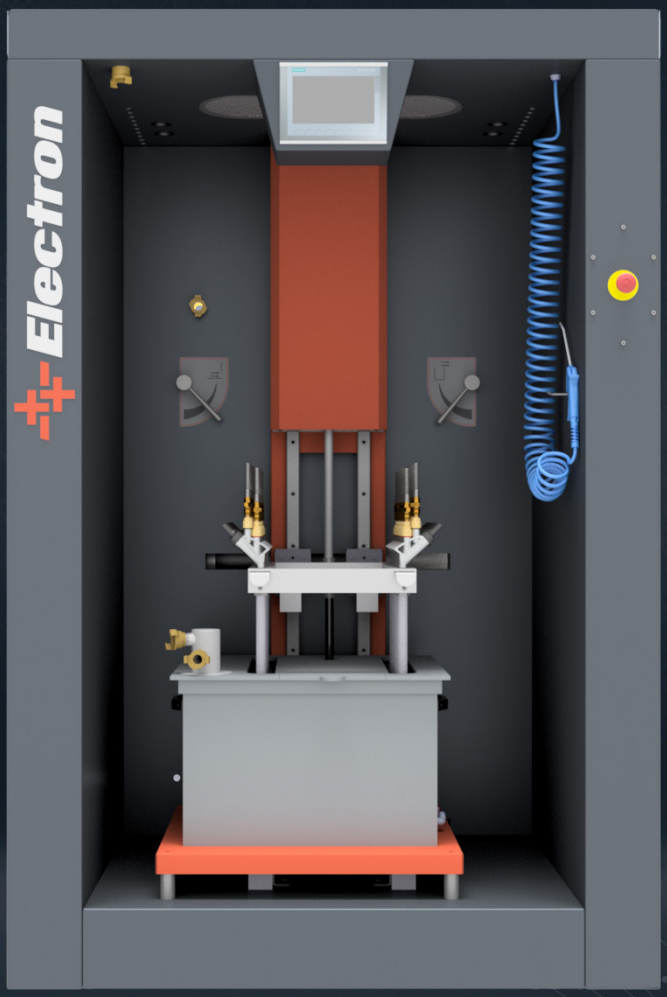
POWDER COATING EQUIPMENT USER'S MANUAL

E-FEED+3 PM2

SERIES



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GENERAL SAFETY REGULATIONS

This chapter sets out the fundamental safety regulations that must be followed by the user and third parties using the E-FEED+3 PM 220. These safety regulations must be read and understood in full before the E-FEED+3 PM 220.
is put into operation.

SAFETY SYMBOLS

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

DANGER!
Danger due to electrically live or moving parts. 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

INFORMATION!
Useful tips and other information

PROPER USE

1. The E-FEED+3 PM220 is built to the latest specification and conforms to the recognized technical safety regulations and is designed for the normal application of powder coating.

2. Any other use is considered non-compliant. The manufacturer shall not be liable for damage resulting from such use; the user bears sole responsibility for such actions. If the E-FEED+3 PM220 is to be used for other purposes or other substances outside of our guidelines then Electron should be consulted.

3. Observance of the operating, service and maintenance instructions specified by the manufacturer is also part of conformity of use. The E-FEED+3 PM220 should only be used, maintained and started up by trained personnel, who are informed about and are familiar with the possible hazards involved.

4. Unauthorized modifications to the E-FEED+3 PM220 exempt the manufacturer from any liability from resulting damage.

5. The relevant accident prevention regulations, as well as other generally recognized safety regulations, occupational health and structural regulations are to be observed.

6. Furthermore, the country-specific safety regulations also must be observed.

Explosion Protection	Protection Type	Temp Class
CE Ex II 3 D	IP54	T 135 °C

PRODUCT SPECIFIC SECURITY REGULATIONS

General information

The E-FEED+3 PM220 is a constituent part of the system and is thus integrated into the safety system 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.

INSTALLATION

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

EARTHING

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.

OPERATING THE EQUIPMENT

In order to be able to operate the equipment safely, it is necessary to befamiliar 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.
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 ervice center is always ready to assist.

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.

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 equipment! Electron 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 manufacturers will invalidate the Electron guarantee conditions!

ABOUT THIS MANUAL

GENERAL INFORMATION

This operating manual contains all important information which you require for the working with the E-FEED+3 PM220. 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. Information about the function mode of the individual system components - booth, axis, gun control unit, powder gun or powder injector - should be referenced to their enclosed corresponding documents.

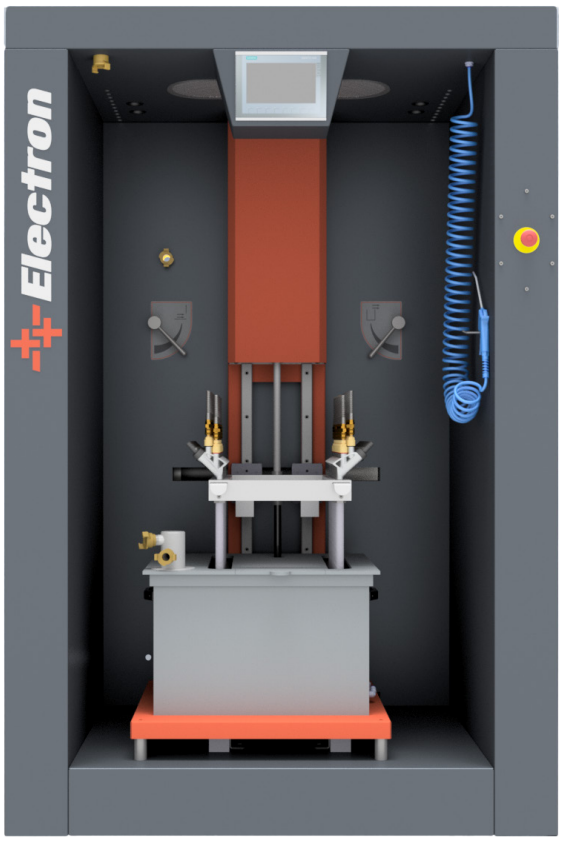
DANGER:
Working without operating instructions
Working without operating instructions or with individual pages from the operating instructions may result in damage to property and personal injury if relevant safety information is not observed.

