intermittent paint and vomiting in the paint, as the optimum flow will deteriorate. In such an environment increasing the “Auxiliary Air” flow, the optimum fluid can be increased to at least 67 l/min again. This setting is fully automatic for E-COAT+3 Master Type electrostatic powder coating applicators.

5. Powder and Mixture Value Tables

5.1. E-FEED+3 INJ General Usage Value

The amount of air flowing through the hose and the paint ratio must be adjusted correctly to ensure correct paint output patterns in powder coating application guns. This flow rate is approximately 65-85 lt/min (4-5 m^3/s) in a Ø11mm paint hose, while it is approximately 50-85 / min (3-5 m^3/s) in a Ø10mm hose. In general, the lowest air flow and paint output flow can be achieved by using a Ø10mm type hose in powder coating applications and a Ø12mm type hose should be used when high amount of paint output is desired. As a general rule, irregular paint output and vomiting at the paint output indicate insufficient hose air flow and the flow level should be increased.

E-FEED+3 INJ General Usage and Test Conditions	
Powder Paint Type	Polyester/Epoksi
Powder Hose Ø (mm)	11
Powder Hose L (m)	7

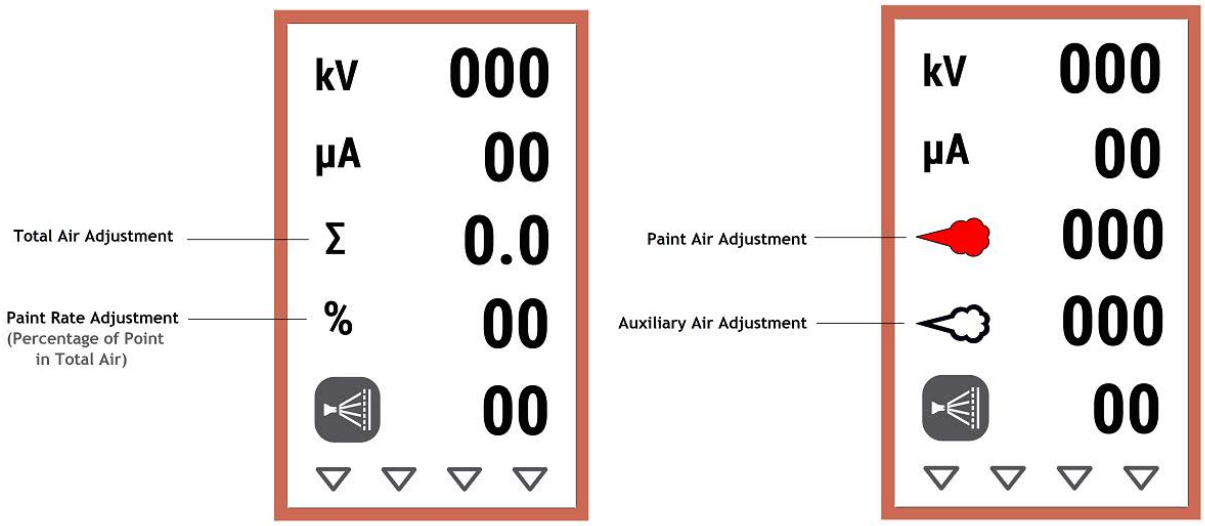
5.2. Use of E-COAT+3 Series Devices with E-FEED+3 INJ

E-COAT+3 Series devices are divided into 2 different control units. These are called E-COAT+3 Pro and E-COAT+3 Master in increasing order according to the option levels. While the E-COAT+3 Master is able to keep the total air flow in the powder hose between the E-FEED+3 INJ powder coating injector and the powder spray gun fully automatic at the total air volume set on the screen, this setting can be set on the E-COAT+3 Pro. It must be made by the user through the manometer regulators located on the front panel of this device.

5.2.2. Use with E-COAT+3 MASTER Series Control Units

For making the “Paint Air” and “Auxiliary Air” settings in E-COAT+3 Master devices front panel the digital screenshots are as follows.

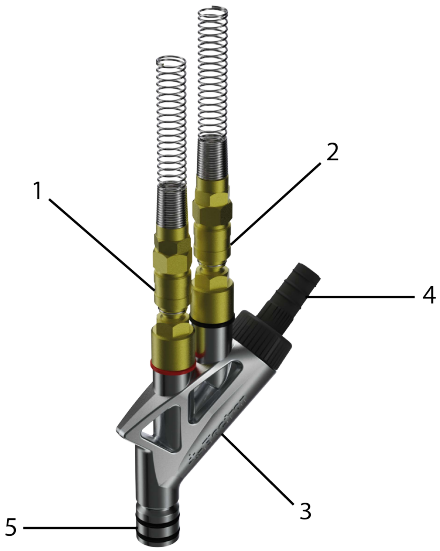
E-COAT+3 Master type devices allow the user to operate in a mode where both Auxiliary and Dye Air are adjusted independently and the total air flow in the Powder Coating hose and the paint ratio in this flow are adjusted automatically by the device at the desired levels. When the total air is set to fully automatic mode, the E-COAT+3 Master keeps the total air quantity entered on the screen constant by automatically adjusting the auxiliary air even if the paint ratio is changed. When the air settings are set to stand-alone mode, the E-COAT+3 Master device works in the same way as the +3 Pro device type, allowing both air to be set independently.



E-COAT+3 Master Pneumatic Control Interface.
Total Proportional Configuration (Left), Independent Air Setting Configuration

6. Cleaning and Maintenance

6.1. Injector Cleaning

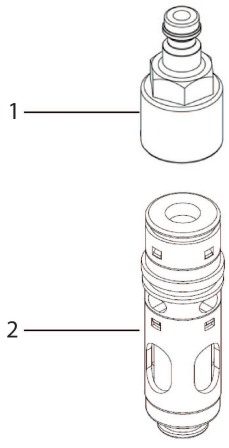


1. Quick Coupling
2. Auxiliary Air Filter Module
3. Injector Body
4. Conductive Hose Connection
5. Powder Inlet / Hopper Connection

E-FEED+3 INJ injector surface cleaning procedure is as follows.

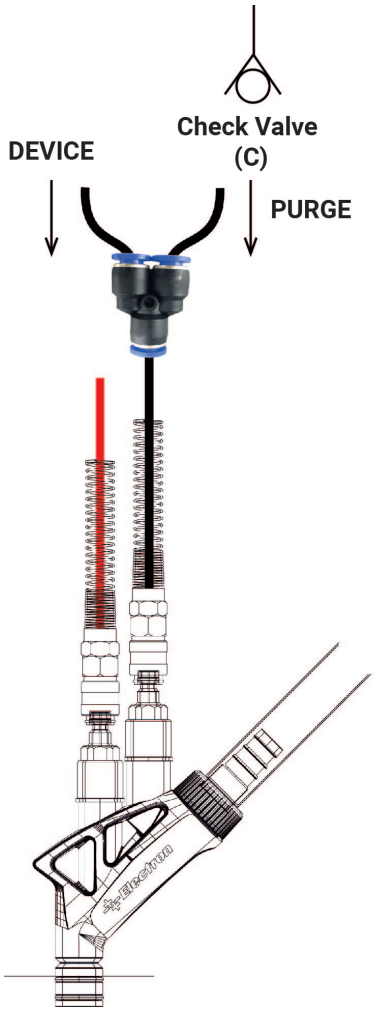
1. Disconnect the injector from the Hopper.
2. Remove the powder coating hose from the Conductive Hose Connector (4).
3. Clean the Hose Connection with oil and water-free compressed air.
4. Thoroughly clean the injector body (3) with oil and water-free compressed air, including the interior of the Paint Inlet / Hopper Connection (5). When pressurized air is applied to the Powder Inlet Area (5), Check to it will exit from the Hose Connection (4).
5. Install the syringe in place on the reservoir and insert the powder coating hose into the Hose Connector (4).

Note: If the injector contains heavily molded paint and the surface cleaning is insufficient, the E-FEED+3 INJ must be completely disassembled and thoroughly cleaned. Disassemble all parts using the correct wrenches.
Rinse all parts with compressed air. Do not scrape off air-clean and stereotyped remnants. Cellulosic thinner can be used for cleaning these parts if necessary. Do not use acetone, do not scrape solidified residues. Never expose the Filter Modules and the white solid filters contained in them to any liquid or solvent. Clean only with air. Replace if necessary.



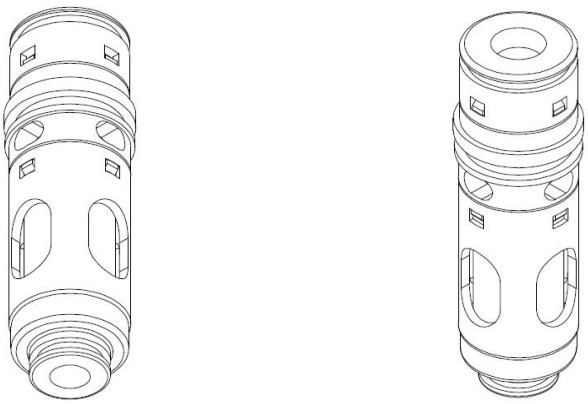
1. Filter Module Quick Connect Hose Adapter
2. Filter Module

6.2. Cleaning Module



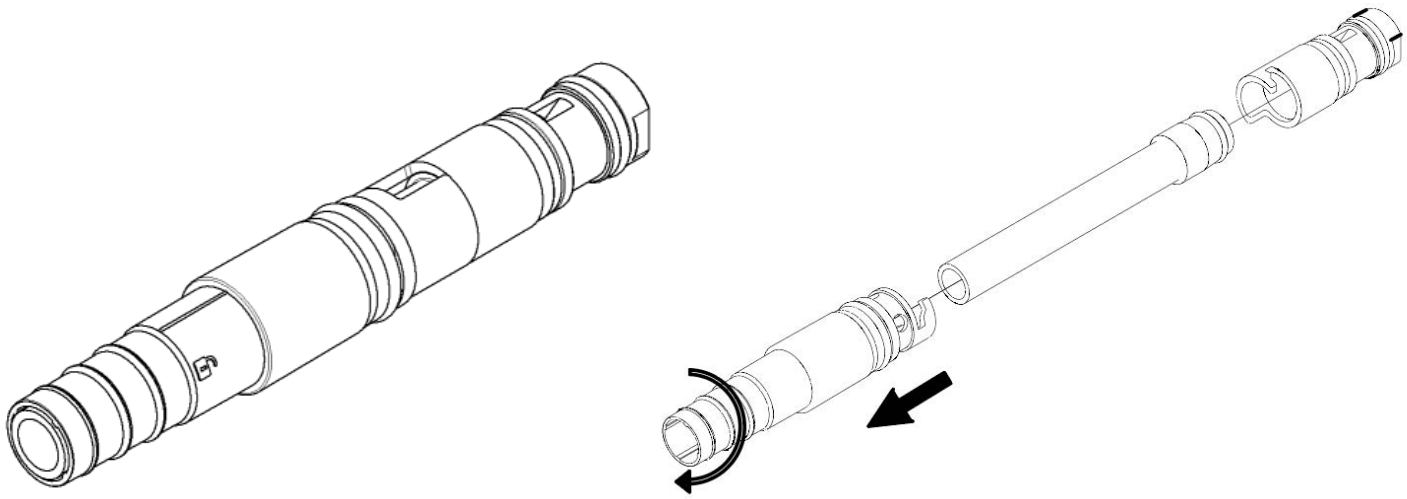
When the purge module used in the new injector system is installed on the injector, it delivers high pressure air to the injector through the auxiliary air duct and cleans the system. The check valve (C) is used for prevent auxiliary air mixing

6.3. Filter Module



The new filter system has a design that allows air to pass through the microporous part, but filters the powder paint, and also controls the direction of the air in the injector with a flexible gasket that provides unidirectional air conduction. Thus, the dust barrier developed prevents the coating dust from entering the air supply path in a direction opposite to the air flow direction and allows rapid color change during the cleaning process without the need to disassemble any parts.

6.4. Teflon Bushing Module



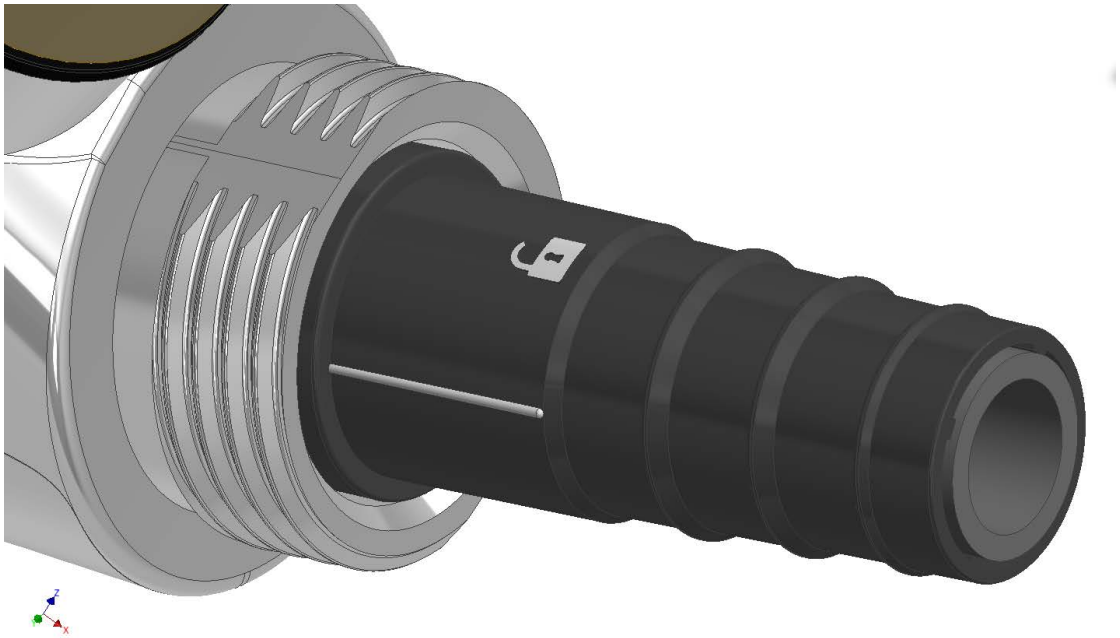
1 2

E-FEED+3 INJ Powder Transmission System

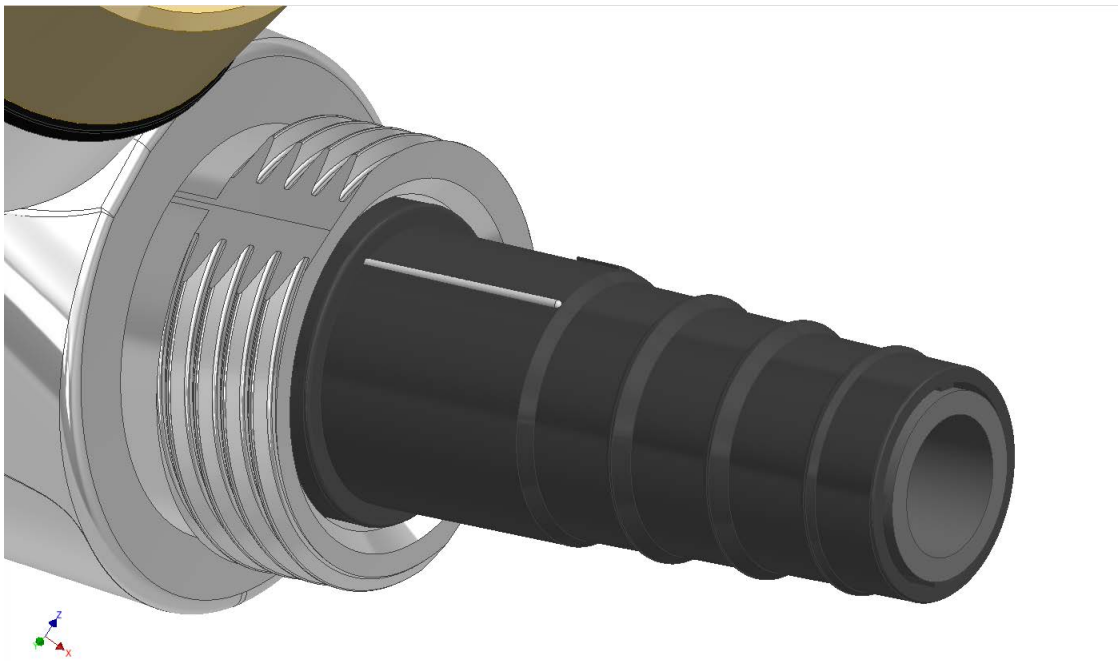
In the 1st image, the powder transmission system is assembled. The teflon bushing must be rotated and attached to the injector nozzle and ensure that it is in place. The disassembled version of the powder transmission system is seen in the 2nd image.

