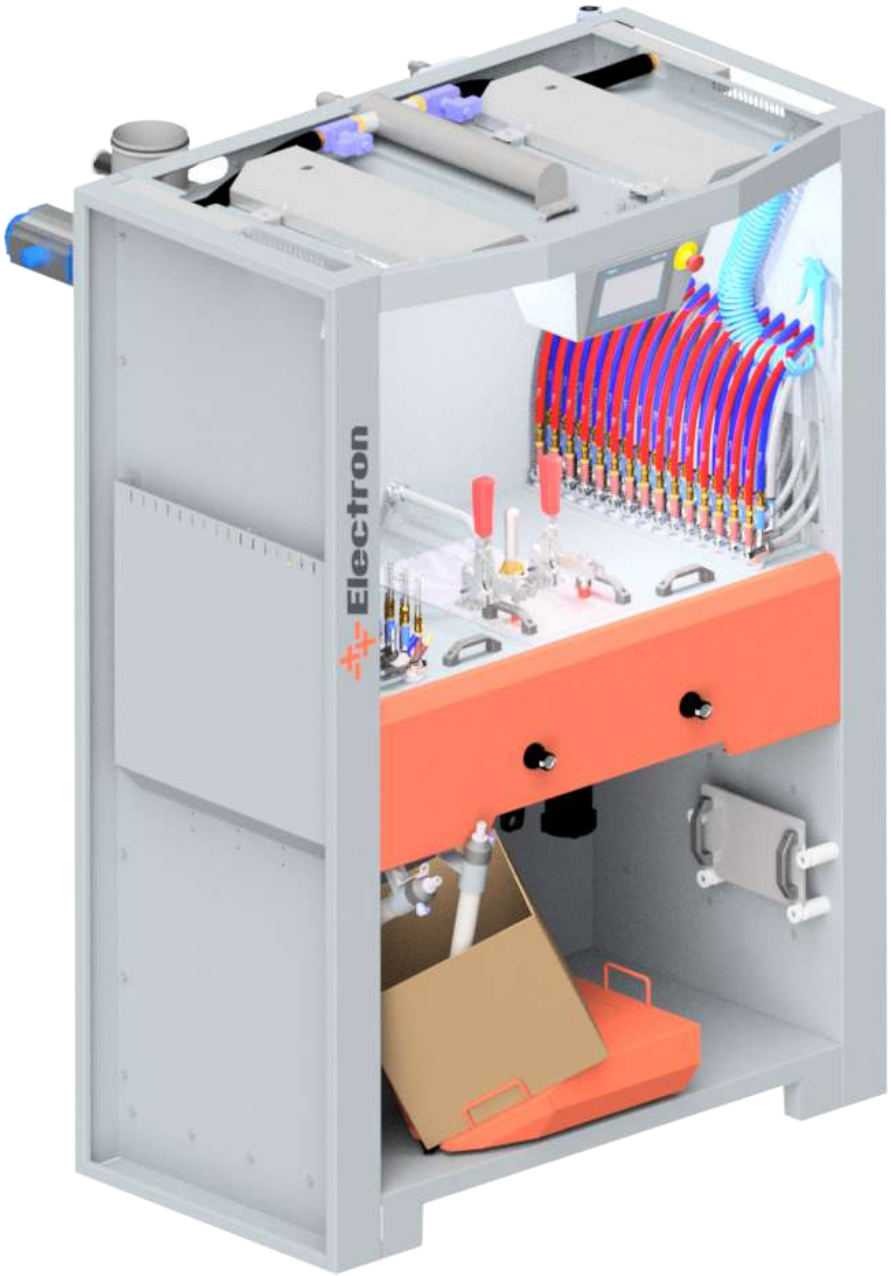
E-FEED PM330E V2

Automatic Powder Management Center

User's Manual



Electron
Electrostatic Powder Coating

10010 St. No: 10
35470
İTOB Menderes
Izmir/TURKEY

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Electrostatic Powder Coating

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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-FEED PM330E V2.

These safety regulations must be read and understood before the E-FEED PM330E V2 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!
Live electricity or moving parts are dangerous.
Possible Consequences: Death or serious injury.

WARNING!
Improper use of the equipment could damage the machine or cause it to malfunction.
Possible consequences: Minor injuries or damage to equipment

NOTE!
Useful tips and other information.

1.2. Conformity Of Use

E-FEED PM330E V2 , Powder Management Center is built to the latest specification and conforms to the recognized technical safety regulations. It is designed for the regular application of powder coating.

- 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-FEED PM330E V2 is to be used for other purposes or other substances outside of our guidelines then Sistem Teknik Makina A.Ş. should be consulted.
- Observance of the operating, service and maintenance instructions specified by the manufacturer is also part of conformity of use. E-FEED PM330E V2 should only be used, maintained and started up by trained personnel, who are informed about and are familiar with the possible hazards involved.
- Start-up is forbidden until it has been established that the E-FEED PM330E V2 has been set up and wired according to the guidelines for machinery EN 60204-1 (machine safety) must also be observed.
- Unauthorized modifications to E-FEED PM330E V2 exempt the manufacturer from any liability of resulting damage.
- Relevant accident prevention regulations, as well as other generally recognized safety regulations, occupational health and structural regulations are to be observed.
- In addition to above, country-specific safety regulations must be observed.

Explosion Protection Class of E-FEED PM330E V2

Explosion Protection	Protection Type	Temp Class
CE Ex II 3 D		85 °C

Note: EN 60204-1 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.

- 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.
- Operational safety has to be observed before every start-up. Regular Servicing is the essence of working safely.
- Local legislation should be considered for the safety.
- The plug has to be disconnected before the machine is opened for repair.
- The plug and socket connections between spraying equipment should only be taken out when the power is off.
- 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.
- 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.
- If Electron powder coating equipment is going to be used with other devices/machinery from other manufacturers, their safety regulations should be also considered.
- 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.
- 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 customer itself is responsible 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 E-FEED PM330E V2 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

- First of all, anything which would influence the equipment negatively should be avoided for the technical safety.
- The machine user should be well informed about no other people than trained personnel would use the machine.
- 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.
- 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.
- Users should conform the satisfactory working conditions else the equipment should not be used.
- The operating firm must ensure that the users wear protective clothing like facemasks and working suits.
- The firm also guarantees the cleanliness of the workplace and proper checks for the powder spraying equipment.
- 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.
- Powder fluidization or high voltage spray gun checks have to be done when the equipment is switched on.

EN European Standarts

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
EN 12100-1 EN 12100-2	Machine safety
EN IEC 60079-0	Electrical equipment for locations where there is danger of explosion
EN ISO 80079-36	Non-electrical equipment for explosive atmospheres - Basic method and requirements
EN ISO 80079-37	Non-electrical equipment for explosive atmospheres - Non-electrical type of protection constructional safety ‘’c’’, control of ignition sources ‘’b’’, liquid immersion ‘’k’’

1.3.4 Product Specific Safety

This product is a constituent part of the equipment and is therefore integrated in the system’s safety concept. If it is to be used in a manner outside the scope of the safety concept, then corresponding measures must be taken. The installation work to be done by the customer must be carried out according to local regulations. It must be ensured, that all components are earthed according to the local regulations before start-up.

NOTE:
For further information, see the more detailed Electron safety regulations!

1.3.5 Special safety regulations for E-FEED PM330E V2 Powder Management Center

- The E-FEED PM330E V2 is part of the plant and therefore integrated in the safety concept of the plant.
- If it is to be used in a manner outside the scope of the safety concept, then corresponding measures must be taken.

NOTE:
For further information, see the more detailed Electron safety regulations!

NOTE:
If the power supply is interrupted or if there is a power failure, powder can escape unhindered from the container and contaminate the area around the work opening.

- This area must be cleaned before every start-up

1.3.5.1. Installation

Installation work to be done by the customer must be carried out according to local safety regulations.

1.3.5.2. Grounding

Check the grounding of the booth and the powder management center before every start-up. The grounding connection is customer specific and is fitted on the booth base, on the cyclone and on the powder management center. The grounding of the workpieces and other plant units must also be checked.

1.3.5.3. Operating the equipment

In order to be able to operate the equipment safely, it is necessary to be familiar with the safety regulations, the operational characteristics and functioning of the various plant units.
For this purpose, read the safety notes, this operating manual and the operating instructions of the plant control unit, before starting up the plant.

In addition, all further equipment-specific operating instructions, e.g. the E-FEED PM330E V2 and all additional components should also be read.

To obtain practice in operating the plant, it is absolutely essential to start the operation according to the operating instructions. Also, later on, they serve as a useful aid on possible malfunctions or uncertainty and will make many enquiries unnecessary. For this reason, the operating manual must always be available at the equipment.

Should difficulties arise, however, your Electron service center is always ready to assist.

1.3.5.4. Inspection check

The following points are to be checked at every booth start-up:
- No foreign material in the central suction unit in the booth and in the powder suction
- Sieve machine is connected to the cyclone separator, the clamp is tightly locked
- Pneumatic conduction and powder hose are connected to the dense phase conveyor

1.3.5.5. Repairs

Repairs must be carried out by trained personnel only. Unauthorized conversions and modifications can lead to injuries and damage to the equipment. The Electron guarantee would no longer be valid.

NOTE:
We point out that the customer himself is responsible for the safe operation of the equip ment! Sistem Teknik Makina San. ve Tic. A.Ş. is in no way responsible for any resulting damage.

By carrying out repairs, the powder management center must be disconnected from the mains, according to the local safety regulations!

NOTE:
Only original Electron spare parts should be used! The use of spare parts from other manu facturers will invalidate the Electron guarantee conditions!

1.4. About this manual

1.4.1. General Information

This operating manual contains all important information which you require for the working with the E-FEED PM330E V2. It will safely guide you through the start-up process and give you references and tips for the optimal use of your new powder coating system.

1.4.2. Software version

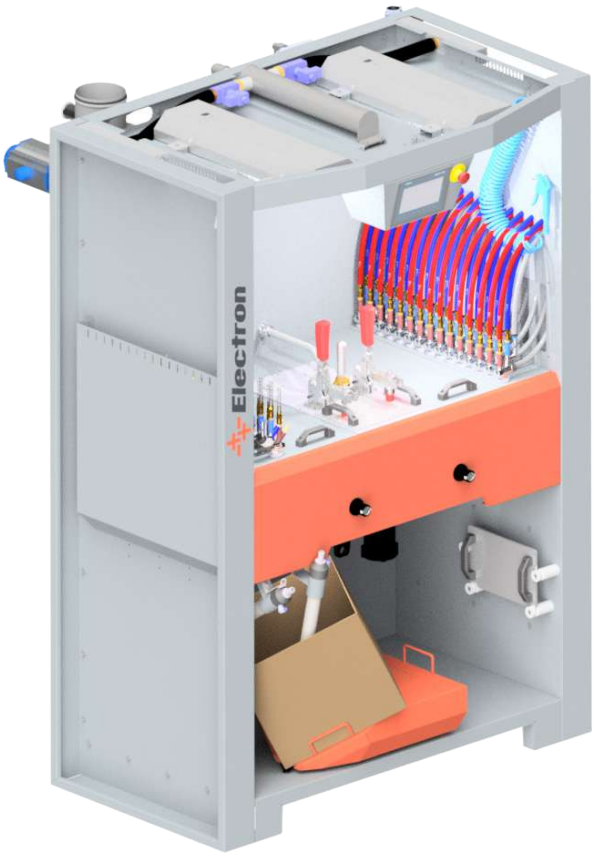
This document describes the operation of the Touch Panels to control the E-FEED 330E V2 powder management center.

DANGER!
Working without operating instructions
Working without operating instructions or with individual pages from the operating instructions may result in damage to property and personal injury if relevant safety information is not observed.
- Before working with the device, organize the required documents and read the section “Safety regulations”.
- Work should only be carried out in accordance with the instructions of the relevant documents.
- Always work with the complete original document.

2. Product description

2.1. Field of application

The E-FEED PM330E V2 Powder management center is conceived for simple and clean handling of the coating powder. It enables an automated cleaning procedure and consequently a quick color change. The conception contains all gun and axis control units, as well as the complete fresh powder metering. As a part of the process controlled coating plant, the powder management center is laid out for fully automatic operation.



2.2. Utilization

The E-FEED PM330E V2 powder management center is suitable for use in plants with a completely closed powder circuit:

Conveying

- Processing the powder directly from the (original) powder bags
- Integrated electrical and pneumatic control units
- Powder level monitoring by level sensor

Cleaning

- Automatic internal cleaning of the suction tubes, injectors, powder hoses and guns
- Supply of the recovered powder
- Closed powder circuit – no powder escaping during coating or cleaning procedure. This prevents powder loss, and the workplace and the environment remain clean.

Controlling

- No own exhaust system - the powder management center does not have its own exhaust system and will be therefore connected directly to the After Filter

Reasonably foreseeable misuse

- Use of moist powder
- Insufficient fluidization at the suction point
- Operation without the proper training

3. Technical data

3.1.Powder transport

E-FEED PM330E V2	
Conveying performance	Up to 300 g/min.per gun
Fresh Powder	Up to 7 kg/min. (depend on powder particle size)

Up to 30 guns can be connected to the powder management center.

3.2.Electrical data

E-FEED PM330E V2	
Recovery	1x230 V
Frequency	50/60 Hz
Protection type	IP54

3.3.Pneumatic data

E-FEED PM330E V2	
Input pressure	6.5 bar
Compressed air consumption during coating operation	15 Nm^3/h
Compressed air consumption during cleaning (containe and guns)	350 $Nm^3/hour$
Compressed air consumption during cleaning of the E-FEED HD to the cyclone	120 $Nm^3/hour$
Water vapor content of compressed air	max. 1,3 g/m^3
Oil content of compressed air	max. 0,1 mg/m^3

3.4.Dimensions

E-FEED PM330E V2		
Base area (width x depth) (mm)	1450	1165
Overall height (mm)	2050	
Weight (kg)	approx. 450 kg (530 kg with case)	

3.5.Processible powders

E-FEED PM330E V2	
Plastic powder	yes
Metallic powder	yes
Enamel powder (continuous duty)	no

3.6.Sound pressure level

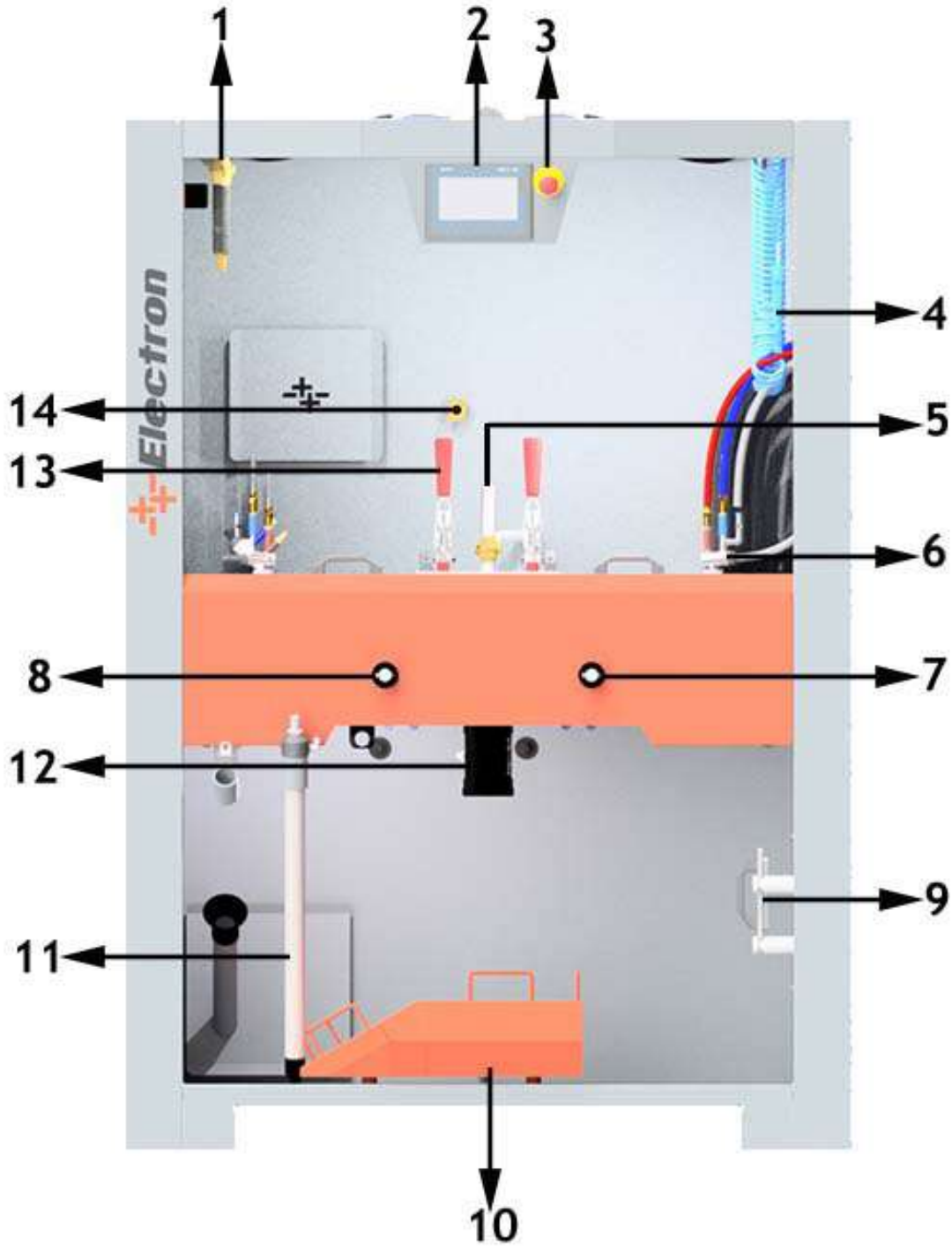
E-FEED PM330E V2	
Normal operation	75 dB(A)
Cleaning operation mode	for a short time up to 95 dB(A)

The sound pressure level was measured while the unit was in operation; measurements were taken at the most frequent operator positions and at a height of 1.7 m from the ground.

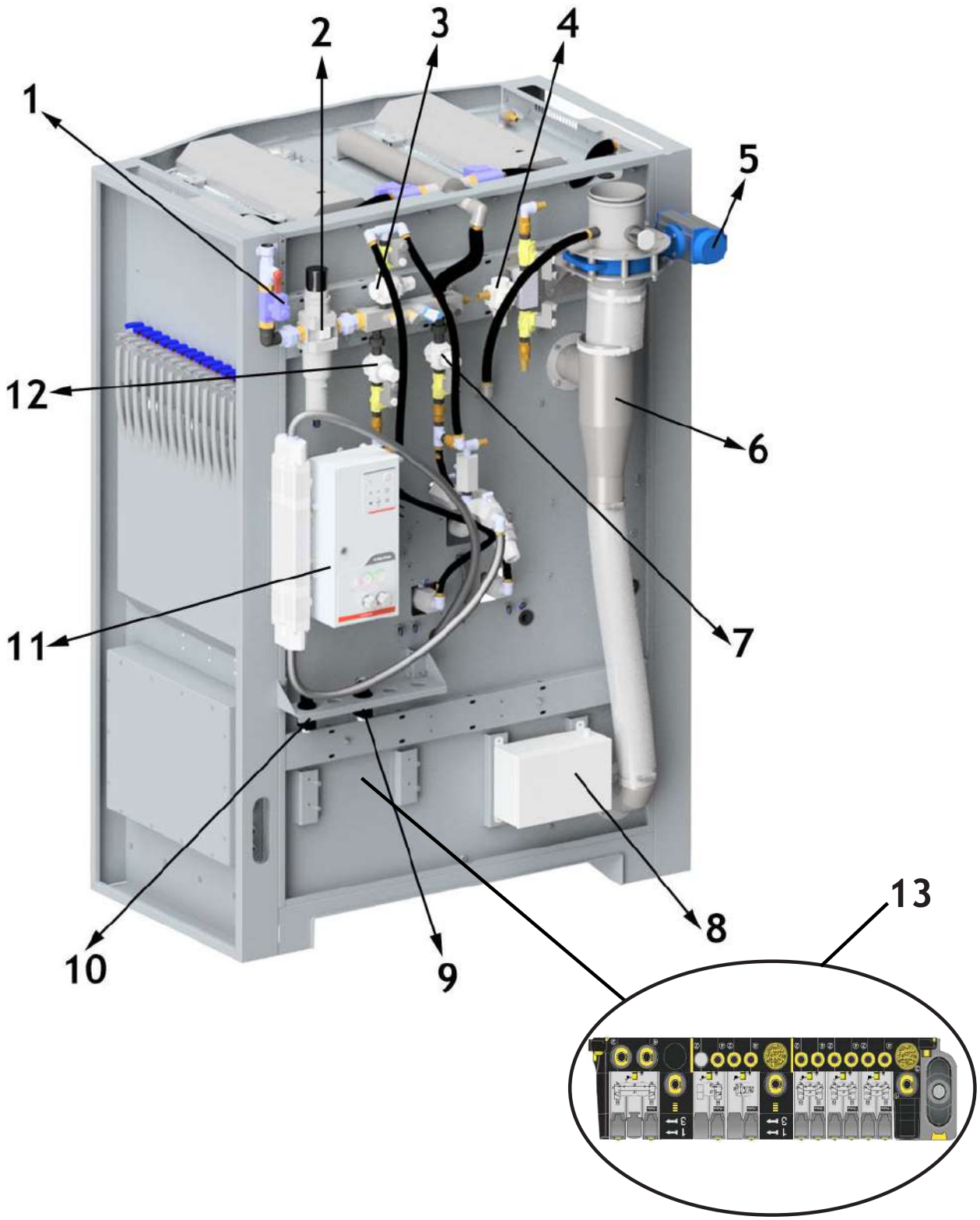
The specified value is applicable only for the powder management center itself and does not take into account external noise sources or cleaning impulses.

The sound pressure level may vary, depending on the powder management center configuration and space constraints.

4. Design and function



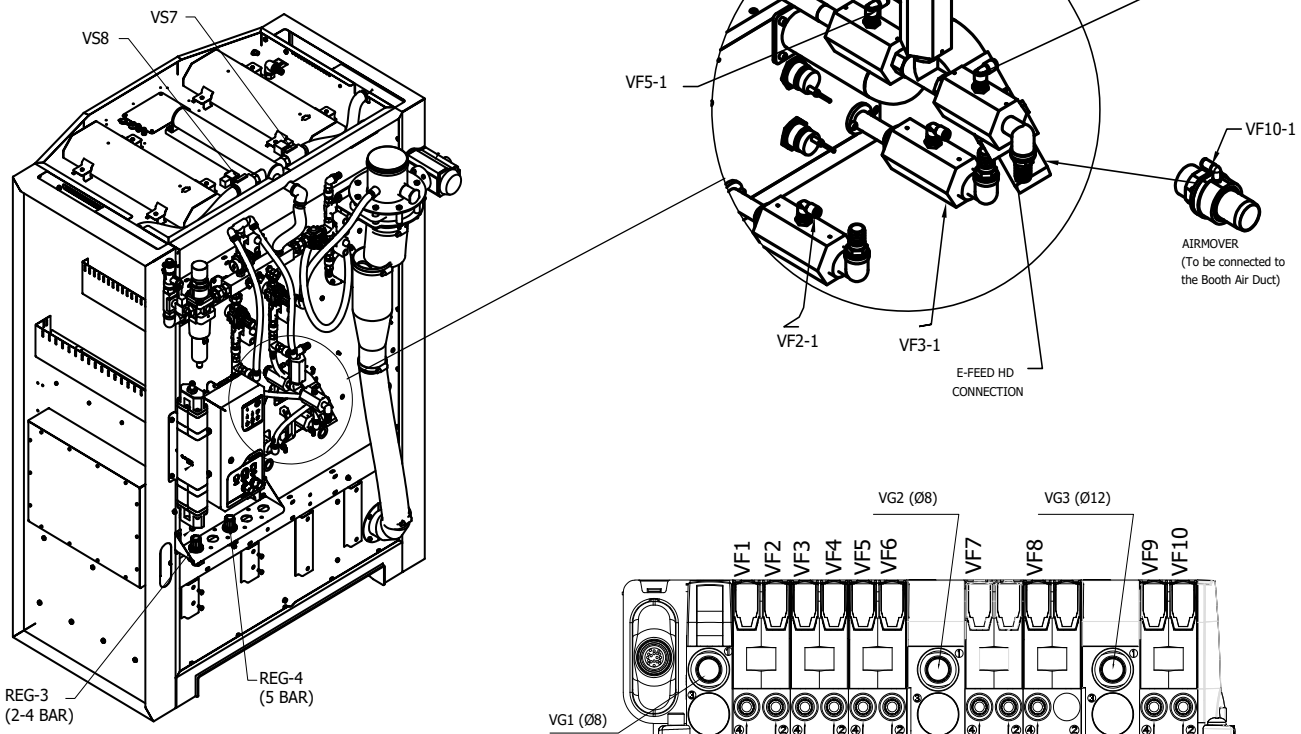
1	Recovery hose	8	Air regulator for fluidizing the fresh powder in the box
2	Touch screen	9	Container lid parking station
3	Emergency stop push button	10	Vibration trolley
4	Cleaning air gun	11	Fresh powder pipe
5	Container blanking part	12	Discharge Valve
6	Injectors	13	Container opening handle
7	Air regulator for fluidizing the powder in the container	14	Waste powder line



1	Main solenoid valve
2	Main regulator
3	Container emptying regulator
4	Powder line cleaning regulator-1
5	Actuator valve
6	Air Ducts

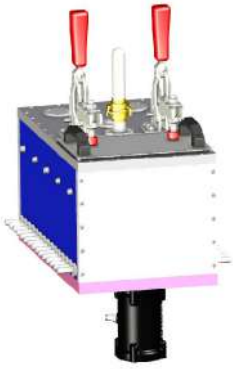
7	Powder line cleaning regulator-2
8	Ultrasonic sieve(optional) generator
9	Regulator-4 - Air control of actuator valve
10	Regulator-3 - Air control of air mover
11	E-FEED HD Powder Transfer Pump
12	Powder line cleaning regulator-3
13	Valve Island-8s

4.1.Compressed air indicators



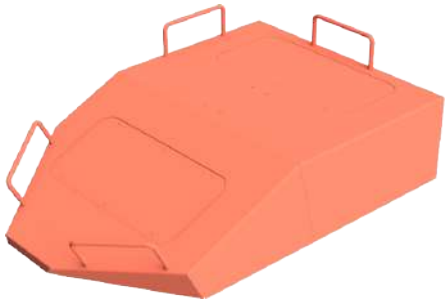
VF1	CONTAINER DISCHARGE
VF2	CONTAINER SUB-CLEANING-LEFT
VF3	CONTAINER SUB-CLEANING-RIGHT
VF4	FRESH PAINT INPUT
VF5	FRESH PAINT OUTPUT
VF6	COATING LINE CLEANING
VF7	DAMPER
VF8	CONTAINER FLUDIZATION AIR
VF9	CONTAINER FLUDIZATION BOOSTER AIR
VF10	AIR MOVER
VG1	VALVE AIR INLET -1
VG2	VALVE AIR INLET -2
VG3	VALVE AIR INLET -3

4.2.Powder Container



The PM330E V2 is suited for the automated preparation and fluidization of the coating powder. The PM330E V2 can contain 8,6 kg powder, and can be equipped with up to 30 E-FEED V2 or E-FEED V3 Application injectors.