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.

PRODUCT DESCRIPTION

FIELD OF APPLICATION

The E-FEED+3 PM220 Powder management center is conceived for simple and clean handling of the coating powder. It enables automated cleaning procedure and consequently a quick color change.



UTILIZATION

The E-FEED+3 PM220 powder management center is suitable for use in multiple color plants as well as in single color plants. As a part of the process controlled coating plant, the powder management center is laid out for automatic operation.

Conveying

- Processing the powder directly from the integrated powder container (manual powder filling)
- Integrated electrical and pneumatic control units
- Powder level monitoring by level sensor

CLEANING

- Automatic internal cleaning of the injectors, powder hoses and guns.
- Supply of the recovered powder.
- The workplace and the environment remain clean.
- 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.

TECHNICAL DATA

POWDER TRANSPORT

E-FEED+3 PM220	
Conveying performance (average value per gun)	200g/min
Width	max. 5 kg/min

ELECTRICAL DATA

E-FEED+3 PM220	
Connected load	1x230V
Frequency	50/60 Hz
Protection type	IP54

PNEUMATIC DATA

E-FEED+3 PM220	
Input pressure	min. 6,5 bar
Compressed air consumption during coating operation	15 Nm³/h
Compressed air consumption during cleaning (incl. powder container and guns)	350 Nm³/h
Compressed air consumption during cleaning of the hose to the cyclone (5/8")	350 Nm³/h
Water vapor content of compressed air	max. 1.3 g/Nm³
Oil content of compressed air	max. 0.1 mg/Nm³

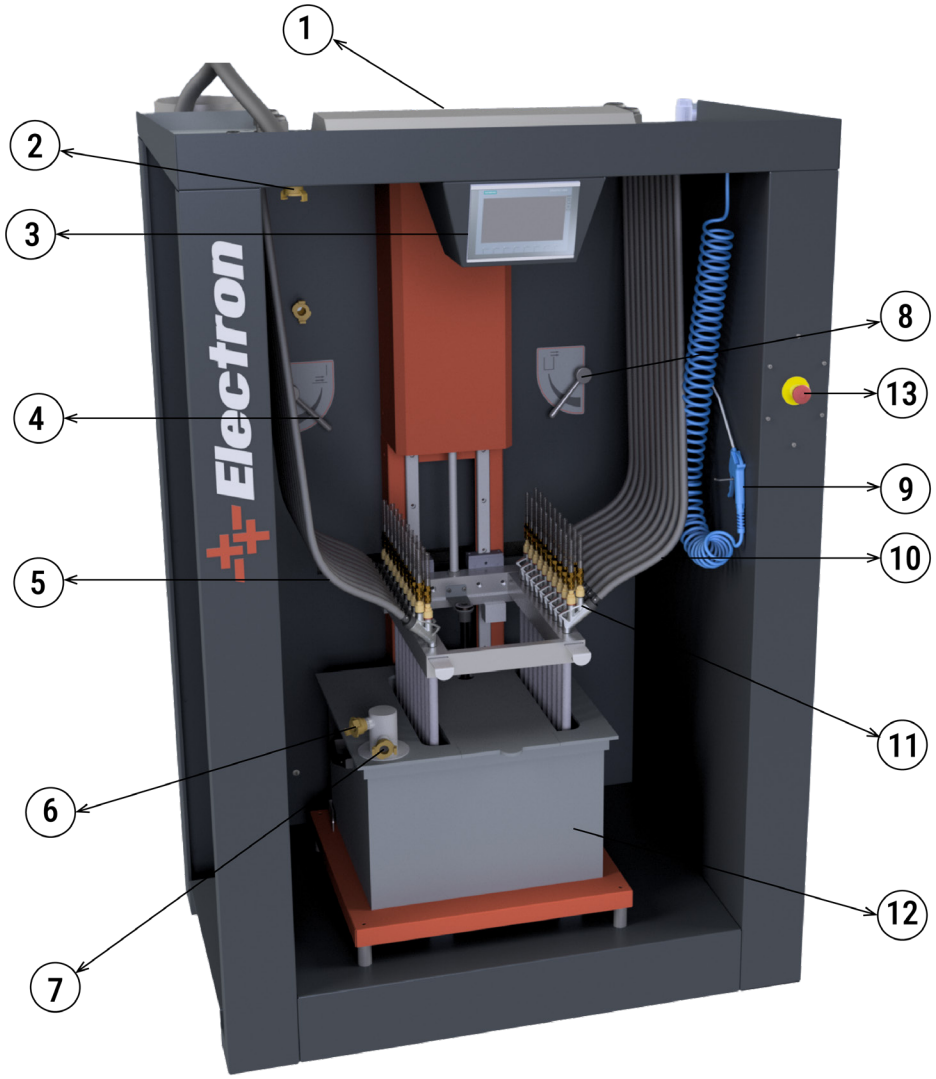
DIMENSIONS

E-FEED+3 PM220	
Base area (mm)	1.300 x 1.040
Overall height (mm)	1.950
Weight (kg)	approximate 250 kg