6.5. Injector Nozzle Assembly Module

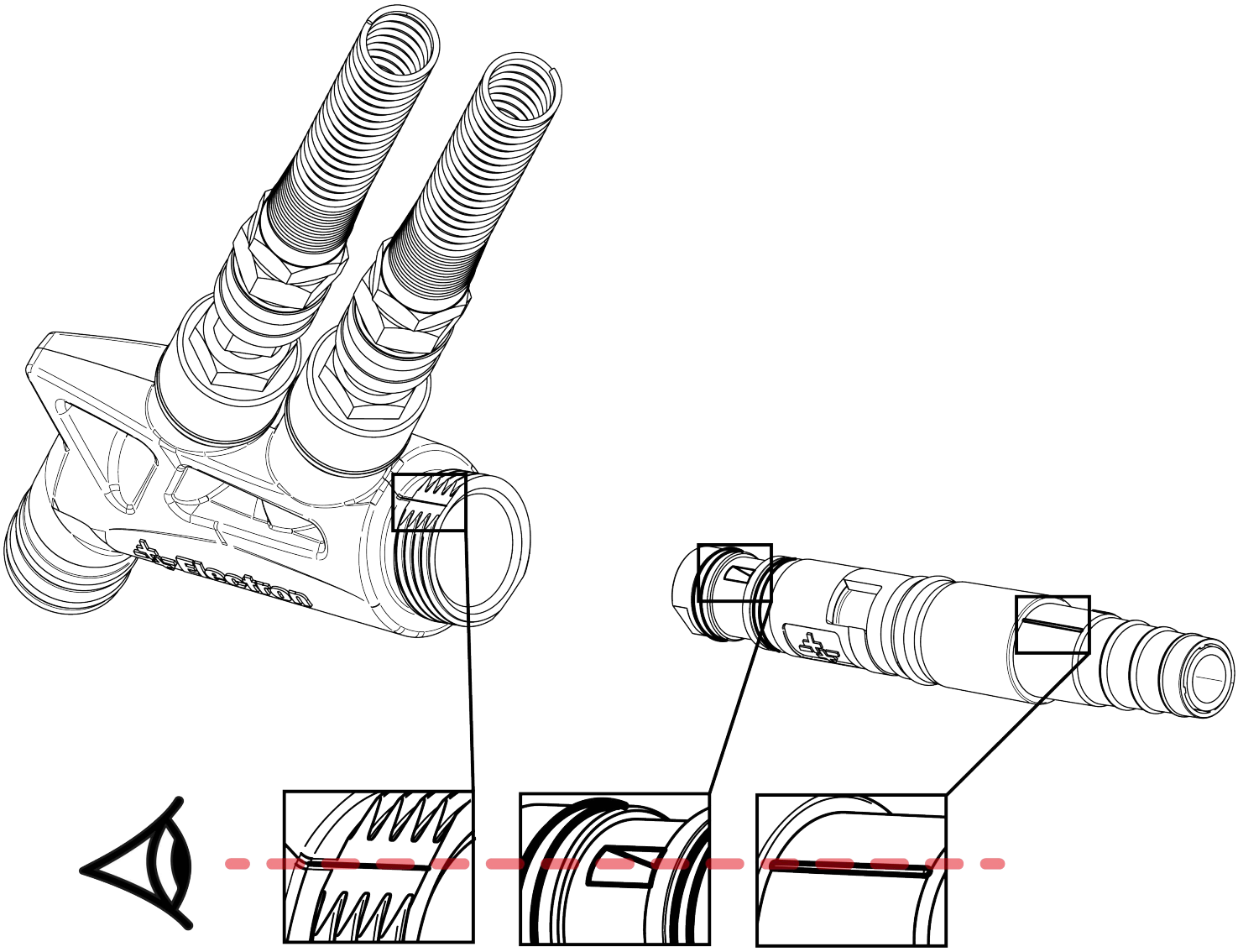
The injector nozzle assembly can be removed and installed in two simple movements.



As seen in the first image, the hose coupling and teflon bushing set can be removed one by one when the assembly is in the unlocked position when rotated.



As seen in the second image, when the lock line of the assembly is aligned with the injector line, the assembly is in the locked position and the entire injector nozzle, teflon bushing and hose coupling set (Powder Transmission System) can be removed.



Connection of the Powder Transmission System with teh E-FEED+3 INJ

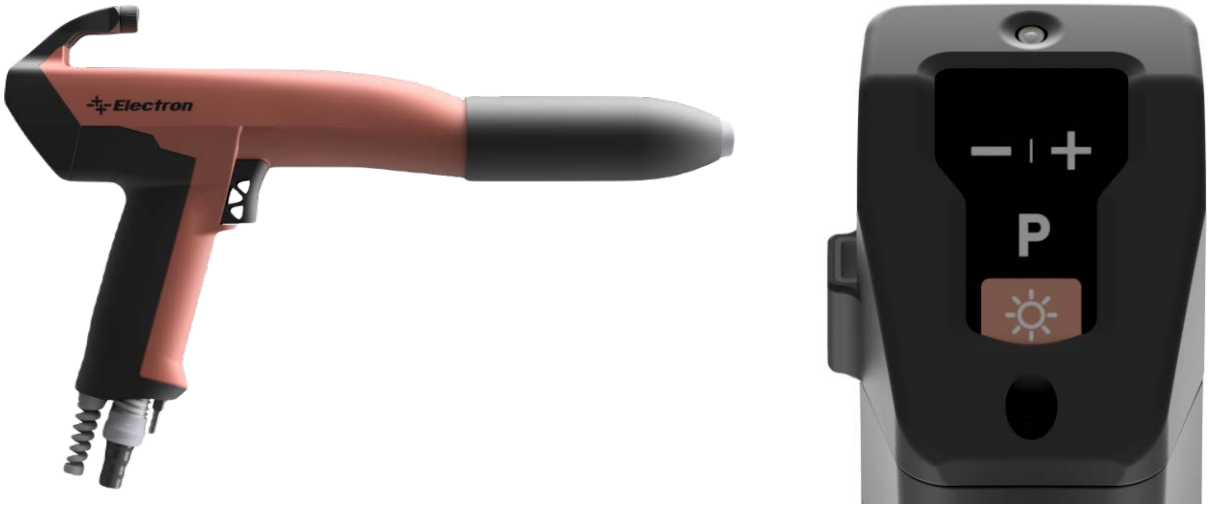
Warning: When attaching the powder transmission system to the injector, the areas shown on the parts of the system must be aligned with the shown line on the injector body.

7- E-GUN+3 C1 General Information

Note: E-GUN+3 C1 Manual Powder Coating Gun includes a 7 mt powder transfer cable.

7.1. Field o Application

E-GUN+3 C1 Manual Powder Coating Gun is designed to use with the organic coating powder. Any other usage of the gun is non-conform. Electron is not responsible for the non-conform usage.



E-GUN+3 C1 Powder Coating Gun

Explosion Protection	Ingress Protection
CE Ex II 2 D	IP64

Note:

Explosion Protection of the E-GUN+3 C1 Powder Coating Gun is only valid if the gun is used with Electron E-COAT+3 Master and Master P Control Units with proper connections don't by the trained personnel. The control unit must be earthed with a resistance below 1 M Ohm. Unless the right Zones are defined and the gun is setup without instructed, Electron is not responsible from any damage or potential damage.

Common User Mistakes

- Trying to coat without grounding the part
- Enamel Powder use
- Not calibrating the powder, supplementary and nozzle airs.
- Humid Powder use

Conformity between Products

Electron E-GUN+3 C1 manual electrostatic spray gun can be used with the products below:

- E-COAT+3 Master
- E-COAT+3 Master P
- E-FEED+3 INJ Injector
- E-FEED+3 AP

7.2. Technical Data

Electrical Data

E-GUN+3 C1 Powder Coating Gun	
Input Voltage (Nominal)	20 Vp-p
Frequency	17 kHz (Average)
Output Voltage (Nominal)	120 kV
Polarity	Negative (Optionally Positive)
Output Current (Max.)	120 µA
High Voltage Indicator	Gun back LED
Explosion Protection	EX 2mJ T6
Working Temperature	0 °C - +40 °C (32 °F - +104 °F)
Surface Temperature (Max.)	85°C (+185 °F)
Ingress Protection	IP 64
Certification	CE Ex II 2 D

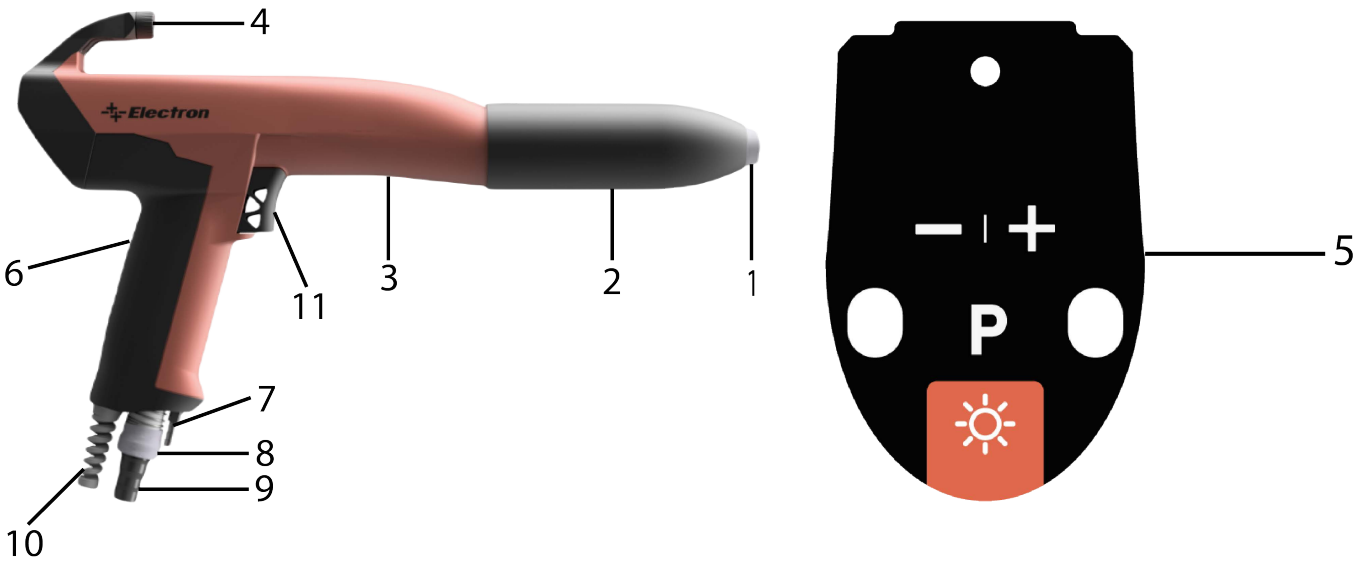
Weight

E-GUN+3 C1 Manual Powder Coating Gun	
Weight	495 g

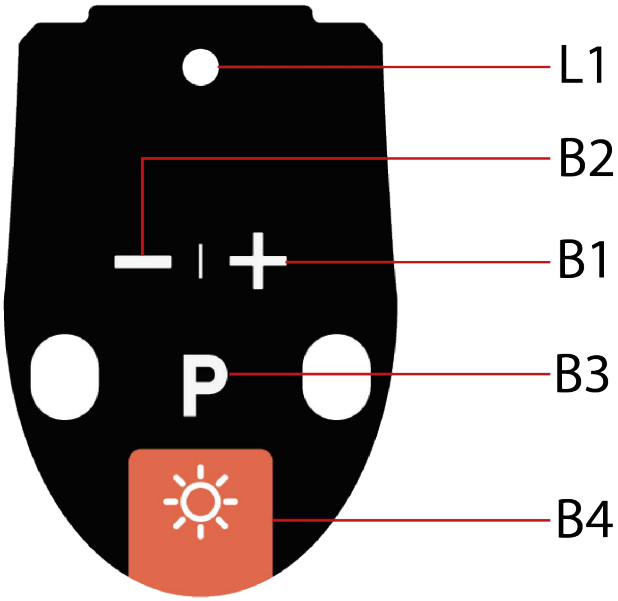
Usable Powders

E-GUN+3 C1 Manual Powder Coating Gun	
Plastic Coating Powder	Conform
Metallic Coating Powder	Conform
Enamel Coating Powder	Non-Conform

7.3. Design and Functions



1. Nozzle Group
2. Nozzle Torque Nut
3. Gun Body (Anti-Static)
4. Hanger with Light(Conductive)
5. Back Control Button Group
6. Gun Grip (Conductive)
7. Nozzle Air Input Connection
8. Cable Connection Locking Ring
9. Powder Coating Cable Connection
10. Gun Cable
11. Trigger



#	Function
L1	High Voltage Indicator (relevant to brightness)
B1	Selected Item Increment Button (If nothing is selected, Powder Increment Button)
B2	Selected Item Decrement Button (If nothing is selected, Powder Decrement Button)
B3	Segment Selection/Cleaning Mode Selection
B4	Gun Light Button

7.4. Lighting Function

The lighting function works in two options.

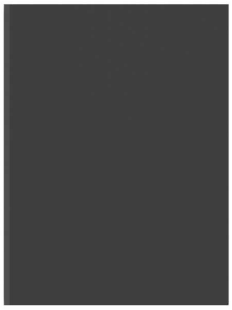
0- Depends on Trigger (11).
1- Depends on Interface Button (B4).

Depends on Trigger: In trigger-based operation, the light is on for the duration of the trigger, and turns off automatically after 10 seconds when the trigger stops. When the interface (light button) is pressed, the light blinks permanently. Thus, the trigger-dependent mode can be turned on/off.

Depends on Interface Button: When the light button on the back of the gun is pressed (inspection mode), the light turns on and turns off automatically after a while.

Lighting Function

Light is On



Light is Off

7.5. Optional Attachments

- FastPurge™ Fast Cleaning Module
- FastCorona™ De-Ionizer Ring
- Different Nozzle Types
- Gun Cable Extension

* For more information please check the Spare Parts Selection Guide.

7.6. Working Principle

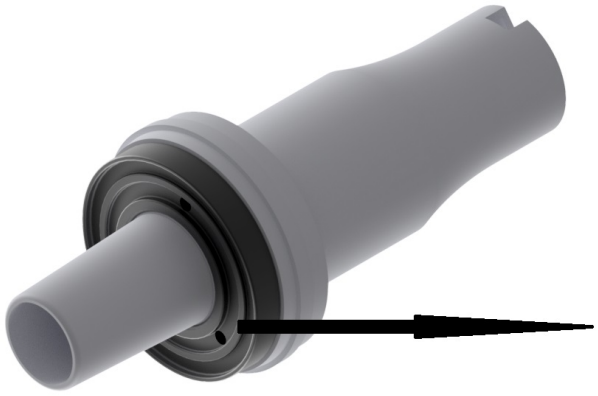
7.6.1. High Voltage Generation

Electrostatic Powder Coating Conrol Unit sends at most 20 Vp-p valued 17 kHz electrical signal to the E-GUN+3's. This signal which travels through the gun cable to the gun reaches an item called “Cascade” which multiplies the voltage. This voltage multiplier system is made from two tiers one of which is the transformer (1). This transformer gets the signal up to a voltage and its then delivered to the second tier (2) where there is capacitor and diodes. The signal gets rectified and multiplied. This multipled signal is delivered to the pre resistor which ensures the safety of the electricity level differences then to the output nozzle group. This high voltage is first loaded to the carbon ring then the tip of the nozzle and transferred to the powder paint while operating.

E-CASCADE+3

7.6.2. Flat Type Nozzle Structure

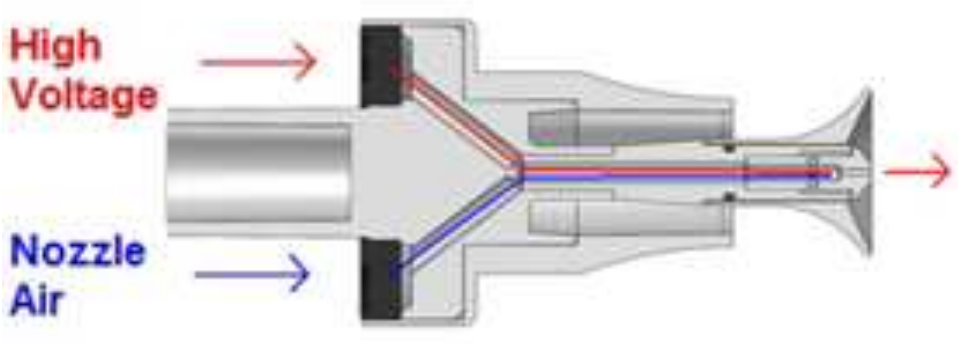
Flat Type Nozzle creates a hand fan shape on the powder while operating and also ensures that the powder is loaded as intended. The nozzle loads the high voltage from the output center to the powder. The high voltage electrode reaches to the tip of the nozzle from a white conical material. This conical isolator and the electrode has to stay clean at all times so the nozzle air should be arranged accordingly. Check the E-COAT+3 Master manual for the preference setup.



WARNING!
The corrugated surface of the carbon ring must face out. If it is inserted opposite, the gun can be damaged.

7.6.3. Deflector Type Nozzle Structure

Deflector type nozzle creates a cloud like pattern as the powder paint comes out from the gun. The nozzle loads the powder with high voltage. High voltage electrode travels through a cylindirical white material to the tip of the nozzle. This isolator and the electrodu should stay clean at all times so the nozzle air has to be set accordingly. Check the E-COAT+3 Master Control Unit guide for the calibration instructions.



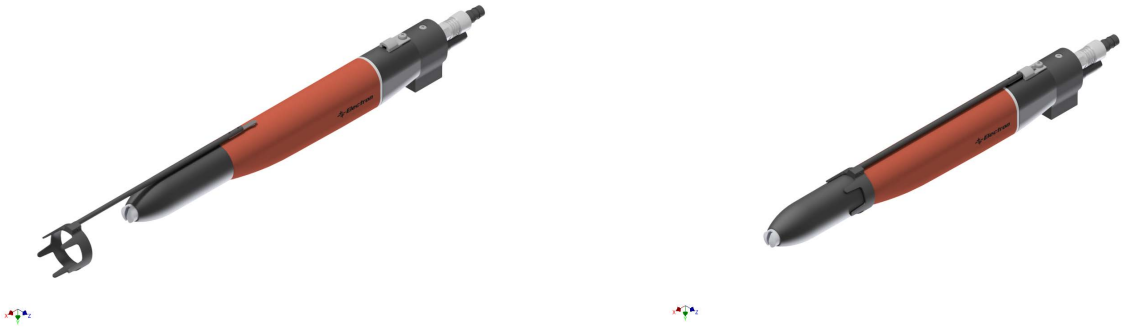
7.6.4. Fast Corona Ring

The Fast Corona Ring is an optional extension for the gun, allowing for a better surface quality when coating with the powder coating equipment.