4.3.Vibration trolley



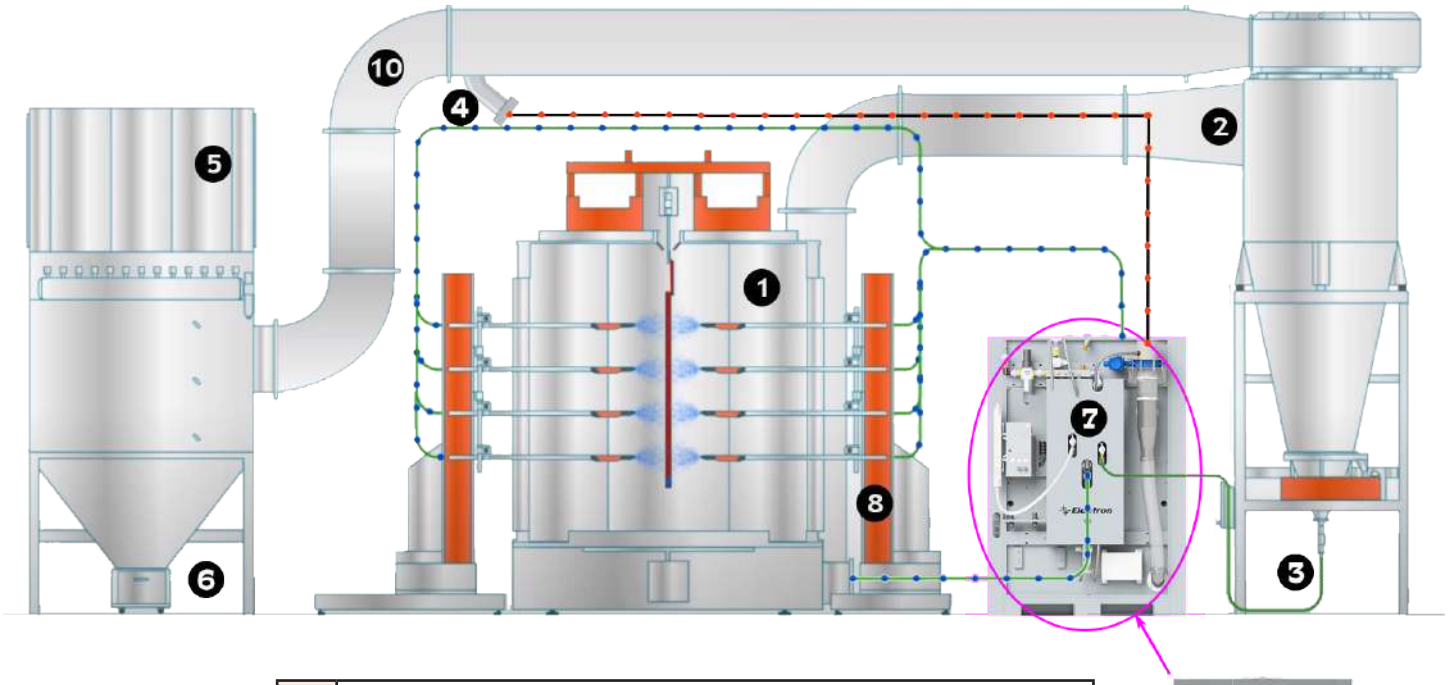
The vibration trolley is placed under the powder paint box. It ensures that the paint is carried more easily by vibrating. Power connection and grounding of the vibrator are the same for both devices.

NOTE:
To ensure problem-free powder transport to the E-FEED 330E V2, the number of guns (30) must not be exceeded.

The powder is supplied directly from the powder box. When the E-FEED 330E V2 is emptied, the vibration trolley can be brought into position under the E-FEED 330E. This allows rapid emptying into the powder box.

5.POWDER FLOW DIAGRAM

During the typical E-FEED PM330E V2 (7) operation, the powder box is put on the vibration trolley. The powder is fluidized in the box with the fluidizing/suction lance and then fed to the container(9) in the E-FEED PM330E V2. The fluidized powder is aspirated by the application injectors and fed through the powder hoses to the guns/spray nozzles (8). The powder, which does not adhere to the workpieces, will be absorbed by the exhaust air of the booth (1) and separated from the air in the cyclone separator (2).
The separated powder is cleaned by passing it through the integrated sieve (3) and fed back into the E-FEED PM330E V2 (9) by the dense phase conveyor (4), where it is prepared again for coating operation.



1	Booth
2	Monocyclone
3	Sieve
4	E-FEED HD Powder Pump / High Capacity Injector (OPTIONAL)
5	Filters
6	Recovery Container
7	E-FEED PM330E V2 (Powder Management Center)
8	Automatic Guns
9	Powder Hopper
10	Exhaust Air Ducting

6.Start-up

6.1.Set-up and assembly

NOTE:
Installation work to be done by the customer must be carried out according to local safety regulations!

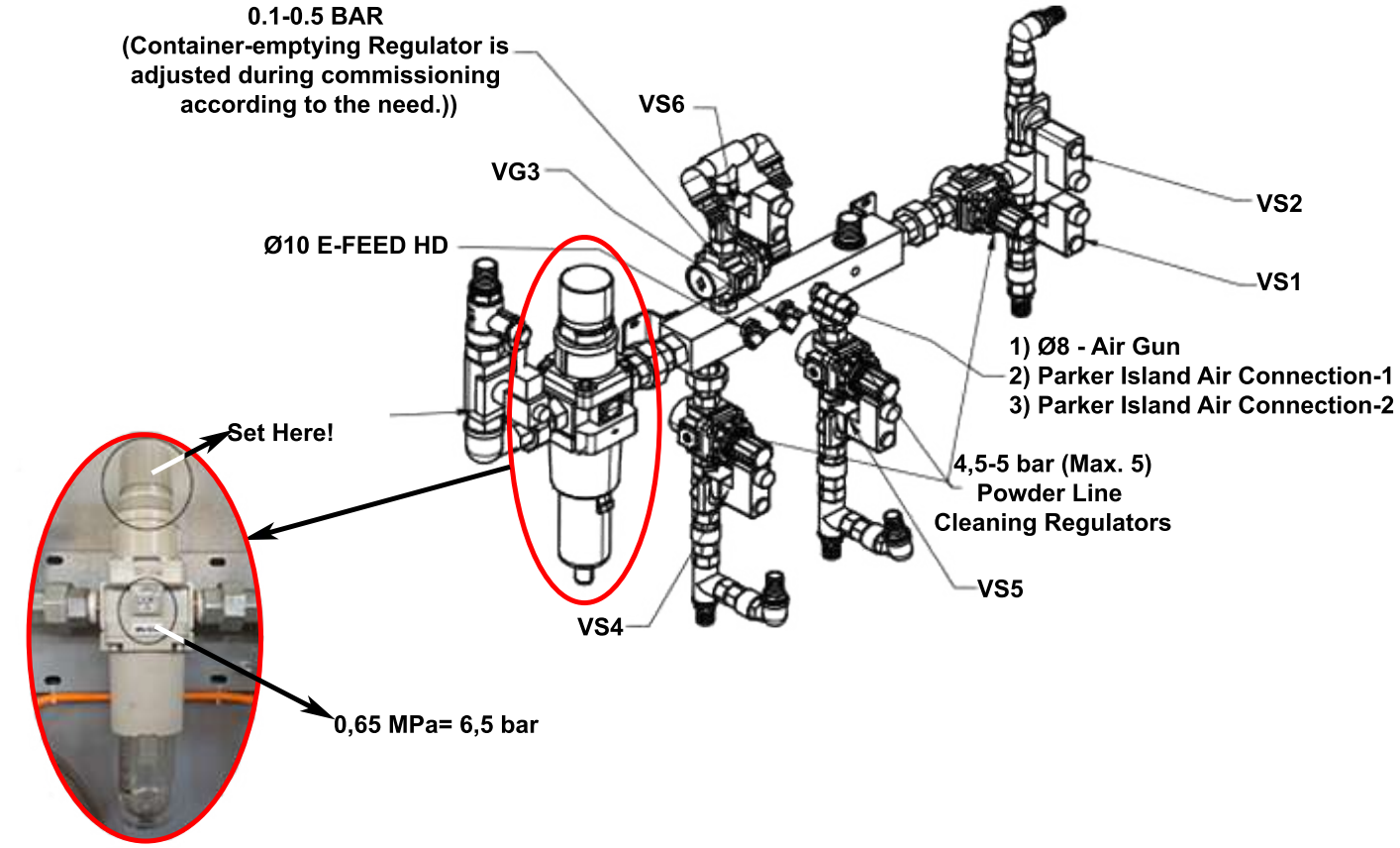
WARNING!
The Powder Management Center must only be installed in locations with an ambient temperature of between +20 and +40 °C, i.e. never next to heat sources (such as an enameling furnace) or electromagnetic sources (such as a control cabinet).

6.2.Preparation for start-up

Compressed air supply

NOTE:
The compressed air must be free of oil and water!

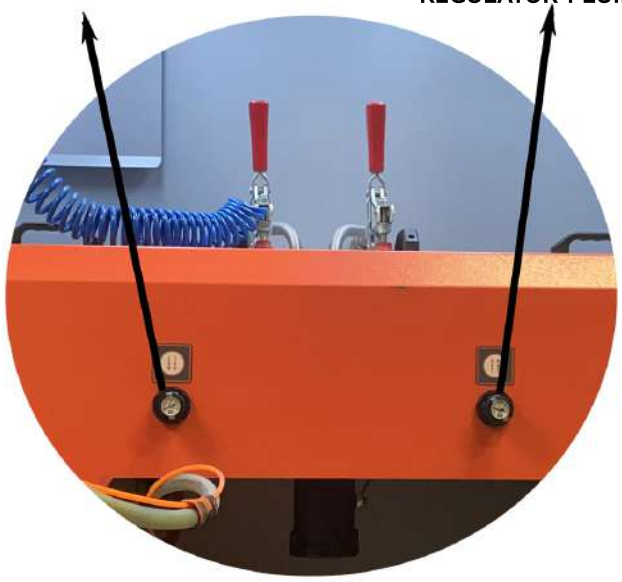
The Powder Management Center requires a connection to a sufficiently dimensioned compressed air circuit. In order to ensure correct operation, the main pressure regulator must be set to a pressure of 6,5 bar.



Compressed air supply

It should be in the range of 0-0.2 bar.
(As far as possible, the value should be set low.)
REGULATOR-FRESH POWDER AIR

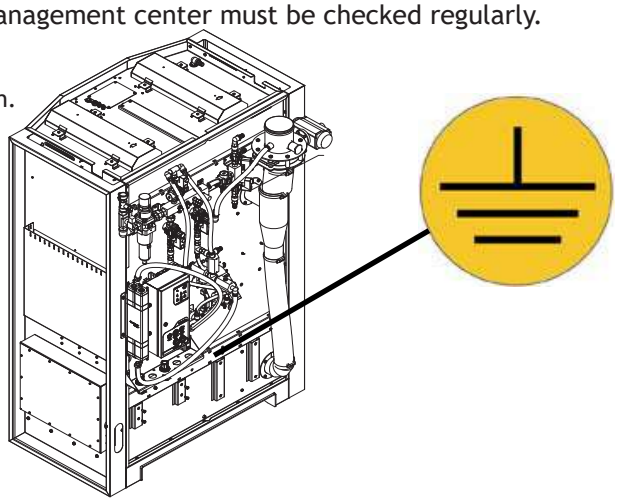
It should be in the range of 0-0.5 bar.
(It provides fluidization of the powder.)
REGULATOR-FLUIDIZATION AIR



6.3.Grounding of the powder management center

DANGER!
The E-FEED PM330E V2 must be grounded according to the general, local safety regulations.
* The grounding of the powder management center must be checked regularly.

A corresponding connection point at the E-FEED PM330E V2 is reserved for the potential equalization.



7.Operation by touch panel

7.1.Touch panel/operating panel

The operation and monitoring of the E-Feed 330E powder management system takes place by the touch-sensitive operating panel of the control unit.

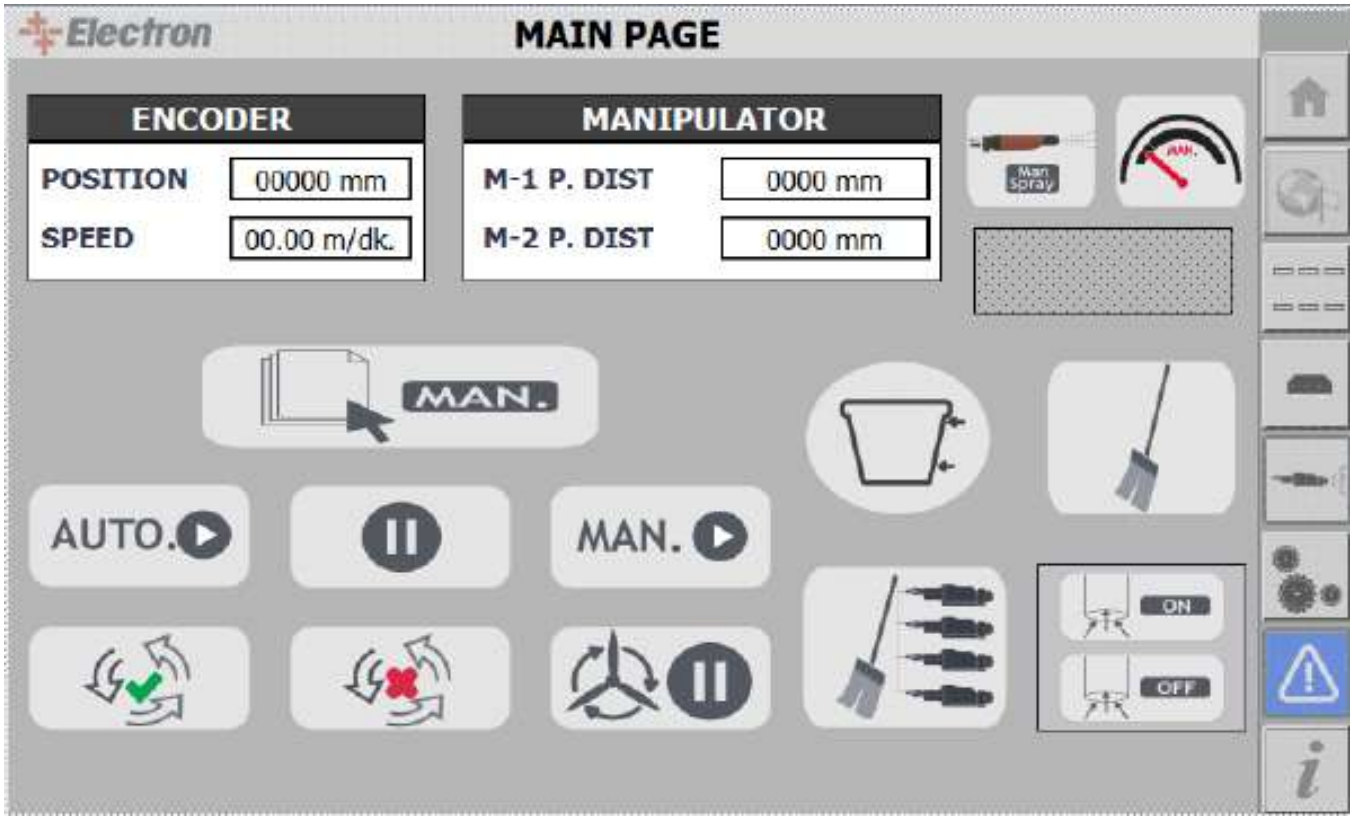
The operating panel serves to initiate the function commands, which are necessary for the satisfactory operation of the powder management center. The function parameters are also entered by the control panel.

WARNING!
Sensitive touch surface.
Pointed or sharp objects can damage the screen.
- Do not use any pointed or sharp objects (e.g. knife).
- Only activate the touch panel with your finger or a stylus.
- When wearing gloves, ensure that these are clean. They must not be covered with abrasive dust or sharp particles.

SIEMENS SIMATIC HMI KTP700 BASIC		
Screen diagonal		7 in
Resolution (pixels)		800 x 480
Keyboard	Number of function keys	8
	Numeric & Alphanumeric keyboard	Yes; Onscreen keyboard
Maximum permissible angle of inclination without external ventilation		35°
Permissible range, lower supply voltage limit (DC)		19.2 V
Permissible range, upper supply voltage limit (DC)		28.8 V
Current consumption (rated value)		230 mA
Usable memory for user data		10 Mbyte
Number of industrial Ethernet interfaces		1
Protocols	PROFINET	Yes
	Ethernet	● TCP/IP ● DHCP ● SNMP ● DCP ● LLDP
	Further	MODBUS TCP/IP
Emission of radio interference acc. to EN 55 011		Limit class A, for use in industrial areas
IP (at the front)		65
IP (rear)		20
Ambient temperature in operation		0 - 50 °C
Configuration software		● STEP 7 Basic ● STEP 7 Professional - via integrated WinCC Basic (TIA Portal)

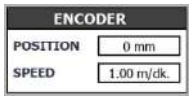
WARNING!
Just some basic information is given here. Please read the datasheet of the SIEMENS SIMATIC HMI KTP700 BASIC screen.

8.Pages

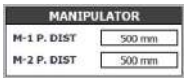


8.1.Function keys

The function keys are distributed on the user interface.



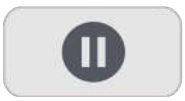
Position and Speed Information from the encoder



Indicator of the distance of the guns to the part

Manual Page

Automatic START



PAUSE

Manual START

Fan STOP

Coating with powder recovery

Coating without powder recovery (spray to waste container)

Cleaning gun arms

Manual coating

Manometer

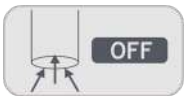
Cleaning operation mode

Empty Container

Lower level sensor indicator

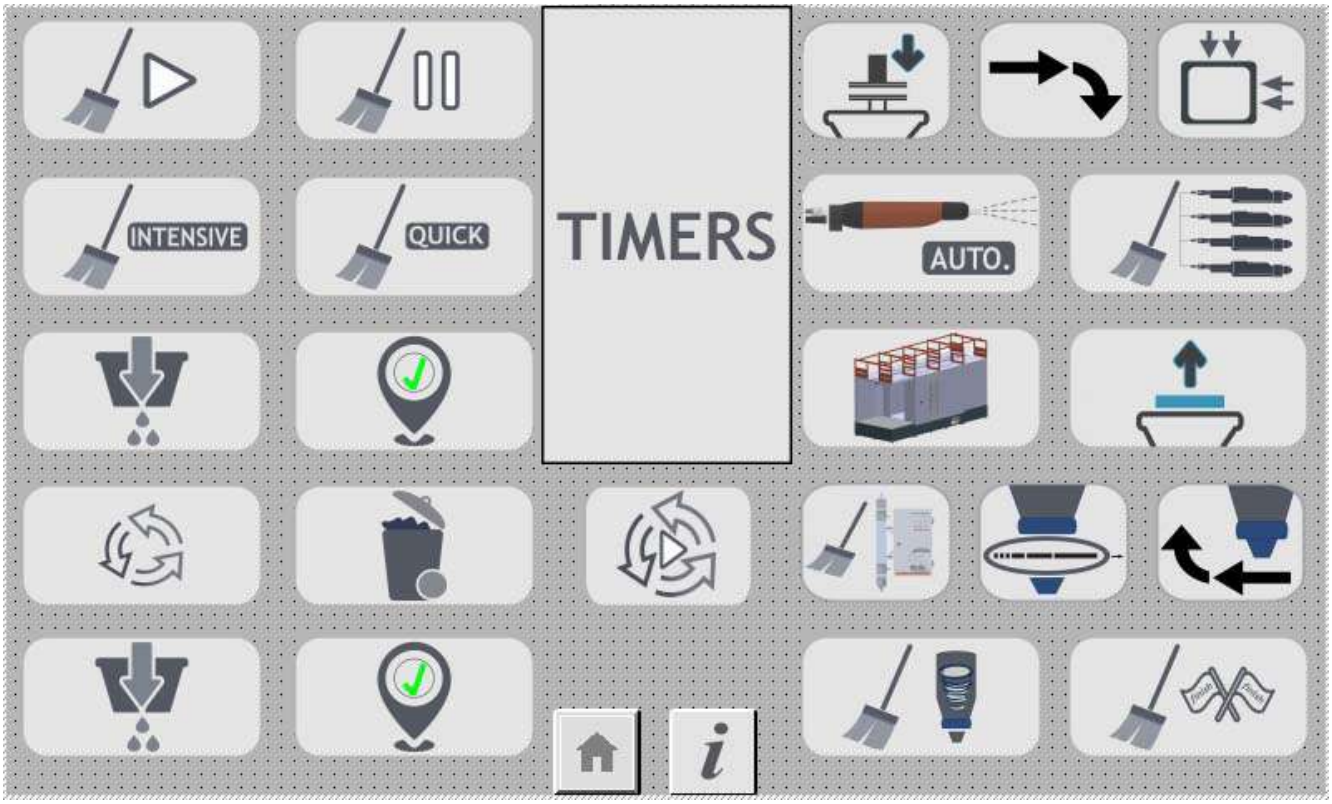
Upper level sensor indicator

Extraction system ON



Extraction system OFF

8.2.Cleaning Page



Cleaning ON

Cleaning STOP

Cleaning (intensive)

Cleaning (quick)

Recovery

Waste

Emptying the container

Right position

The blanking part is mounted on the container

Recovery Powder hose aparatus ready button

Powder container cleaning

Automatic guns cleaning

Cleaning gun arms

Clean inside of booth

Lift the lid of the container

Cleaning fresh powder pump

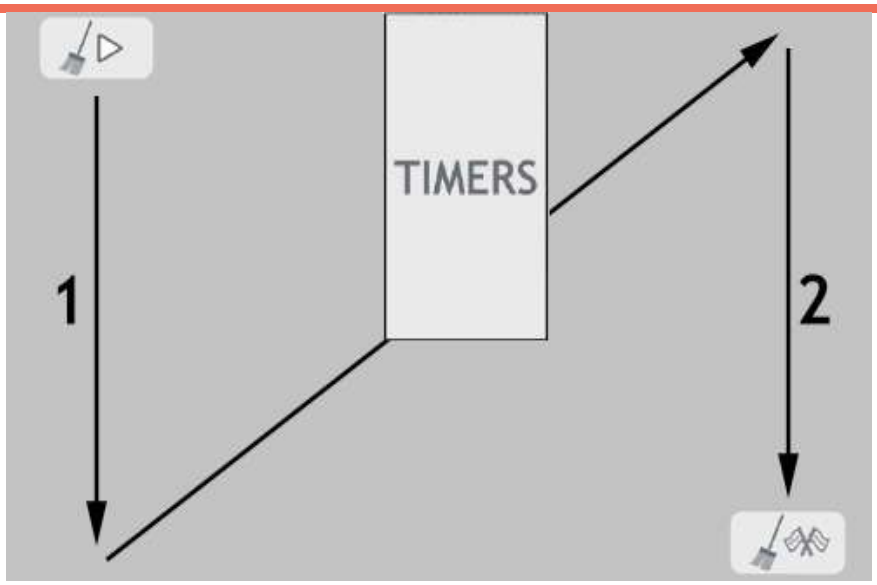
Take out cyclone sieve

Powder hose ready button for cleaning cyclone

Cyclone cleaning

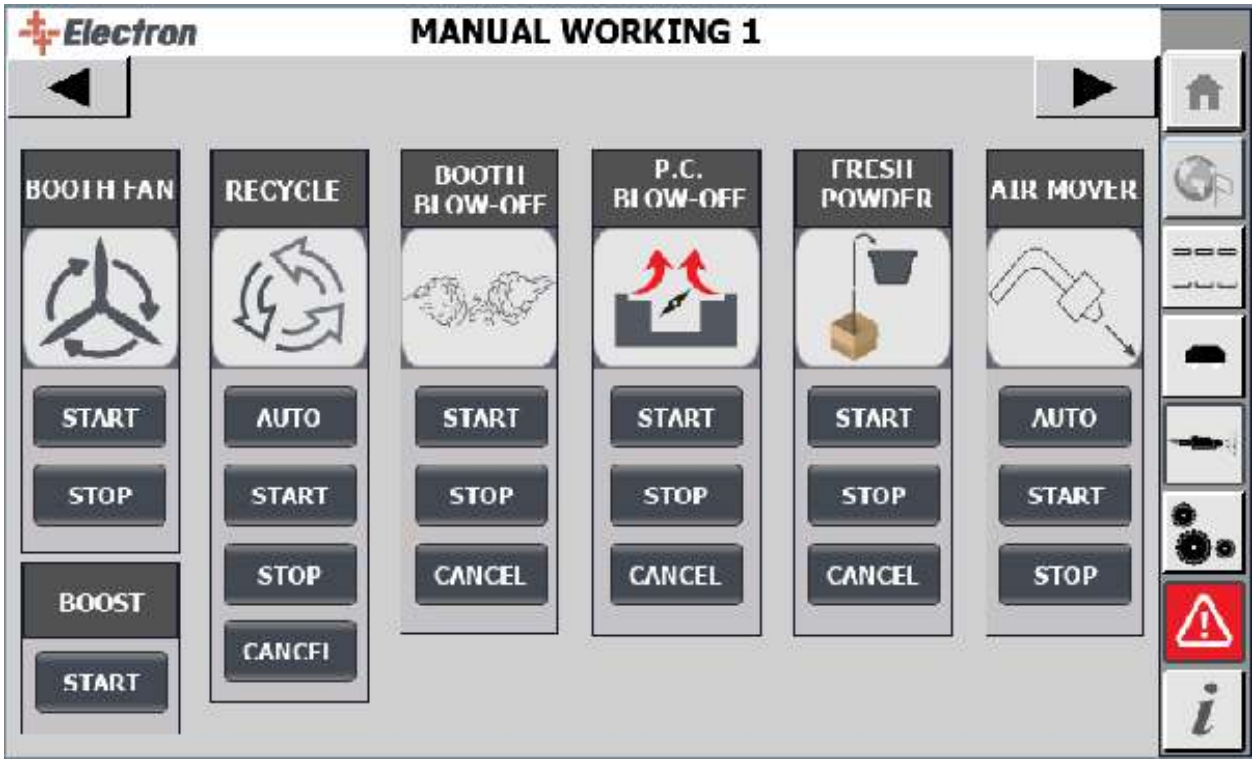
Cleaning FINISH

NOTE: *Timers show the remaining time.*



Cleaning page, operation diagram shown above. The process starts with the "Start Cleaning" button  on the upper left and steps are performed from top to bottom. When the side indicated by 1 is finished, it starts from the top on the right (2) and the steps here are applied from top to bottom. Cleaning is finished with the "Finish Cleaning" button  .