SOUND PRESSURE LEVEL

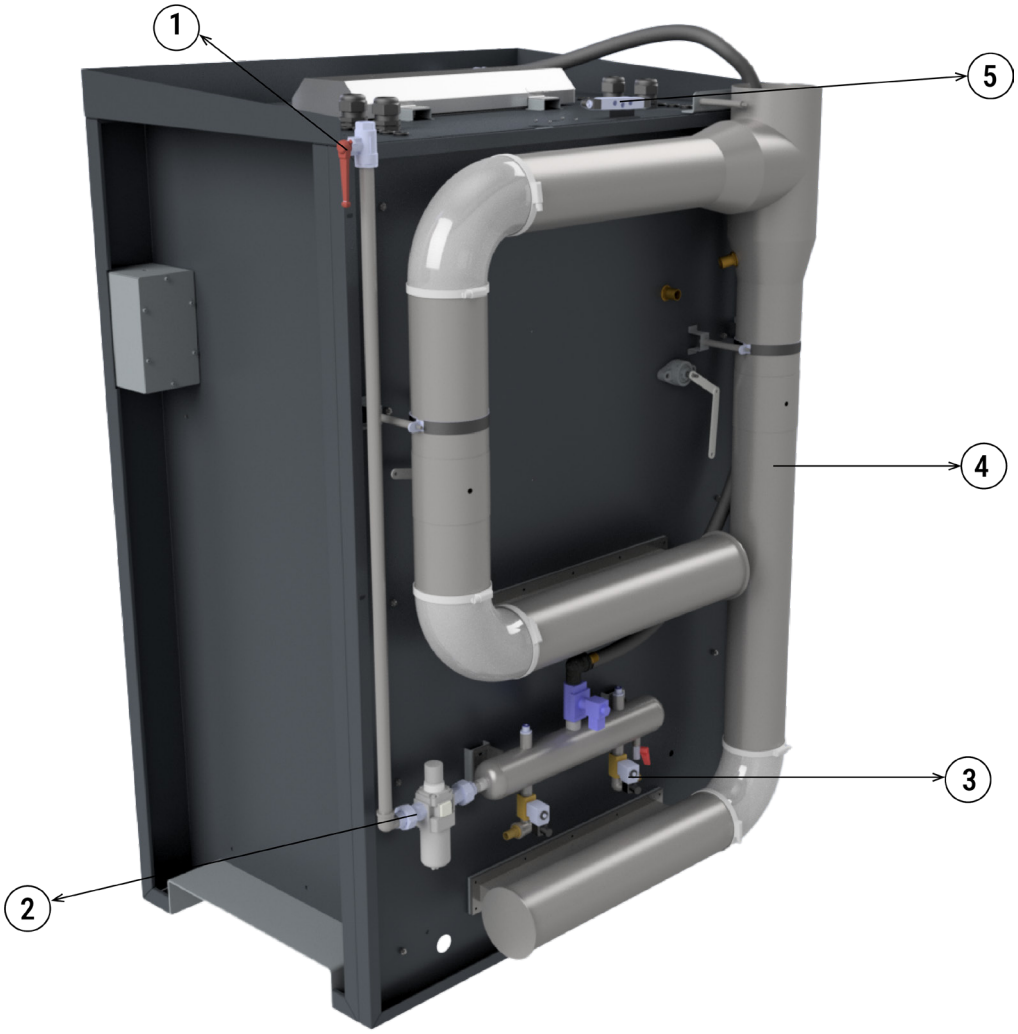
E-FEED+3 PM220	
Normal operation	75 dB(A)
Cleaning operation mode	95 dB(A)

E-FEED+3 PM220 GENERAL OVERVIEW



Number	Definition
1	Lamps
2	Hose Cleaning Connectio
3	Simatic HMI Screen
4	Dumper Bottom Suction
5	Waste Connection
6	Recovery Connection
7	Multicolor connection(Optional)
8	Dumper Top Suction
9	Air Gun
10	Paint Hose
11	Injector
12	Paint Chamber
13	Emergency stop button

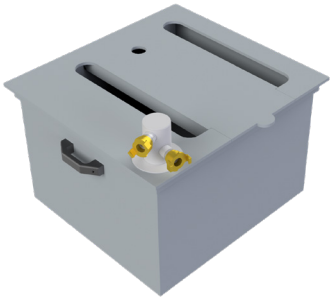
E-FEED+3 PM220 GENERAL OVERVIEW

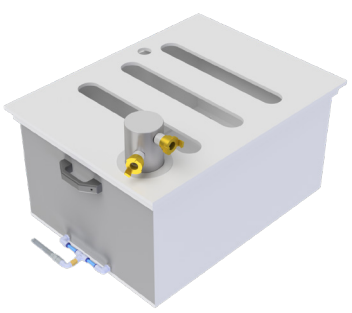


Number	Definition
1	Spheroidal valve
2	Regulator
3	Selenoid Valve
4	Air Canal
5	Pneumatics Control Valve