The performance of the gun with Fast Corona Ring is convincing due to its very good charging and very high deposition rate as well as an improved penetration into Faraday cages. The distance between nozzle and workpiece can be reduced to 100 mm without influencing the surface finish. In this way, the orange peel effect is minimized in cases where more delicate powder coating needs to be performed.

Before fitting the Fast Corona ring, make sure that the connection and the plug-in connector are free from grease and powder, otherwise the electric contact cannot be guaranteed.

E-GUN+3 C1/C2 Fast Corona Ring Assembly



E-GUN+3 C3 Fast Corona Ring Assembly

8. Cleaning and Maintenance

8.1. Cleaning

8.1.1. Gun Body Cleaning

Daily:

- Clean the body of the gun with pressurized air and a clean towel.
- Remove the nozzle torque nut.
- Remove the gun nozzle and the electrode and clean the gun with pressurized air.

Weekly:

- Remove the powder paint hose.
- Clean the powder paint input of the gun with pressurized air.
- Clean the powder paint hose starting from the injector.

Warning: The following solvents may not be used to clean the gun:
Ethylene chloride, acetone, ethyl acetate, methyl ethyl ketone, methylene chloride, premium gasoline, turpentine, tetrachloromethane, toluene, trichloroethylene, xylene!

8.1.2. Nozzle Cleaning

Every other shift or at the end of a working day:

- Remove the nozzle torque nut.
- Remove the gun nozzle and clean both the electrode and the nozzle.
- Clean all the powder thoroughly. Never try to scratch the body with a strong material.

Weekly:

- Check the nozzle group for scratches. Change the nozzle group using the spare parts list if needed.

8.2. Maintanence

E-GUN+3 C1 type manual and C3 type automatic coating guns is designed to be maintained with minimum effort.

- Clean the powder gun body with a clean towel.
- Make an eye check on the gun cable and input hoses.
- Change the powder and pneumatic hoses if needed.

8.3. Part Change

The user can only change the consumables of the gun and some of the E-GUN+3 coating gun parts.

Note: Operations like Changing the Cascade, Trigger mechanism or Gun Cable can only be done by an ELECTRON® approved personnel.

9. Troubleshooting

The failures which are mentioned above can be observed from the “kV “titled segment in the front panel of the device. The fault should be fixed before starting the device and the device should be shut down and start up from the MAIN SWITCH.

The all faults in the user interface are explained below.

Failure	Possible Failure Reason	Solution
Powder Paint is being blown from the gun but the paint doesn't hold on the material. (No High Voltage Output)	1. The material is not earthed 2. The kV parameter is set to 0 3. The signal from the gun does not reach to the Cascade.	1. Earth the material or improve the grounding. 2. Set the kV parameter above 0 3. Check the connection between the gun Cascade and the Socket Group for a possible short circuit inside the gun.
The gun trigger is working and the High Voltage is working but there is no pow- der output.	1. Blockage in the powder route 2. Tearing or disconnection between the injector and the control unit.	1. Remove the blockage in the powder route. 2. Change the Air or Powder Ratio other than 0 on the control unit. 3. Remove the blockage or fix the disconnection.
There isn't any output High Voltage or Powder Output.	1. Gun cable is disconnect 2. Gun cable is damaged 3. Short Circuit or damage in the Gun Trigger grouping	1. Plug the cable. 2. Check for the damage or change the cable 3. Check the grouping for short circuit or damage and change the trigger group if needed.
The interface buttons are not working as intended.	1.The Control Unit front panel mem- brane has a short circuit or damaged. 2.The Control Unit is not correctly configured.	1. Change the keypad of the membrane. 2. Check the entire configuration of the Control Unit and redo the configuration if needed.
The rotary Knob is not changing any values on the screen.	1. The segment is not chosen 2. The Knob is damaged	1. Please select the segment that you want to change. 2. Check the Rotary Knob Nut.

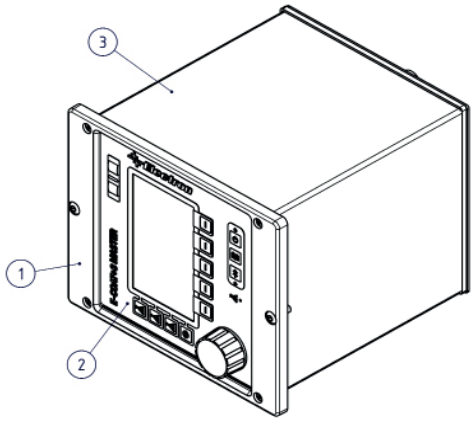
Failure	Explanation	Suggestions
There isn't any high voltage and the control unit is flashing with kV and µA signs	1. Gun cable is not connected. 2. The gun cable is connected but not well fixed to the socket 3. Gun cable is damaged. 4. Cascade is damaged.	1. Connect the gun hose. 2. Fix the cable to the socket. 3. Consult an ELECTRON expert.
Too much multicolor or hopper fluidization	1. Fluidization air is much then desired.	1. Check the regulator and turn it off if neccesary.
Powder Paint is being blown from the gun but the paint doesn't hold on the material (No High Voltage Output)	1.Blockage in the powder route 2.The Air or Powder Ratio segment is set to 0 3.Tearing or disconnection between the injector and the control unit. 4.If the preferences are adjusted in a well manner, the proportional valve inside the gun might be damaged	1. Purge in the powder route 2. Change powder ratio (%) 3. Check the connection between the injector and the control unit. 4. Consult an ELECTRON expert
Pressing the trigger doesn't start the control unit (The LED in front of the control unit is not lit)	1. Gun trigger is damaged	1. Consult an ELECTRON expert
Parameters at the installation are con- figured but the powder pattern is not well.	1. Teflon bushing in the injector's life cycle is ended. 2. Nozzle life cycle is ended. 3. Pneumatic hoses are damaged/broken or plugged. 4. The air channels are plugged. 5. Injector jet's life cycle is ended	1. Change the Teflon bushing. 2. Change the nozzle 3. Fix the pneumatic hoses or change them if needed. 4. Clean the injector and the filters. Change any necessary parts. 5. Change the injector jet.
Vibration Problems (Multicolor Units)	1. Vibration does not work.	1. Press B1 Button to activate 2. Check the connection between control unir and vibration motor 3. Consult an Electron expert

9.1. E-COAT+3 Master Device Error Codes

Code	Description	Criteria	Solution
HIGH VOLTAGE			
E0	NO LOAD	CASCADE IS DETECTED BUT NO LOAD IS DETECTED AT OUTPUT	Device to Gun output/Gun cable is open-circuited or cascade is defective. Check Gun, Gun Cable or Cascade Connections
E1	OVER CURRENT	OVER CURRENT DETECTED AT DEVICE to GUN OUTPUT. OSCILLATION OUTPUT IS TURNED OFF.	Device to Gun output/Gun cable is short-circuited or cascade is defective. Check Gun, Gun Cable for any possible short-circuits. Check Cascade.
E2	NO GROUND	WEAK EARTHING of DEVICE	Improve Earthing connection to the device chassis. Check for proper earthing of common earthing node.
COMMUNICATION MAINBOARD-GUN			
E3	NO GUN	NO GUN or CASCADE IS DETECTED. OSCILLATION OUTPUT IS TURNED OFF.	Device to Gun output/Gun cable is open-circuited or cascade is defective or original Electron cascade is not found. Check Gun, Gun Cable or Cascade Connections.
PNEUMATIC			
E8	SPP AIR HIGH	SUPPLEMENTARY AIR IS TOO HIGH COMPARED TO THE CONVEYING AIR.	Lower supplementary air value or increase value for conveying air to equalize air volume to the injector
E9	CNV AIR HIGH	CONVEYING AIR IS TOO HIGH COMPARED TO THE CONVEYING AIR.	Lower conveying air value or increase value for conveying air to equalize air volume to the injector
POWER SUPPLY			
E16	LOW BATT	BACKUP BATTERY IS LOW	Change Battery on Board in the Device
EQUIPMENT MEMORY (EEPROM)			
E17	EEPROM ERROR	EEPROM ERROR	Contact with Electron

10. Parts and Accessories

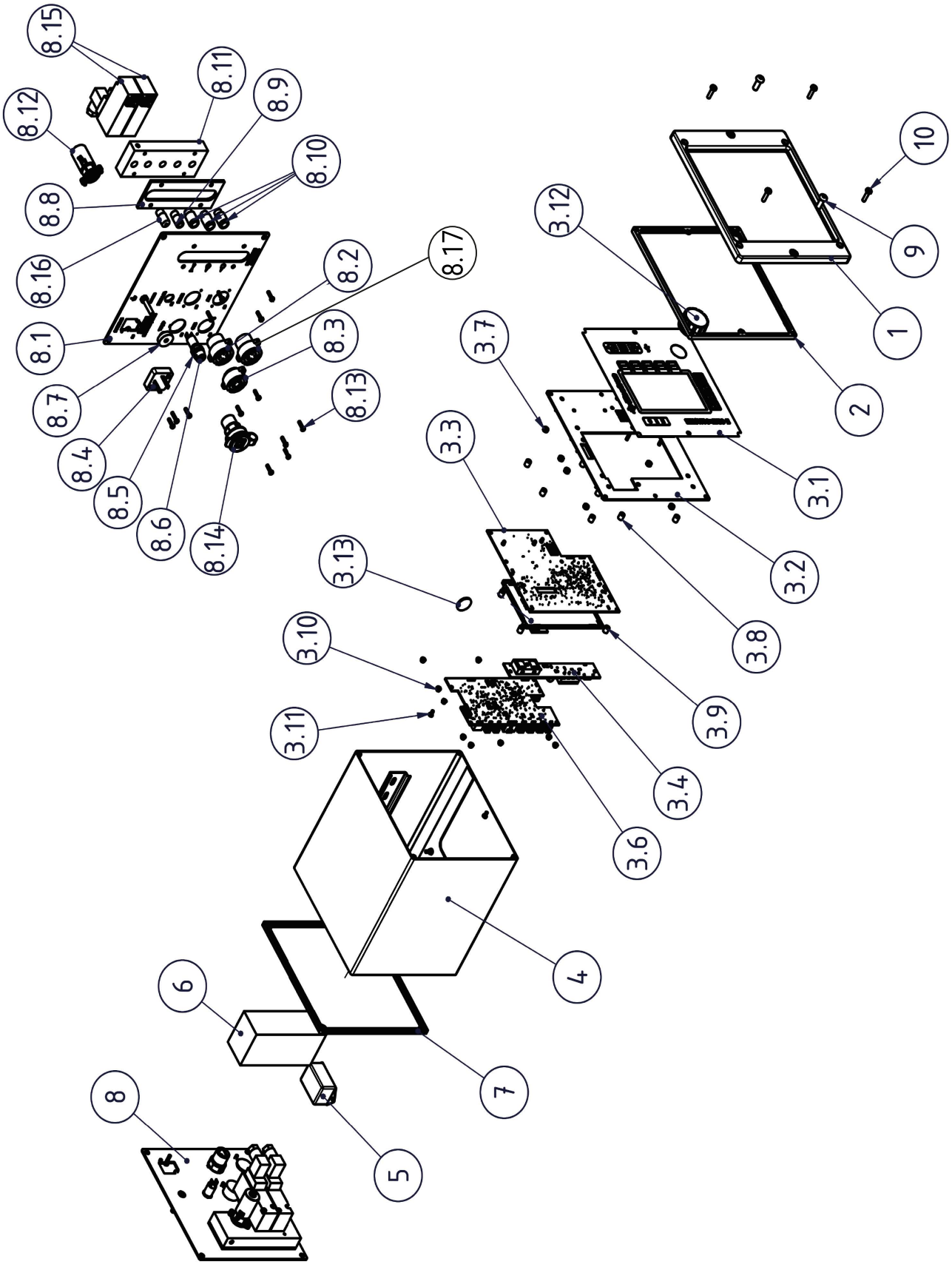
Product	Product Name	Order Code
1	E-COAT+3 MASTER A AUTOMATIC POWDER COATING DEVICE	A06ECA01A+3
2	E-COAT+3 MASTER B MANUEL POWDER COATING DEVICE (A-110V)	A06ECM01B+3-A110V
3	E-COAT+3 MASTER H MANUEL POWDER COATING DEVICE (A110V)	A06ECM01H+3-A110V
4	E-COAT+3 MASTER M MANUEL POWDER COATING DEVICE(A110V)	A06ECM01M+3



Control Unit Type	Order Code
E-COAT+3 MASTER CONTROL UNIT	B07ECMU01+3

Part No	Part Name	Order Code	Qty
1	E-COAT+3 DEVICE CASE FRAME	B07EC5108	1
2	E-COAT+3 MASTER FRONT MEMBRANE SET	B07EC3001	1
3	E-COAT+3 CONTROL UNIT CASE	B07EC5101	1

Order Code	Part Name	Wearing Part	RECOMMENDED STOCK PARTS
B07POWER01-A110V	E-COAT MANUAL POWDER COATING MACHINE POWER CABLE (3 m) (A110V)	N/A	✓
B07POWER02	E-COAT AUTOMATIC DEVICES POWER CABLE (4 m)	N/A	✓
B07140513	E-COAT ETHERNET SOCKET MODULE WITH PATCH CABLE	N/A	N/A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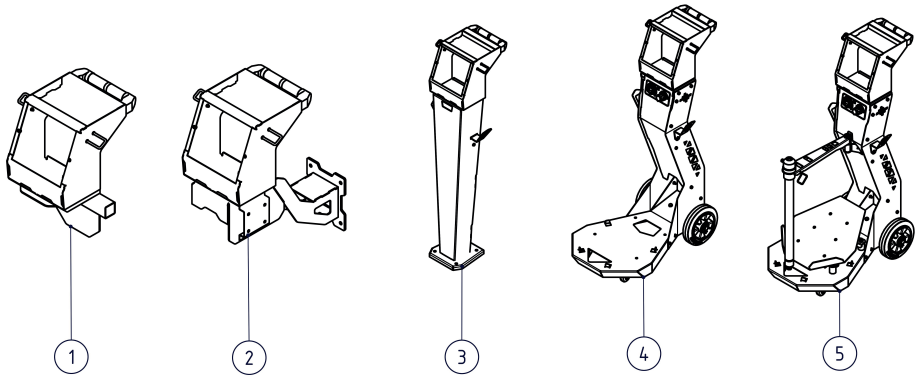
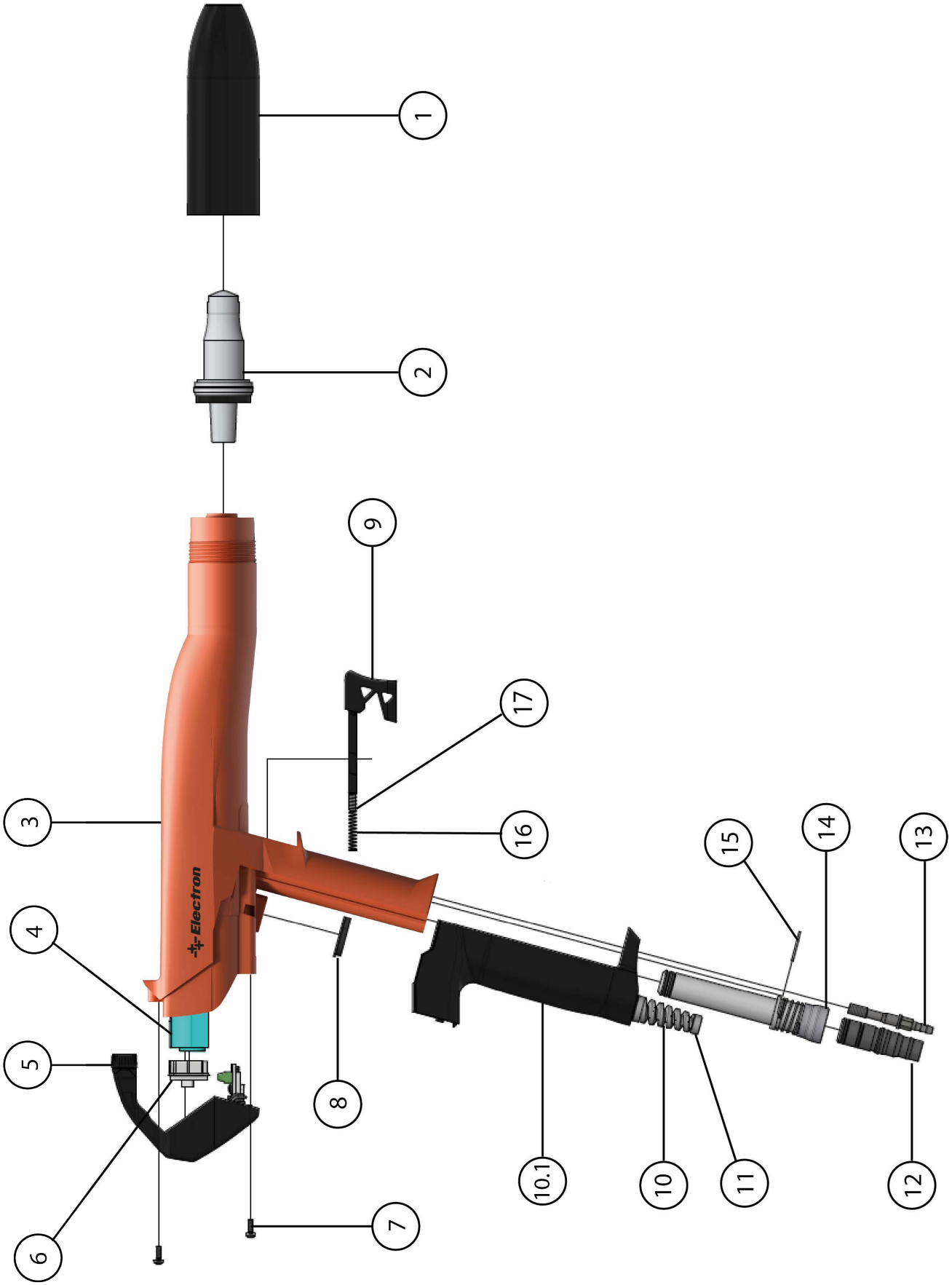
Part No	Part Name	Order Code
1	E-COAT+3 DEVICE CASE FRAME	B07EC5108
2	E-COAT+3 FRONT SEALING GASKET	IZCS01016
3	E-COAT+3 MASTER FRONT MEMBRANE SET	B07EC3001
3.1	E-COAT+3 MASTER FRONT MEMBRANE	ETKT04014
3.2	E-COAT+3 MASTER FRONT ALUMINUM SHEET	B07EC5103
3.3	E-COAT+3 MASTER DISPLAY BOARD	B07500030P
3.4	E-COAT+3 MASTER POWER CARD	ELON09030
3.5	E-COAT+3 MASTER ROTARY CARD (NOT SHOWN)	B07500031
3.6	E-COAT+3 MASTER MAINBOARD	B07500029P
3.7	NYLON SPACER 3 MM	ELDE05003
3.8	NYLON SPACER 6 MM	ELDE05005
3.9	NYLON SPACER 7 MM	ELDE05009
3.10	NUT M3	BESM01002
3.11	SCREW M3X6	BECV01058
3.12	KNOB ROTARY	ELON12003
3.13	BATTERY	ELDE03002
4	E-COAT+3 MASTER DEVICE CASE	B07EC5101
5	EMI LINE FILTER - 3A DELTA 03DBAG5 1P 115V/250VAC	ELON05003
6	SMPS MEANWELL EPS65-24V 65W DIN RAY TIPE	ELON10022
7	E-COAT+3 MASTER BACK SEALING GASKET	IZCS01017
8	E-COAT+3 MASTER BACK SHEET ASSEMBLY	*
8.1	E-COAT+3 MASTER BACK SHEET	B07EC5104
8.2	4 PIN FEMALE CONNECTOR	ELKS03001
8.3	7 PIN FEMALE CONNECTOR	ELKS03003
8.4	POWER IN SOCKET	ELKS10004
8.5	FUSE HOLDER	ELDE06006
8.6	FUSE 1,6 A	ELDE06002
8.7	GROUNDING NUT	TRTM05017
8.8	GASKET EPDM	IZCS01003
8.9	PNEUMATIC PUSH IN MALE CONNECTOR 1/8” - Ø6	PNRD01010
8.10	PNEUMATIC PUSH IN MALE CONNECTOR 1/8” - Ø8	PNRD01011
8.11	VALVE ISLAND V2	TRTM04137
8.12	PROPORTIONAL VALVE FOR NOZZLE AIR SET	B07ECV001
8.13	SCREW M3X10	BECV01002
8.14	ETHERNET SOCKET	ELKS09002
8.15	PROPORTIONAL VALVE FOR PAINT/AUX AIR SET	B07ECV002
8.16	PNEUMATIC SILENCER	PNDP01001
8.17	CABLE SET E-COAT+3 Aux (5 pin)	B07ECK558
9	M6X16 E-COAT CONTROL UNIT FRAME NUT	BECV03029
10	M4X15 YSB SCREW	BECV01009