8.3.Manual Working Page



 Booth Fan

 Recycle

 Filter unit blow-off.

 Booth Blow-off

 Fresh Powder

 Airmover

NOTE:

Meaning of the colors

Gray background
= present, but not active

Green or Red background
= active state

9.Operating modes

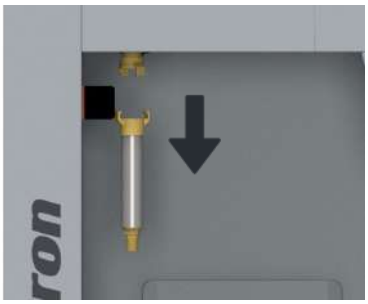
The following operating modes are available:
- different coating modes
- cleaning/color change
- configuration/settings

These operating modes are described in detail in the following chapters.

The user interface of the control unit is designed with pictograms, so that only the really essential parameters are displayed, and the operator can quickly find a solution.

The control unit is not in any operating mode after switching on, or after a restart. The operating modes are selected on the panel.

1 

2 

According to the recovery or waste mode, remove the part located at the top left of the powder management center and install it in the appropriate place according to the mode shown below.

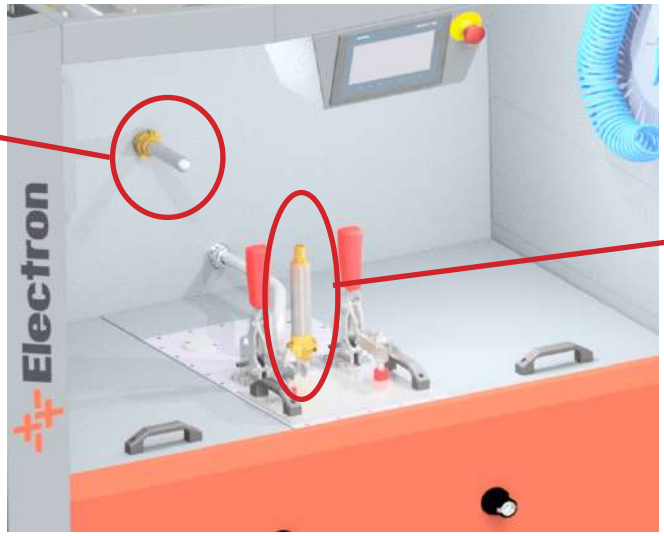
Coating with powder recovery

This coating mode allows the coating with recovery of the powder, which does not adhere to the object.

Utilization of this operating mode:
- Long coating with the same powder

NOTE:

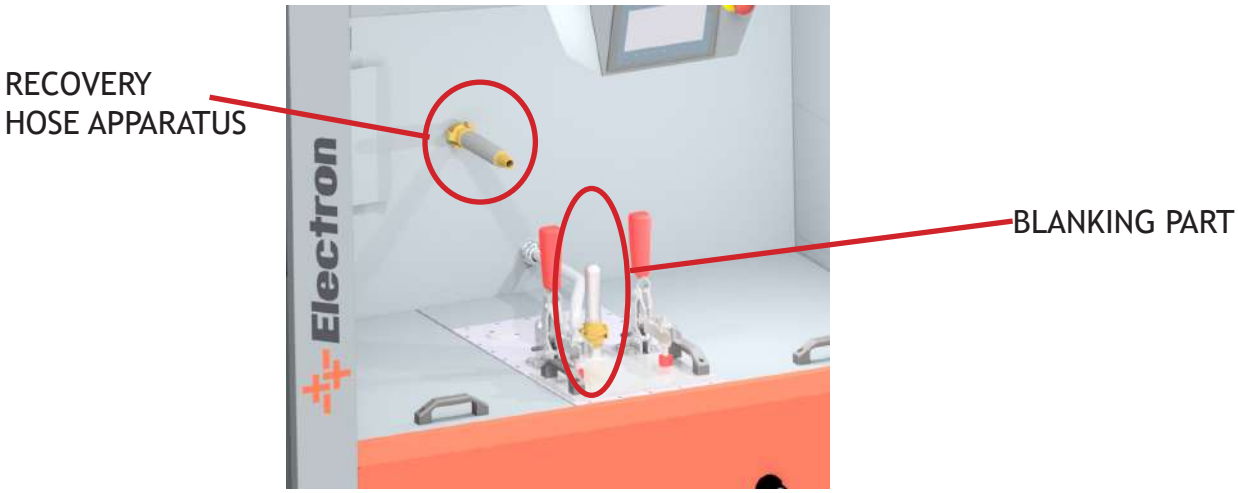
Before pressing the recovery button, make sure that the recoveryhose apparatus is mounted to the container and the blanking part to the waste inlet. After that, press the recovery button.



Coating without powder recovery (spray to waste container)

There is no powder recovery in this coating mode – the powder, which does not adhere to the object, is fed directly to the waste.

Utilization of this operating mode:
- Short coating with different powders
- If highest coating quality is required



Manual coating mode

It is a painting mode where you can manually turn on and off all features.

NOTE:
This coating mode is deactivated by default but can be activated as needed.

Utilization of this operating mode:
- For smaller coating tasks
- If highest coating quality is required

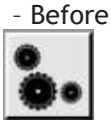
Cleaning / color change (clean)

This operating mode enables the user to chose, on the first cleaning screen, between Fast cleaning and Quality cleaning. In the procedure of both of these cleaning modes, there is no difference, only the preset parameters are different (cleaning times). The higher the requirement for cleanliness, the higher the time expenditure will be.

Each of these cleaning modes consists of two parts, the coarse cleaning and the fine cleaning. The coarse cleaning mode does recover the powder, the fine cleaning mode does not (powder loss).

The cleaning of the components is partially automated, however, some of them must be cleaned manually. The Cleaning operating mode can be selected from every coating operating mode, or from the Standby operating mode.

Utilization of this operating mode:
- After switching on the equipment, if very high quality is required on initial coating application
- Before every color change



Setting

This mode allows the user to make specific E-FEED PM330E V2 settings or to read information:
- User administration
- Operator and system language
- Brightness, date/time, communication, diagnostics, network
- Information regarding operating hours, hardware and software

Parameterization

This operating mode enables the user to modify the parameters.

10.Coating operation

10.1.Before switching on

Before switching on the E-FEED PM330E V2, the following points must be observed:
- Observe the safety regulations
- Check the grounding of the E-FEED PM330E V2, the booth and the other plantunits and ensure it, if necessary
- Check the compressed air supply

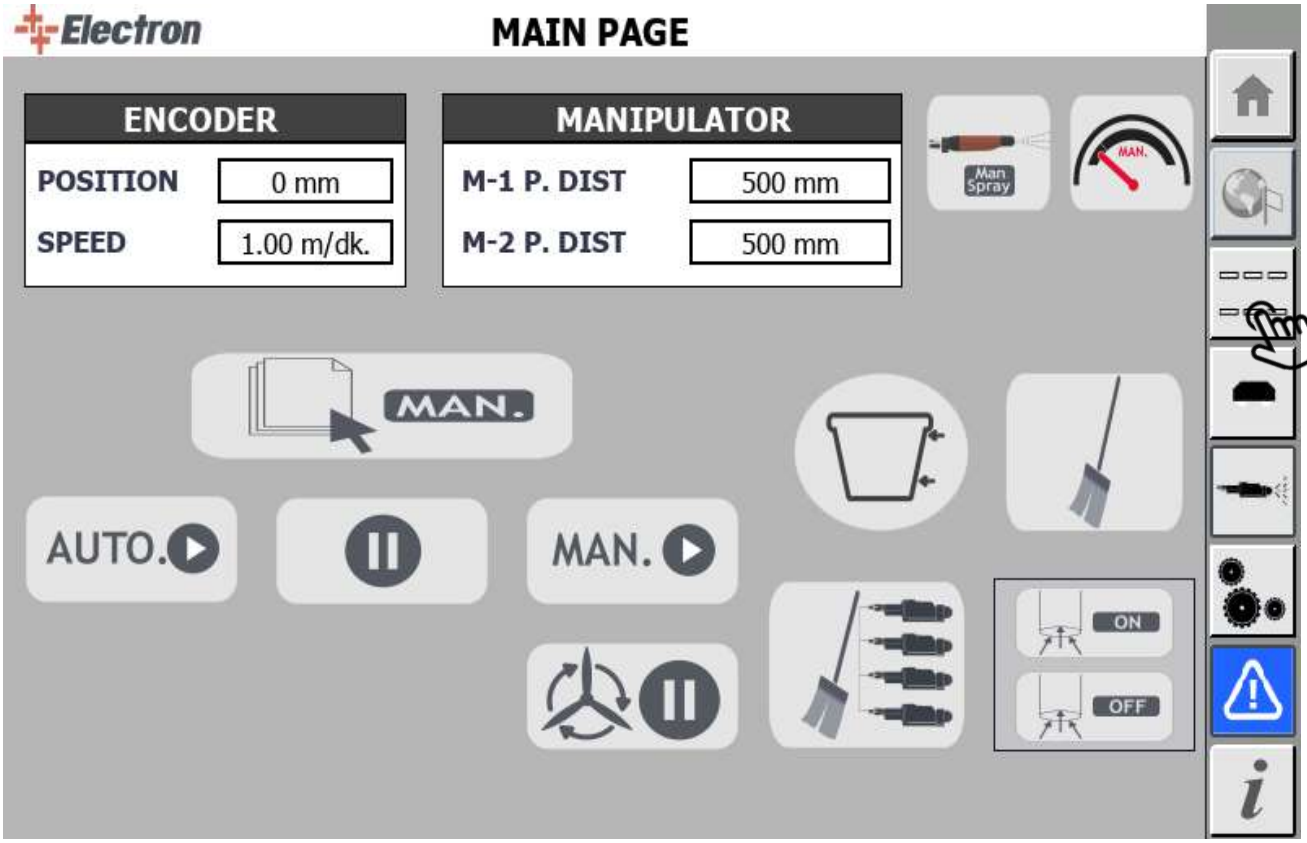
10.2.Starting up the E-Feed PM330E V2

WARNING!
The keys of the input field should only be pressed with fingertips and under no circumstances with fingernails or hard objects!

The start-up takes place according the following steps:

1. Switch on the booth (see also the booth operating instructions)
   - the Booth ready signal may be present
2. Switch the powder management center with the main switch:
3. Wait for the opening screen.
4. Press the “Start” button on the screen that appears.

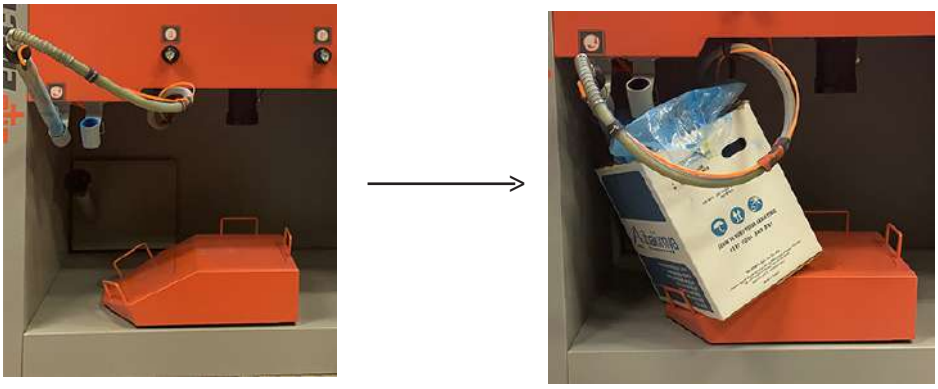
5. The “Electron” logo will appear on the screen. Click on the screen once.
6. The main page that opens will look like this.



7. Turn on the lights of the powder management center by pressing the  button on the right.

NOTE:
A great deal of air is required for the starting procedure!
Make sure that 6,5 bar is always available!
Make sure that the E-FEED HD Pump connected to the bottom of the cyclone (recovery) is turned on and working.

8. Place the powder box as shown in the picture.



9. Suction pipe as shown in the picture; Take it out of slot 1 and click into slot 2. Thus, the end of the pipe will come into the powder box.

10. If you want to run automatically; Press 

the “AUTO START” button.

10.1.”Recovery”  mode and “Non-Recovery”  mode options will appear on the screen. Here you have to choose according to your wishes. (When you start the automatic application, the recovery mode will be selected.

NOTE:
Before pressing the mode selection button, make sure that the hose inlet is mounted in the correct place as shown on pages 19 and 20.

WARNING!
If you select the non-recovery mode but forget the recovery hose apparatus is mounted to the container, stop the cleaning scenario at that stage and start over.

10.2. If you want to do manual operation; Press 

the “MANUAL START” button.

10.3. 

When you click on the “Manual Working-1” page; Press “START” for what you want to run.

When the Powder Management Center works automatically or manually, the powder is transferred to the container. The lower level sensor will glow green  when it sees paint. And the coating process will start. In the meantime, powder will be transferred to the container until the upper level sensor  sees the powder.

11.When you want to stop the operation, it is enough to press  the “STOP” button on the main page.

10.3.Cleaning / color change

WARNING!
Hearing damage caused by sound overexposure
Peak noise levels (for a short time up to 95 db(A)) occurring during the cleaning process may cause hearing damage!
- Do not approach the E-FEED PM330E V2 unless absolutely necessary!
- Wear adequate hearing protection (e.g. ear muffs per EN 352-1)!

NOTE:
A great deal of air is required for the cleaning procedure!
Make sure that 6,5 bar is always available!

WARNING!
Powder can escape if the E-FEED PM330E V2 cover is not closed properly.
- Check that the cover fits properly
- Check if the clamp has locked in place properly. The clamp's closing tension has been set in the factory and must never be changed!

10.3.1.Cleaning operating mode

Cleaning procedure

WARNING!
Make sure the Container Lid is fully engaged!
Pressure processes will be applied.

1. Select the cleaning mode  .

2. On the cleaning page; Firstly, the "Start Cleaning"  button will appear. Press the button. The guns positions will be reset and the damper will open.

NOTE:
Dust on the powder management center surface is withdraw by opening this damper.
The amount of powder flying in the environment should be kept to a minimum.

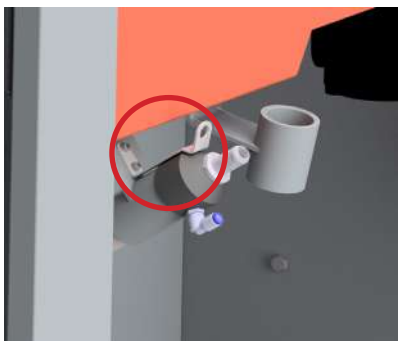
3. When you press start, cleaning modes will appear on the screen. Choose between Intensive Cleaning 

and Quick Cleaning 

.

NOTE:
Intensive cleaning does the automatically rotating cleaning cycle 6 times, and quick cleaning automatically does the rotating cleaning cycle 3 times. These repetitions are default values. You can change these settings in the Parameters section.

4. Remove the suction pipe from the 2nd slot as shown in the picture, clean it by blowing air on it and then insert it into the 1st slot. Sit the powder paint box upright on the flat part of the bottom base on which it is placed and press the button  if you are sure that the box is right under the container. Then press the correct position button  to drain the powder inside the container into the powder box, you will see the powder is drained. (Parking Position)

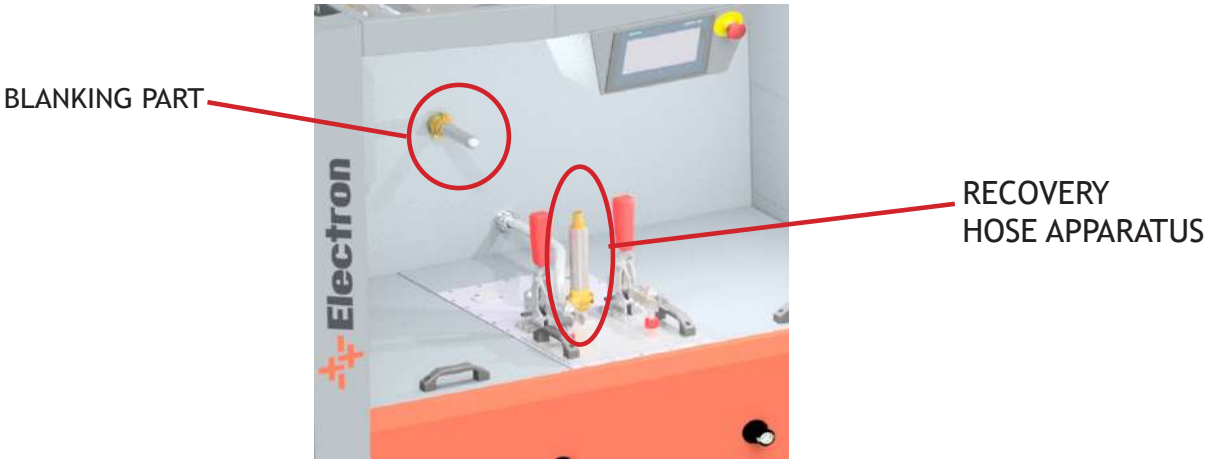


WARNING!
Make sure that the locking system is engaged in the parking position.
Otherwise, it can be dangerous when compressed air is applied.

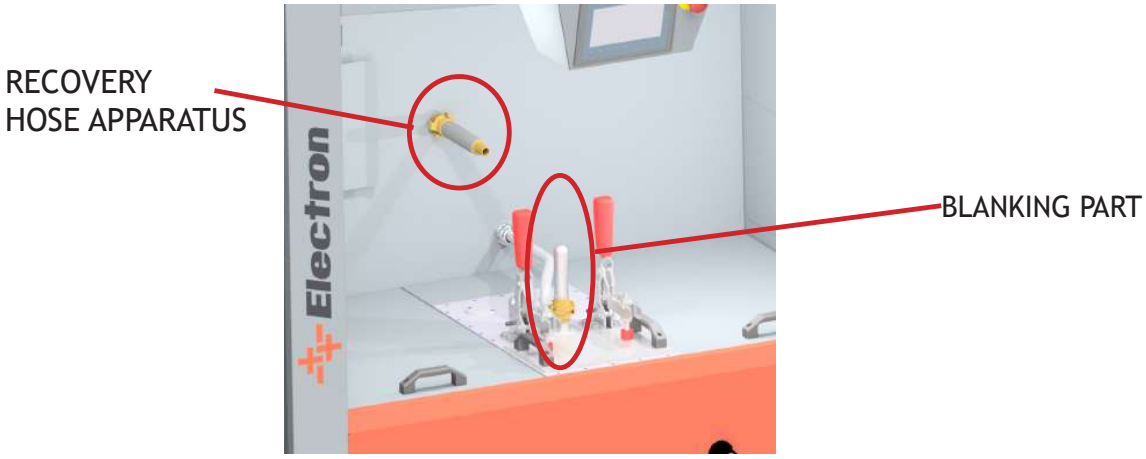
5. Then, on the screen; Powder Recovery Button and Waste Button will be seen. If you want to transfer the recyclable powder coming from the bottom of the cyclone to the powder management center, press the recovery button, if not, use the waste button. In general, the disposal process is used if a delicate coating process is desired, only when coating with fresh powder. Wait for the time displayed on the screen to expire.

NOTE:
Before doing this, make sure that the E-FEED HD Pump on the cyclone side is working.
Otherwise, the paint recovery operation will not work.

WARNING!
If the powder coat is to be recovery, make sure that the hose coming from the left side is connected to the powder container before pressing the button, otherwise the powder will either go to waste or dust into the environment and this is dangerous.



WARNING!
If the powder coat will not be recovery and sent directly to the waste, before pressing the button, make sure that the hose from the left side is connected to the waste tip as shown in the picture, otherwise the dust will either come into the tank or enter the environment and this is dangerous.



5.1 If you have chosen the recovery mode; You should drain the powder back into the powder box again.(Article 5)

6. Then make sure that the blanking part is mounted above the container and at the waste end of the recovery hose apparatus for container cleaning, and press the and the buttons respectively.

7. Then press the Container Clean mode  that appears. Thanks to this process, air is applied to the right and left of the powder container and the powder remaining in the container is forced to go to the cyclone by passing through the airmover.

WARNING!
Do not open the container lid!
During this process, high pressure air is applied inside the container.

8. Press the 

button to clean the Automatic Spray Guns and injectors.

Visually check if there is still paint on the spray guns. If you think it is necessary, you can clean the surface of the guns again with the  button.

WARNING!
Do not open the container lid!
During this process, high pressure air is applied inside the container.

NOTE:
When you click on the  *button on the right column while you are on the mainpage, make sure that the MANIPULATOR 1 & 2 TCP/IP CONTROL ON buttons are active on the "SPRAY SETTINGS 1" page.*

9. The paint suspended on the side panels must be swept towards the floor by the operator by keeping air from above the panels. Through the blow-off holes in the floor, it is pushed into the space in the middle of the booth. After manual cleaning of the booth, press the booth cleaning button  .

10. Lift the lid of the container as seen in the picture and you should press the ''Lifting the Lid''  button. (You will see that the button is green.) Then, clean the inside of the powder container with an air gun.

NOTE:
Before pressing the E-FEED HD button, make sure the suction pipe is in the parked position! (It is shown in article 4.)

11. To clean the E-FEED HD pump, press the 

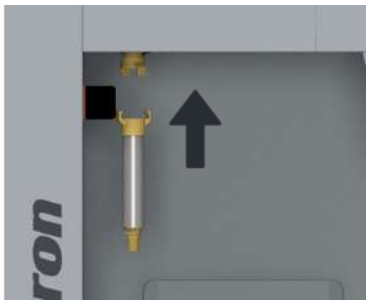
button. Wait for the time displayed on the screen to expire.

12. Then go to the cyclone unit and remove the bottom sieve (lower the bottom of the cyclone, remove the sieve and lift the bottom of the cyclone). Press the  button after removing the sieve.

1.Turn number 1 knob.
2. Press number 2 the buttons simultaneously. The bottom of the cyclone will go down automatically.
3. Lift the sieve by the handles marked with the blue circle. Then clean with an air gun and set aside.
4. Turn it to the bottom of the cyclone without the sieve.
5. Press the number 2 buttons simultaneously. The bottom of the cyclone will go up automatically.
6. Turn number 1 knob again.

WARNING!
Do not forget to remove the sieve, otherwise the sieve may be damaged during cyclone cleaning and the inside of the cyclone will not be cleaned.

13. Reattach the recovery hose apparatus in place as shown in the picture and press the  "Powder hose ready button for cleaning cyclone" button.

1  2 

14.Press the  button for cyclone cleaning.

NOTE:
If you press the button without removing the sieve, the cyclone will not be cleaned.

15. Meanwhile, clean the surface of the powder management center towards the suction with an air gun.

16. Now close the lid. You can finish the cleaning by pressing the  button.

WARNING!
If you are going to use a different color or type of paint, do not forget to remove the powder box.

NOTE:
If needed; After the countdown period is over, the relevant cleaning step can be done again by pressing the relevant button once more.

10.4.Settings / Parameterization

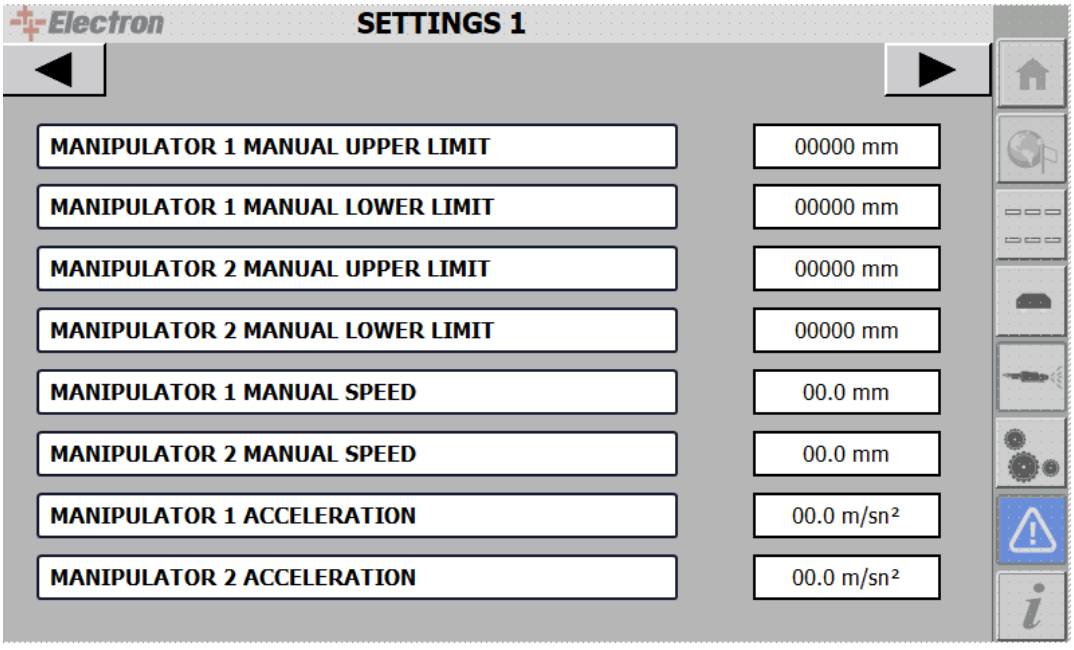
WARNING!
All Powder Management Center settings are set at the factory.
- Parameters may only be modified after consultation with Electron service center!