POWDER COAT CHAMBER

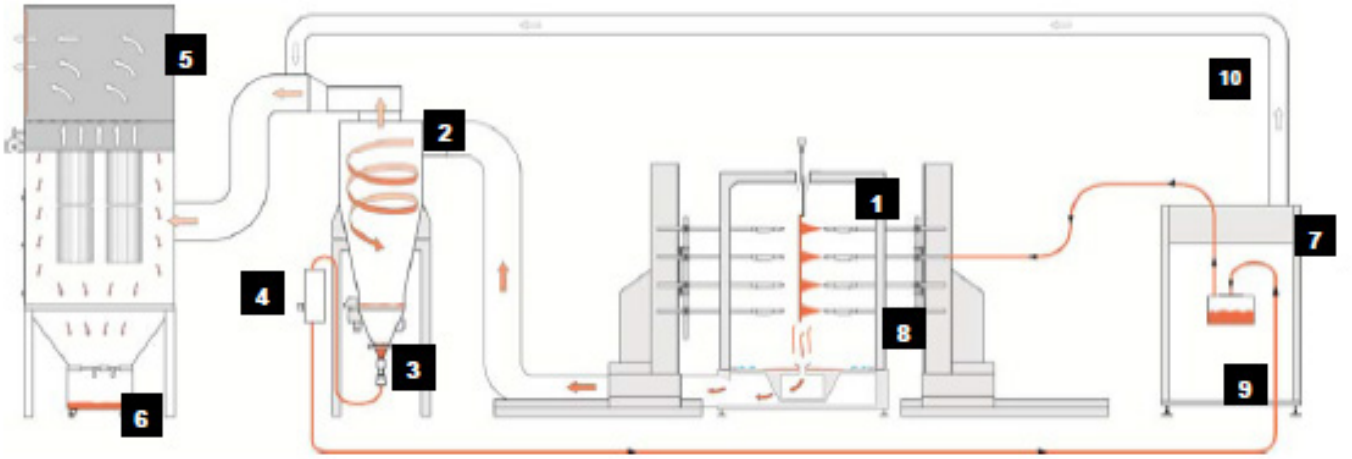
The Powder Chamber is usable that coating powder is processed and liquefied.
The powder chamber is able to receive up to 25 kilogrammes powder coat(approximate 60 liter liquefied) and the powder chamber is to be equipable up to 14 pieces injector.





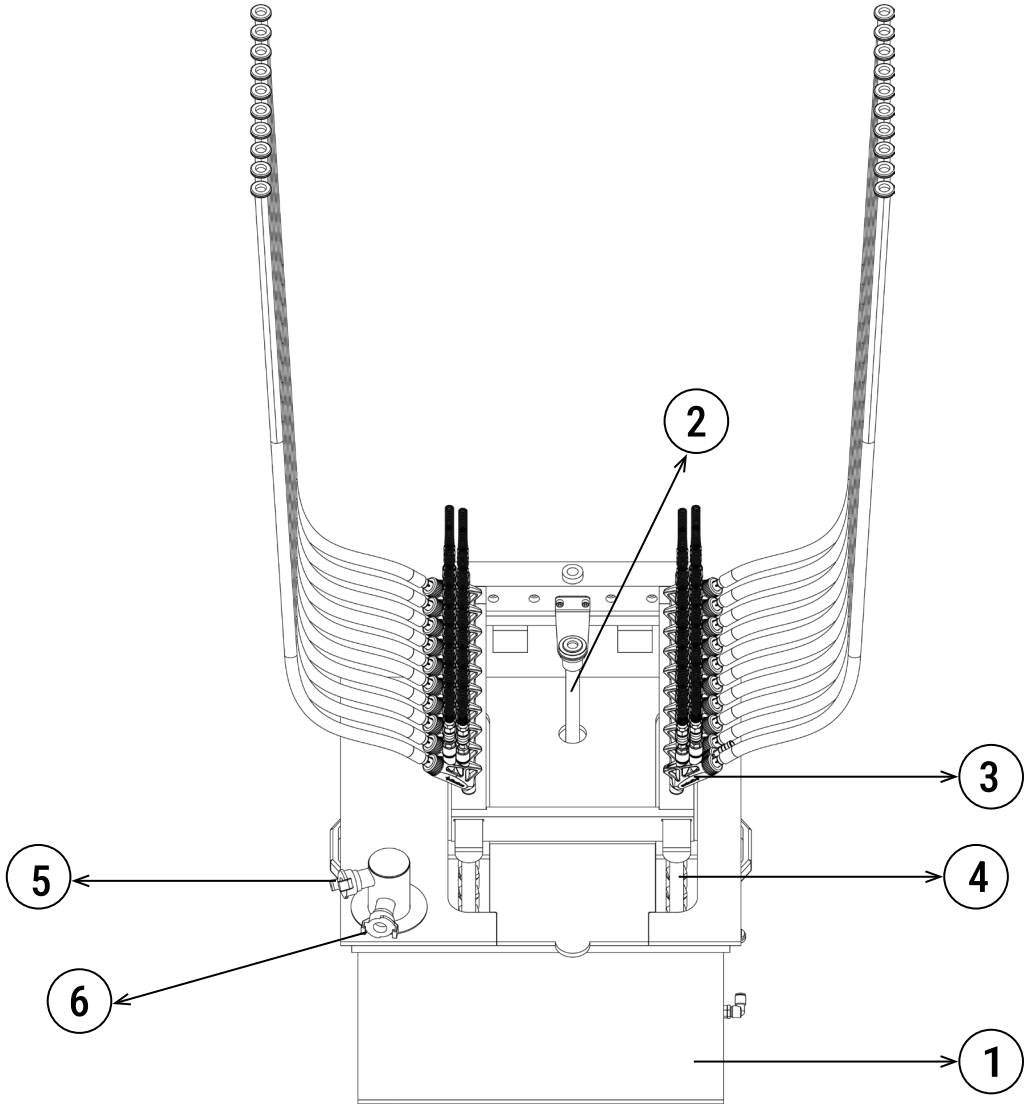
* *E-Feed+3 PM230 is the paint tank used in its version.*