Part No	Accesory Type	Order Code
1	E-COAT+3 PLATFORM MOUNTING KIT	B07ECT004+3
2	E-COAT+3 WALL MOUNTING KIT	B07ECT003+3
3	E-COAT+3 SINGLE STAND KIT	B07ECT005+3
4	E-COAT+3 DEVICE CART HOPPER (US VERSION)	B07ECT118
5	E-MULTICOLOR+3 DEVICE CART (A-110V)	B07ECT109

Part No	Order Code	Part Name	Wearing Part
1	B07EGC100+3	E-GUN+3 C1 MANUEL POWDER COATING GUN	N/A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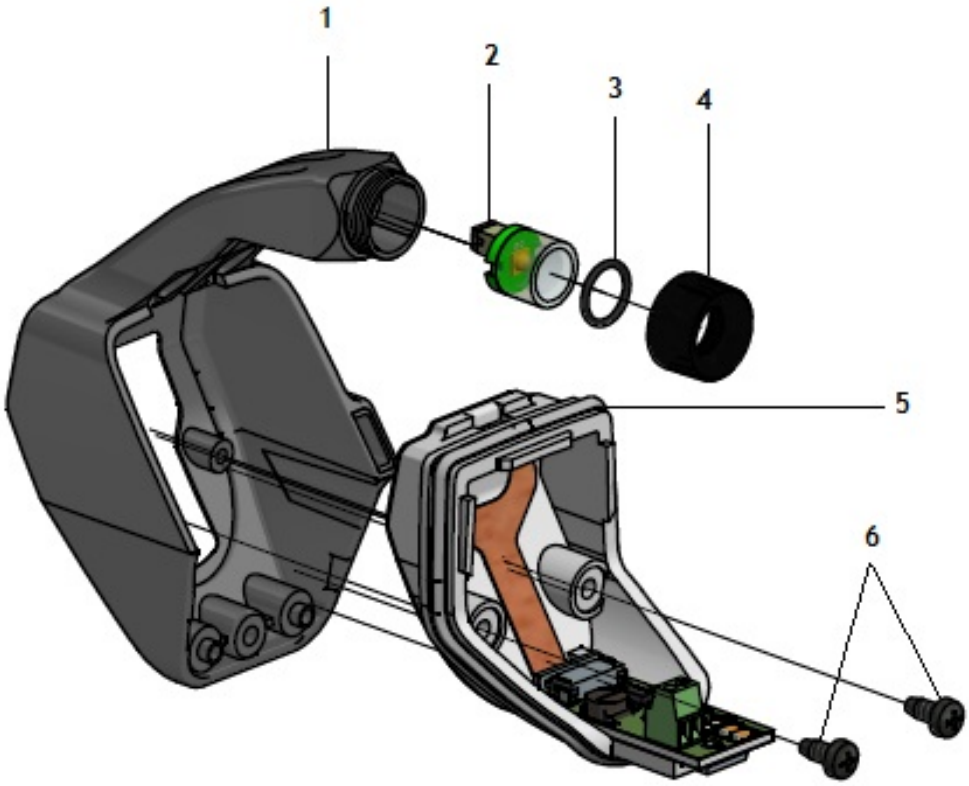
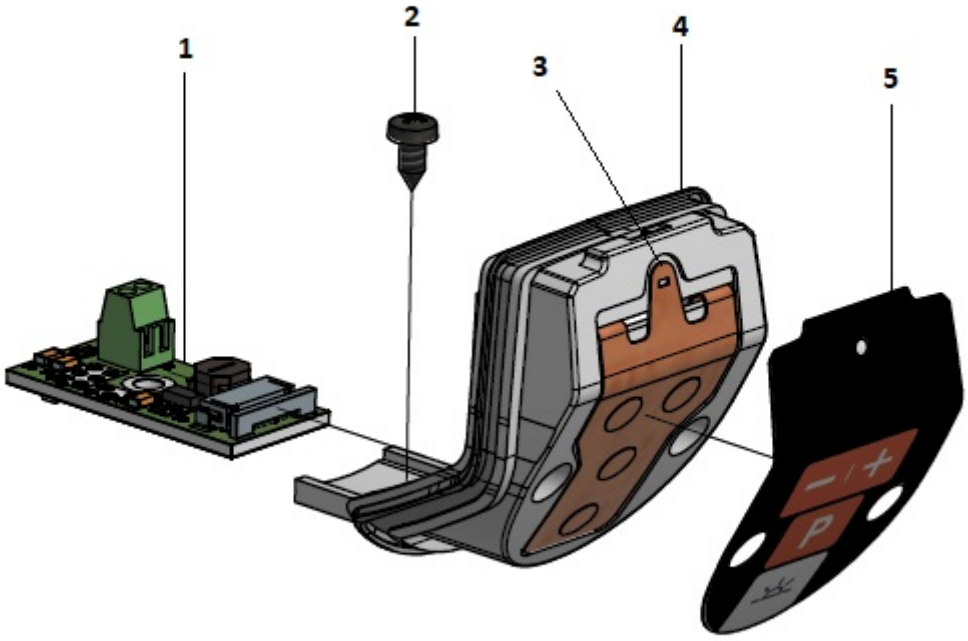
PART #	ORDER CODE	PART NAME	Wearing Part	RECOMMENDED STOCK PARTS
1	B10631007	E-GUN+3 NOZZLE TIGHTENING NUT	N/A	✓
2	B07531002	E-GUN+3 FLAT HEAD GROUP	✓	✓
3	B10631001	E-GUN+3 MANUAL GUN PLASTIC BODY (COMPLETE)	✓	✓
4	B07EGCN02	E-CASCADE+3	N/A	✓
5	B07BC0003	E-GUN+3 BACK COVER (COMPLETE)	N/A	✓
5.1	B07EGK002	E-GUN+3 LED COMPLETE SET	N/A	✓
6	ENEM04009	E-GUN+3 ISOLATION GASKET	N/A	✓
7	BECV01001	M3X8 YSB BOLT	N/A	N/A
8	ENEM04011	E-GUN+3 HANDLE GASKET	N/A	✓
9	B07531003	E-GUN+3 MANUAL GUN TRIGGER (COMPLETE)	N/A	N/A
10	B07531005	E-GUN+3 MANUAL GUN HANDLE SET (COMPLETE)	N/A	N/A
10.1	B10631006	E-GUN+3 MANUAL GUN HANDLE PLASTIC	N/A	N/A
11	ELKA03008	E-GUN+3 SPIRAL TIP HOSE FITTINGS	N/A	N/A
12	B07EC0004	E-GUN+3 POWDER HOSE CONNECTION w/ O-RING	N/A	✓
13	TRTM08279	E-GUN+3 NEEDLE AIR INLET Ø8XL50	N/A	N/A
14	B07531004	E-GUN+3 MANUAL GUN POWDER INLET TUBE	✓	✓
15	B06CE22001	E-GUN+3 POWDER HOSE LOCKING	N/A	N/A
16	BEDH09013	E-GUN+3 CHROME TRIGGER SPRING	N/A	N/A
17	BEDH14008	E-GUN+3 CYLINDRICAL TRIGGER MAGNET	N/A	N/A

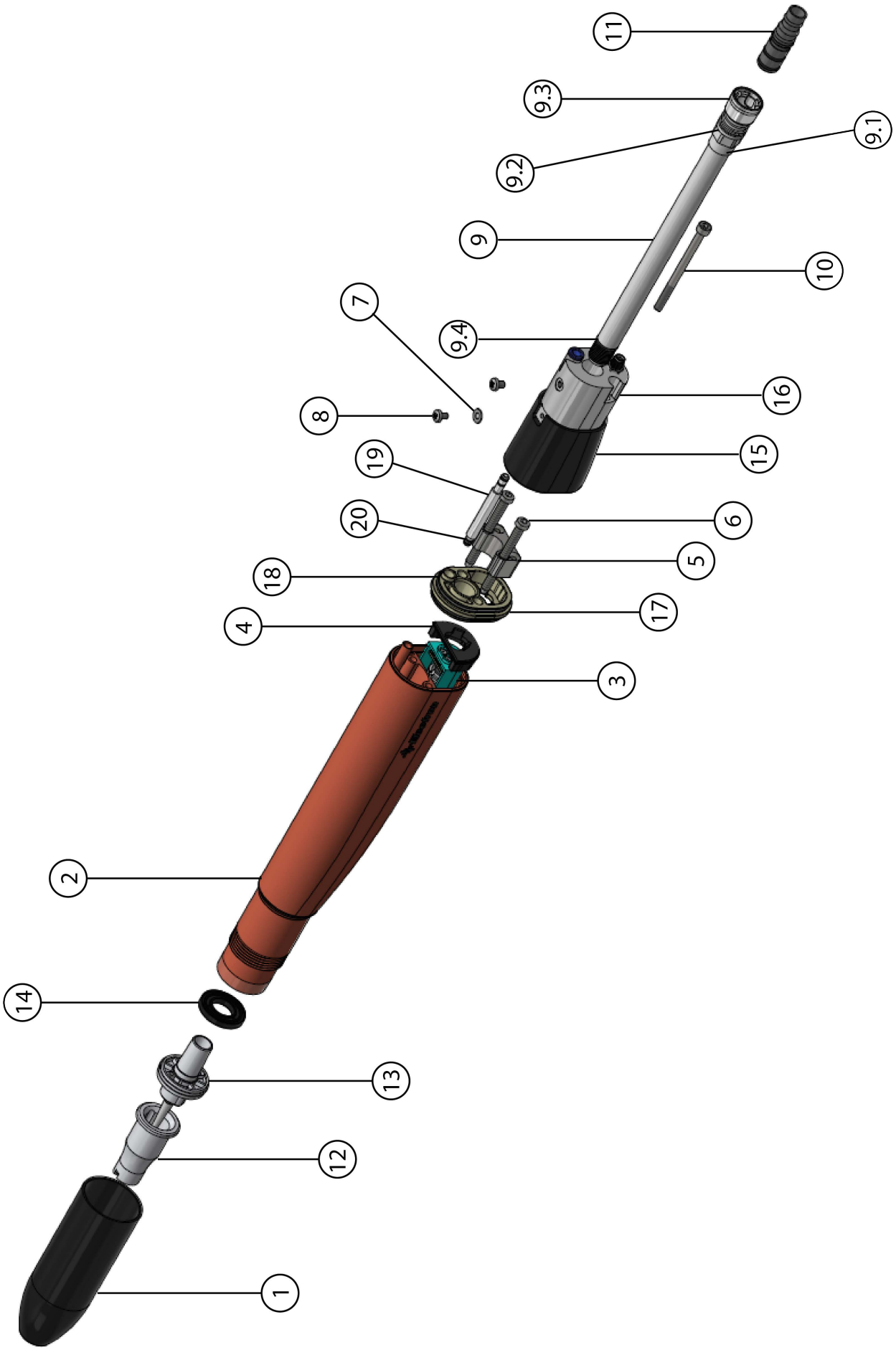


PART #	ORDER CODE	PART NAME	WEARING PART	RECOMMENDED STOCK PARTS
1	B10631008	E-GUN+3 C1 BACK COVER	N/A	✓
2	B07EGK002	E-GUN+3 LED LIGHT (COMPLETE)	N/A	N/A
3	IZOR01076	O-RING Ø8X1	✓	✓
4	B10631004	E-GUN+3 C1 LIGHT COVER PLASTIC	N/A	✓
5	B10631009	E-GUN+3 BUTTON BODY	N/A	✓
6	BECV09001	SCREW 3X6,5 PLASTIC PYSB METALLIC	N/A	N/A



PART #	ORDER CODE	PART NAME	WEARING PART	RECOMMENDED STOCK PARTS
1	B07EGK001	E-GUN+3 C1 MANUEL GUN CARD (COMPLETE)	N/A	✓
2	BECV09001	SCREW 3X6,5 PLASTIC PYSB METALLIC	N/A	N/A
3	B07LG5007	FLEX PCB	✓	✓
4	ENEM04010	E-GUN+3 BUTTON BODY GASKET	N/A	✓
5	ETKT03075	E-GUN+3 BACK KEYPAD LEXAN	N/A	✓

Part No	Order Code	Part Name	Wearing Part
1	B07EGC300+3	E-GUN+3 C3 AUTOMATIC POWDER COATING GUN	N/A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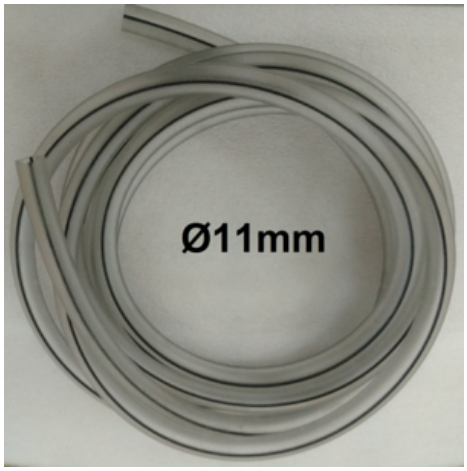
Part No	Order Code	Part Name	Wearing Part	RECOMMENDED STOCK PARTS
1	B10631007	E-GUN+3 C3 NOZZLE TIGHTENING NUT	N/A	N/A
2	B10632001	E-GUN+3 C3 PLASTIC FRONT BODY	✓	✓
3	B07EGCN02	E-CASCADE+3	N/A	✓
4	ENEM04012	E-GUN+3 C3 CASCADE ISOLATION GASKET	N/A	N/A
5	TRTM06245	E-GUN+3 C3 INSIDE ASSEMBLY PART	N/A	N/A
6	BECV01064	SCREW CYLNDRIC HEAD Ø5,5 FOR PLASTIC SPECIAL	N/A	N/A
7	BEPL03002	A 4.3 WASHER	N/A	N/A
8	BECV01020	M4X6-H SCREW	N/A	N/A
9	B07531001	E-GUN+3 C3 PAINT INLET TUBE	✓	✓
9.1	B10632002	E-GUN+3 C3 PAINT TUBE	✓	✓
9.2	BEDH09003	HOSE INLET SPRING	✓	✓
9.3	TRTM04009	GUN HOSE INLET LOCKING RING	✓	✓
9.4	IZOR01085	O-RING Ø10,5X1	✓	✓
10	BECV08003	M5X70 CYLINDER HEAD CAP SCREW	N/A	N/A
11	B07EC0004	E-GUN+3 C3 HOSE CONNECTION PART W/ORING	✓	✓
12	TRTM01046	E-GUN+3 FLAT CAP	✓	✓
13	B07531006	E-GUN+3 FLAT ELECTRODEGROUP	✓	✓
14	TRTM08282	E-GUN+3 Ø35 CARBON RING	✓	✓
15	B10632003	AUTOMATIC GUN PLASTIC BODY BACK PART	✓	✓
16	TRTM04196	AUTOMATIC GUN BACK FINISHER	✓	✓
17	B10632004	CASCADE COMPRESSION PLASTIC	✓	✓
18	IZOR01079	O-RING - CASCADE COMPRESSION PLASTIC	✓	✓
19	TRTM08301	E-GUN+3 C3 NEEDLE AIR TRANSMISSION PART	✓	✓
20	IZOR01081	O-RING Ø3X1	✓	✓