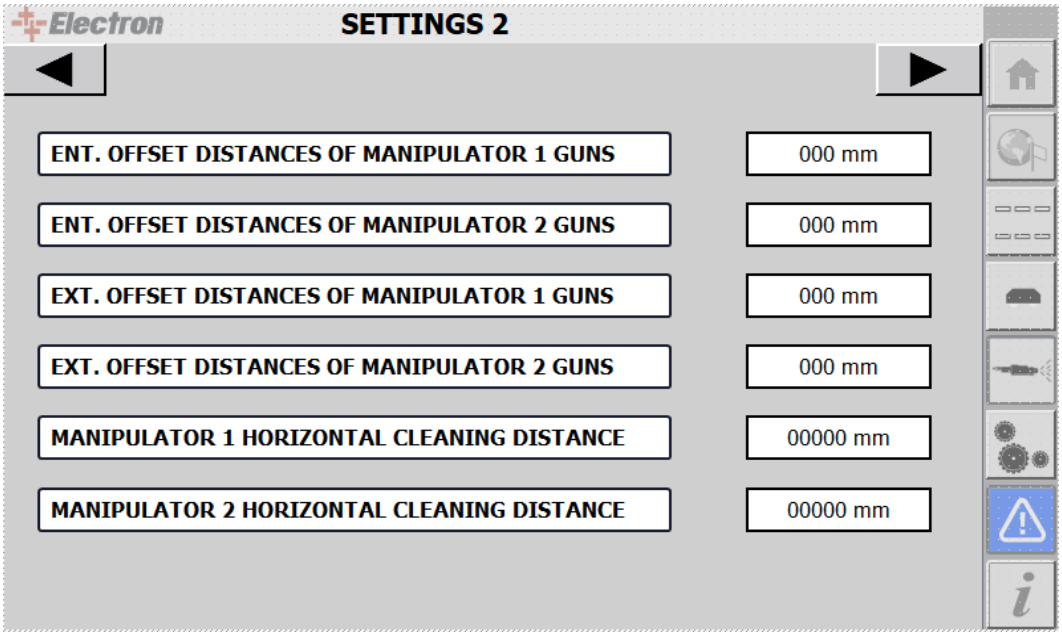
10.4.1.Changing operating language

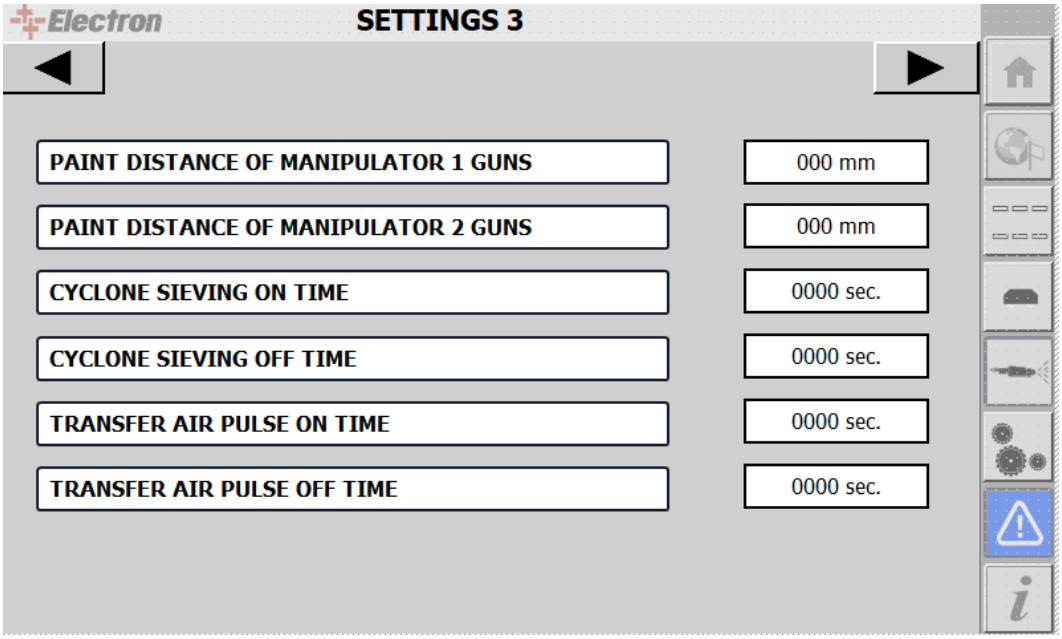
If there is no special project, there are 2 languages available as an option in the paint centers user interfaces. These languages are; It is Turkish and English. By pressing the  key on any screen, you can change your interface to English if your interface is Turkish, and to Turkish if it is English.

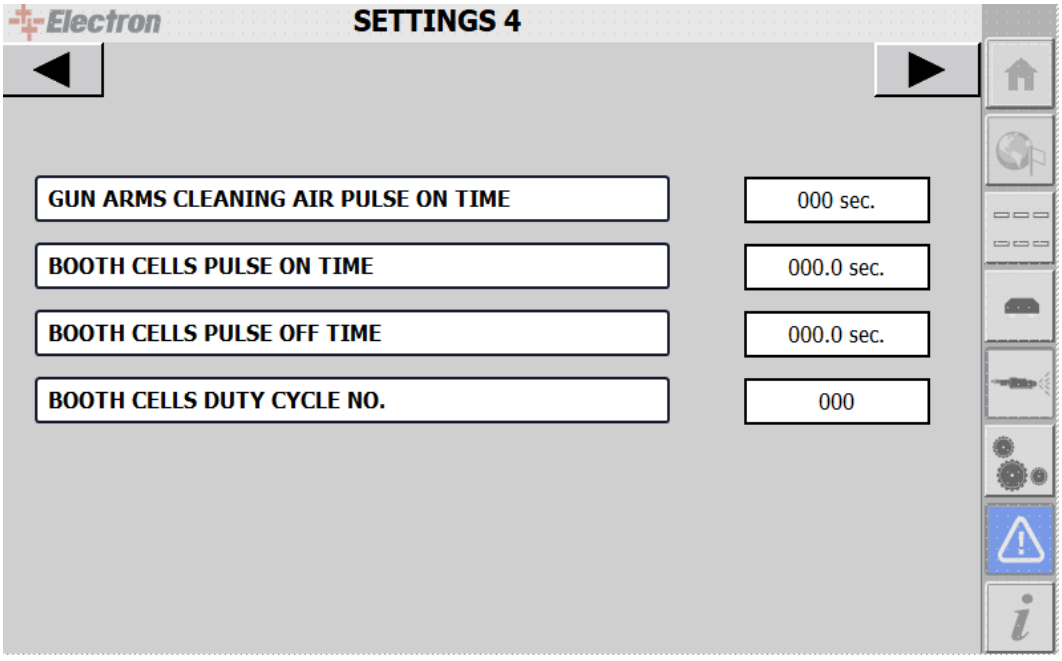
10.4.2.Parameter description

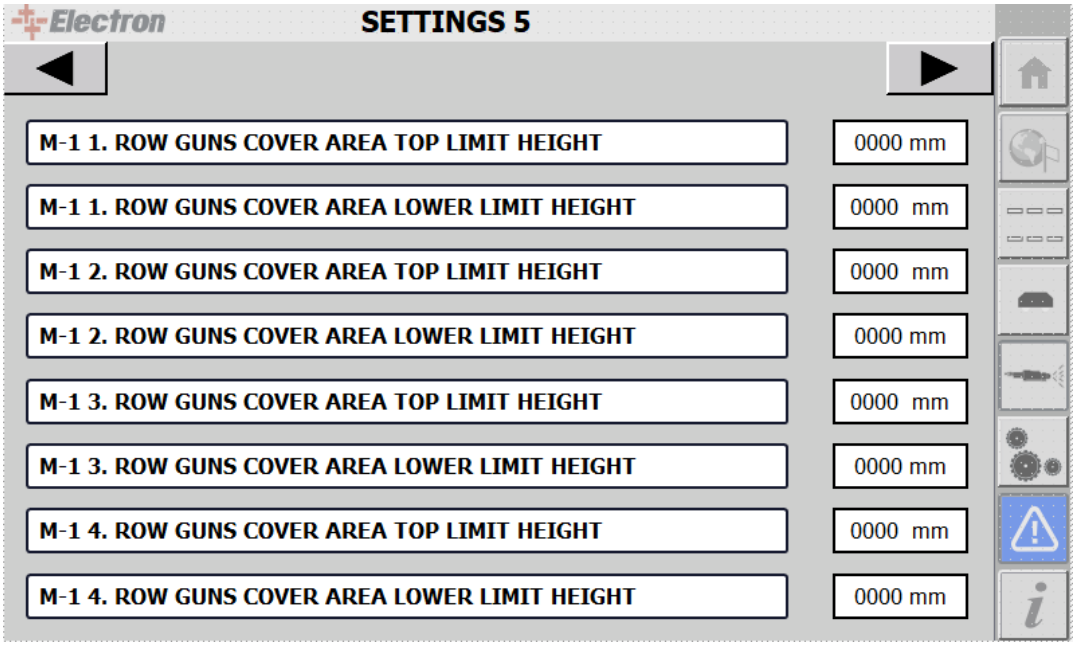
You can switch to the parameters page by pressing the  button no matter which page you are on.

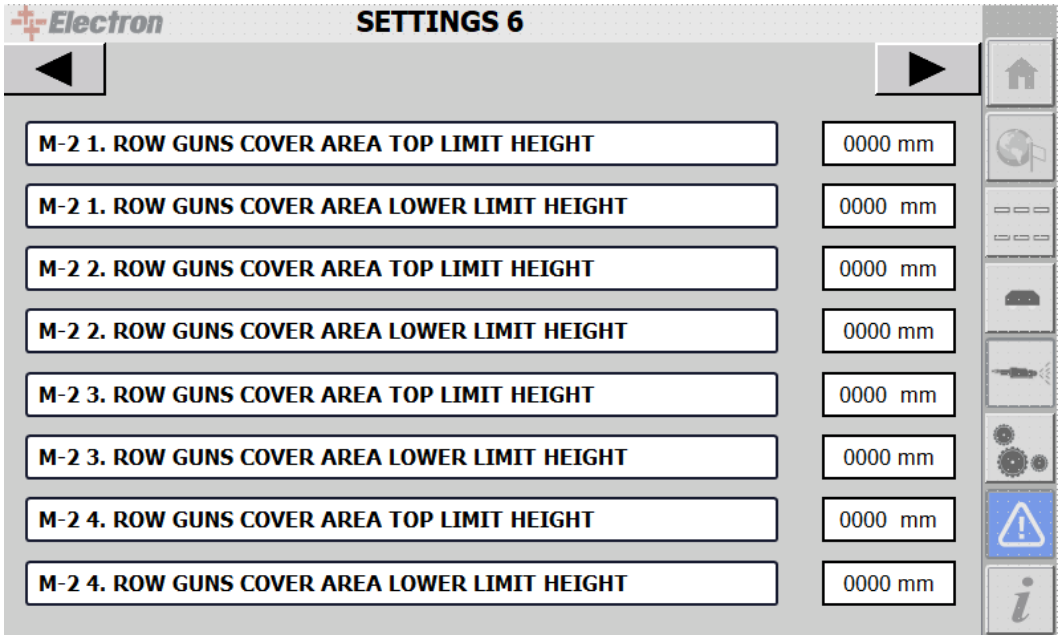


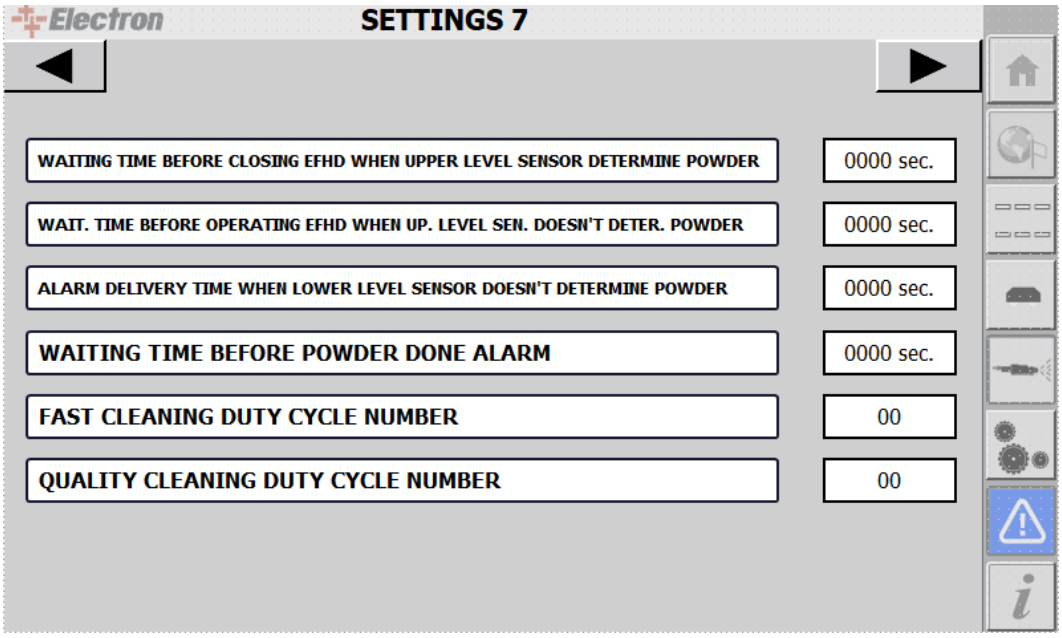

Electron
SETTINGS 2
ENT. OFFSET DISTANCES OF MANIPULATOR 1 GUNS
000 mm
ENT. OFFSET DISTANCES OF MANIPULATOR 2 GUNS
000 mm
EXT. OFFSET DISTANCES OF MANIPULATOR 1 GUNS
000 mm
EXT. OFFSET DISTANCES OF MANIPULATOR 2 GUNS
000 mm
MANIPULATOR 1 HORIZONTAL CLEANING DISTANCE
00000 mm
MANIPULATOR 2 HORIZONTAL CLEANING DISTANCE
00000 mm

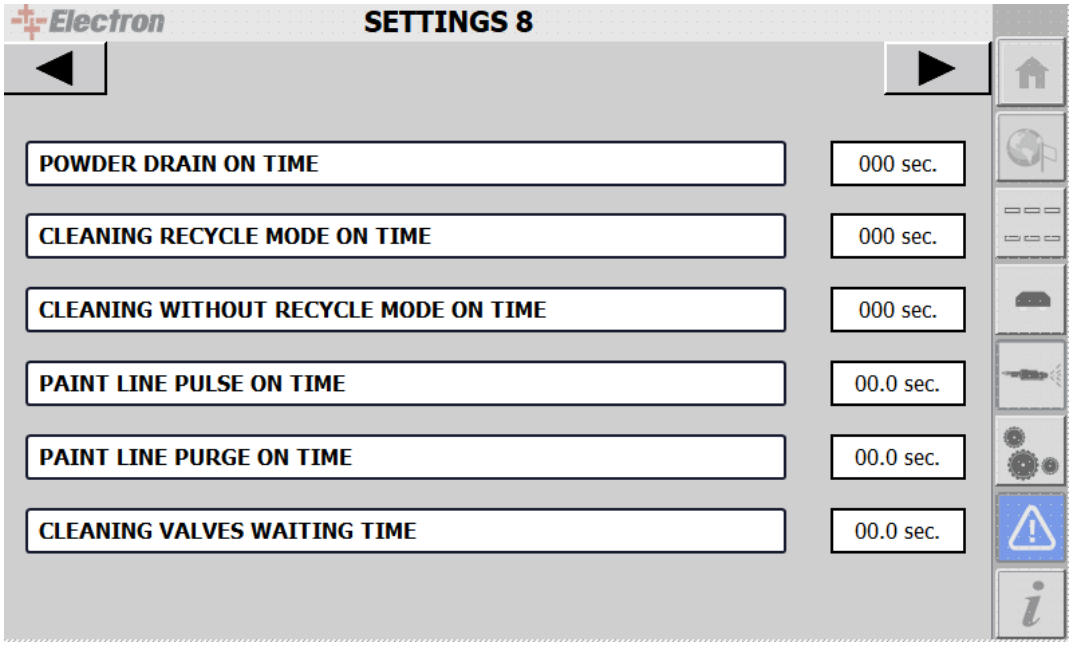

Electron
SETTINGS 3
PAINT DISTANCE OF MANIPULATOR 1 GUNS
000 mm
PAINT DISTANCE OF MANIPULATOR 2 GUNS
000 mm
CYCLONE SIEVING ON TIME
0000 sec.
CYCLONE SIEVING OFF TIME
0000 sec.
TRANSFER AIR PULSE ON TIME
0000 sec.
TRANSFER AIR PULSE OFF TIME
0000 sec.

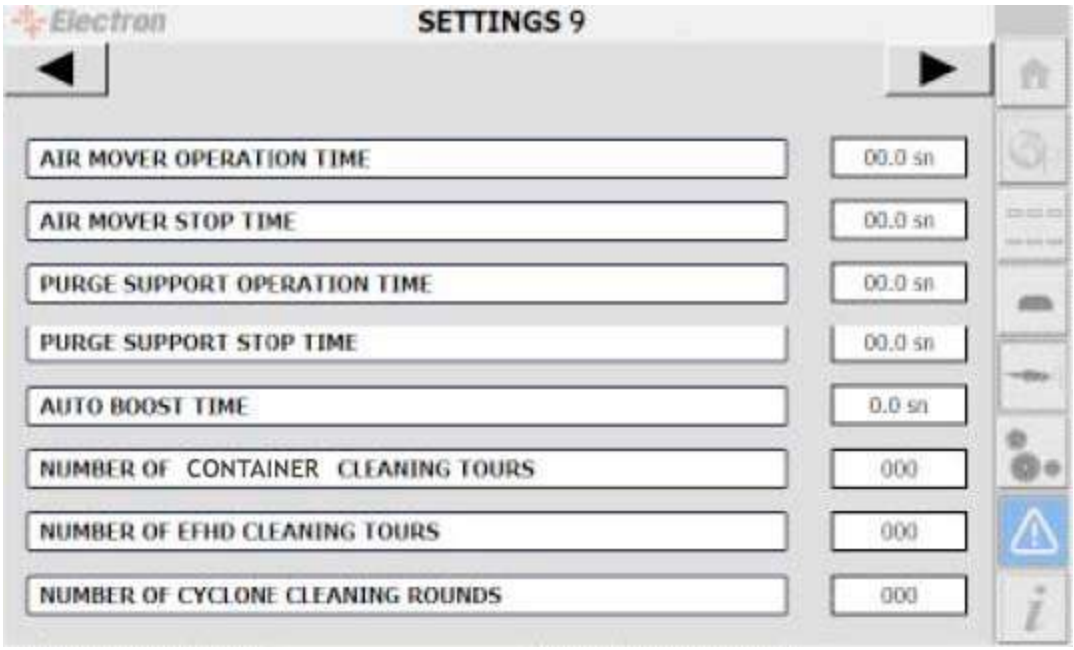

Electron
SETTINGS 4
GUN ARMS CLEANING AIR PULSE ON TIME
000 sec.
BOOTH CELLS PULSE ON TIME
000.0 sec.
BOOTH CELLS PULSE OFF TIME
000.0 sec.
BOOTH CELLS DUTY CYCLE NO.
000


Electron
SETTINGS 5
M-1 1. ROW GUNS COVER AREA TOP LIMIT HEIGHT
0000 mm
M-1 1. ROW GUNS COVER AREA LOWER LIMIT HEIGHT
0000 mm
M-1 2. ROW GUNS COVER AREA TOP LIMIT HEIGHT
0000 mm
M-1 2. ROW GUNS COVER AREA LOWER LIMIT HEIGHT
0000 mm
M-1 3. ROW GUNS COVER AREA TOP LIMIT HEIGHT
0000 mm
M-1 3. ROW GUNS COVER AREA LOWER LIMIT HEIGHT
0000 mm
M-1 4. ROW GUNS COVER AREA TOP LIMIT HEIGHT
0000 mm
M-1 4. ROW GUNS COVER AREA LOWER LIMIT HEIGHT
0000 mm


Electron
SETTINGS 6
M-2 1. ROW GUNS COVER AREA TOP LIMIT HEIGHT
0000 mm
M-2 1. ROW GUNS COVER AREA LOWER LIMIT HEIGHT
0000 mm
M-2 2. ROW GUNS COVER AREA TOP LIMIT HEIGHT
0000 mm
M-2 2. ROW GUNS COVER AREA LOWER LIMIT HEIGHT
0000 mm
M-2 3. ROW GUNS COVER AREA TOP LIMIT HEIGHT
0000 mm
M-2 3. ROW GUNS COVER AREA LOWER LIMIT HEIGHT
0000 mm
M-2 4. ROW GUNS COVER AREA TOP LIMIT HEIGHT
0000 mm
M-2 4. ROW GUNS COVER AREA LOWER LIMIT HEIGHT
0000 mm


Electron
SETTINGS 7
WAITING TIME BEFORE CLOSING EFHD WHEN UPPER LEVEL SENSOR DETERMINE POWDER
0000 sec.
WAIT. TIME BEFORE OPERATING EFHD WHEN UP. LEVEL SEN. DOESN'T DETER. POWDER
0000 sec.
ALARM DELIVERY TIME WHEN LOWER LEVEL SENSOR DOESN'T DETERMINE POWDER
0000 sec.
WAITING TIME BEFORE POWDER DONE ALARM
0000 sec.
FAST CLEANING DUTY CYCLE NUMBER
00
QUALITY CLEANING DUTY CYCLE NUMBER
00





Parameters	Factory Settings	Range
Manipulator 1 manual upper limit	#	* I
Manipulator 1 manual lower limit	#	0-20
Manipulator 2 manual upper limit	#	* I
Manipulator 2 manual lower limit	#	0-20
Manipulator 1 manual speed	16	6-36
Manipulator 2 manual speed	16	6-36
Manipulator 1 acceleration	1,5	1-2
Manipulator 2 acceleration	1,5	1-2
Ent. Offset Distances of Manipulator-1 guns	200 mm	standard * II
Ent. Offset Distances of Manipulator-2 guns	200 mm	standard * II
Ext. Offset Distances of Manipulator-1 guns	200 mm	standard * II
Ext. Offset Distances of Manipulator-2 guns	200 mm	standard * II
Manipulator 1 horizontal cleaning distance	900 mm	*III
Manipulator 2 horizontal cleaning distance	900 mm	*III

Parameters	Factory Settings	Range
Paint distance of manipulator-1 guns	200 mm	standard *IV
Paint distance of manipulator-2 guns	200 mm	standard *IV
Cyclone Sieving on time	60 sec.	1-9999 *V
Cyclone Sieving off time	30 sec.	1-9999 *VI
Transfer air pulse on time	60 sec.	1-9999 *VII
Transfer air pulse off time	30 sec.	1-9999 *VIII
Gun arms cleaning air pulse on time	9 sec.	invariable *X
Booth cells pulse on time	0,2 sec.	standard *XI
Booth cells pulse off time	3 sec.	standard *XII
Booth cells duty cycle no.	5	standard *X III
M-1 1.Row Guns cover area top limit height	#	standard *X IV
M-1 1.Row Guns cover area lower limit height	#	standard *X V
M-1 2.Row Guns cover area top limit height	#	standard *X IV
M-1 2.Row Guns cover area lower limit height	#	standard *X V
M-2 1.Row Guns cover area top limit height	#	standard *X IV
M-2 1.Row Guns cover area lower limit height	#	standard *X V
M-2 2.Row Guns cover area top limit height	#	standard *X IV
M-2 2.Row Guns cover area lower limit height	#	standard *X V
Waiting time before closing EFHD when upper level sensor determine powder	10 sec.	1-9999 *X VI
Waiting time before operating EFHD when upper level sensor determine powder	10 sec.	1-9999 *X VI
Alarm Delivery time when lower level sensor doesn't deter. powder	120 sec.	1-9999 *X VII
Waiting time before powder done alarm	20 sec.	1-9999 *X VIII
Fast cleaning duty cycle number	3	1-9999 *X IX
Quality cleaning duty cycle number	6	1-9999 *X IX
Powder Drain on time	45 sec.	1-9999 *X X
Cleaning recycle mode on time	120 sec.	1-9999 *X X I
Cleaning without recycle mode on time	120 sec.	1-9999 *X X II
Tank cleaning valves on time	1.0 sec.	standard *X X III
Paint line purge on time	4.0 sec.	standard *X X III
Cleaning valves waiting time	1,5 sec.	standard *X X III
Air mover operation time	3.0 sec.	standard *X X III
Air mover stop time	20.0 sec.	standard *X X III
Purge support operation time	2.0 sec.	standard *X X III
Purge support stop time	1.0 sec.	standard *X X III
Auto boost time	1.5 sec.	standard *X X III
Number of container cleaning tours	3	1-9999 *X X IV
Number of EFHD cleaning tours	3	1-9999 *X X IV
Number of cyclone cleaning rounds	15	1-9999 *X X IV

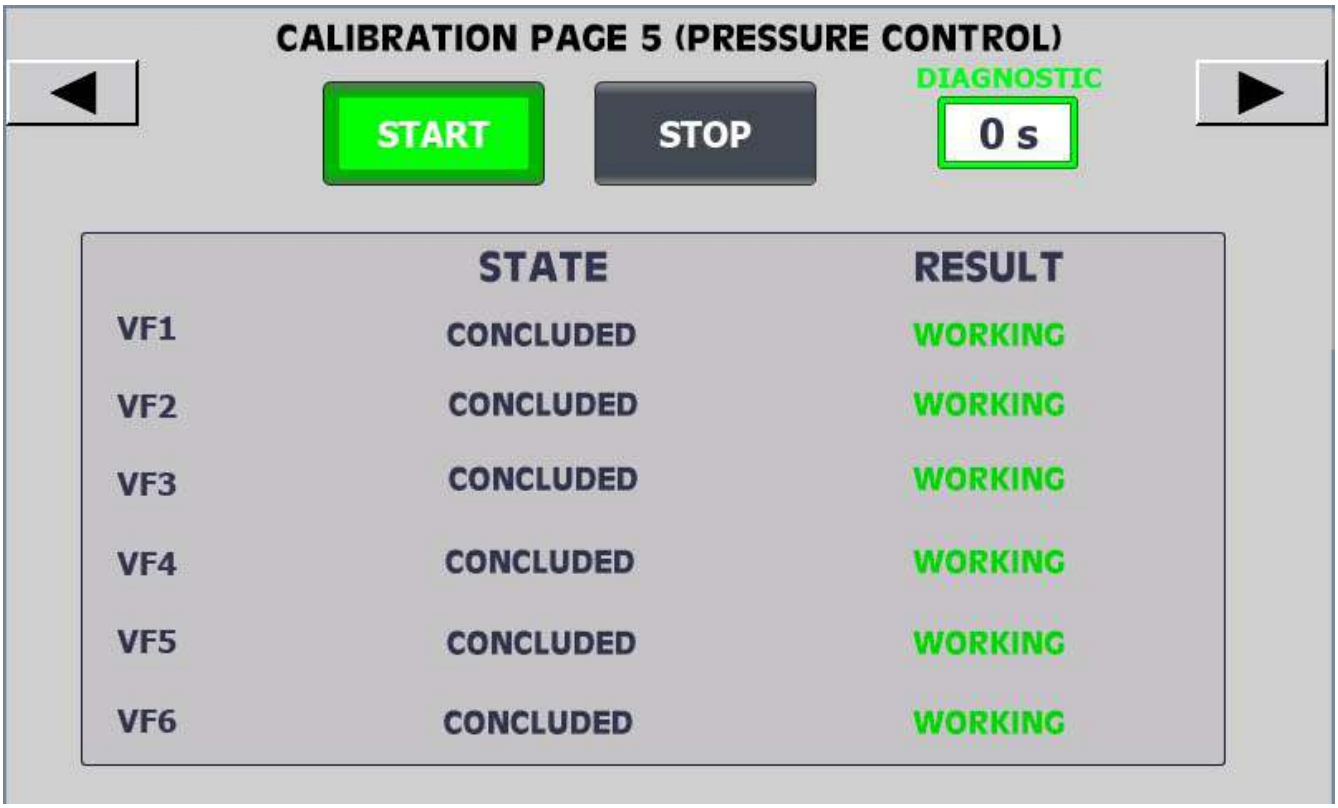
#: Adjusted by the Electron service. Do not make changes without consulting.