POWDER FLOW IN THE PLANT



Number	Definition
1	Booth
2	Monocyclone
3	Sieve
4	Powder paint pump / High capacity injector (optional)
5	After Filter
6	Refuse container
7	E-FEED PM220 (Paint center)
8	Automatic guns
9	Powder container
10	Exhaust air ducting

Ordering Spare Parts List



Part #	Order Code	Part Name	Qty
1	B07PM220BH	E-FEED PM220 PLASTIC PAINT CONTAINER-COMPLETE	1
2	B07PM220SN	E-FEED PM220 LEVEL SENSOR SET - COMPLETE	1
3	B07FEED+3	E-FEED+3 INJ	20
4	TRTM04056	LATHING PAINT SUCTION PIPE Ø20X360	20
5	PNBE02001	EUROPEAN COUPLED FEMALE GEAR 3/4” (AVR-A075)	1
6	PNBE02002	EUROPEAN COUPLED HOSE 3/4” (AVR-C075)	1

Note: This information is applicable to older versions of paint tanks. Should you require further assistance, please contact your sales representative.

- B07PM220BHE - E-FEED PM220 PLASTIC PAINT CONTAINER 720MM-COMPLETE
- B07PM220BHK - E-FEED PM220 PLASTIC PAINT CONTAINER TOP COVER 720MM

STARTING UP THE E-FEED+3 PM220

1. Switch on the booth.
2. Switch the powder management center.

3. Fill the E-Feed powder container with powder: Fill with maximum 40 kg powder (approx. 70 liters fluidized powder) or the powder level must reach to a maximum of 5 cm below the exhaust air edge of the powder container; otherwise too much powder can be sucked to the waste.

4. Set the powder container fluidizing air with the corresponding pressure regulator

-The powder fluidization depends on the powder type, the air humidity and the ambient temperature.

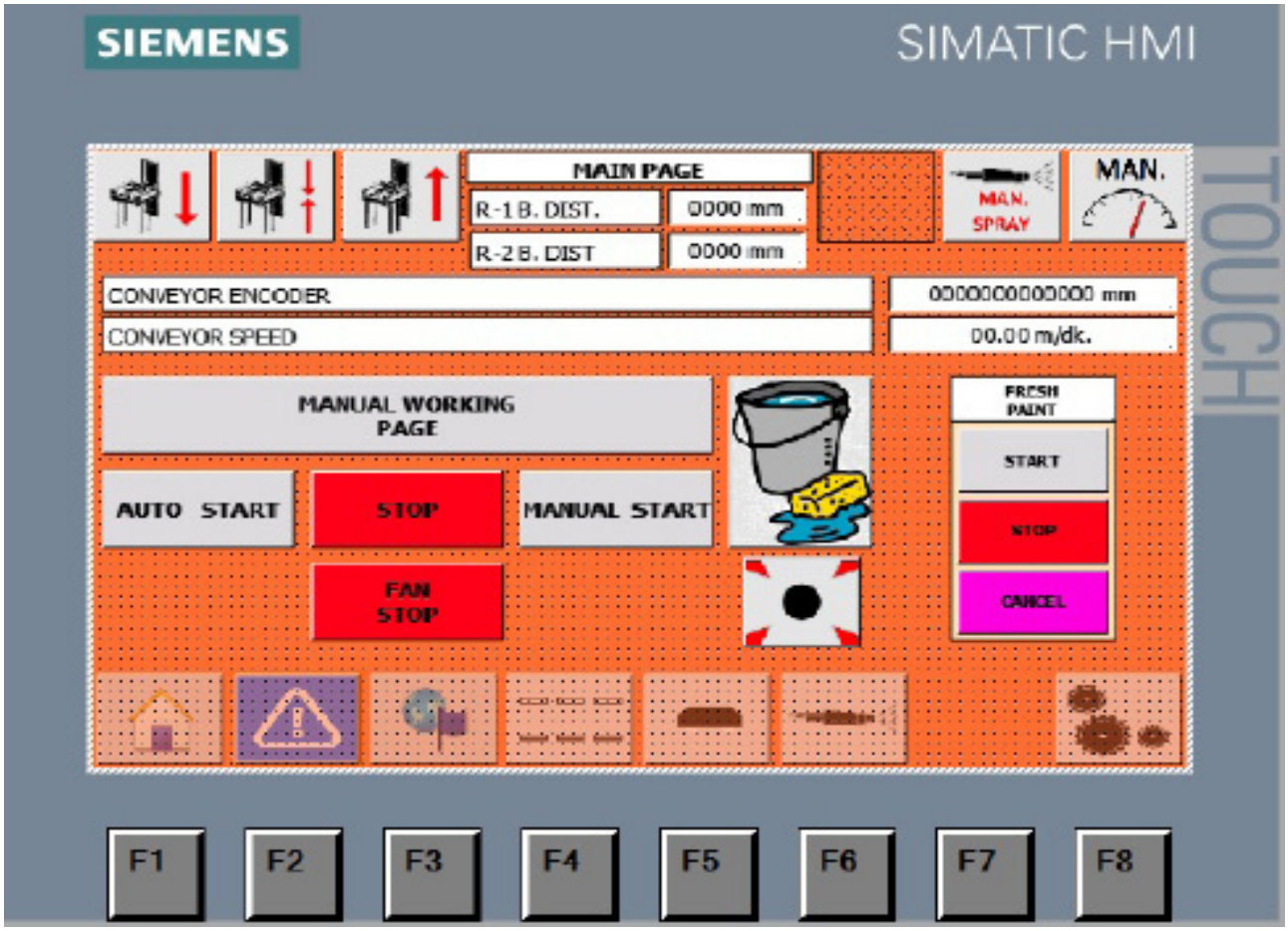
- The powder must lightly “boil”.