Note: Please check the nozzle types selection list

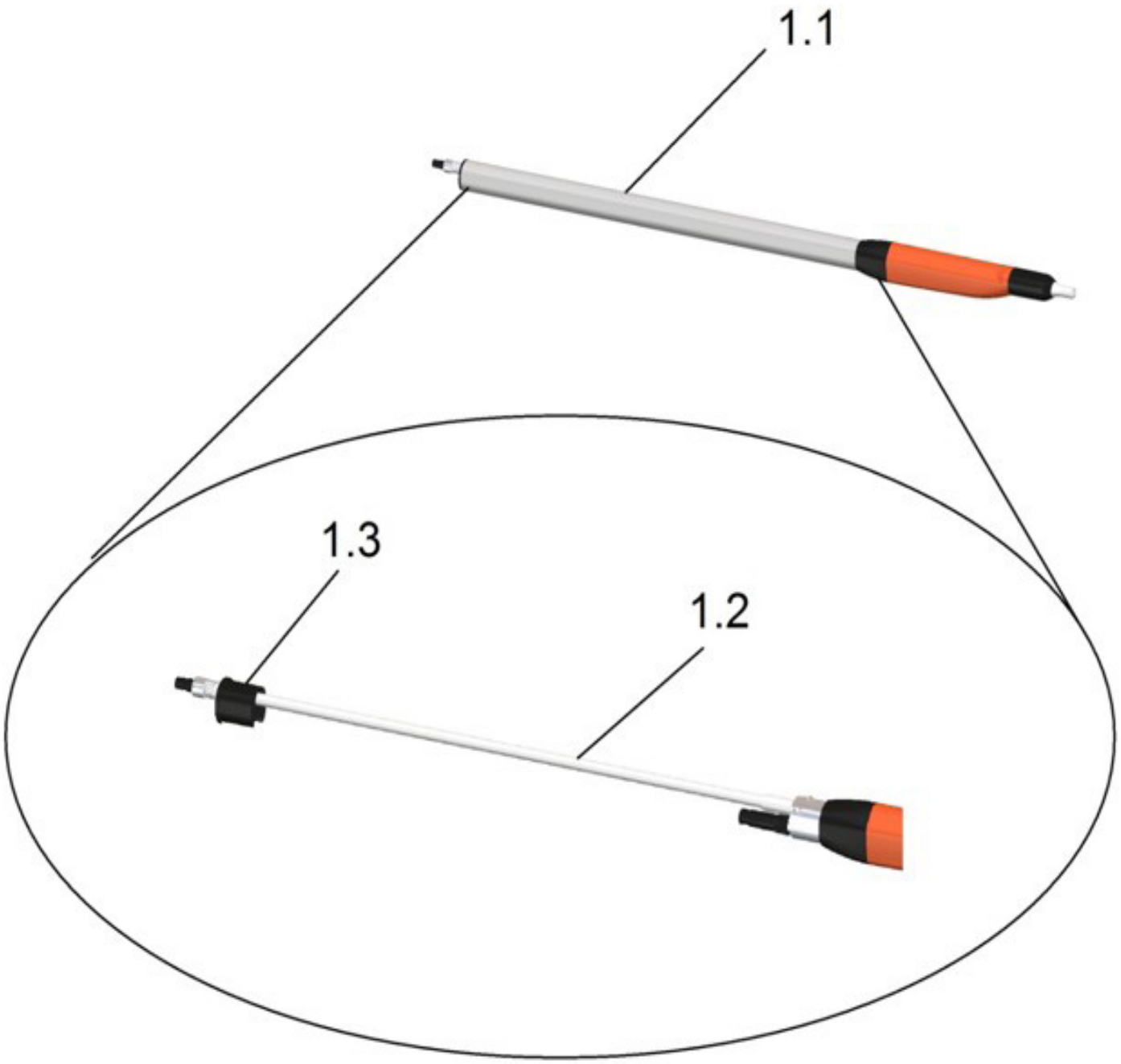
L = 5 m
L = 10 m

Part No	Part Name	Order Code	Wearing Part	RECOMMENDED STOCK PARTS
1	E-GUN GUN CABLE EXTENSION KIT 5 M	B07EXT005	N/A	N/A
2	E-GUN GUN CABLE EXTENSION KIT 10 M	B07EXT006	N/A	N/A

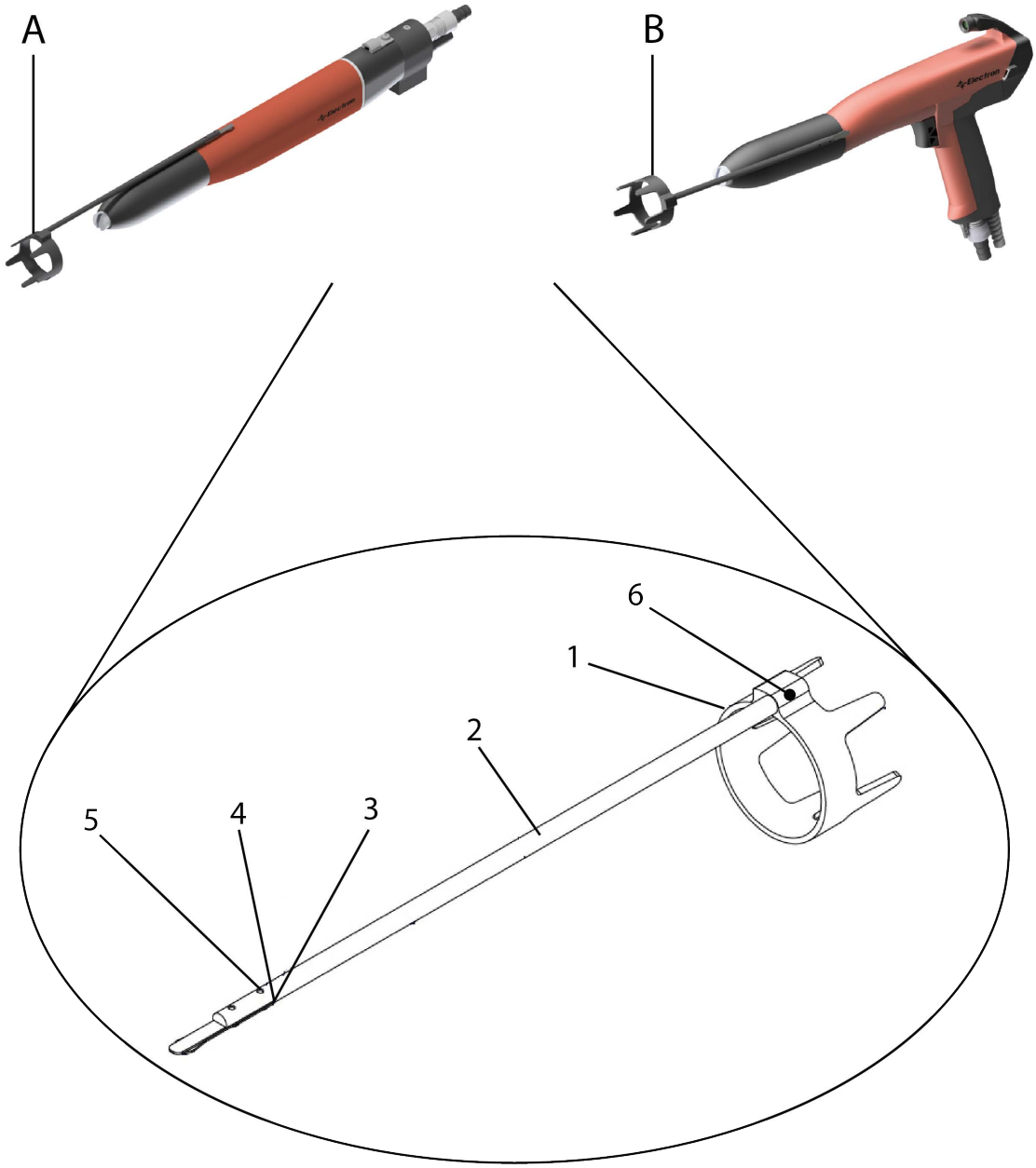


Part No	Part Name	Order Code	Wearing Part	RECOMMENDED STOCK PARTS
1	11X16 POWDER HOSE w/ DOUBLE CARBON DISCHARGE LINES (ORDER IN METERS)	PNHO03001	✓	✓

Part No	Part Name	Order Code	Wearing Part
1	E-COAT+3 EARTHING CABLE (3m)	B07ECK506	N/A

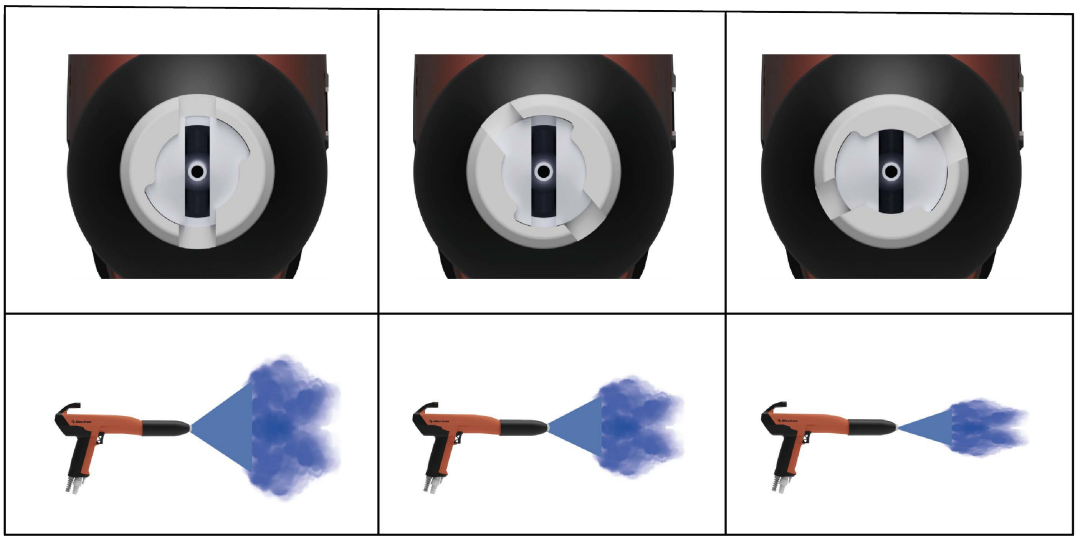


Part No	Order Code	Part Name	Wearing Part	RECOMMENDED STOCK PARTS
1	B07RCA301	COMPOSITE RECIPROCATOR ARM	N/A	N/A
1.1	AKUA03002	E-GUN+3 C3 COMPOSITE RECIPROCATOR ARM 750 MM	N/A	✓
1.2	B07RCA301B	RECIPROCATOR ARM PAINT TRANSFER PIPE (COMPL.)	✓	✓
1.3	B06CE05001	RECIPROCATOR ARM BACK COVER	N/A	N/A



Part No	Order Code	Part Name	Wearing Part
A	B07FCR301	E-GUN+3 C3 FAST CORONA RING	N/A
B	B07FCR302	E-GUN+3 C1/C2 FAST CORONA RING	N/A
1	TRTM04199	E-GUN+3 FAST CORONA RING CHARGE COLLECTOR	N/A
2	TRTM04201	E-GUN+3 FAST CORONA RING SHAFT Ø6XL193	N/A
3	BEDH09017	E-GUN+3 FAST CORONA LOCKING SPRING	N/A
4	BEDH09016	E-GUN+3 FAST CORONA LOCKING BASE SPRING	N/A
5	BECV02041	SCREW M2,5X5	N/A
6	BEDH08003	SETSCREW M4X06	N/A

Part No	Order Code	Part Name	Wearing Part	RECOMMENDED STOCK PARTS
1	TRTM03112	E-GUN+3 FLAT CAP PATTERN ADJUSTER	✓	✓
2	B07EGC100+3	E-GUN+3 C1 MANUAL GUN	N/A	N/A
3	B07EGC300+3	E-GUN+3 C3 AUTOMATIC GUN (Not Shown)	N/A	N/A
4	B07EGC200+3	E-GUN+3 C2 MANUAL GUN (Not Shown)	N/A	N/A

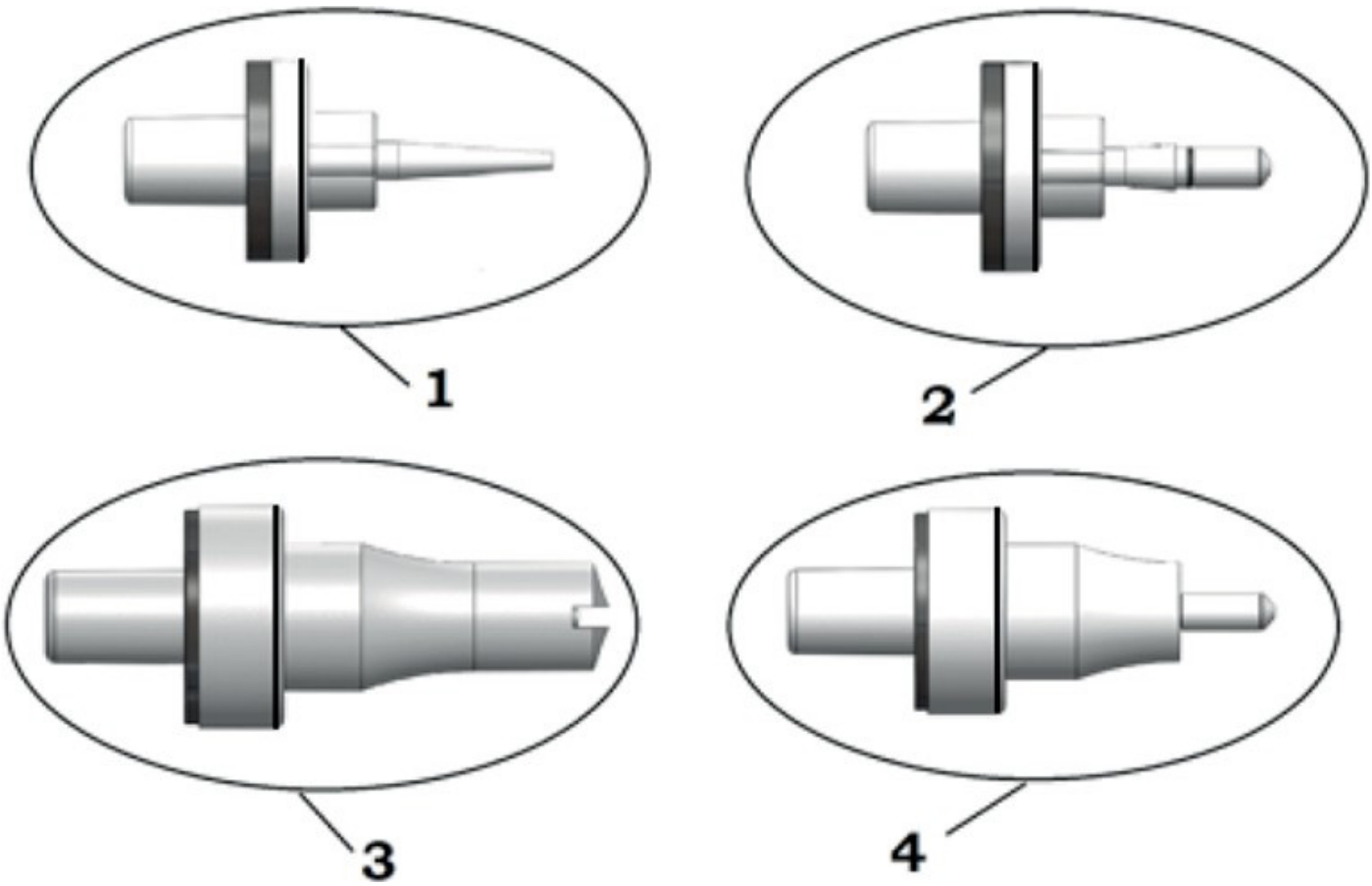


STANDARD PATTERN NARROW PATTERN FOCUSED PATTERN

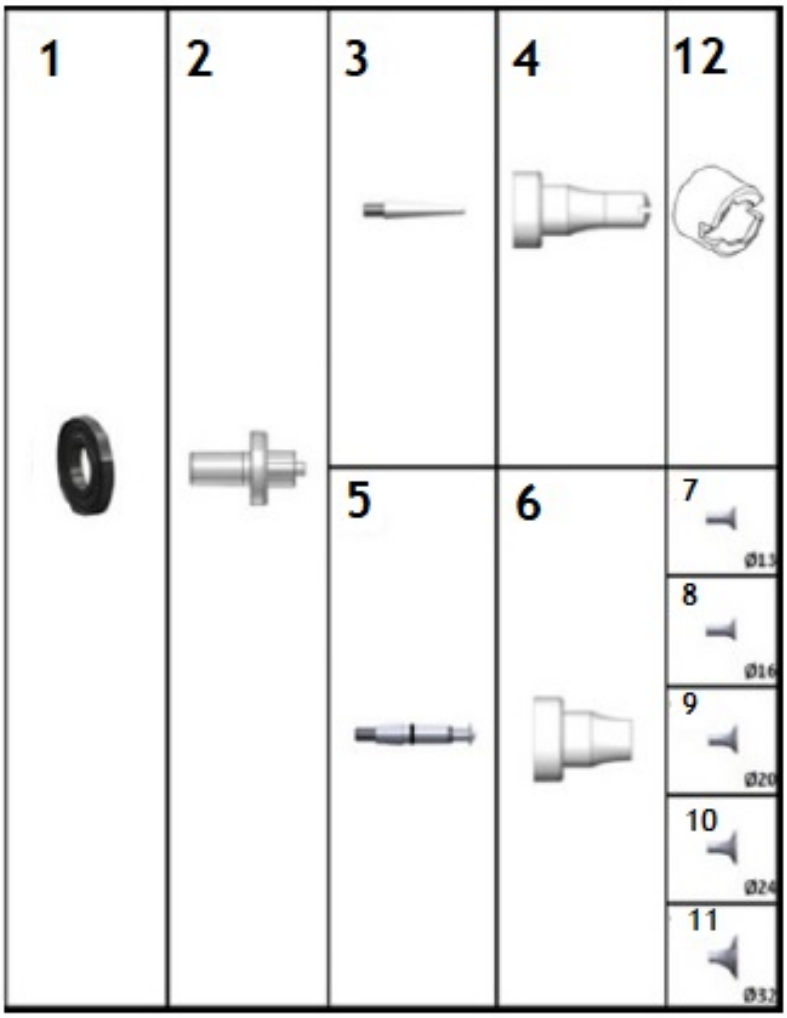
The Pattern adjuster attached to the tip of the manual or automatic gun ensures that the paint coming out of the gun is formed in a narrowed form. It is used by rotating and has three positions.