Marking	Explanation
* I	Top distance of gun arms (adjusted according to booth size.)
* II	The starting distance of coating as the part to be coated approaches the guns
* III	The distance of the guns in the booth during cleaning
* IV	The distance of the guns to the part to be coated
* V	Working time of the sieve under the cyclone (the sieve works with a continuous run-stop system during coating processes)
* VI	Stopping time of the sieve under the cyclone (the sieve works with a continuous run-stop system during coating processes)
* VII	During the coating process, it is the process of transferring powder to the container by the E-FEED HD pump on the cyclone side.
* VIII	E-FEED HD on the cyclone side is the waiting period after running for a certain time.
* IX	Powder coating filling time from powder coating box to container
* X	Cleaning time thanks to nozzles on the guns during cleaning
* XI	The paint spill on the booth floor is swept into the middle of the booth by blowing air through the blow-off holes. Air delivery time from these holes
* XII	Waiting time after air is given to the blow-off holes in the booth
* X III	Booth cleaning duty cycle (indicates how many times air will be given through blow-off holes.)
* X IV	vertical working range of the top gun - upper limit
* X V	vertical working range of the top gun - lower limit
* X IV	Waiting time after seeing the upper level sensor
* X VII	When the paint transfer to the powder container starts, if the lower level sensor does not detect it within this filling period, the powder management center will give an alarm.
* X VIII	If the paint inside the container runs out, the powder management center gives an alarm. (to make sure the lower level sensor does not detect)
* X IX	It shows how many times each cleaning step will be done in itself. It should be noted that higher values will extend the total cleaning time.
* X X	The time the powder is poured into the can
* X X I	If you choose the Recovery mode during cleaning, the time for the powder under the cyclone to come to the container
* X X II	If you choose the Non-recyclable mode during cleaning, the time it takes for the powder under the cyclone to be sent directly to the waste
* X X III	It is related to cleaning times, it is a software value, it cannot be changed.
* X X IV	In particular, it shows the number of cleaning cycles of the system partitions.

10.5.Diagnostic

WARNING!
Make sure the Container Lid is fully engaged!
Pressure processes will be applied.

NOTE:
Make sure that 6,5 bar is always available!



The diagnosis page displays the status of the individual valves. Make sure the lid is closed and press the START button. The operating status of 6 qty pinch valves will be displayed on the screen.

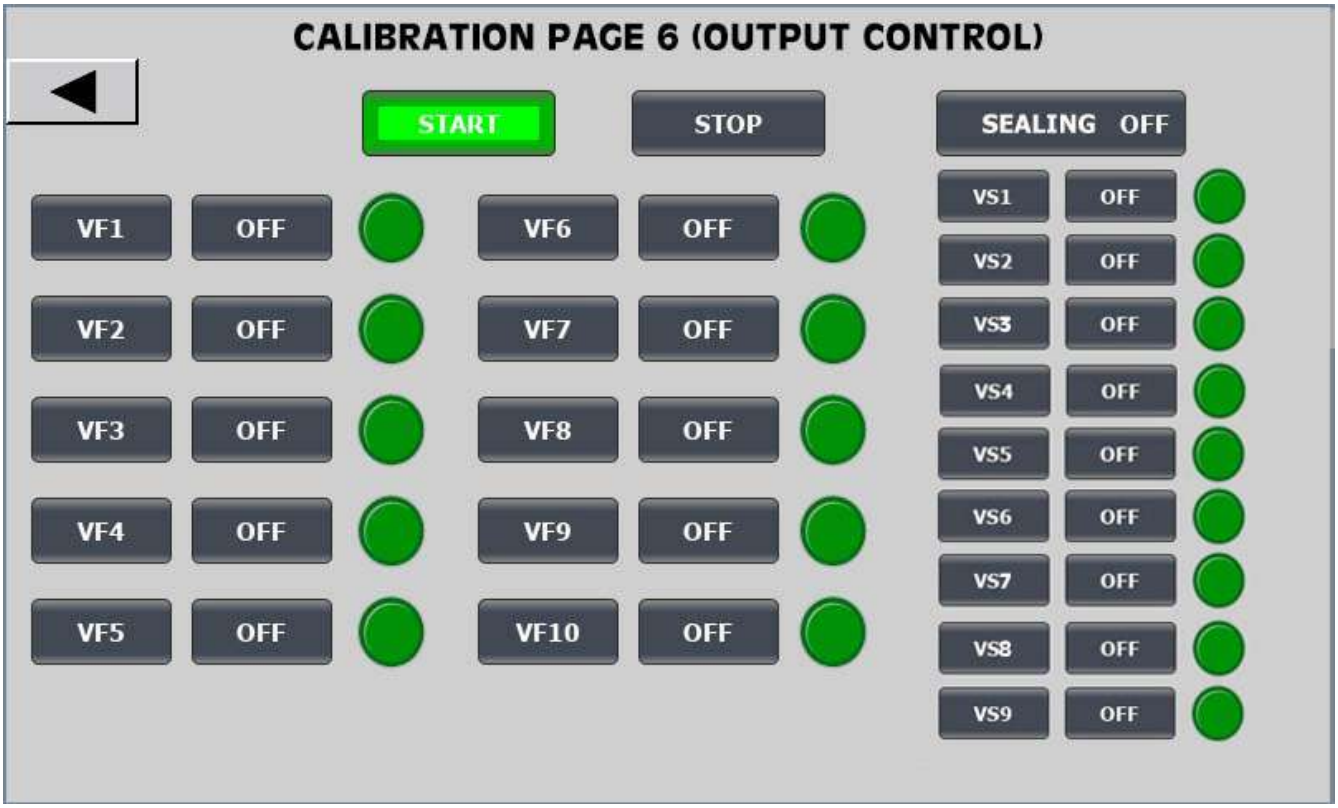
Service or replace the valve that is not working.

NOTE:
Wait for the time displayed on the screen to expire.

10.6. Control Page

WARNING!
Make sure the Container Lid is fully engaged!
Pressure processes will be applied.

NOTE:
Make sure that 6,5 bar is always available!



The control page displays the status of the individual valves. Make sure the lid is closed and press the START button. It allows you to manually operate the valves one by one. The faulty valve will appear in red. Service or replace the valve that is not working.

11.Maintenance

11.1.Maintenance schedule

Daily after longer working interruptions and at the end of shift

WARNING!

Before switching off the plant, the container be emptied and cleaned.

NOTE:

The E-FEED HD powder application pump located behind the E-FEED PM330E V2 powder management center should be maintenanced every 3000 hours.

See the E-FEED HD's manual.

Check weekly

- Check the application enjectors and replace solid filter, if necessary. *See the operating instructions for E-FEED V2 or the relevant injector.*
- Check the pinch valves from "Calibration 5 Page-Pressure Control".
- Clean the Touch Panel.

Check every 6 months

- Check the valves one by one from "Calibration 6 Page-Output Control" manually.

Check yearly

- Check the pinch valves (6 qty) and follow the steps in the Maintenance of the Pinch Valves section.

11.2.Maintenance of the Touch Panel

Devices with Touch Panel are maintenance-free. However, the following work may be necessary:
- Cleaning of the touch surface if contaminated.

Cleaning the touch surface

WARNING!

Cleaning the device

Damage to the device due to the use of pointed or sharp objects or by liquids.

- Do not use any pointed or sharp objects (e.g. knife) for cleaning.
- Do not use any aggressive or abrasive cleaning agent or solvent.
- Avoid any liquid entering the device (risk of short-circuit).

Clean the touch surface carefully with a clean, soft, damp cloth.
- With stubborn contamination, spray a little cleaning agent onto the damp cloth first.

11.3.Maintenance of the Pinch Valves

11.3.1. Removal and Maintenance of The Pinch Valve Under the Powder Container

Steps:

1) Remove the hose from its socket as shown in Picture-1.
2) Remove the pinch valve by turning it as shown in Picture-2. The empty slot appears in the 3rd Picture.


Picture-1


Picture-2


Picture-3

3) Remove the old Cuff as shown below.
   3.1) Remove bolts with a ratchet (torx 30) or suitable hexagon allen key as shown in Picture-4. (Picture-5)
   3.2) Remove the upper and lower covers and unscrew the cuff that needs to be changed inside. (Picture-6)


Picture-4


Picture-5


Picture-6

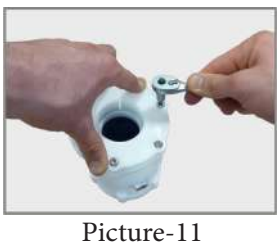
4) Fitting the New Cuff;
   4.1) On one side, push the press zone ring into the body. (Make sure the gasket is attached) (Picture 7)
   4.2) Apply AKO Mounting Paste (MP200) or liquid soap to one corner of the new cuff as shown in Picture 8 and lubricate. Insert the putty end of the sleeve into the body through the first press zone ring until the sleeve is flush with the lower edge of the body through the second press zone ring.
   4.3) Apply a thin layer of paste or liquid soap on both ends of the inside of the cuff and on the cone of the sleeve cap. (Picture 9)
5) Hold the valve unit with one hand, then place the sleeve cap diagonally into the sleeve with the other hand and press it. (Picture 10)
6) By pressing the sleeve cover firmly, tighten the screws with the help of the gear ratchet until the sleeve cover is in line with the body. Then turn the valve unit 180° and do the same again.


Picture-7


Picture-8


Picture-9

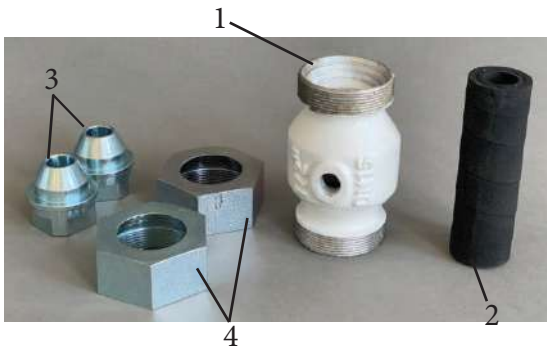

Picture-10


Picture-11

WARNING!
Do not exceed the maximum tightening torque of 4.5 Nm for bolts.

NOTE:
The order code of the new Cuff : PNPE06009. It should be noted that it must be changed every year. Electron cannot be held responsible for malfunctions and damages that may occur if not changed.

11.3.2. Removal and Maintenance of The 6-Pinch Valve Behind the Powder Management Center



1-Body
2-Rubber
3-Stems
4-Nuts

Steps:

1) Remove the air hose attached to the valve. (Picture-1)
2) While holding it from the stem of the valve with spanners, unscrew it by turning in the opposite direction of each other. (Apply this process with two personnel) (Picture-2) (Warning: the stems must remain in connection with the powder management center, the only thing you need to remove is the valve body.) (Picture-3)
3) Unscrew the valve body from the other stem by turning it. (Picture-4)
4) Pull out the old rubber inside the valve with pliers. (You can apply liquid soap to avoid force.)


Picture-1


Picture-2


Picture-3


Picture-4

5) Install the new rubber inside the valve as follows:

5.1) The rubber tube should be placed in the body opening with the help of a screwdriver.(Picture-5) Then it should be placed inside the body with a vice, leaving both ends equally outside.(Picture-6) If it is difficult to adjust it to be even, the rubber tube can be moved left and right by blowing air through the air inlet.

5.2) Liquid soap is applied to the inner surface of the rubber tube, and the outer surface of the stems to a depth of 10 mm from the ends. (Picture-7&8) Caution, never rub anything on the outer surface of the rubber.


Picture-5


Picture-6


Picture-7


Picture-8

5) Make sure the stems are in the correct position inside the nut. Then the stems are allowed to fit into the rubber tube. This can be done on both sides at the same time if possible, and if not possible, unilaterally so that the rubber does not slide to one side.
6) Whether the stems grasp the inside of the rubber tube should be checked visually or with a finger. If it does not fit properly; nuts should not be compressed.
7) After making sure that the stems grasp the rubber, the nuts should be tightened with a pipe wrench.

12.Decommissioning, storage

12.1.Introduction

12.1.1.Safety rules

Suitable equipment (e.g. a crane) must be used when moving parts that are sometimes bulky and heavy. Components being disassembled must be adequately secured before they are detached.

12.1.2.Requirements on personnel carrying out the work

Use only technical personnel who are trained in operating the respective equipment (e.g. a crane).
If there are any uncertainties, please contact Electron.

12.2.Storage conditions

12.2.1 Storage duration

If the physical conditions for metal parts and electronics are maintained, the unit can be stored indefinitely. On the other hand, the installed elastomeric components (pinch valve collars, O-ring seals, etc.) can become brittle over time and crack when put under repeated loads.

12.2.2.Space requirements

The space requirements correspond to the size of the PM330E V2. The load-bearing capacity of the floor should be at least 500 kg/m^2. There are no special requirements concerning distance to neighboring equipment.

12.2.3.Physical requirements

Storage must be inside a dry building at a temperature between +5 and +40 °C. Preferably in a cool, dry and dark space. Do not expose to direct sunlight.

12.2.4.Hazard notes

There is no danger to personnel or the environment if the unit is stored properly.

12.3.Shut-down

12.3.1.Decommissioning

Before starting any kind of work, the E-FEED PM330E V2 must be disconnected from the compressed air supply.

1. Relieve pneumatic pressure on the system
2. Unplug the power cable
3. Unplug the ground cable
4. Empty the container (see “Cleaning”)

12.4.Maintenance during storage

12.4.1.Maintenance schedule

No maintenance schedule is necessary

12.4.2.Maintenance works

During long-term storage, periodically perform a visual check.

12.5.Return to service

12.5.1.Commissioning following storage

Following storage of more than 3 years, the rubber components must be checked and replaced if necessary.

13.Packing

13.1.Introduction

This chapter describes special precautions that must be taken during internal transport of the product if:
- the customer himself must pack, transport and ship the product, in order to have overhaul and repair work carried out by the manufacturer or
- the product must be shipped for disposal (recycling).

13.2.Safety rules

Suitable equipment (e.g. a crane) must be used when moving parts that are sometimes bulky and heavy. Components being disassembled must be adequately secured before they are detached.

Use only technical personnel who are trained in operating the respective equipment (e.g. a crane).
If there are any uncertainties, please contact Sistem Teknik Makina San. ve Tic. A.S.

13.3.Packing Material

Not necessary for the internal transport. For external transport:

WARNING!
The Feed PM330E V2 must not be placed fully
in the horizontal position, since it is not designed for this purpose.
- In case of doubt contact Sistem Teknik Makina San. ve Tic. A.S.!

14.Transport

14.1.Data concerning goods to be transported

- The space requirements correspond to the size of the components plus the packaging
- Weight see “Technical Data”

14.2.Mode of transportation

For short distances/shifts of position within the same room, the product must be transported using a forklift truck with long forks.

14.3.Loading, transferring the load, unloading

Suitable lifting equipment is to be used for all procedures.

15.E-FEED PM330E V2 Powder Management Center - spare parts list

15.1.Ordering spare parts

When ordering spare parts for powder management center, please indicate the following specifications:

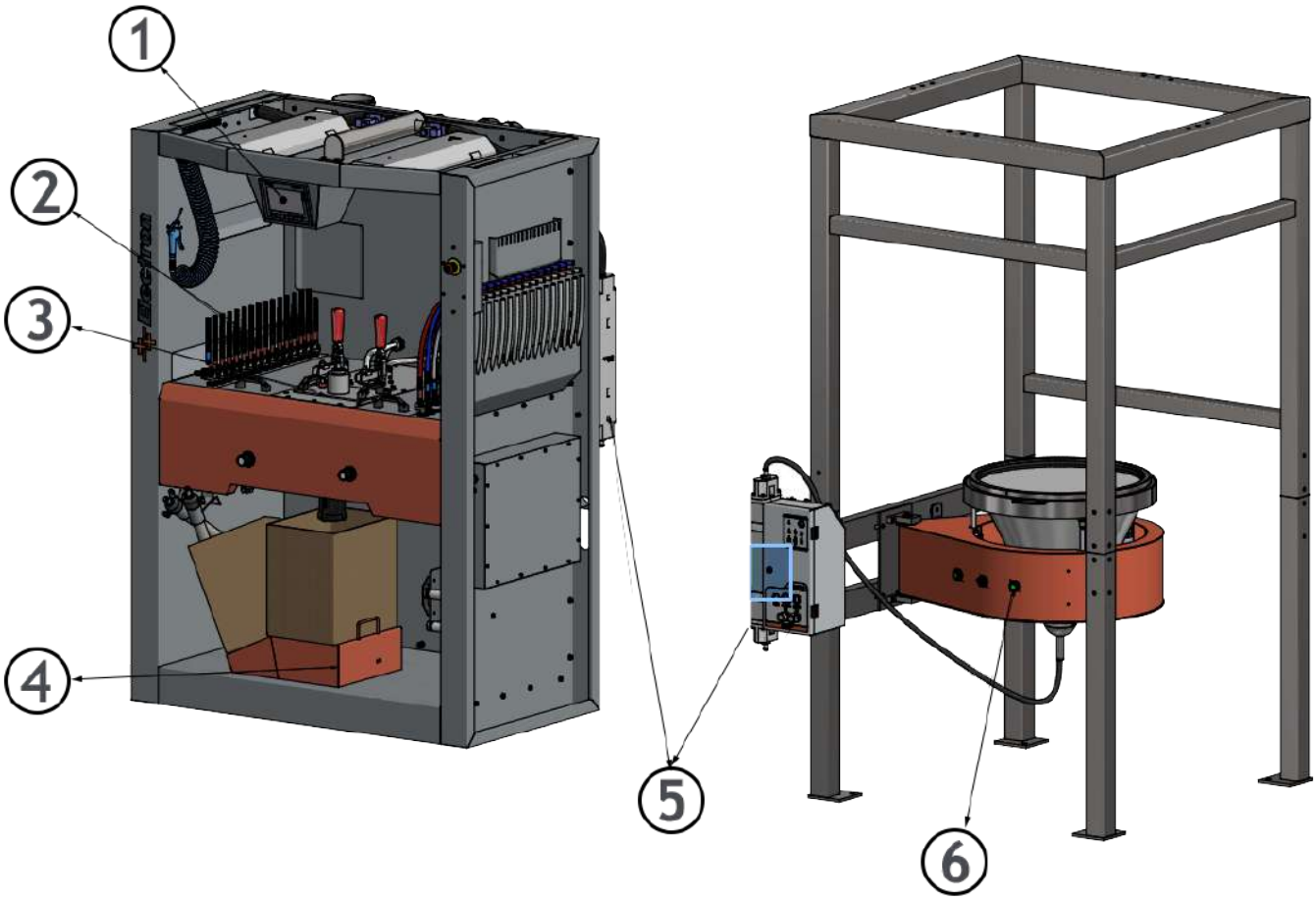
- Type of your powder coating equipment
- Order number, quantity and description of each spare part

Example:
Type E-FEED PM330E V2
Order no. **A05PM330E V2**, 1 piece

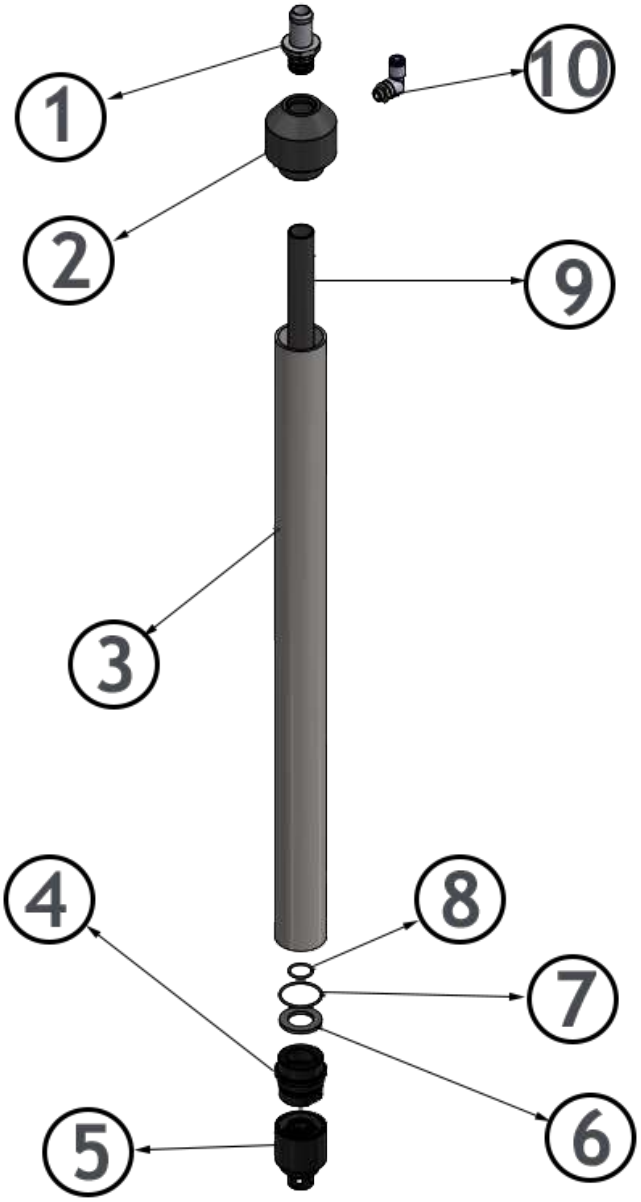
When ordering cable or hose material, the required length must also be given. All dimensions of plastic hoses are specified with the external and internal diameter:

Example:
Ø 8/6 mm, 8 mm outside diameter (o/d) / 6 mm inside diameter (i/d)

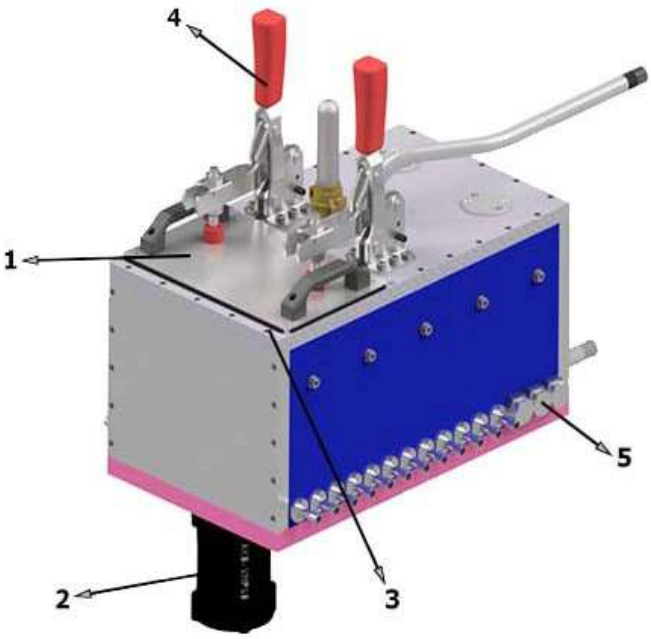
15.2.Spare parts



Part #	Order Code	Part Name	Qty
1	ELPC03003	SCREEN TOUCH SIEMENS 7'' BASIC PANEL 2.GENERATION	1
2.1	B07FEEDV2	E-FEED V2 INJECTOR	*
2.2	B07FEEDV3	E-FEED V3 INJECTOR	*
3	B07EM10003	ULTRASONIC 250 MICRON SIEVE SET (PM3)	1
4	MPMT03001	MOTOR VIBRATION SINGLE PHASE 220V 3M WIRED VBM-2M ATEX DUST22	1
5	A05FHD001	E-FEED HD POWDER PAINT TRANSFER PUMP	2
6	KBNYM0000002442	CYCLONE PUMP SIEVE SYSTEM	1

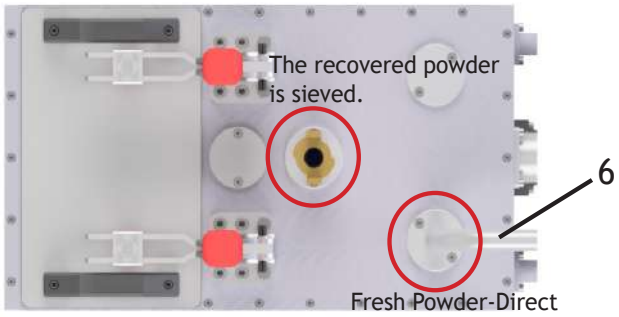


Part #	Order Code	Part Name	Qty
1	TRTM08112	E-COAT MULTICOLOR SUCTION PIPE HOSE INLET	1
2	TRTM03022	SUCTION ADAPTER TOP Ø55 L55	1
3	SCBR08002	PIPE PPRC Ø40X5,5 L:4000 PN20 (GRAY)	1
4	TRTM03024	SUCTION ADAPTER BOTTOM BODY	1
5	TRTM03023	SUCTION ADAPTER BOTTOM NUT	1
6	FRFL08007	E-COAT MULTICOLOR SUCTION PIPE SINTER FILTER	1
7	IZOR01027	O-RING Ø30X2 NBR70	1
8	IZOR01006	O-RING Ø16X2 NBR70	1
9	SCBR06006	PVC PIPE Ø20	1
10	PNRD01037	ELBOW ROTARY UNION 1/8 “-Ø6 MALE	1



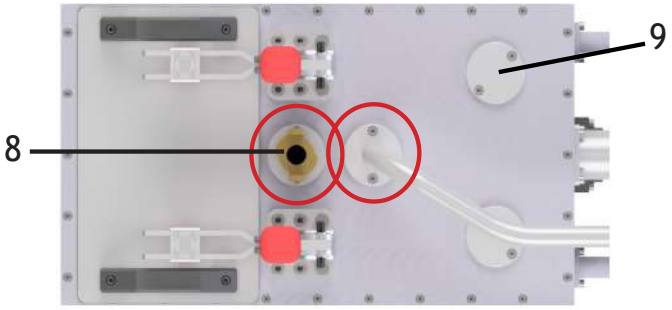
In case of using sieve;

Situation 1



Situation 2

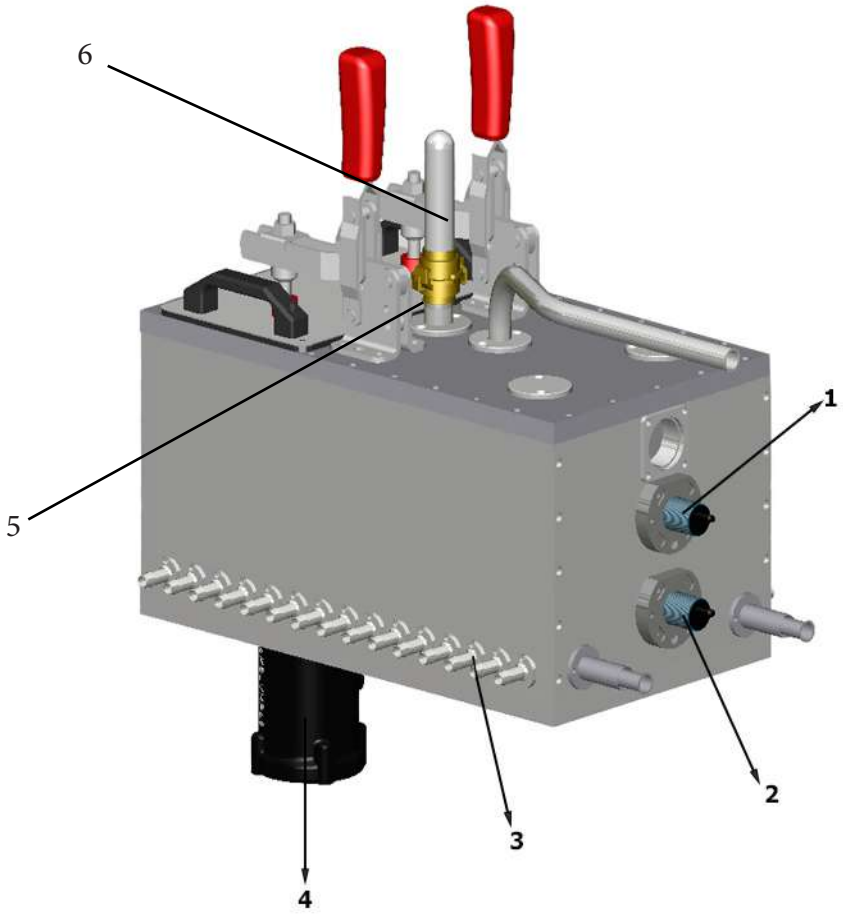
Situation 3



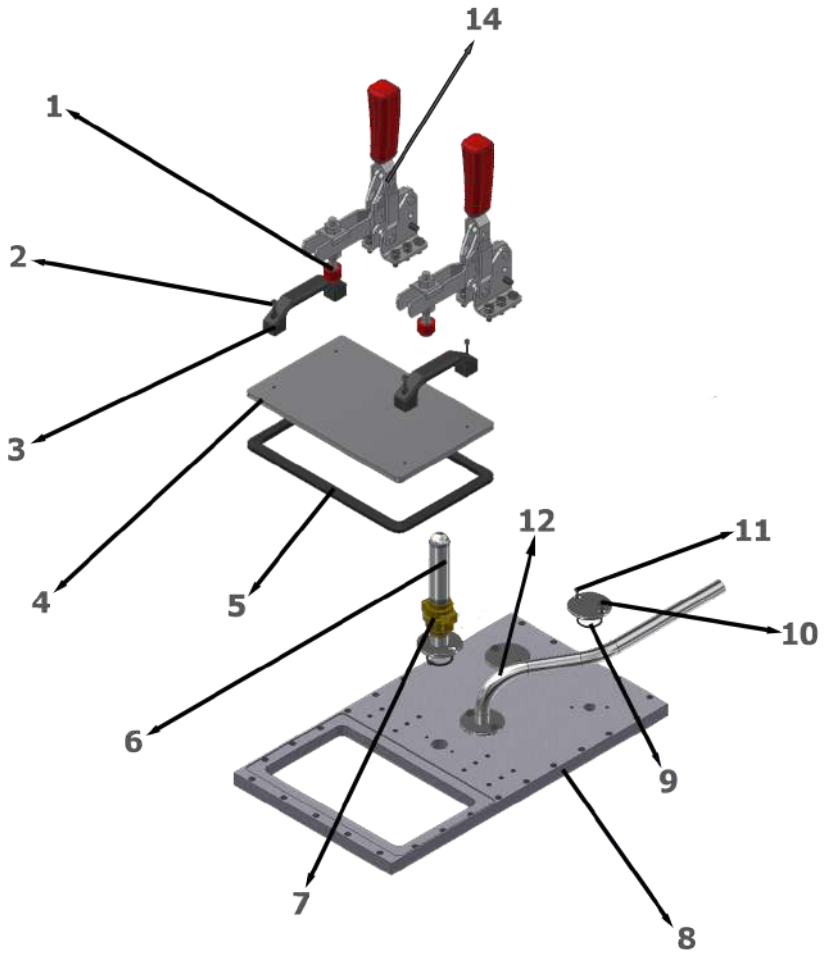
Both the recovered powder and the fresh powder are sieved.