5. Set a suction adjustment. 

-Dust cloud should be absorbed slightly to not go out.

6. Start the coating procedure.

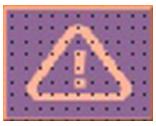
Operating Panel



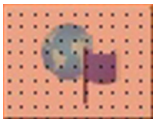
Key F1-F8
Not Active

1. Home Page:

2. Error codes:



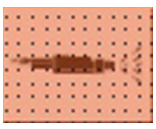
3. Language Option:



4. Booth Lighting:

5. Paint Center Lighting:

6. Transition to Device Page:



7. Settings:

Home Page

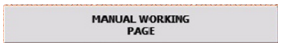
8. Automatic Painting Start Button:

9. Manual Painting Start Button:

10. Action Stop Button:

11. Fan Action Stop Button:

12. Entry of Manual Working Page:



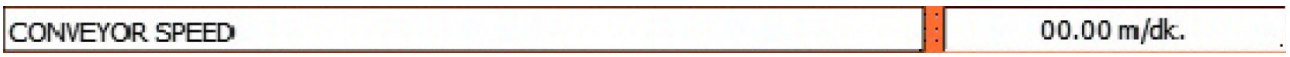
13. Entry of Cleaning Page:

14. Entry of Gun Arms Cleaning Page:

15. Manual Fresh Paint Transfer Buttons:

16. Instant Conveyor Distance Indicator:

17. Instant Conveyor Speed Indicator:

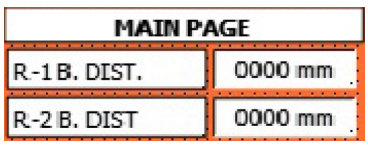


18. Injector Group Down Button:

19. Injector Group Middle Button:

20. Injector Group Up Button:

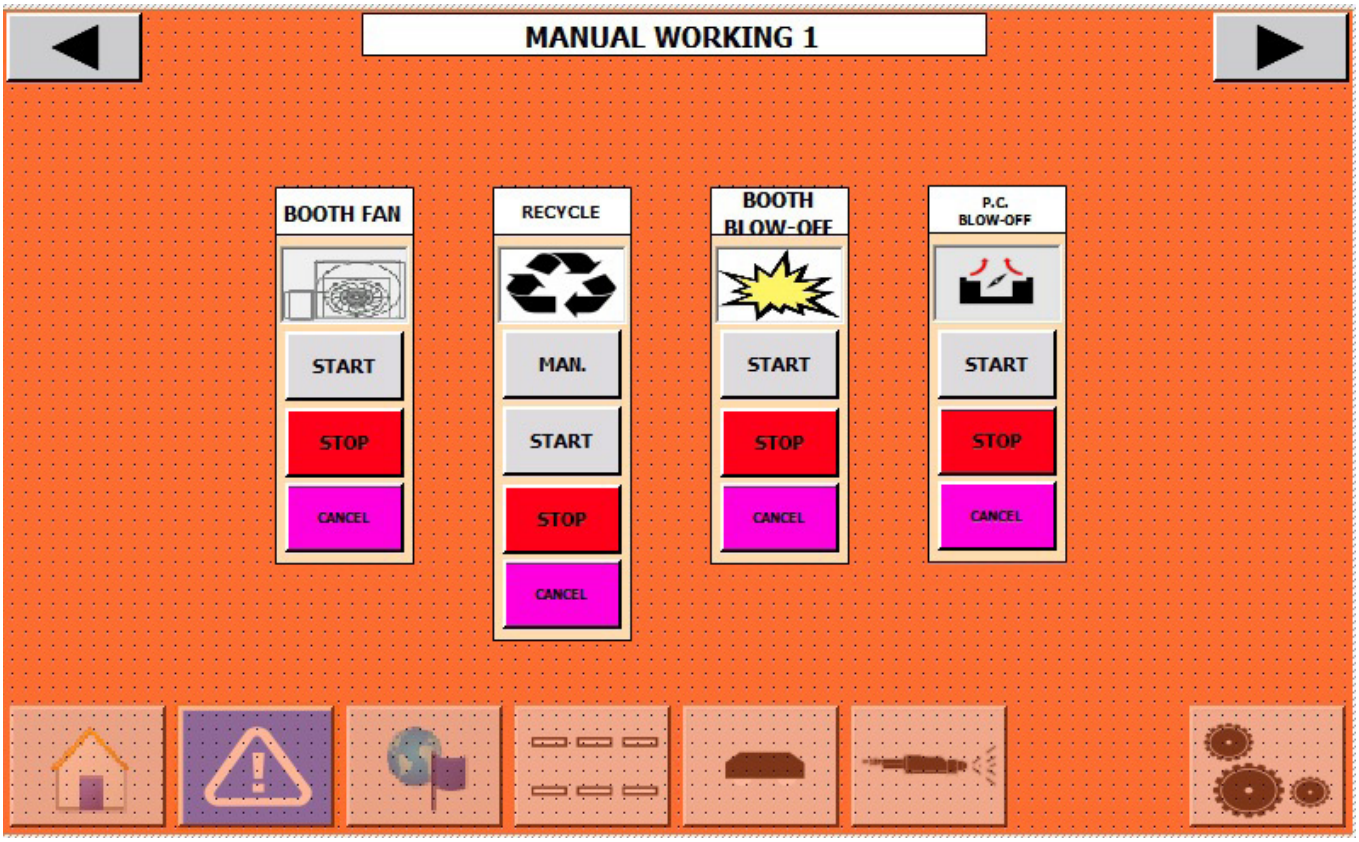
21.Coating Distance Indicator of Robots 1&2:



22. Automatic Paint Value Input Button:

23. Automatic Speed Adjustment of Robots according to conveyor and stroke:

Manual Working Page



1. 