1.Standard Pattern
2.Narrow Pattern
3.Focused Patern

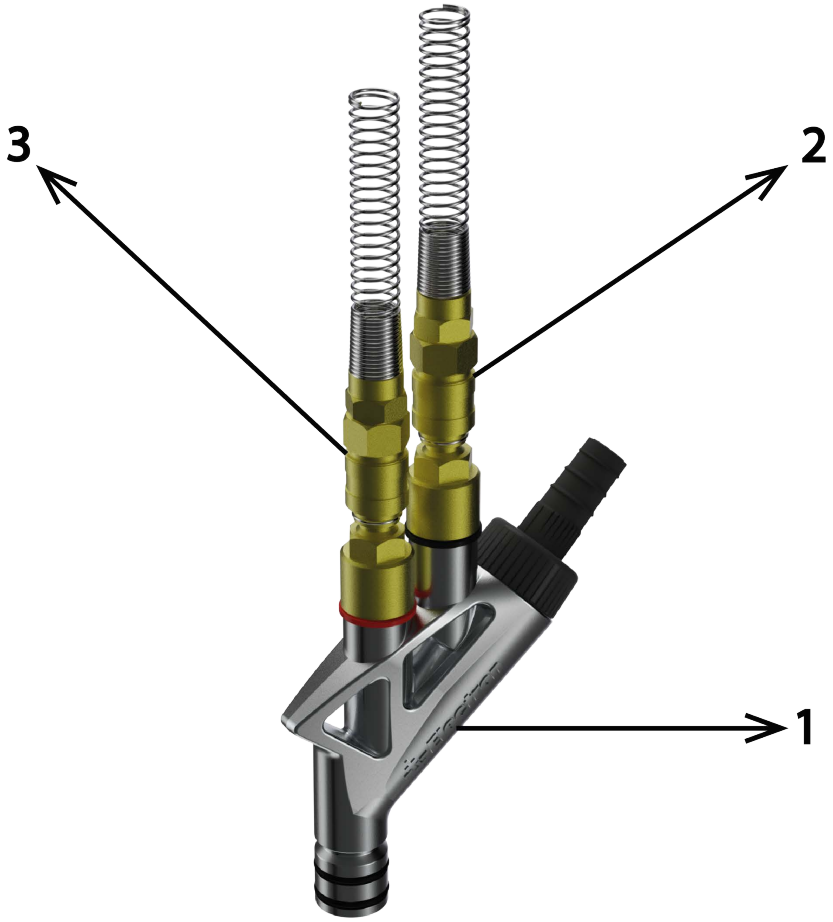
The pattern adjuster ensures that the powder paint reaches the deepest points of the recessed parts. It is recommended for use in coating parts with recesses or complex geometry.



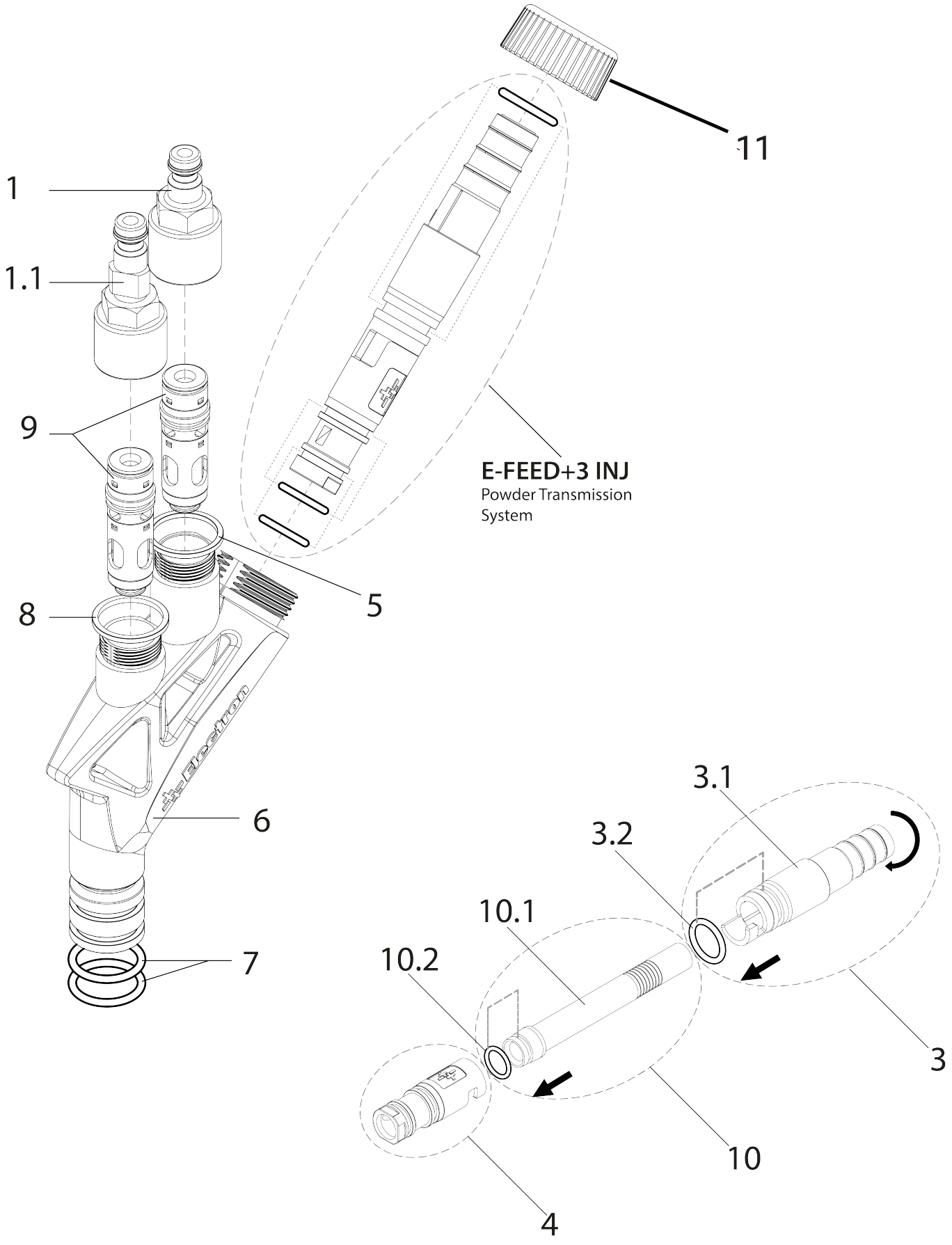
Part No	Order Code	Part Name	Wearing Part	RECOMMENDED STOCK PARTS
1	B07531006	E-GUN+3 FLAT ELECTRODE GROUP	✓	✓
2	B07531007	E-GUN+3 ELECTRODE GROUP WITH DEFLECTOR	✓	✓
3	B07531002	E-GUN+3 FLAT HEAD GROUP	✓	✓
4	B07531008	E-GUN+3 HEAD GROUP WITH DEFLECTOR	✓	✓



Part No	Order Code	Part Name	Wearing Part	RECOMMENDED STOCK PARTS
1	TRTM08282	E-GUN+3 Ø35 CARBON RING	✓	✓
2	B10631003D	**E-GUN+3 ELECTRODE BODY**	✓	✓
3	TRTM01022	E-GUN+3 FLAT HEAD GROUP CONICAL INSULATOR	✓	✓
4	TRTM01046	E-GUN+3 FLAT CAP	✓	✓
5	B07524503	**E-GUN+3 DEFLECTOR HEAD ASSEMBLY SHAFT SET**	✓	✓
6	TRTM01048	E-GUN+3 DEFLECTOR CAP	✓	✓
7	TRTM03013	E-GUN+3 Ø13 DEFLECTOR	✓	✓
8	ENEM01044	E-GUN+3 Ø16 DEFLECTOR	✓	✓
9	ENEM01045	E-GUN+3 Ø20 DEFLECTOR	✓	✓
10	ENEM01046	E-GUN+3 Ø24 DEFLECTOR	✓	✓
11	ENEM01067	E-GUN+3 Ø32 DEFLECTOR	✓	✓
12	TRTM03112	E-GUN+3 FLAT CAP PATTERN ADJUSTER	✓	✓



Part #	Order Code	Part Name
1	B07FEED+3	E-FEED+3 INJ INJECTOR
2	PNBE01005	SPRING BODY QUICK CONNECTION 8X6 MM *** Sold as 1 piece.
3	PNBE01038	QUICK DISCONNECTOR Ø8x6 TRIANGLE TYPE WITH SPRING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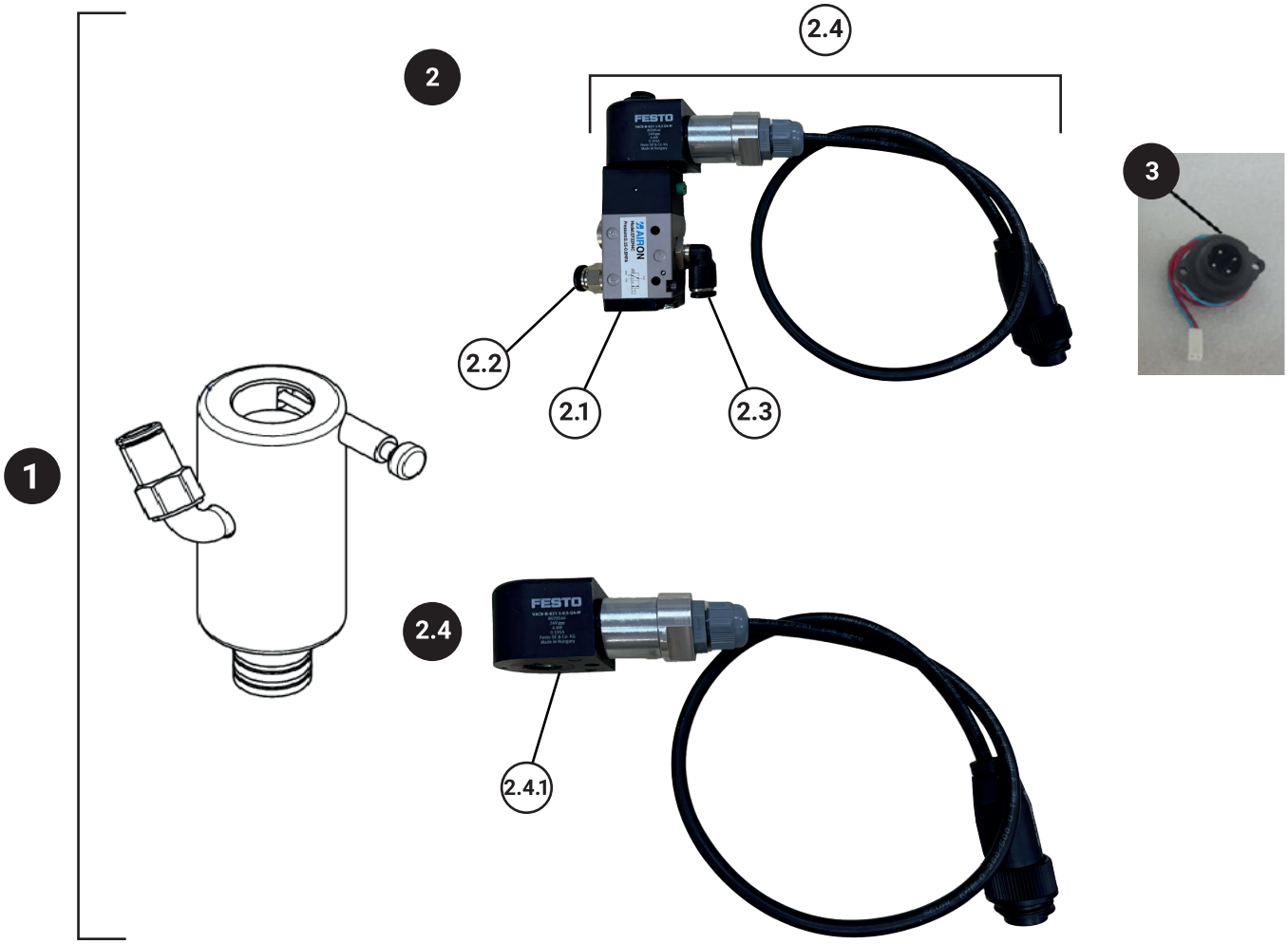
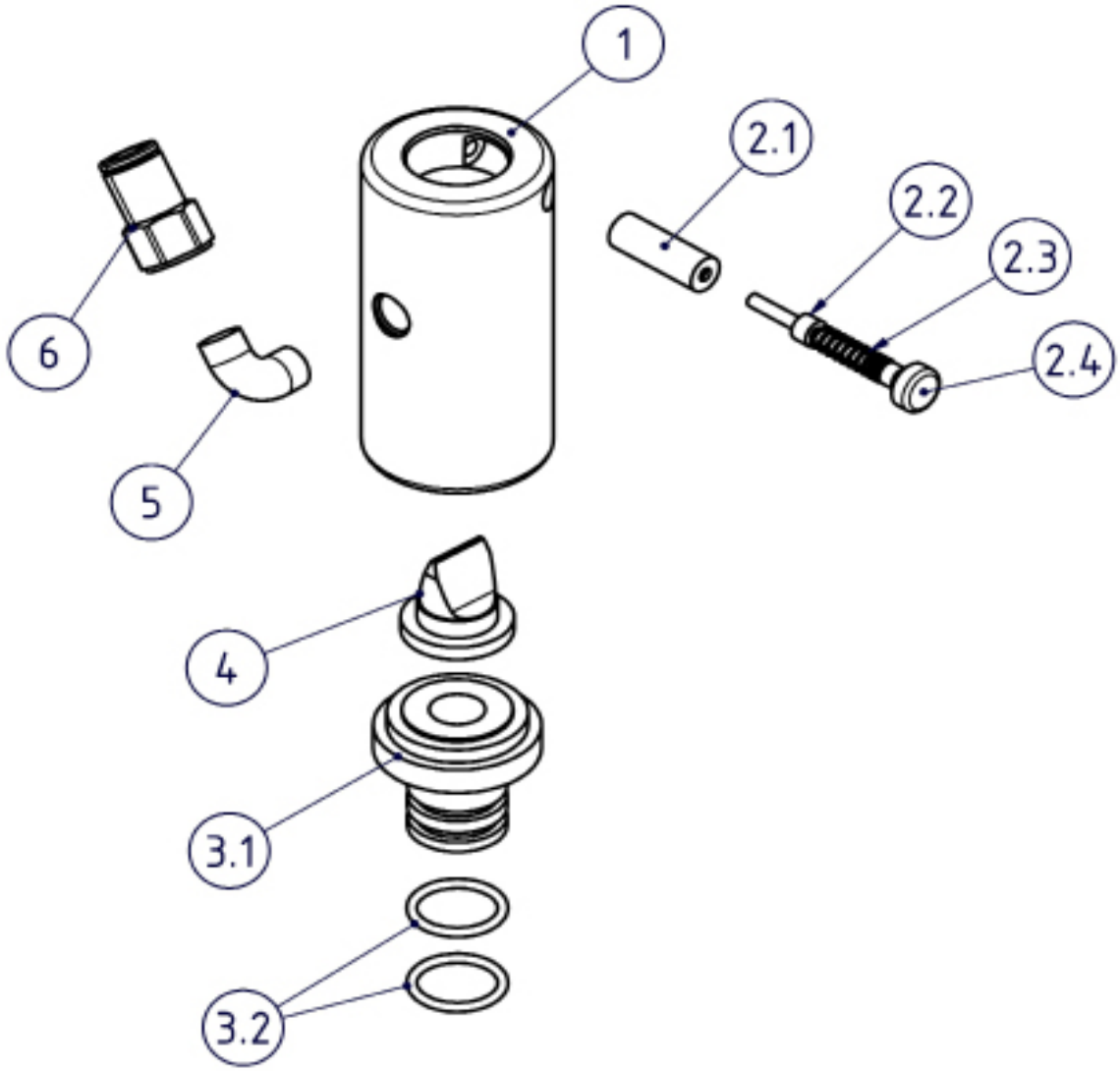
Part #	Order Code	Part Name	Wearing Part	RECOMMENDED STOCK PARTS
1	TRTM05035	E-FEED+3 QUICK DISCONNECTOR ADAPTER FOR AUXILIARY AIR	N/A	N/A
1.1	TRTM05038	E-FEED+3 QUICK DISCONNECTOR ADAPTER FOR MAIN AIR TRIANGLE	N/A	✓
2	B10540005	E-FEED+3 INJECTOR NUT	N/A	✓
3	B07610032	E-FEED+3 INJECTOR HOSE CONNECT COUPLING W/O-RING	✓	✓
3.1	B10640034	E-FEED+3 INJECTOR HOSE CONNECT COUPLING	✓	✓
3.2	IZOR01051	O-RING SILICONE (YELLOW) Ø13	✓	✓
4	B07610031	E-FEED+3 INJECTOR NOZZLE W/O-RING	✓	✓
5	TRTM05037	E-FEED+3 HOSE COUPLING WASHER Ø19 T1.5 (BLACK)	N/A	N/A
6	B10650000	E-FEED+3 INJECTOR BODY	N/A	N/A
7	IZOR01006	O-RING Ø16X2	✓	✓
8	TRTM05036	E-FEED+3 HOSE COUPLING WASHER Ø19 T1.5 (RED)	N/A	N/A
9	B07ENJ135	E-FEED+3 INJECTOR FILTER - COMPLETE	✓	✓
10	B07610030	E-FEED+3 TEFLON BUSHING W/O-RING	✓	✓
10.1	B07610000	E-FEED+3 TEFLON BUSHING	✓	✓
10.2	IZOR01003	O-RING Ø7X1,5	✓	✓
11	B10540005	E-FEED V2-V3 INJECTOR TIGHTENING NUT	✓	✓