NOTE:
The order code of the sieve module : B07EM10003 Sieve module is optional. It must be ordered separately.

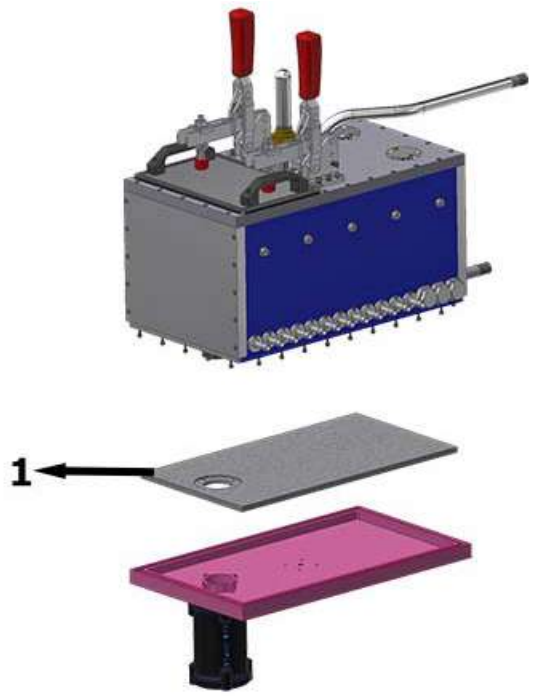
Part #	Order Code	Part Name	Qty
1	B07PM3004	LID OF THE CONTAINER-COMPLETE-PM3 V2	1
2	PNPE06005	PINCH VALVE VMP040.03X.72 DN40	1
3	BECV03035	BOLT M6X20 HB IMBUS	32
4	AKUA05016	BINDING ELEMENT VERTICAL M-10	2
5	TRTM04158	BLIND STOPPLE	*
6	B07PM3003	POWDER HOSE INLET-COMPLETE	1
7	B07PM3002	POWDER HOSE INLET-SIEVE TYPE-COMPLETE	1
8	PNBE02001	EUROPEAN COUPLING FEMALE GEAR 3/4”	1
9	TRTM07014	POWDER ENTRY CLOSURE Ø60 L5 (PM3)	2



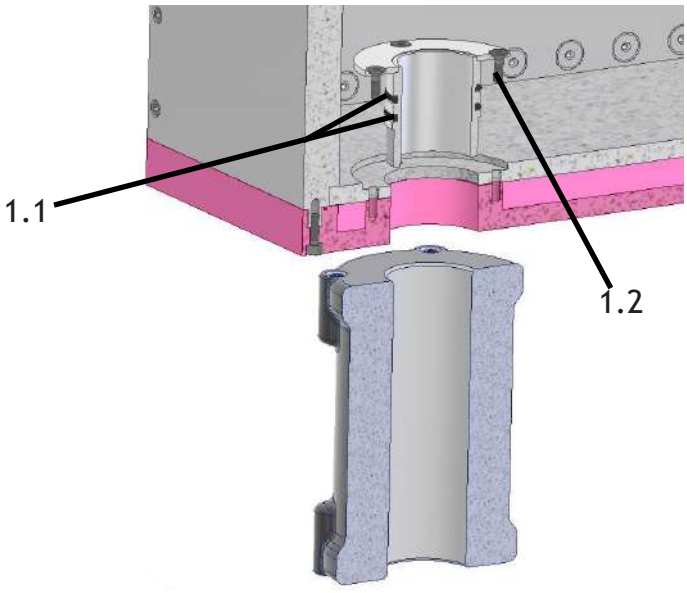
Part #	Order Code	Part Name	Qty
1	ELSN01001	Top Level Sensor	1
2		Lower level sensor	1
3	TRTM04155	E-FEED PM3E V2 FITTING OF POWDER SUCTION HOSE-ALUMINIUM	*
4	PNPE06005	PINCH VALVE VMP040.03X.72 DN40	1
5	B07PM3006	PM3 V2 INLET BLINDING APPARATUS-CONTAINER CONNECTION PART (set)	1
6	B07PM3005	PM3 V2 INLET BLINDING APPARATUS (set)	1



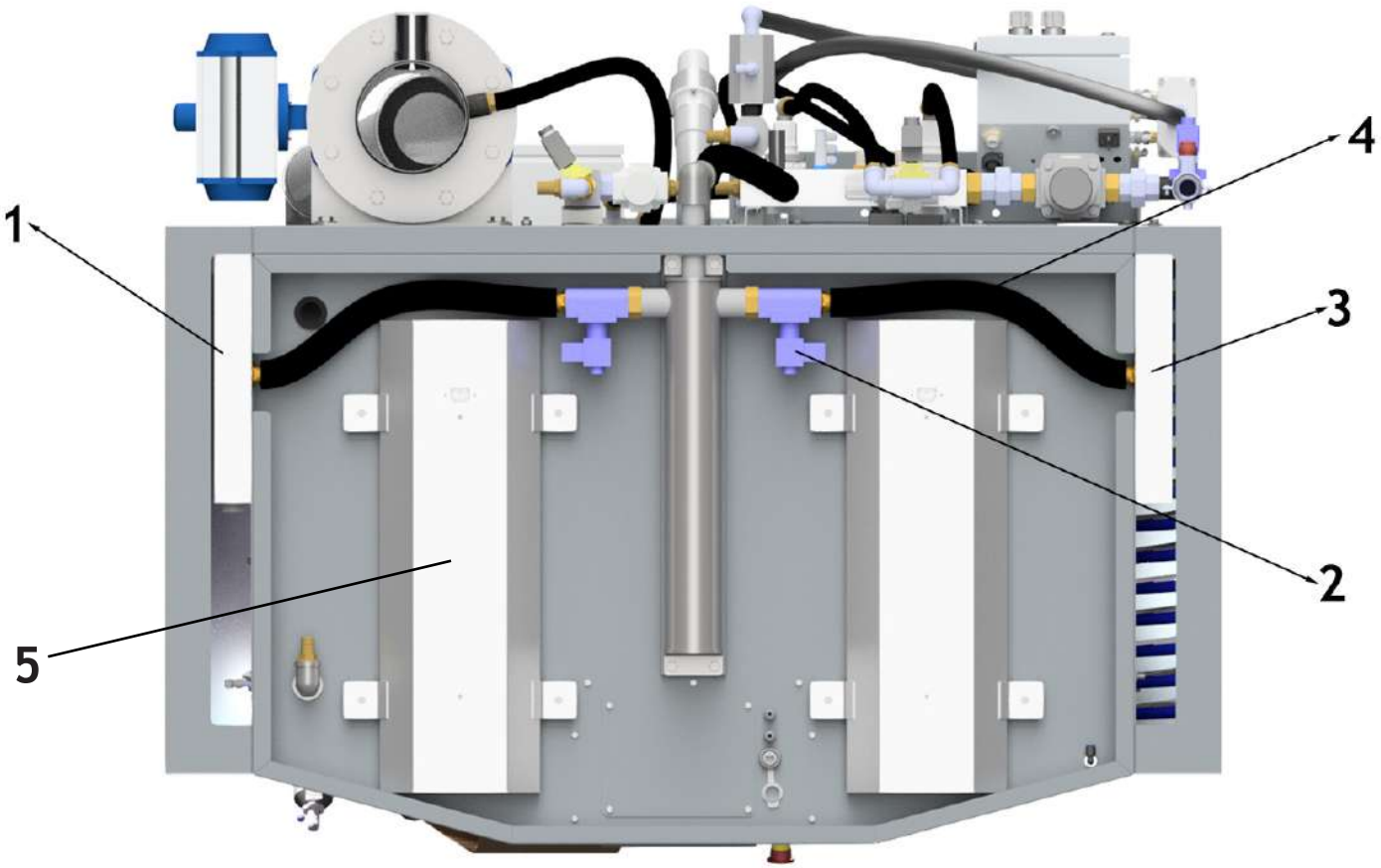
Part #	Order Code	Part Name	Qty
1	AKUA05016	BINDING ELEMENT VERTICAL M-10	2
2	AKUA02003	HANDLE PLASTIC	2
3	BECV03024	BOLT M5X15 IMBUS	4
4	TRTM04151	PLATE MAINTENANCE COVER OF CONTAINER	1
5	SCSC07024	SERRATED STRIP ADHESIVE EPDM SPONGE GASKET 8X14	1
6	TRTM04152	E-FEED PM3 V2 CONTAINER BLINDING HANDLE ALUMINUM	1
7	PNBE02001	EUROPEAN COUPLING FEMALE GEAR 3/4”	1
8	TRTM04149	E-FEED PM3 V2 TOP OF THE CONTAINER-ALUMINIUM	4
9	IZOR01011	O-RING 30-3,5	1
10	TRTM07014	POWDER INLET CLOSURE Ø60 L5	1
11	BECV03003	PLATED BOLT M5X16 HB IMBUS	
12	B07PM3002	POWDER HOSE INLET-SIEVE TYPE-COMPLETE	
13	AKUA05016	BINDING ELEMENT VERTICAL M-10	



Part #	Order Code	Part Name	Qty
1	B06CE06161	FLUIDIZATION BASE	1

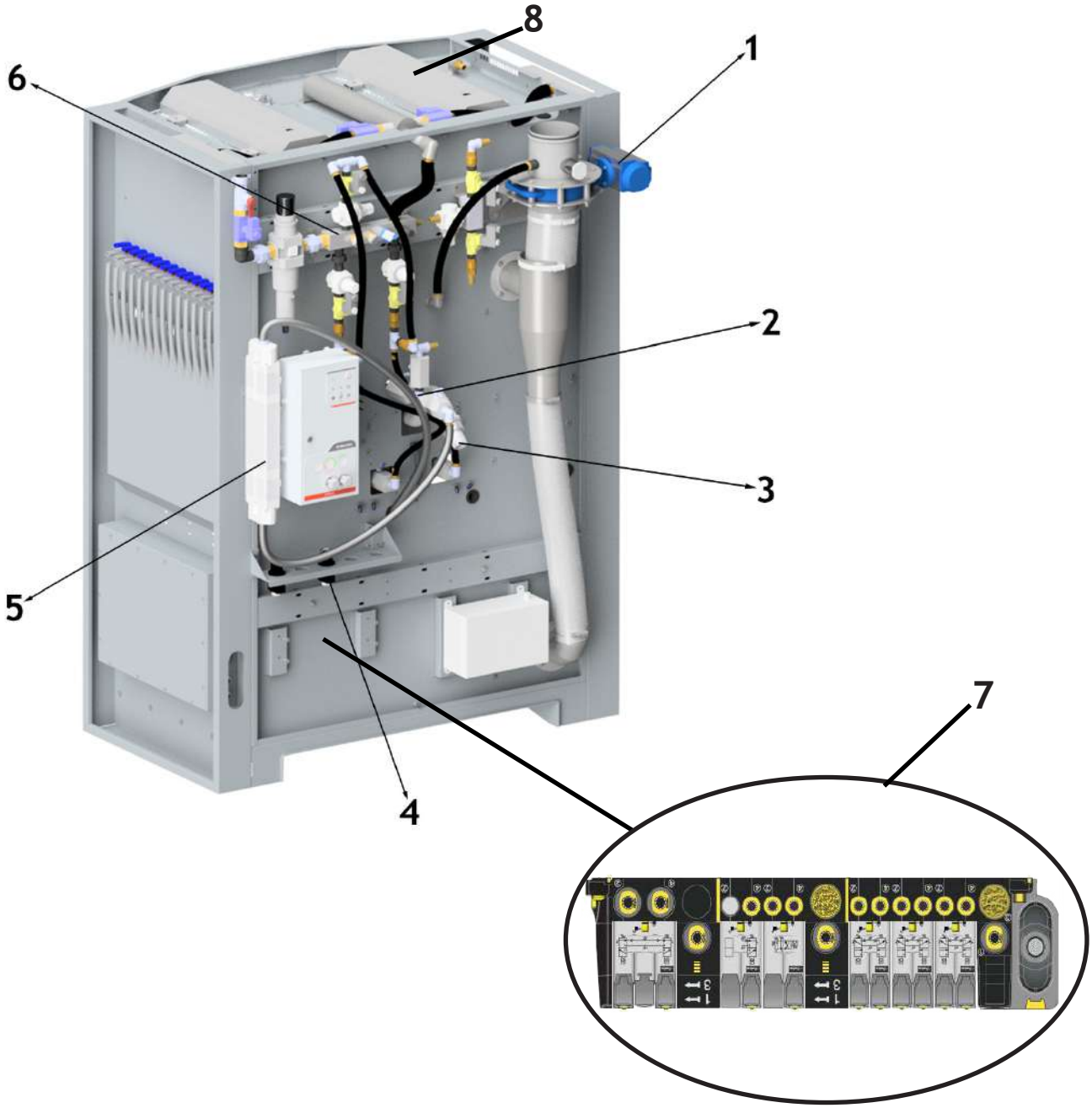


Part #	Order Code	Part Name	Qty
1	B07PM3001	SOLID FILTER BASE UPPER PIPE-COMPLETE-PM3 V2	1
1.1	IZOR01015	O-RING Ø44X3.5 NBR70	2
1.2	BECV03003	BOLT COATED M5X16 HB IMBUS	4



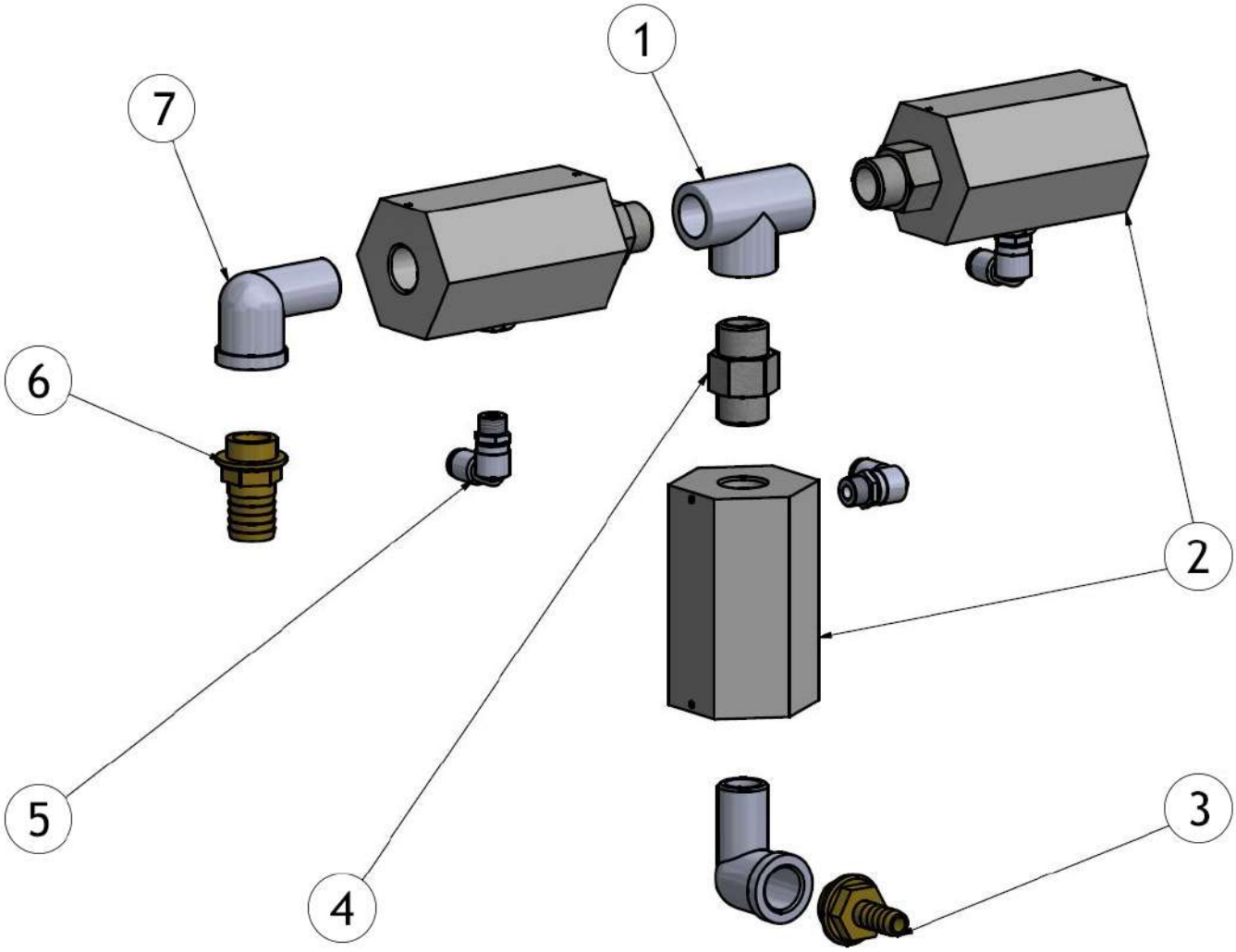
Part #	Order Code	Part Name	Qty
1	B06CE06004	SHEET LEFT PANEL	1
2	PNPE04003	SOLENOID VALVE 1” 24 V	2
3	B06CE06001	SHEET RIGHT PANEL	1
4	PNHO04001	COMPRESSOR HOSE 1“	2
5.1*	ELAY08015	ARMATURE ETANJ	2
5.2*	SCSC08001	TRANSPARENT PLEXIGLASS (5X1500X3000)	2

* It doesn’t appear.

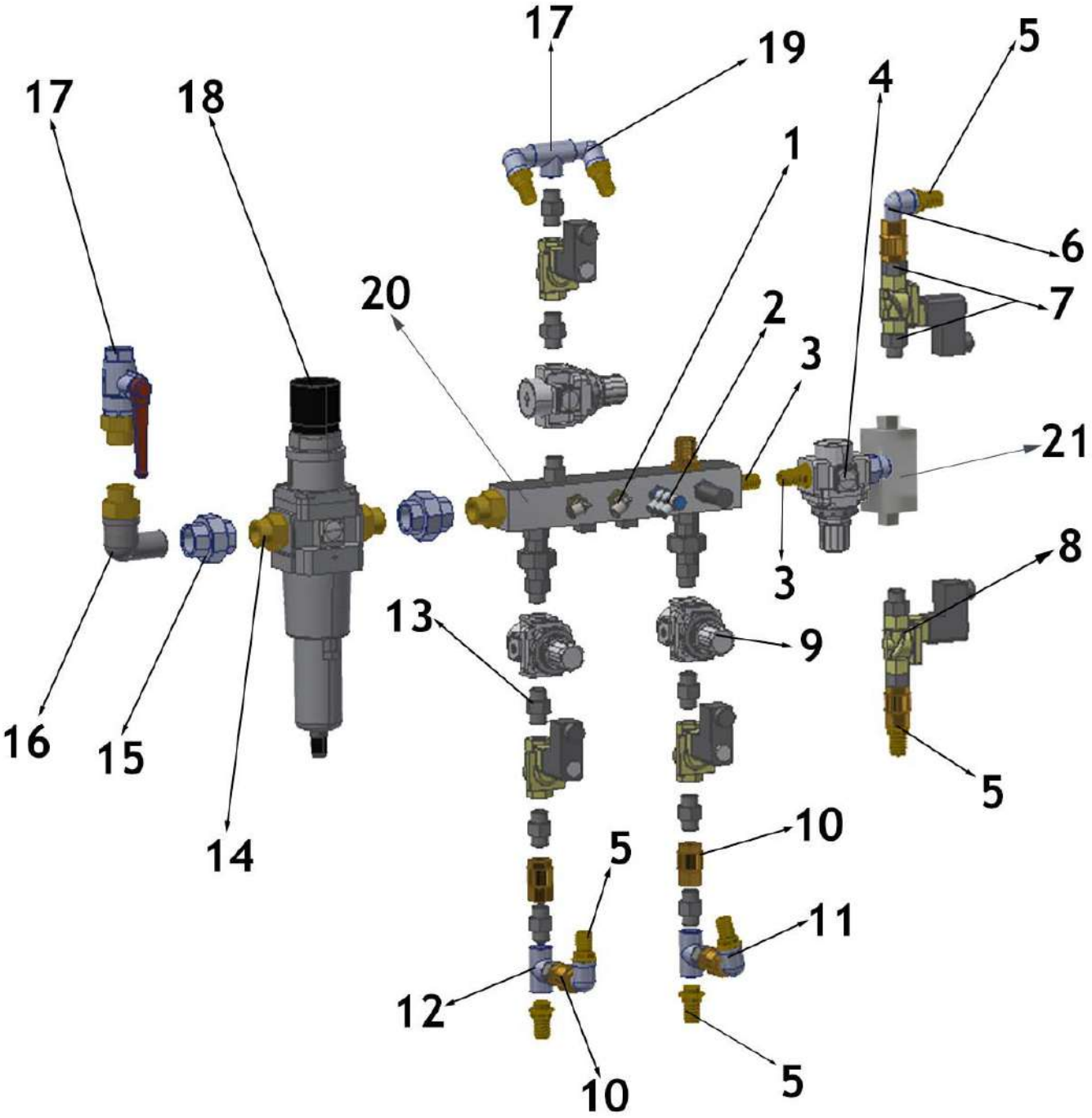


Part #	Order Code	Part Name	Qty
1	HDHE02014	ACTUATOR DUAL EFFICIENT PNEUMATIC TORK-RA80.DA	1
2	HDHT12001	T SPIDER GALVANIZED 1/2”	1
3	HDHT05058	SLEEVE COUPLING 1/2”	1
4	PNPE01005	REGULATOR - 0-8,5 BAR	2
5	A05FHD001	E-FEED HD POWDER TRANSFER PUMP	1
6	TRTM04156	AIR COLLECTOR 50X50 L335	1
7	PNPE04066	VALVE ISLAND-8s	1
8.1*	ELAY08015	ARMATURE ETANJ	2
8.2*	SCSC08001	TRANSPARENT PLEXIGLASS (5X1500X3000)	2

* It doesn’t appear.