:

2. 

:

3. 

:

4. 

:

Color Change And System Cleaning

After all parts inside booth are painted and extracted from the booth, Color change and cleaning can be started. In the automatic systems, painting is automatically stop.

In lower part, procedure of most difficult color change is telled. While changed color , it needs to this articles are realized.

a. Color Change Cleaning Scenario

- It is spaced out between the conveyor hangers to provide sufficient time for cleaning.

- AUTO /MANUEL action is stopped with the 

button in main page.

- The suction clack is completely opened
- It is switched to cleaning page with the 
"CLEANİNG PAGE" button.

- It is pressed the 

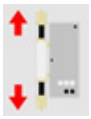
" CLEANİNG BEGİN" button.
- Injector group is removed up with the 
INJECTOR GROUP UP" button.
- The remaining paints on injector hoses are peeled off and provided to be poured into the chamber.
- The recovery hose is dismantled from the paint chamber. The champer is ousted. (The recovery hose will stay connected to the champer)
- The group is lowered on cleaning nozzle with the 
INJECTOR GROUP DOWN" button.
- By pressing the 

button, the cleaning of powder coating paths is provided. If necessary the action is repeated with the hel utton.

- If necessary, "GUN ARMS" is cleaned again with the 
button.
- Injector group is removed up with the 
INJECTOR GROUP UP" button.
- Powder coat hose and injector exit unit are extracted; inside hose, injector and injector suction hose are cleaned. Injector wearing parts are changed by visual checking and is weared instead. This action is respectively done to all injector.
- The gun arms are checked cleaning, gun head groups are extracted and cleaned, The wearing parts are changed by visual checking.
- Fresh paint feeding unit(Multicolor) is cleaned.
- The recovery hose is dismantled from the paint chamber , it is weared to suction entry on the back wall of paint center.
- The paint chamber is removed from paint center for cleaning by decanting.
- Manuel paint section on the side of booth exit is cleaned from the outside towards the booth by pumping air and the booth door is closed.
- The "CLEANING CELLS" are stopped by pressing the 
ton.
- By starting from manual paint part of booth entry, the booth, (b) personnel cleans suction channel and suction channel of between booth to cyclone from the top to bottom.

- The recovery is canceled by pressing the  button.

- The cyclone bottom is opened and sieve is extracted. The cyclone bottom is closed.

- The pump is cleaned by pressing the  button.It is waited during cleaning.(10-20 seconds)

- Meanwhile,Recovery hose is weared to reverse air union in top pannel of the paint center by extracting from suction.
- Reverse air is sent to the cyclone by pressing the  button, It is waited during action(5-10 sec.)

- The cyclone bottom is opened and checked. It is cleaned with air gun.
- The cyclone bottom is implemented , It is given reverse air by pressing the  button while the cyclone bottom is in open position.

- The bottom and top parts of the cyclone is completely cleaned with air gun.
- After cleaning, he sieve is seated in place and the cyclone is closed.
- The recovery hose is extracted from the “REVERSE AIR” union.
- The paint center is cleaned.
- Another paint chamber is seated in place, it is made connection with the ” relief air ” hose.
- “REFRESH PAINT SUPPLY” unit(multicolor) is loading fresh paint.
- “REFRESH PAINT SUPPLY” and “RECOVERY” hoses are made connection to the paint chamber.

- The INJECTOR GROUP is positioned into middle with the  button.
- The cleaning is ended by pressing the  button that is in the cleaning page.

AT THE BEGINNINGOF ACTION;
- The booth door is opened.
- It is provided to the robots are gone to the paint start state by pressing the 

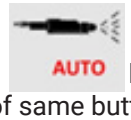
button from home screen.

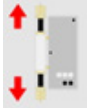
- By the switch on the device cabinet is being set MAN. It is provided to the paint is shooten from gun for 30 seconds.
- The switch is being set AUTO again.
- Materials is loaded into the line.

b. Daily Cleaning Scenario

- It is spaced out between the conveyor hangers to provide sufficient time for cleaning.
- AUTO /MANUEL action is stopped with the 

button in main page.
- The suction clack is completely opened.
- It is switched to cleaning page with the  "CLEANİNG PAGE" button.
- It is pressed the 