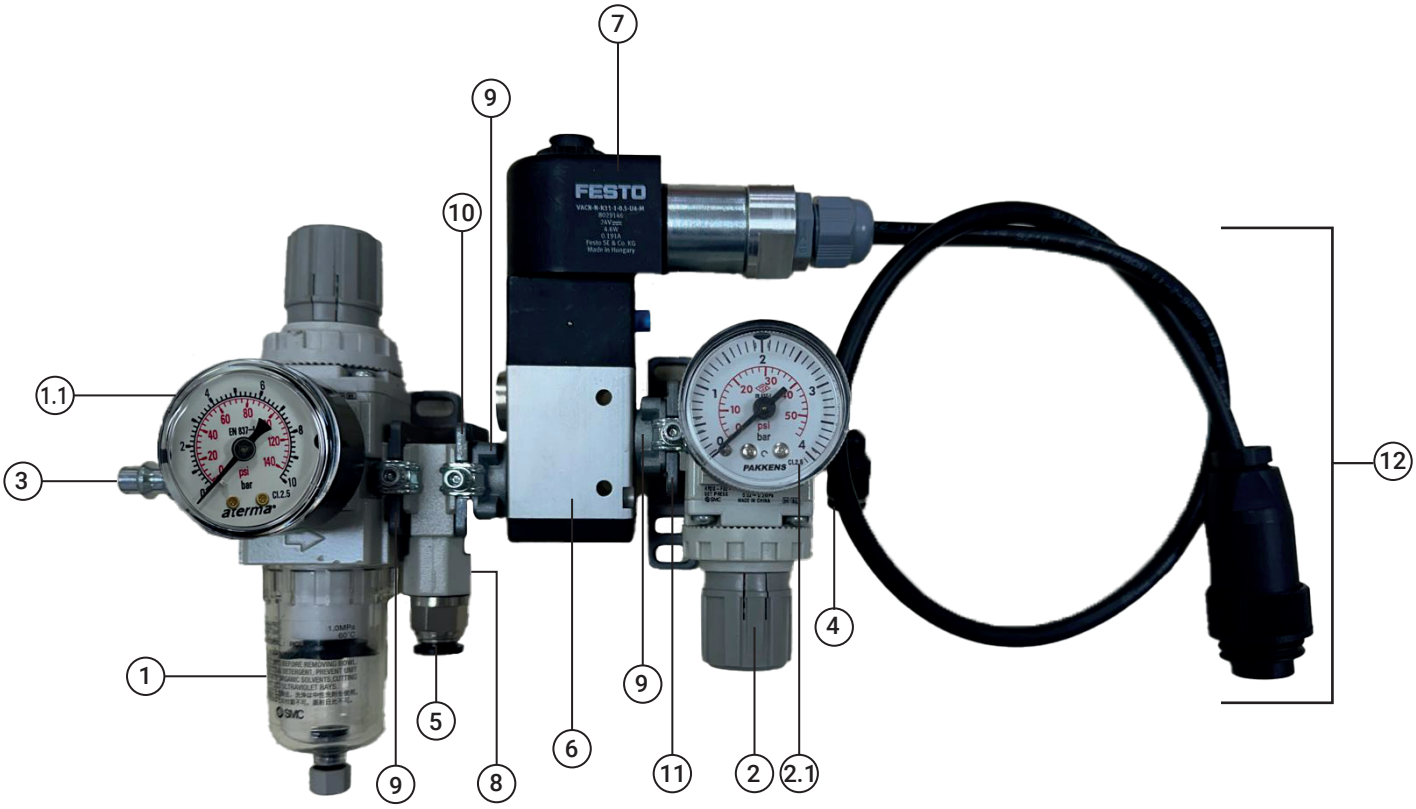
Order Code	Part Name
B07PURGE01+3A	E-FEED+3 PURGE MODULE (FM-CSA)

Part No	Order Code	Part Name
1	B07PURGE01+3A	E-FEED+3 PURGE MODULE (FM-CSA)
2	B07FLUV003	E-COAT+3 DEVICE CART PURGE VALVE SET (FM-CSA)
2.1	PNPE04091	¼" 3/2 WAY VALVE WITH ATEX COIL
2.2	PNRD01014	FLAT FITTING 1/4'-Ø8 MALE
2.3	PNRD03009	PNEUMATICAL ROTATING ELBOW 1/4"- Ø8 MALE
2.4	B07FLUV003C	PURGE COIL-CABLE SET (FM-CSA)
2.4.1	PNPE04094	FESTO COIL 24VDC FM-CSA 8029146 VACN-N-K11-1-0.5-U4-M
3	B07ECK512+3	FAST PURGE MODULE +3 CONTROL BOX CABLE SET



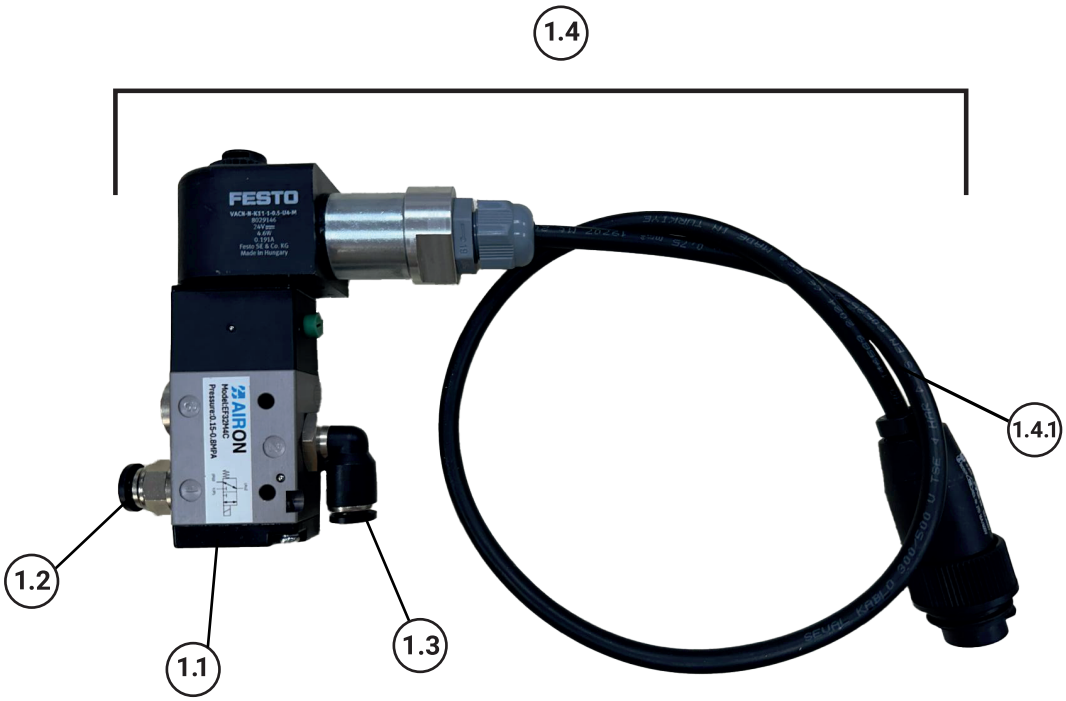
Part No	Order Code	Part Name	Wearing Parts	RECOMMENDED STOCK PARTS
1	TRTM04018	FastPurge™ MAIN BODY	N/A	N/A
2	B07EC0016	FastPurge™ LOCKING SHAFT SET ASSEMBLY	N/A	N/A
2.1	TRTM07005	FastPurge™ LOCKING SHAFT BARREL	N/A	N/A
2.2	TRTM07006	FastPurge™ LOCKING SHAFT SPRING HOLDER	N/A	N/A
2.3	BEDH09006	FastPurge™ LOCKING SHAFT SPRING	N/A	N/A
2.4	TRTM07004	FastPurge™ LOCKING SHAFT	N/A	N/A
3	B07EC0017	FastPurge™ BOTTOM LID SET ASSEMBLY	N/A	N/A
3.1	TRTM05016	FastPurge™ BOTTOM LID	✓	N/A
3.2	IZOR02004	ORING Ø16X2 NBR70	✓	✓
4	PNPE06002	FastPurge™ DUCKBILL VALVE	✓	✓
5	PNRD03002	TAILED ELBOW 1/8" CHROME FINISH	N/A	N/A
6	PNPE04037	CHECK VALVE CONNECTOR TYPE 1/8" Ø8	N/A	N/A

a. (B07BK0003) E-COAT+3 BARE KIT PNEUMATIC SET-COMPLETE (FM-CSA) (CLASS II DIVISION 2)



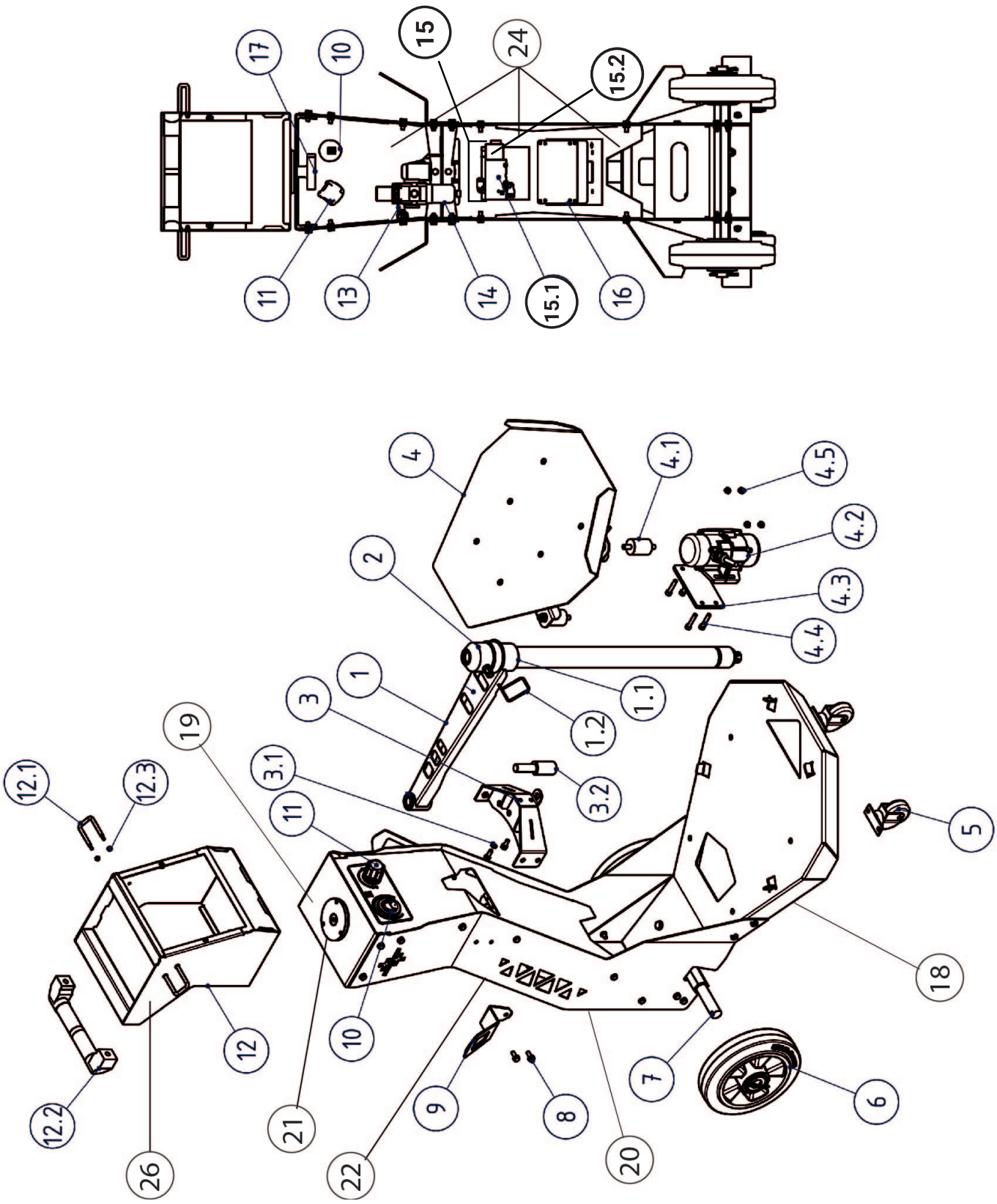
Part No	Order Code	Part Name	Wearing Part
1	PNPE02012	REGULATOR SMC AW20-F02H-B 1/4" (main reg., common)	N/A
1.1	PNPE07009	MANOMETER 1/8" 0-10 BAR (BAR-PSI SCALE) Ø40 CL2.5 (for main reg., common)	N/A
2	PNPE02015	REGULATOR SMC AR20-F02H-1-B 1/4" (flu reg., common)	N/A
2.1	PNPE07024	MANOMETER Ø40 G1/8" MALE. 0-60 PSI (for flu reg, common)	N/A
3	PNBE01039	QD NPT1/4 IND HCP14-14M-J NITRA (inlet, common)	N/A
4	PNRD01034	FITTING ROTARY ELBOW 1/4'-Ø6 MALE (for flu air, common)	N/A
5	PNRD01014	FITTING 1/4" X Ø8 MALE (for device air, common)	N/A
6	PNPE04091	VALVE 3/2 1/4" N.C AIRON (w/o coil)	N/A
7	PNPE04094	FESTO COIL 24VDC FM-CSA 8029146 VACN-N-K11-1-0.5-U4-M	N/A
8	PNPE02016	SPACER T TYPE SMC Y210-F02-A (BARE PNEUMATIC)	N/A
9	PNPE02017	ADAPTER MODULAR SMC E210-U02 (BARE PNEUMATIC)	N/A
10	PNPE02018	ADAPTER MODULAR SMC Y200-A (BARE PNEUMATIC)	N/A
11	PNPE02019	ADAPTER MODULAR BRAKET SMC Y200T-A (BARE PNEUMATIC)	N/A
12	B07BK0003CSUL	SET COMPLETE SOCKET-CABLE-COIL- FOR BARE KIT (US-FM-5PIN)	N/A

b. (B07BK0002) E-COAT+3 DEVICE CART FLUIDIZATION VALVE SET (FM-CSA)