Part #	Order Code	Part Name
1	HDHT09001	T GEAR GALVANIZED 1/2”
2	PNPE06006	VALVE PINCH-METAL BODY DN15 NATURAL RUBBER
3	PNRD01017	CONNECTOR HOSE 1/2” - Ø10 YELLOW
4	HDHT08017	NIPPEL GALVANIZED 1/2” HEX
5	PNRD03005	1/4” Ø6 MALE SWIVELLING ELBOW
6	HDHT01006	ELBOW GALVANIZED 1/2” CAUDATE
7	HDHT01006	ELBOW GALVANIZED 1/2” CAUDATE


17
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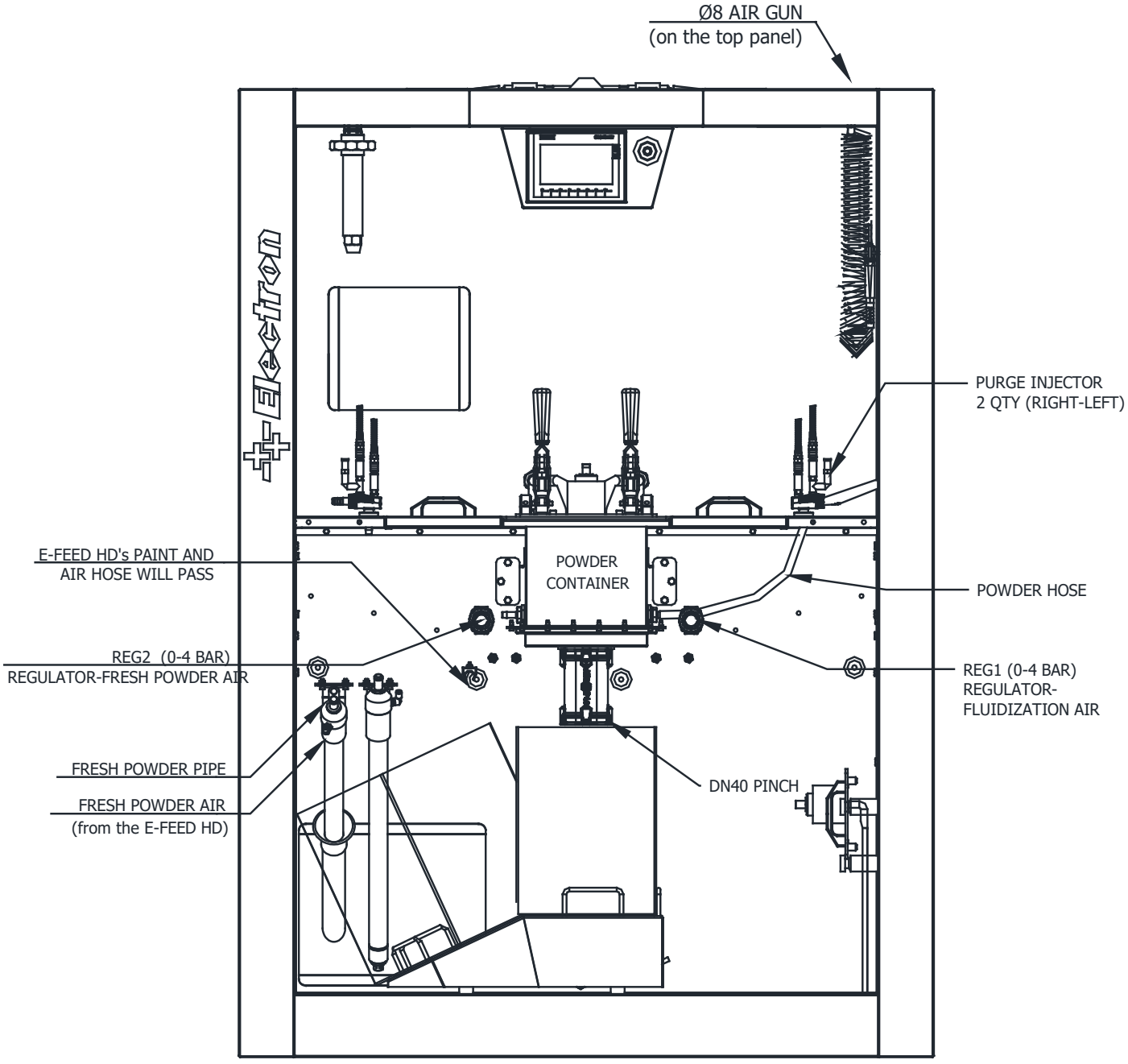
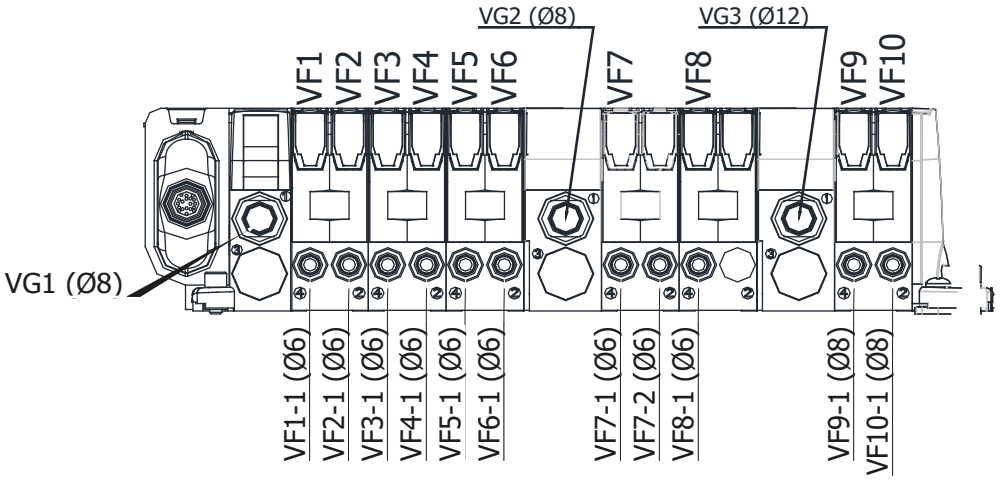
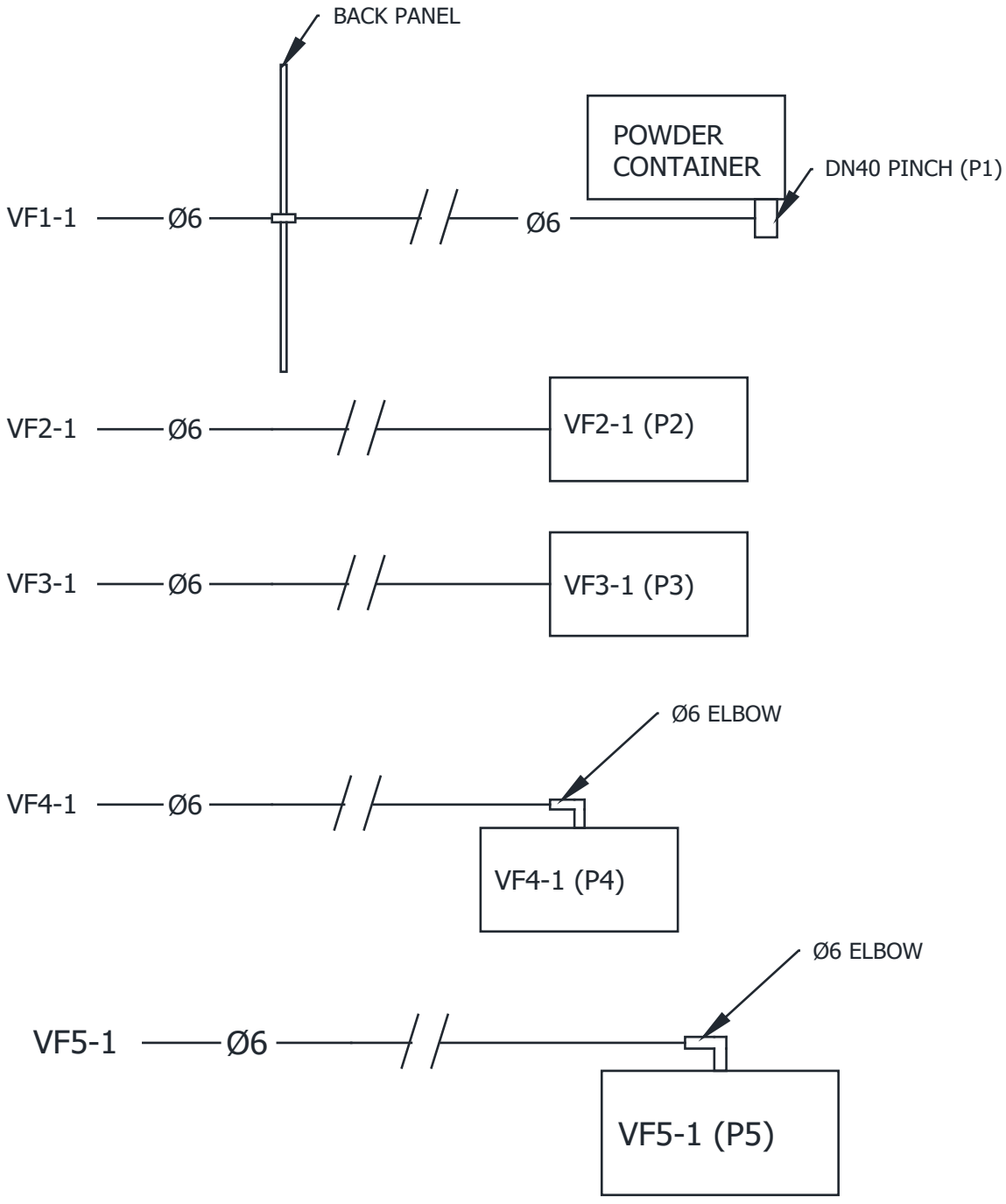
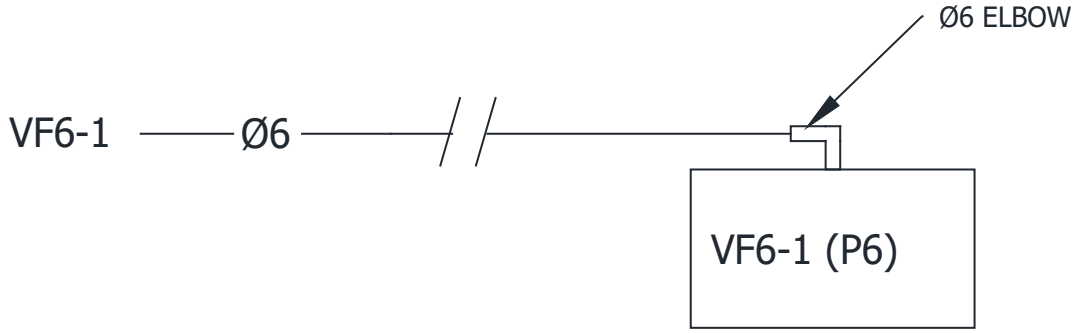
Part #	Order Code	Part Name
1	PNRD03004	1/2” Ø10 SWIVELLING ELBOW CONNECTOR
2	HDHT01003	ELBOW 1/2” 8 3 PCS
3	PNRD01009	FITTING HOSE 3/4” - Ø20 YELLOW
4	PNPE01008	REGULATOR SQUARE /w MANOMETER - 3/4”
5	PNRD01008	CONNECTOR HOSE 1/2” - Ø20 YELLOW
6	HDHT01006	ELBOW GALVANIZED 1/2” CAUDATE
7	HDHT08017	NIPPEL GALVANIZED 1/2” HEX
8	PNPE04005	VALVE SOLENOID 1/2” BODY 24 V WITH COIN
9	PNPE01007	REGULATOR SQUARE /w MANOMETER - 1/2”
10	PNPE04036	NONRETURN VALVE PNEUMATIC ½” (DN15) SILENT VERTICAL
11	HDHT01006	ELBOW GALVANIZED 1/2” CAUDATE
12	HDHT09001	T GEAR GALVANIZED 1/2”
13	HDHT08017	NIPPEL GALVANIZED 1/2” HEX
14	HDHT08016	NIPPEL YELLOW 1” HEX
15	HDHT01010	CONNECTOR 3-PIECE FLAT GASKET GALVANIZED 1”
16	HDHT01005	ELBOW GALVANIZED 1” CAUDATE
17	HDHE01004	VALVE BALL 1”
18	PNPE01025	REGULATOR 1” AUTO. VENTING
19	HDHT01006	ELBOW GALVANIZED 1/2” CAUDATE
20	TRTM04156	E-FEED PM3 V2 AIR COLLECTOR ALUMINIUM 50x50 L335
21	TRTM04157	E-FEED PM3 V2 AIR COLLECTOR ALUMINIUM 50x50 L100

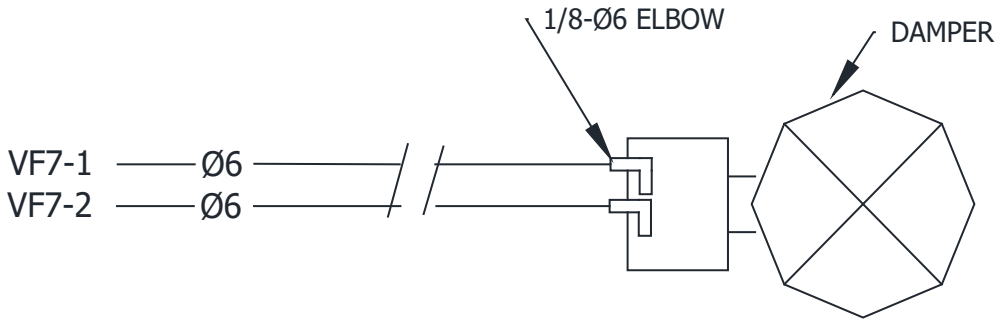
16.Pneumatic Schematic Diagram

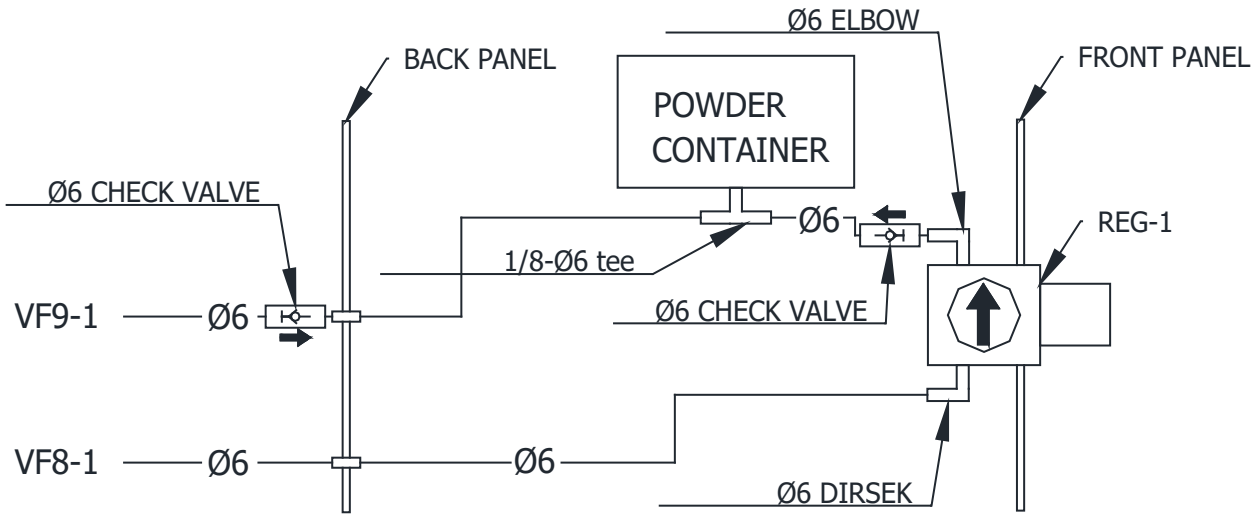


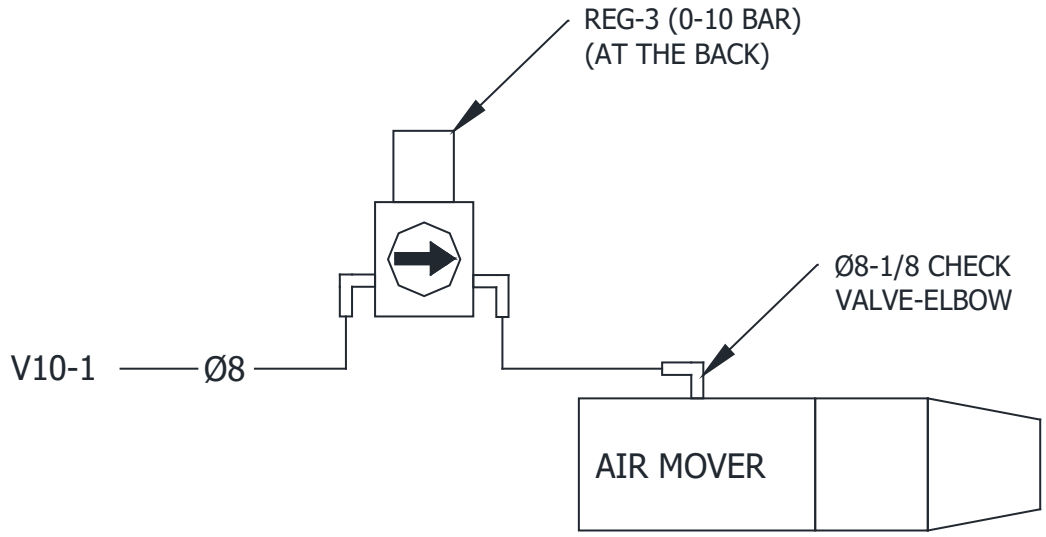

VG2 (Ø8)
VG3 (Ø12)
VF1
VF2
VF3
VF4
VF5
VF6
VF7
VF8
VF9
VF10
VG1 (Ø8)
VF1-1 (Ø6)
VF2-1 (Ø6)
VF3-1 (Ø6)
VF4-1 (Ø6)
VF5-1 (Ø6)
VF6-1 (Ø6)
VF7-1 (Ø6)
VF7-2 (Ø6)
VF8-1 (Ø6)
VF9-1 (Ø8)
VF10-1 (Ø8)

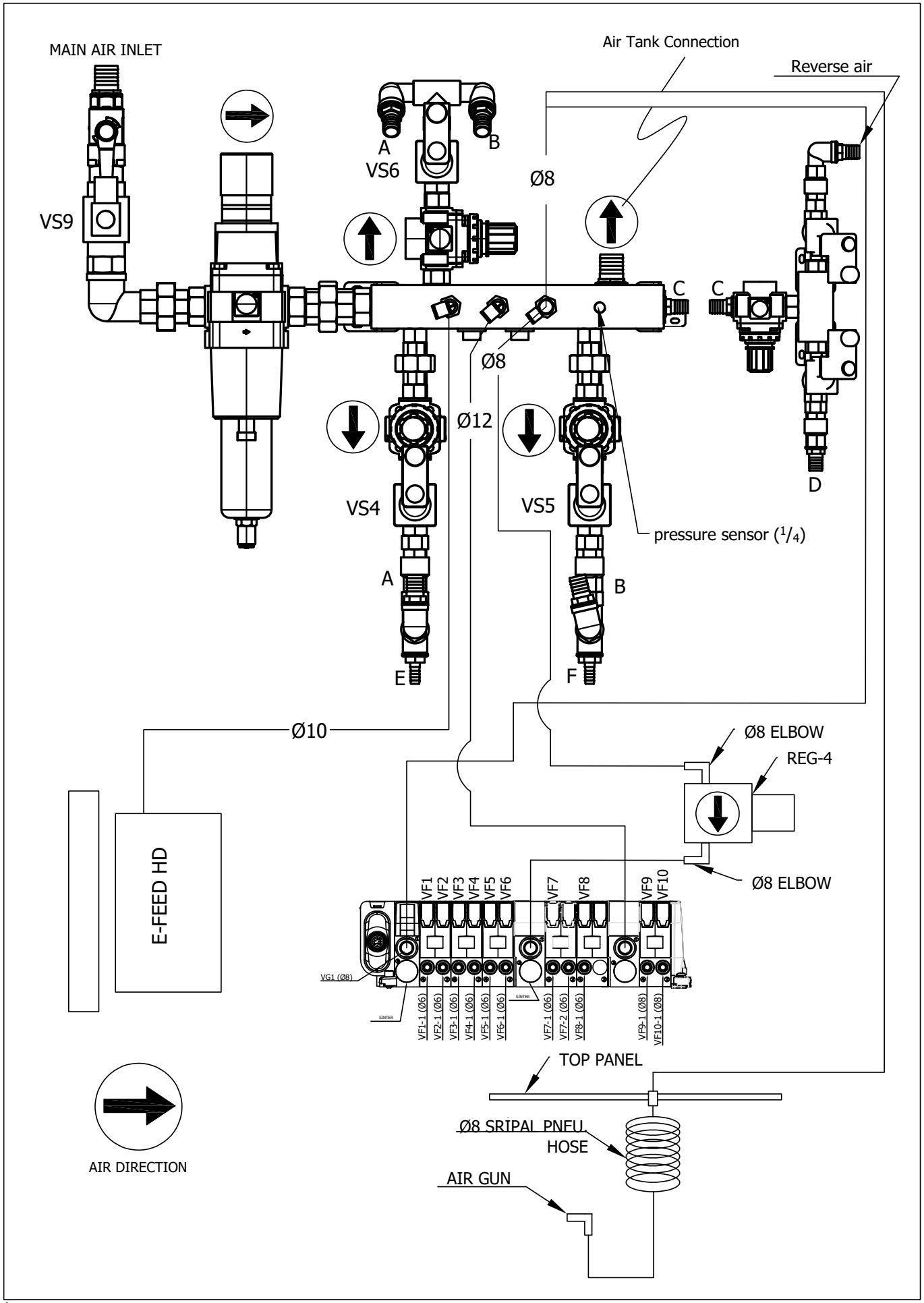

BACK PANEL
POWDER CONTAINER
DN40 PINCH (P1)
VF1-1
Ø6
Ø6
VF2-1
Ø6
VF2-1 (P2)
VF3-1
Ø6
VF3-1 (P3)
Ø6 ELBOW
VF4-1
Ø6
VF4-1 (P4)
Ø6 ELBOW
VF5-1
Ø6
VF5-1 (P5)

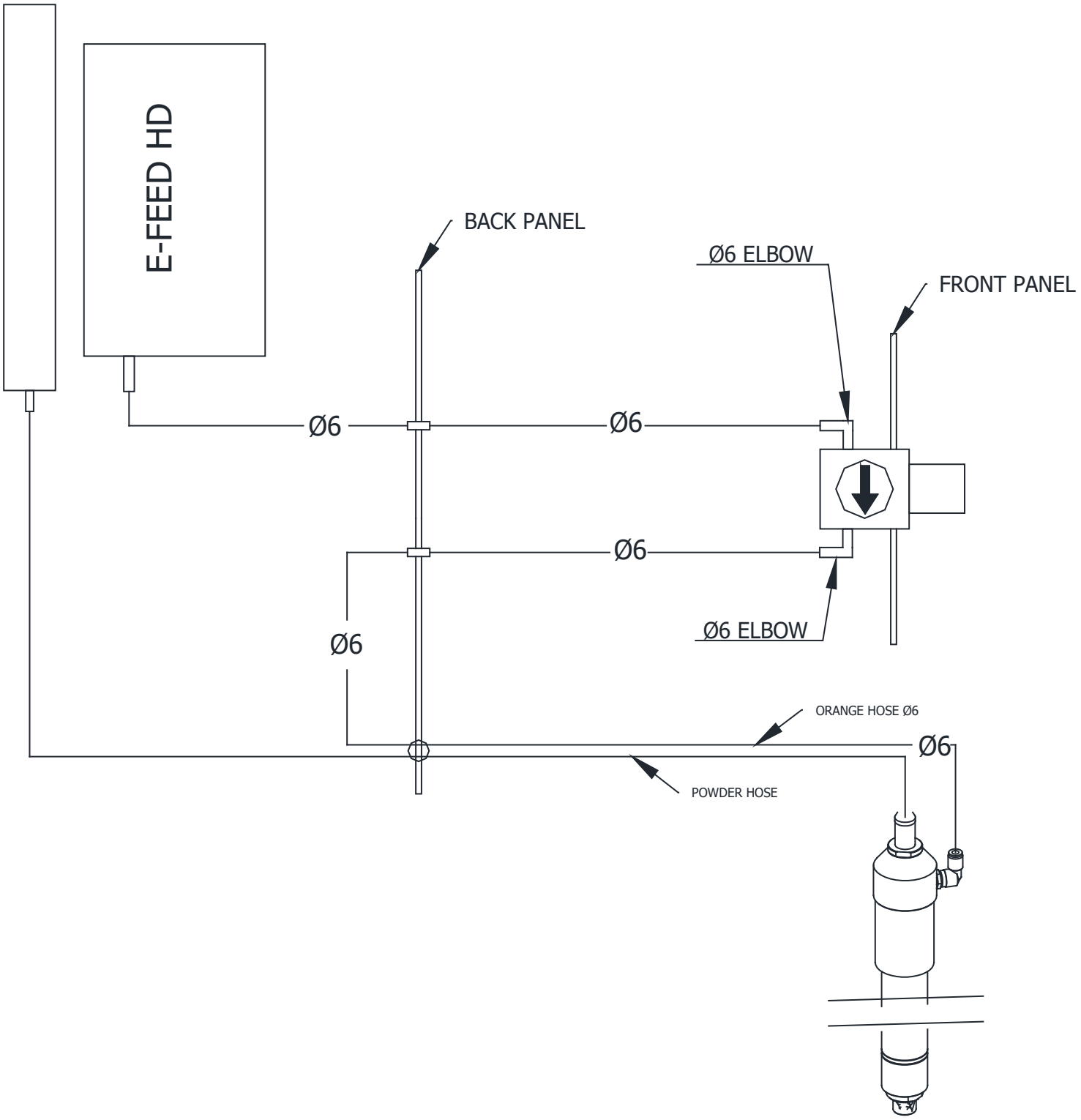

Ø6 ELBOW
VF6-1
Ø6
VF6-1 (P6)


1/8-Ø6 ELBOW
DAMPER
VF7-1
Ø6
VF7-2
Ø6

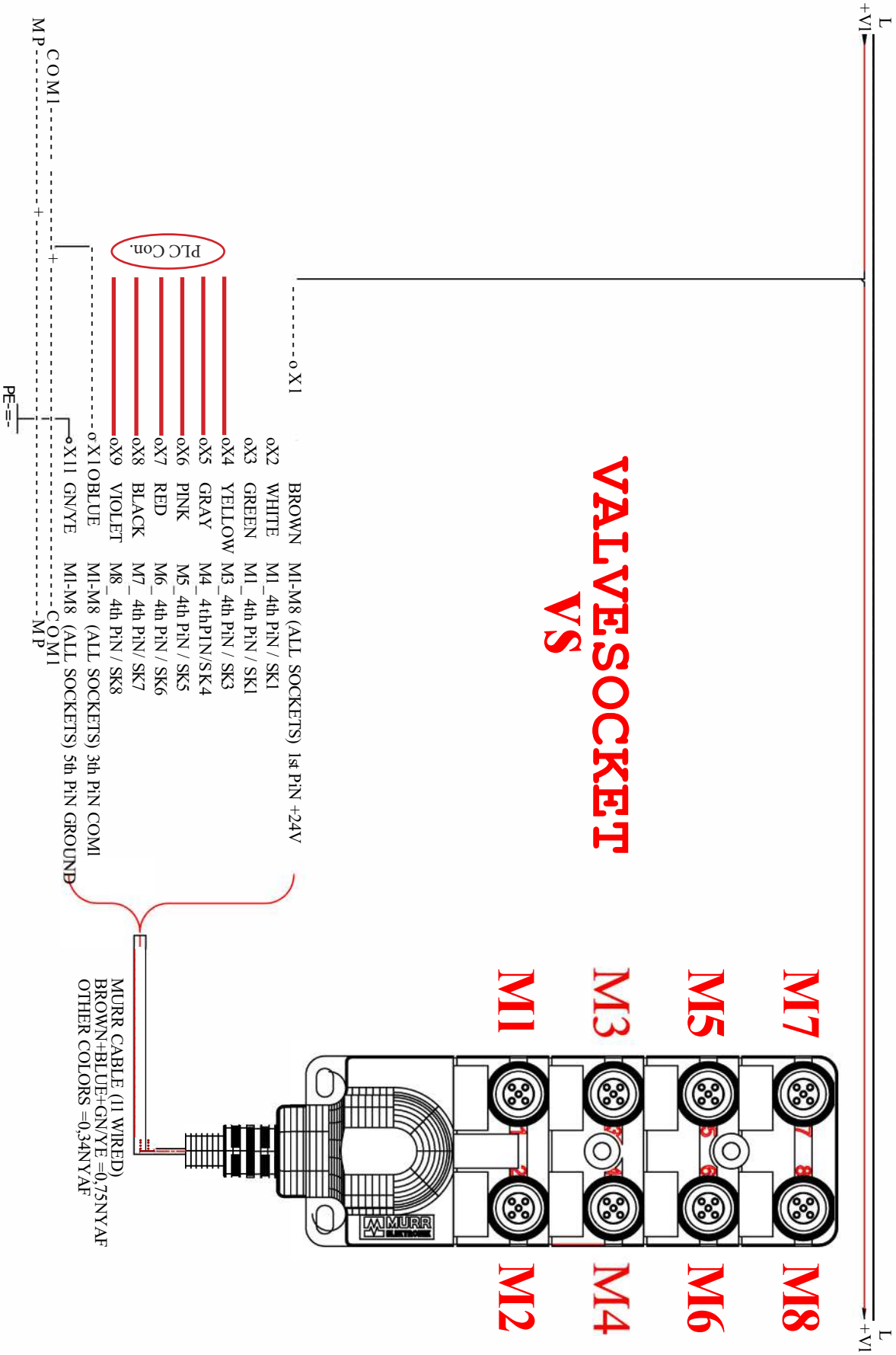

Ø6 ELBOW
BACK PANEL
FRONT PANEL
POWDER
CONTAINER
Ø6 CHECK VALVE
Ø6
REG-1
1/8-Ø6 tee
VF9-1
Ø6
Ø6 CHECK VALVE
VF8-1
Ø6
Ø6
Ø6 DIRSEK