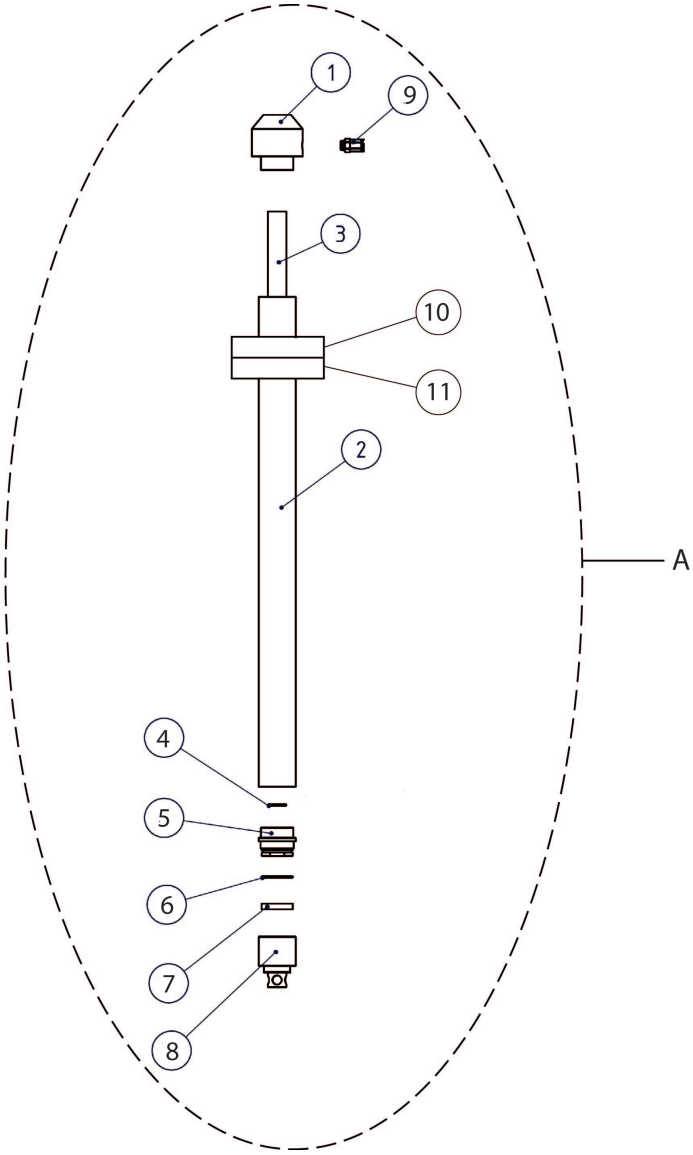
Part No	Order Code	Part Name	Wearing Part
1	B07FLUV002	E-COAT+3 DEVICE CART FLUIDIZATION VALVE SET (FM-CSA)	N/A
1.1	PNPE04091	¼” 3/2 WAY VALVE WITH ATEX COIL	N/A
1.2	PNRD01014	FLAT FITTING 1/4’-Ø8 MALE	N/A
1.3	PNRD03009	PNEUMATICAL ROTATING ELBOW 1/4”- Ø8 MALE	N/A
1.4	B07FLUV002C	FLUIDIZATIO N COIL-CABLE SET (FM-CSA)	N/A
1.4.1	PNPE04094	FESTO COIL 24VDC FM-CSA 8029146 VACN-N-K11-1-0.5-U4-M	N/A

a. (B07ECT109) E-MULTICOLOR+3 DEVICE CART (A-110V)



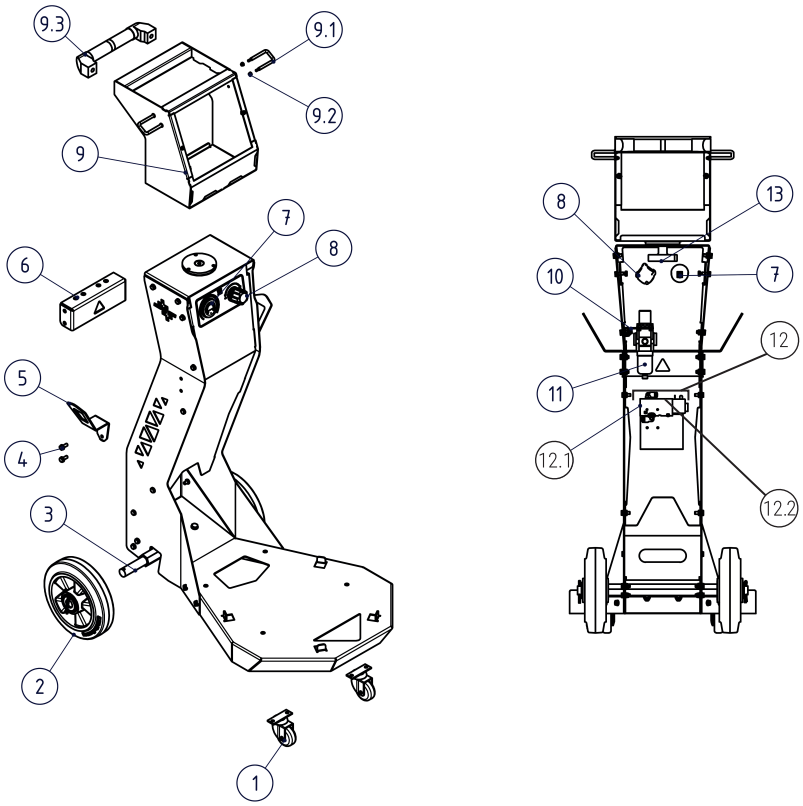
Part No	Order Code	Part Name	Wearing Part
1	B07ECCA011	E-COAT+3 MULTICOLOR SUCTION TUBE ASSEMBLY	N/A
1.1	TRTM03067	E-COAT+3 MULTICOLOR SUCTION TUBE HOLDER BUSHING	N/A
1.2	BEDH13024	E-COAT+3 MULTICOLOR SUCTION TUBE LOCK	N/A
2	B07ECM003+3	E-COAT+3 MULTICOLOR SUCTION TUBE	N/A
3	B07ECCA007	E-COAT+3 MULTICOLOR SUCTION TUBE BRACKET ASSSEMBLY	N/A
3.1	BEPL04009	LOCK WASHER	N/A
3.2	TRTM04185	E-COAT+3 MULTICOLOR TUBE ARM HANGER	N/A
4	B06CE20014	E-COAT+3 MULTICOLOR VIBRATION STAND ASSEMBLY	N/A
4.1	AKUA03026	E-COAT+3 MULTICOLOR VIBRATION INSULATOR	N/A
4.2	MPMT03061	VIBRATION MOTOR (115V-60HZ) For hazardous area Class II Division 2	N/A
4.3	TRTM03037	E-COAT+3 MULTICOLOR VIBRATION MOTOR PATCH BLOCK	N/A
4.4	BECV03030	BOLT M6X30 YHB	N/A
5	AKUA08006	E-COAT+3 MOBILE FRONT WHEEL	N/A
6	AKUA08005	E-COAT+3 MOBILE BACK WHEEL 200X50	N/A
7	TRTM04048	E-COAT+3 MOBILE BACK WHEEL SHAFT	N/A
8	BECV06005	BOLT M6X20 YHB	N/A
9	B06CE20025	E-COAT+3 MOBILE TROLLEY HOSE CABLE HANGER	N/A
10	PNPE07002	MANOMETER Ø40 2,5 BAR	N/A
11	PNPE01002	REGULATOR ¼" 0-3,5 BAR	N/A
12	B07560005	E-COAT+3 MOBILE TROLLEY HEAD	N/A
12.1	AKUA04002	E-COAT+3 MOBILE TROLLEY HEAD GUN HANGER	N/A
12.2	AKUA02001	E-COAT+3 MOBILE TROLLEY HEAD HANDLE	N/A
12.3	BESM02001	NUT M4 FIBER TIGHT	N/A
13	B06CE20017	E-COAT+3 MOBILE TROLLEY REGULATOR BRACKET	N/A
14	PNPE02001	REGULATOR ¼" 0,5-8,5 BAR	N/A
15	B07FLUV002	E-COAT+3 DEVICE CART FLUIDIZATION VALVE SET (FM-CSA)	N/A
15.1	PNPE04091	VALVE 3/2 1/4" N.C AIRON (w/o coil)	N/A
15.2	PNPE04094	COIL 8029146 FOR HAZARDOUS AREA CLASS II DIVISION 2 FM3053936 CSA265489	N/A
16	B07EMC001A	E-MULTICOLOR RELAY BOX (FM-CSA)	N/A
17	AKUA07011	BAKELITE SCREW KNOBS	N/A
18	B07ECCA001	E-COAT+3 MOBILE TROLLEY BASE ASSEMB	N/A
19	B07ECCA002	E-COAT+3 MOBILE TROLLEY TOP SHEET GROUP	N/A
20	B07ECCA003	E-COAT+3 MOBILE TROLLEY LEFT SHEET GROUP	N/A
21	B07ECCA004	E-COAT+3 DEVICE HEAD ROTATION SHEET GROUP	N/A
22	B07ECCA006	E-COAT+3 MOBILE TROLLEY BACK SUPPORT GROUP	N/A
23	B07ECCA009	E-COAT+3 MULTICOLOR BODY GROUP	N/A

Note: The E-COAT+3 Multicolor Suction Tube seen in number 2 is both the Wearing and Recommended Stock Part.

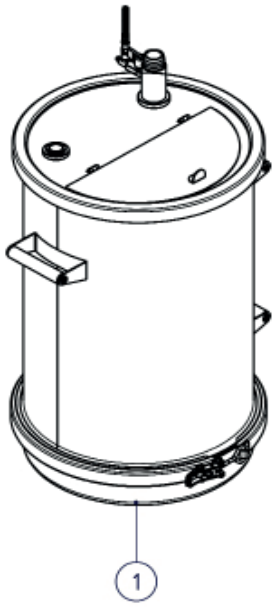


Part No	Order Code	Part Name	Wearing Part	RECOMMENDED STOCK PARTS
A	B07ECM003+3	E-COAT+3 MULTICOLOR SUCTION TUBE	N/A	N/A
1	TRTM03022	E-COAT+3 MULTICOLOR SUCTION TUBE TOP LID	N/A	N/A
2	SCBR08002	E-COAT+3 MULTICOLOR SUCTION TUBE (1) L:560	N/A	N/A
3	SCBR06006	E-COAT+3 MULTICOLOR SUCTION TUBE (2) L:560	N/A	N/A
4	IZOR01006	ORİNG Ø16X2	✓	✓
5	TRTM03024	E-COAT+3 MULTICOLOR SUCTION TUBE ADAPTER BOTTOM BODY	N/A	N/A
6	IZOR01027	ORING Ø30X2	✓	✓
7	FRFL08007	E-COAT+3 MULTICOLOR SUCTION TUBE SINTER FILTER	✓	✓
8	TRTM03023	E-COAT+3 MULTICOLOR SUCTION TUBE BOTTOM LID	N/A	N/A
9	PNBE01003	QUICK COUPLING 1/8" MALE	N/A	N/A
10	TRTM03117	E-COAT+3 MULTICOLOR LOCKING NUT	N/A	N/A
11	TRTM03116	E-COAT+3 MULTICOLOR LOCKING BODY	N/A	N/A

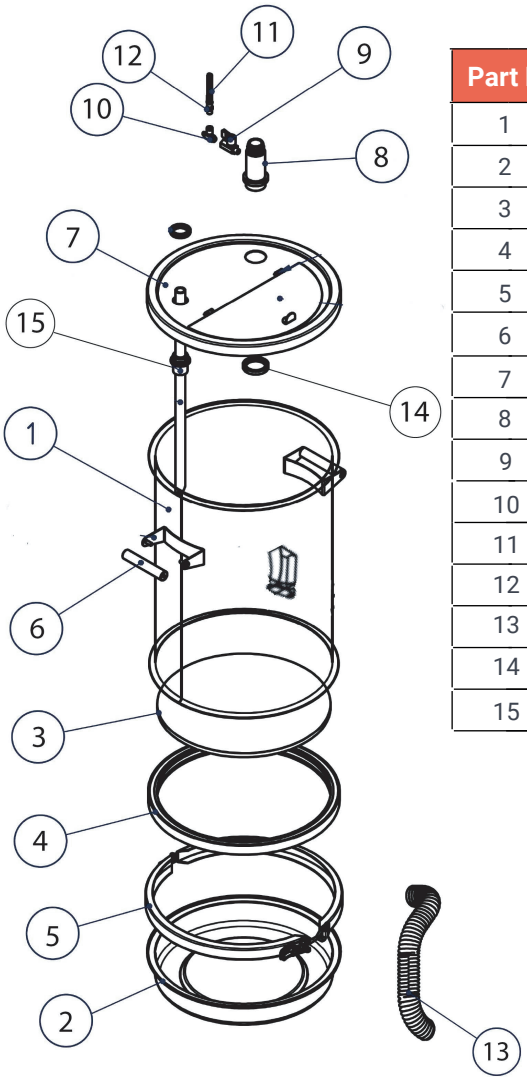
b. (B07ECT118) E-COAT+3 DEVICE CART HOPPER (US VERSION)



Part No	Order Code	Part Name	Wearing Part
1	AKUA08006	E-COAT+3 MOBILE TROLLEY FRONT WHEEL	N/A
2	AKUA08005	E-COAT+3 MOBILE TROLLEY BACK WHEEL 200X50	N/A
3	TRTM04048	E-COAT+3 MOBILE TROLLEY BACK WHEEL SHAFT	N/A
4	BECV06005	BOLT M6X20 YHB	N/A
5	B06CE20025	E-COAT+3 MOBILE TROLLEY HOSE CABLE HANGER	N/A
6	B06CE20034	E-COAT+3 MOBILE TROLLEY HOPPER PATCH BLOCK	N/A
7	PNPE07002	MANOMETER Ø40 2,5 BAR	N/A
8	PNPE01002	REGULATOR ¼" 0-3,5 BAR	N/A
9	B07560005	E-COAT+3 MOBILE TROLLEY HEAD	N/A
9.1	AKUA04002	E-COAT+3 MOBILE TROLLEY HEAD GUN HANGER	N/A
9.2	BESM02001	NUT M4 FIBER TIGHT	N/A
9.3	AKUA02001	E-COAT+3 MOBILE TROLLEY HEAD HANDLE	N/A
10	B06CE20017	E-COAT+3 MOBILE TROLLEY REGULATOR BRACKET	N/A
11	PNPE02001	REGULATOR ¼" 0,5-8,5 BAR	N/A
12	B07FLUV002	E-COAT+3 DEVICE CART FLUIDIZATION VALVE SET (FM-CSA)	N/A
12.1	PNPE04091	VALVE 3/2 1/4" N.C AIRON (w/o coil)	N/A
12.2	PNPE04094	FESTO COIL 24VDC FM-CSA 8029146 VACN-N-K11-1-0.5-U4-M	N/A
13	AKUA07011	BAKELITE SCREW KNOBS	N/A



Part No	Order Code	Part Name
1	A05EH0050+3	E-HOPP50+3 50 LT STAINLESS POWDER COATING HOPPER



Part No	Order Code	Part Name	Wearing Part	
1	B06CE02001	E-HOPP50 HOPPER MAIN BODY	N/A	N/A
2	SCSC05003	E-HOPP50 BOTTOM LID	N/A	N/A
3	FRFL07003	E-HOPP50 FLUIDIZATION PLATE	✓	✓
4	IZCS02001	E-HOPP50 FLUIDIZATION PLATE GASKET	✓	✓
5	B07EH50901	E-HOPP50 BOTTOM LID LOCK	N/A	N/A
6	TRTM04041	E-HOPP50 BODY HOLDER Ø20 L110	N/A	N/A
7	B10C0003	E-HOPP50 TOP LID (BARE METAL PART)	N/A	N/A
8	TRTM04194	E-HOPP50+3 EXHAUST HOSE ADAPTOR	N/A	N/A
9	HDHE01001	BALL VALVE 1/8" GALVANIZE	N/A	N/A
10	HDHT01225	PNEUMATIC THROTTLE VALVE 1/8"X1/8"	N/A	N/A
11	PNBE01005	QUICK COUPLING HOSE CONNECTION	N/A	N/A
12	PNBE01003	QUICK COUPLING MALE 1/8”	N/A	N/A
13	B07EH50903	E-HOPP50 EXHAUST HOSE	✓	✓
14	TRTM04193	EXHAUST HOSE ADAPTER CONNECTOR NUT Ø50	N/A	N/A
15	B07KEYT001	E-HOPP50 50 LT CHROME HOPPER SUCTION PIPE SET	N/A	N/A

11.Service an Maintenance Table

DATE	*Maint. Type* -Weekly -Yearly -Service	*MAINT. OR SERVICE PERSONNEL*	*PROCEDURE CHANGED PART NOTES*	*CONTROL SUPERVISOR*

12. Product Life and Warranty

12.1. Product Life

- The economic life of E-COAT+3 Master is approximately 10 years.
- This product life is highly dependent on the periodic maintenances and spare part changes in a timely manner. Improper maintenance will lead to lower product life.
- SİSTEM TEKNİK A.Ş. warrants supplying the needed service and the spare parts for the entire product life.

12.2. Warranty and Warranty Condi

- The control unit is warranted for production and parts failure for 2 (two) years.
- Spare parts that are changed from the warranty are free-of-charge.
- The parts that are supplied in the system which are not produced by SİSTEM TEKNİK A.Ş. are warranted with their own manufacturers and their own conditions.
- SİSTEM TEKNİK A.Ş. will not be held responsible for the improper usage of the machine or any unauthorized usage. These are not in the warranty.
- SİSTEM TEKNİK A.Ş. will not be held responsible for any malfunctions that may occur when grounding conditions are not met..

12.3. Operating Condi

- Read the user manual before using the gun.
- Only legally allowed people can operate E-COAT+3 Master.
- Only trained and authorized people can operate E-COAT+3 Master .
- SİSTEM TEKNİK A.Ş.'s suggested spare parts should be used at all times.
- Proper maintenance has to be done and the spare parts has to be changed in a timely manner
- The operational safety has to be assured by the customer; the operators who are not capable of working under safety rules shouldn't be operating the Control Unit.
- All the suggestions and warnings in this manual have to be carefully considered and applied.