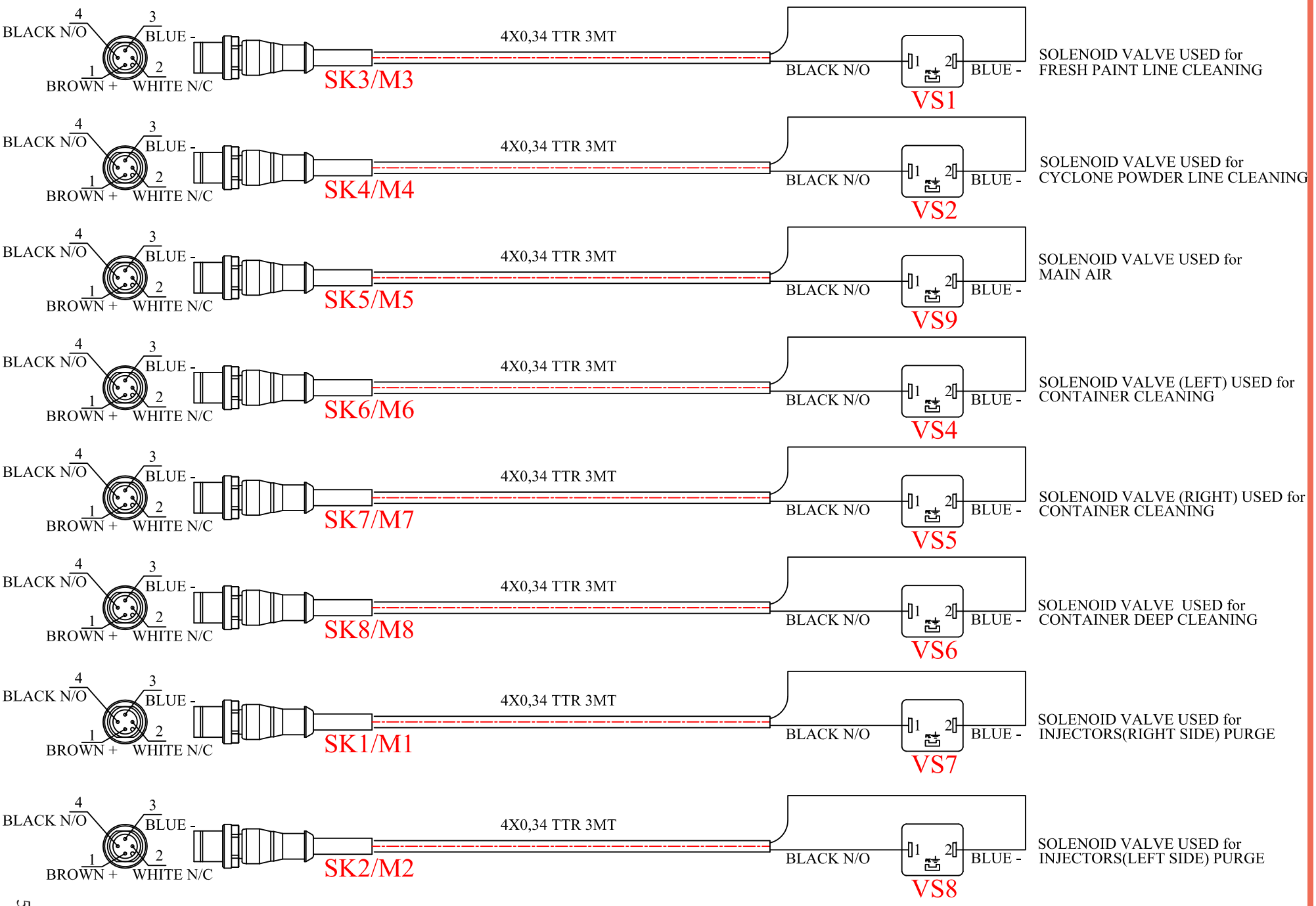

REG-3 (0-10 BAR)
(AT THE BACK)
Ø8-1/8 CHECK
VALVE-ELBOW
V10-1
Ø8
AIR MOVER


MAIN AIR INLET
Air Tank Connection
Reverse air
VS9
A
VS6
B
Ø8
C
C
Ø8
Ø12
D
VS4
VS5
pressure sensor (1/4)
A
B
E
F
Ø10
Ø8 ELBOW
REG-4
Ø8 ELBOW
E-FEED HD
VF1
VF2
VF3
VF4
VF5
VF6
VF7
VF8
VF9
VF10
VG1 (Ø8)
SINTER
SINTER
VF1-1 (Ø6)
VF2-1 (Ø6)
VF3-1 (Ø6)
VF4-1 (Ø6)
VF5-1 (Ø6)
VF6-1 (Ø6)
VF7-1 (Ø6)
VF7-2 (Ø6)
VF8-1 (Ø6)
VF9-1 (Ø8)
VF10-1 (Ø8)
TOP PANEL
Ø8 SRIPAL PNEU.
HOSE
AIR GUN
AIR DIRECTION


E-FEED HD
BACK PANEL
Ø6 ELBOW
FRONT PANEL
Ø6
Ø6
Ø6
Ø6
Ø6 ELBOW
ORANGE HOSE Ø6
Ø6
POWDER HOSE

17.Electrical Connections





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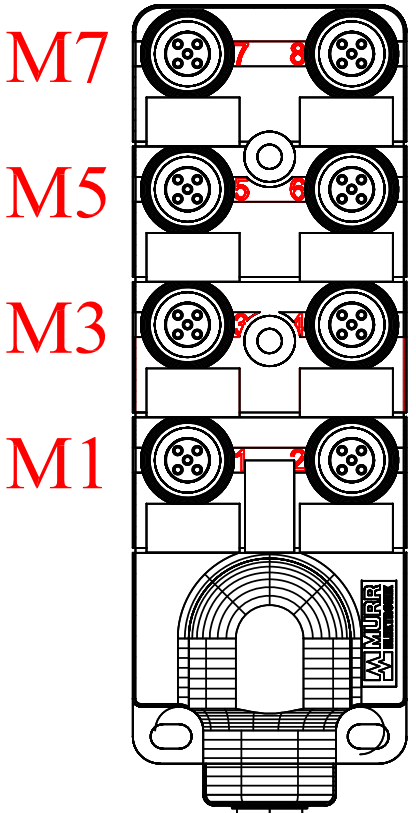
SENSOR SOCKET
SS



L
+V1

L
+V1

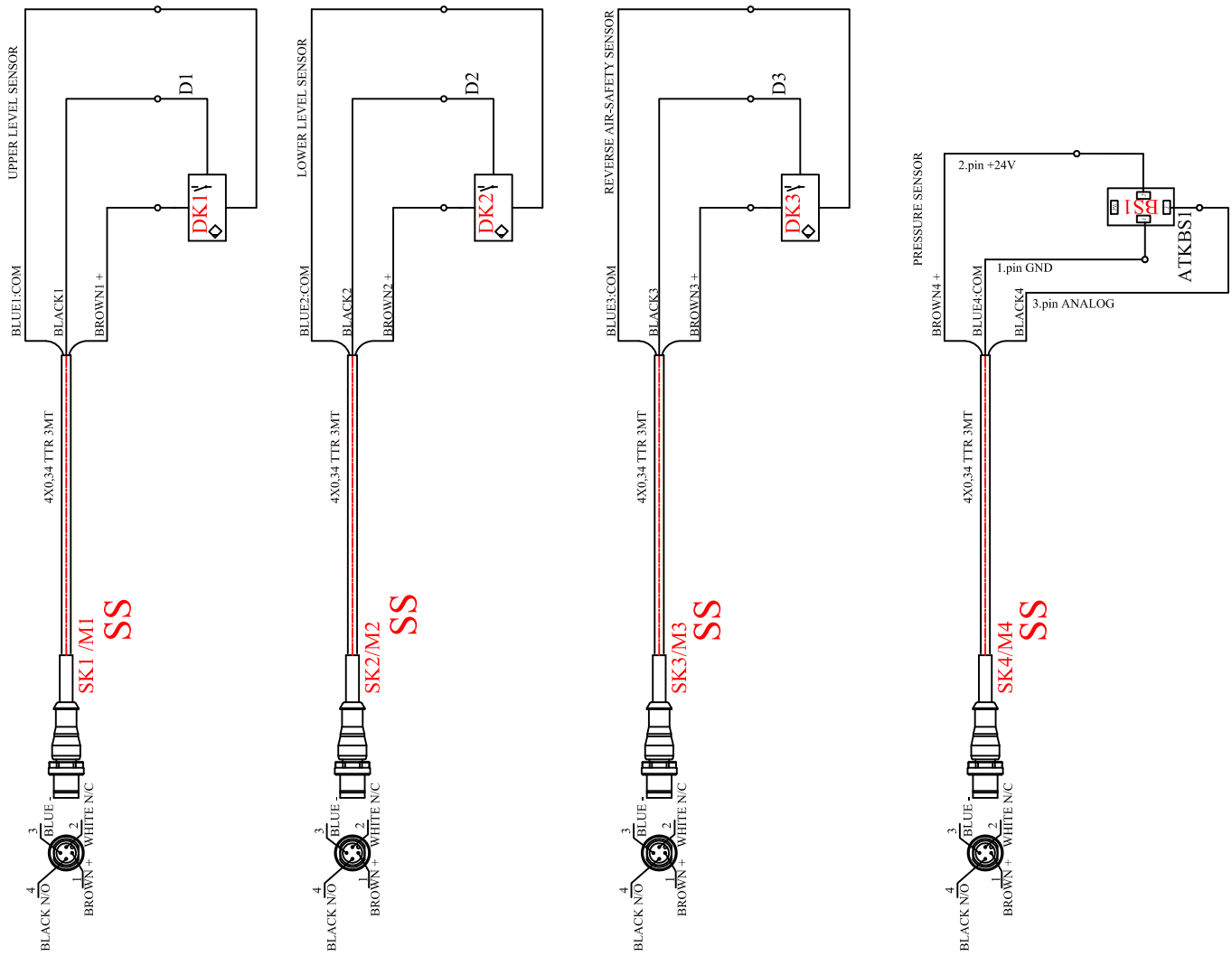
Z1	BROWN	M1-M8 (ALL SOCKETS) 1st PIN +24V
Z2	GRENN	M1_4th PIN / SK1
Z3	WHITE	M2_ 4th PIN / SK2
Z4	PINK	M3_4th PIN / SK3
Z5	GRAY	M4_ 4th PIN / SK4
Z6	YELLOW	M5_4th PIN / SK5
Z7	BLACK	M6_ 4th PIN / SK6
Z8	RED	M7_ 4th PIN / SK7
Z9	VIOLET	M8_ 4th PIN / SK8
Z10	BLUE	M1-M8 (ALL SOCKETS) 3th PIN COM1
Z11	GN/YE	M1-M8 (ALL SOCKETS) 5th PIN GROUND

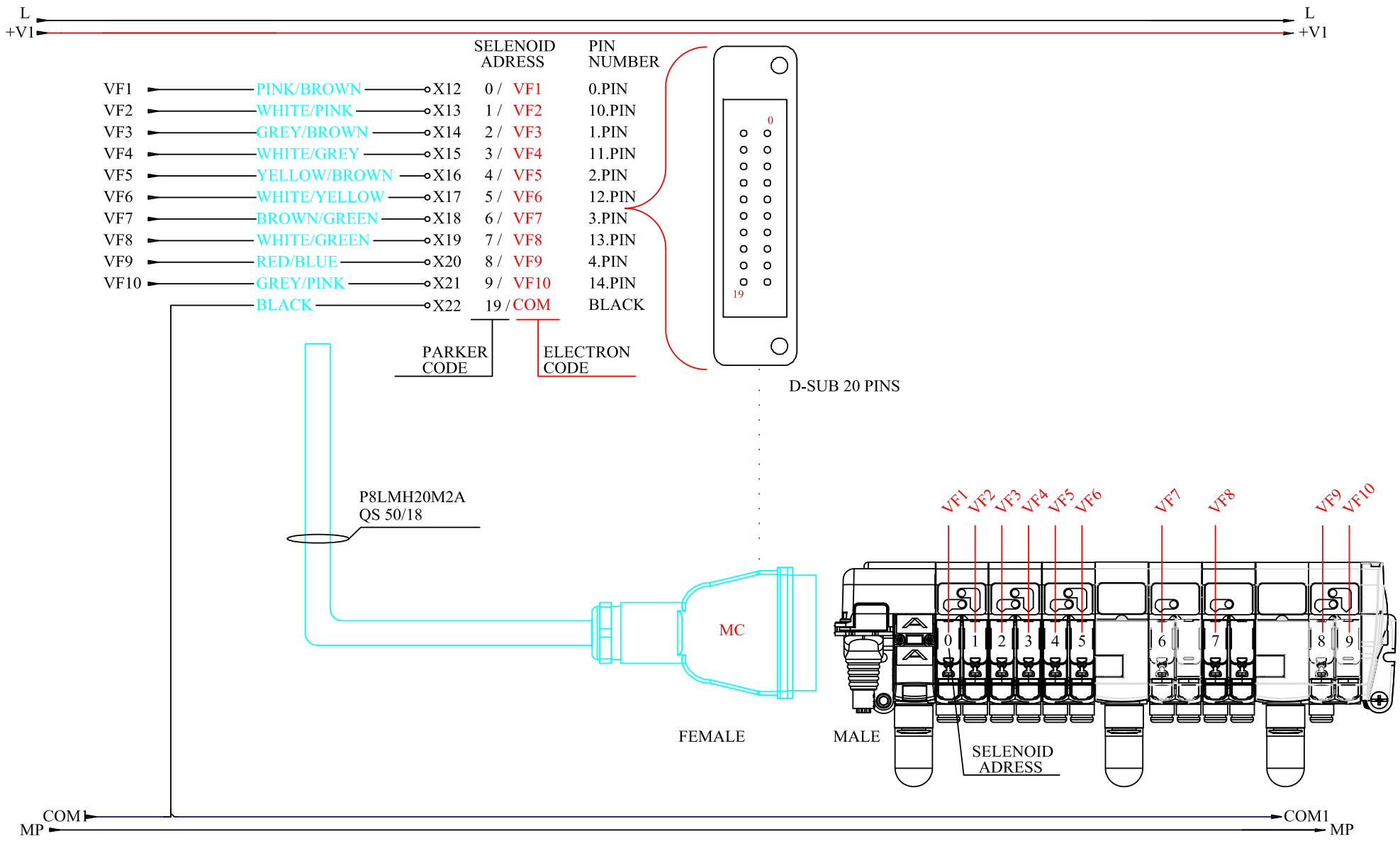
CABLE (11WIRED)
BROWN+BLUE+GN/YE =0,75NYAF
OTHER COLORS =0,34NYAF

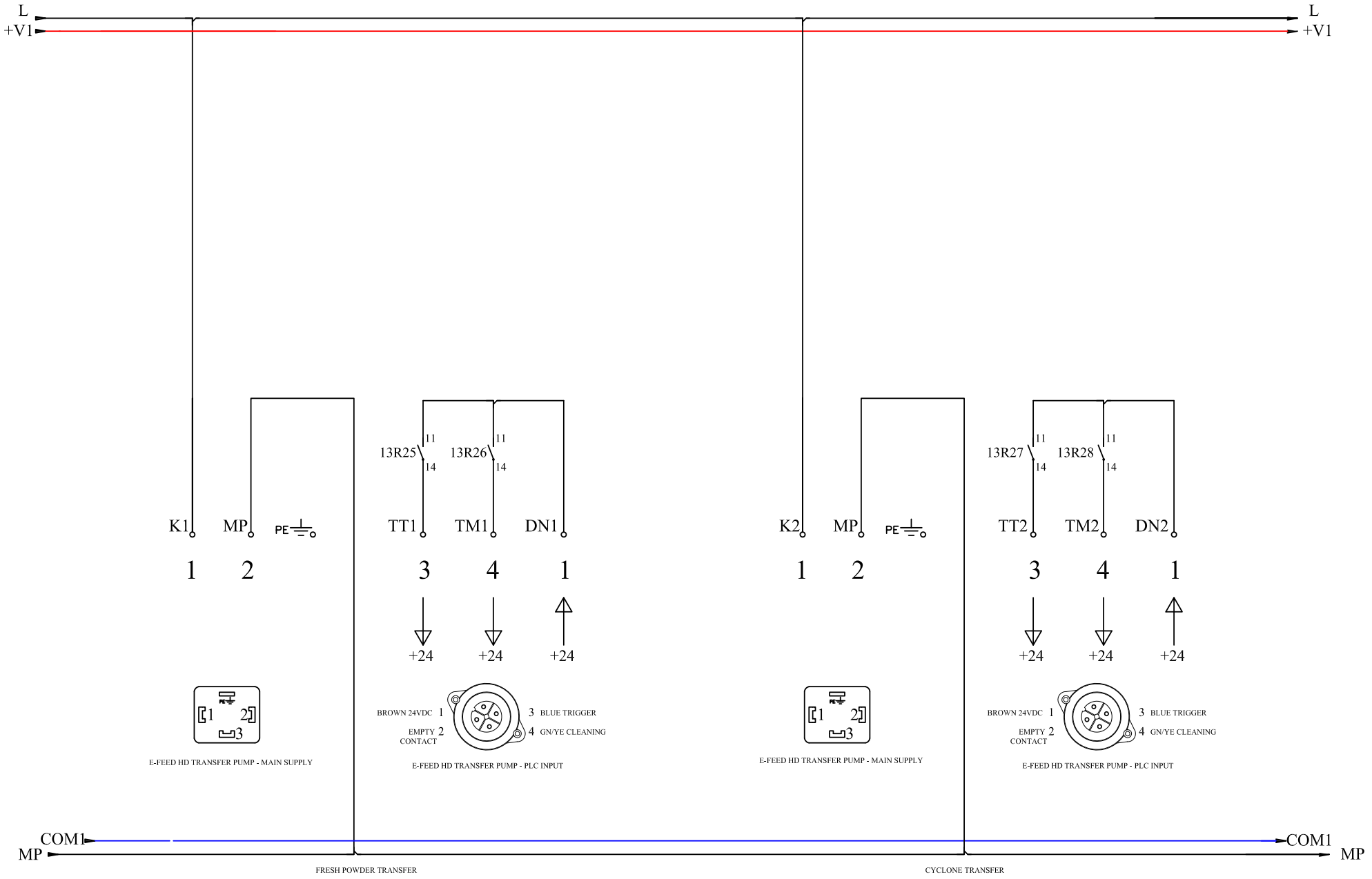
COM1
MP

COM1
MP

PE


UPPER LEVEL SENSOR
BLUE1:COM
BLACK1
BROWN1 +
D1
DK1
4X0,34 TTR 3MT
SK1 /M1
SS
BLUE
WHITE N/C
BROWN +
BLACK N/O
LOWER LEVEL SENSOR
BLUE2:COM
BLACK2
BROWN2 +
D2
DK2
SK2/M2
REVERSE AIR-SAFETY SENSOR
BLUE3:COM
BLACK3
BROWN3 +
D3
DK3
SK3/M3
PRESSURE SENSOR
BROWN4 +
BLUE4:COM
BLACK4
2.pin +24V
1.pin GND
3.pin ANALOG
PS1
ATKBS1
SK4/M4


L
+V1
L
+V1
SELENOID ADRESS
PIN NUMBER
VF1 PINK/BROWN X12 0 / VF1 0.PIN
VF2 WHITE/PINK X13 1 / VF2 10.PIN
VF3 GREY/BROWN X14 2 / VF3 1.PIN
VF4 WHITE/GREY X15 3 / VF4 11.PIN
VF5 YELLOW/BROWN X16 4 / VF5 2.PIN
VF6 WHITE/YELLOW X17 5 / VF6 12.PIN
VF7 BROWN/GREEN X18 6 / VF7 3.PIN
VF8 WHITE/GREEN X19 7 / VF8 13.PIN
VF9 RED/BLUE X20 8 / VF9 4.PIN
VF10 GREY/PINK X21 9 / VF10 14.PIN
BLACK X22 19 / COM BLACK
PARKER CODE
ELECTRON CODE
0
19
D-SUB 20 PINS
P8LMH20M2A
QS 50/18
MC
FEMALE
VF1 VF2 VF3 VF4 VF5 VF6 VF7 VF8 VF9 VF10
0 1 2 3 4 5 6 7 8 9
MALE
SELENOID ADRESS
COM1
MP
COM1
MP


L
+V1
L
+V1
K1
MP
PE
1
2
13R25
11
14
13R26
11
14
TT1
TM1
DN1
3
4
1
+24
+24
+24
BROWN 24VDC 1
EMPTY 2
CONTACT
3 BLUE TRIGGER
4 GN/YE CLEANING
E-FEED HD TRANSFER PUMP - MAIN SUPPLY
E-FEED HD TRANSFER PUMP - PLC INPUT
K2
MP
PE
1
2
13R27
11
14
13R28
11
14
TT2
TM2
DN2
3
4
1
+24
+24
+24
BROWN 24VDC 1
EMPTY 2
CONTACT
3 BLUE TRIGGER
4 GN/YE CLEANING
E-FEED HD TRANSFER PUMP - MAIN SUPPLY
E-FEED HD TRANSFER PUMP - PLC INPUT
COM1
MP
COM1
MP
FRESH POWDER TRANSFER
CYCLONE TRANSFER

18.Fault Chart

Error	Description	Solution
Powder Container is empty.	1. Powder container not filling up on time 2. The level sensor or cable is damaged	- The powder is finished. Maintain system continuity by putting new powder paint box - Make sure the powder paint box and suction pipe ar in the correct position - Make sure the e-feed hd pump behind the powde management center is running. Open if closed - Make sure the main air (input) is set to 6.5 bar an that there is enough compressed air - Make sure there is powder paint in the bo - educe the sensitivity of level sensors - eplace the level sensor or cable. - Contact Electron Servic
There is powder in the container.	1. The cleaning steps were not followed in the correct order. 2. The recovery hose apparatus is not mounted to the waste end even though you have selected the non-recovery mode. 3. Pinch valf is clogged	- epeat the cleaning from start to finish. - Make sure the recovery hose apparatus is in the righ place and start the cleaning from the beginning. - Make sure the powder paint box is in the correc position - Maintain the pinch valve - educe the sensitivity of level sensors - Contact Electron Servic
The fluidization is insufficient.	4. Insufficient or not occurring fluidization	- Adjust the fluidization air at the desired level. - Make sure the main air (input) is set to 6.5 bar an that there is enough compressed air
Vibration error	When the system is in automatic operation mode, the vibration under the paint box does not work	- If the vibration motor is damaged or its cable is da - aged, replace it. - Contact Electron Servic
Hose blockage	5. Increasing the “control” pressure of the e-feed hd pump th supplies fresh paint or under the cyclone	- Make sure the hoses are not curled - Do not observe the cleaning scenario in intensiv mode application is unblocked. - eplace damaged hose (if any). - Contact Electron Servic
Powder comes but ends early.	The system is inadequate for the powder demand due to high powder demand or insufficient fresh powder paint transfer flow.	- Increase the transfer pressure and vacuum pressur of the E-feed hd pump that provides fresh paint supply. - Turn down the fludization air (or even turn it off) - If the E-feed hd pump, which provides fresh pain supply, is due for maintenance, perform maintenance. - Contact Electron Servic
Communication error	Disconnection between screen and PLC (Changes occur in icons on the screen)	- eplace cable. - Contact Electron Servic
Air system error	One of the pinch valves may have burst.	- Please check the individual valves automatically fro the Diagnostic page. Perform maintenance or replace the valve that is not working. - Contact Electron Servic

WARNING:
Faults are to be corrected by trained personnel only!

19.SERVICE AND MAINTENANCE CHART

DATE	MAINTENANCE TYPE -Weekly maintenance -Yearly maintenance -Service	MAINTENANCE OR SERVICE PERSONNEL	PROCEDURE REPLACEMENT PARTS NOTES	AUTHORIZED CONTROLLER

20. Product Life and Warranty

20.1. Product Life

• The economic life of E-FEED PM330E V2 Powder Management Center 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.

20.2. Warranty and Warranty Conditions

• The powder management center 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.

20.3. Operating Conditions

• Read the user manual before using the powder management center.
• Only legally allowed people can operate E-FEED PM330E V2.
• Only trained and authorized people can operate E-FEED PM330E V2.
• 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 powder management center.
• All the suggestions and warnings in this manual have to be carefully considered and applied.

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MERKEZ OFİS / Head Office

info@electron.com.tr
+90 (212) 222 2 345
+90 (212) 210 6 761
PERPA Tic. Mer. B.Blok Kat:2 No: 65
34385 Okmeydanı İSTANBUL / TÜRKİYE

FABRİKA / Factory

izmir@electron.com.tr
+90 (232) 799 0 232
+90 (232) 799 0 242
İTOB Org. San. Bölgesi 10010 Sk. No: 10
35470 Menderes İZMİR / TÜRKİYE

www.electron.com.tr