CLEANİNG BEGİN" button.
- Injector group is removed up with the  "INJECTOR GROUP UP" button.
- The remaining paints on injector hoses are peeled off and provided to be poured into the chamber.
- The recovery hose is dismantled from the paint chamber , it is weared to suction entry on the back wall of paint center.
- The group is lowered on cleaning nozzle with the  INJECTOR GROUP DOWN" button.
- By pressing the 

button, the cleaning of powder coating paths is provided. If necessary the action is repeated with the help of same button.
- If necessary, "GUN ARMS" is cleaned again with the  button.
- Injector group is removed up with the  "INJECTOR GROUP UP" button.
- Fresh paint feeding unit(Multicolor) is cleaned.
- Manuel paint section on the side of booth exit is cleaned from the outside towards the booth by pumping air and the booth door is closed.
- The "CLEANİNG CELLS" are stopped by pressing the  button.
- By starting from manual paint part of booth entry, the booth, (b) personnel cleans suction channel and suction channel of between booth to cyclone from the top to bottom.
- The recovery is canceled by pressing the  button.
- The pump is cleaned by pressing the  button.It is waited during cleaning.(10-20 seconds)
- The cyclone bottom is opened and sieve is extracted. The cyclone bottom is closed.
- The paint center is cleaned.
- Another paint chamber is seated in place, it is made connection with the " relief air " hose.
- The cleaning is ended by pressing the 

button that is in the cleaning page.
AT THE BEGİNNİNGOF ACTION;
- The INJECTOR GROUP is positioned into middle with the  button.
- The booth door is opened.
- It is provided to the robots are gone to the paint start state by pressing the button from in home screen.
- By the switch on the device cabinet is being set to MAN. It is provided to the paint is shooten from gun for 5 seconds.
- The switch is being set AUTO again.
- Materials is loaded into the line.

PACKING AND TRANSPORT

INTRODUCTION

This chapter describes special precautions that must be taken during internal transport of the product.

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.

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.

Packing Material

A suitably stable pallet must be used.

TRANSPORT

Data concerning goods to be transported

- The space requirements correspond to the size of the components plus the packaging
- Weight see “Technical Data”
- Points of attachment, see “Mode of transportation”

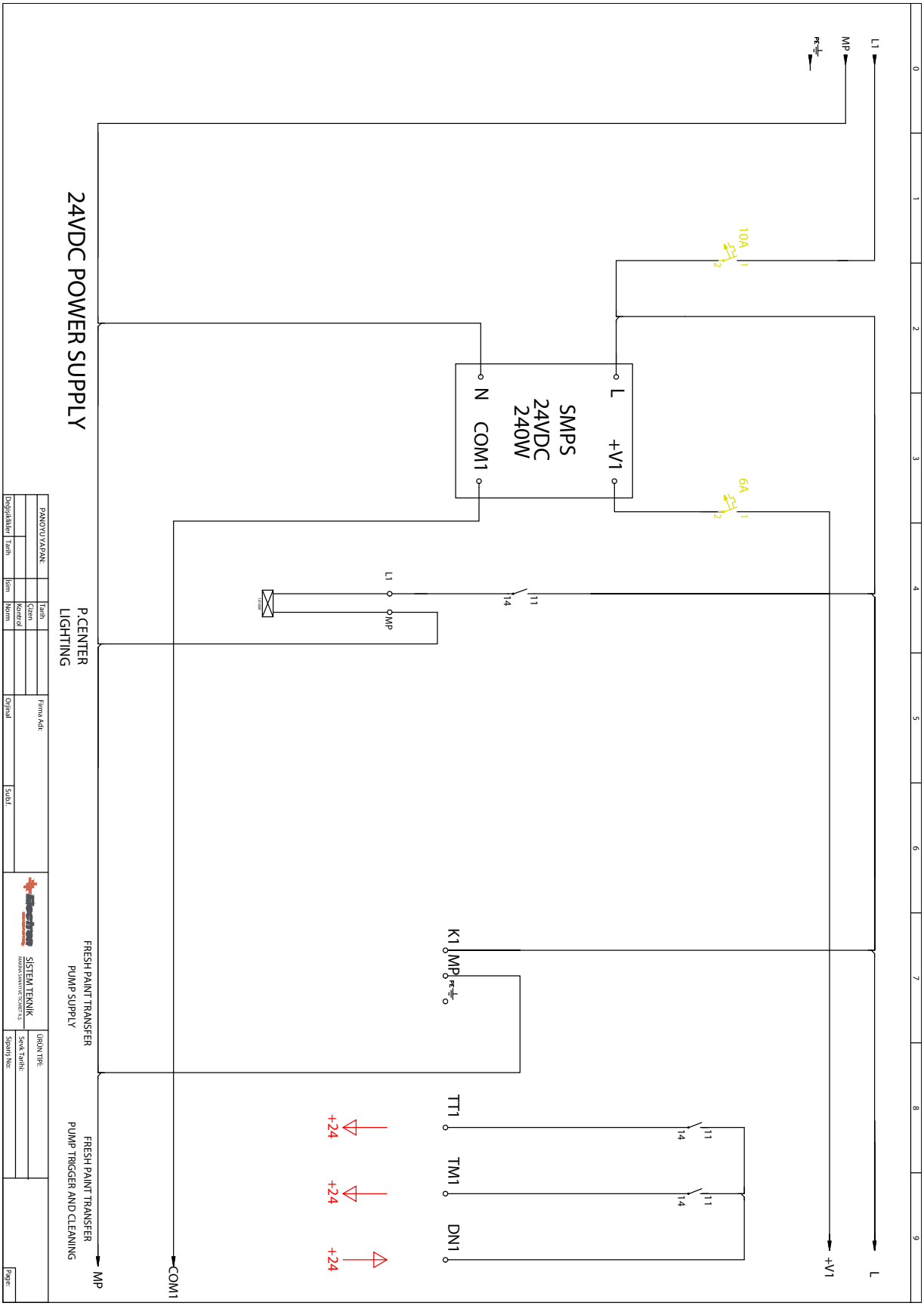
Mode of transportation

For short distances/shifts of position within the same room, parts for the booth must be transported using a forklift truck with long forks or a crane.
Therefore, the steel bolts must be loosened first.
- Transport using a crane: use the eye bolts on the roof
- Transport using a forklift: remove the lateral panels before the transport

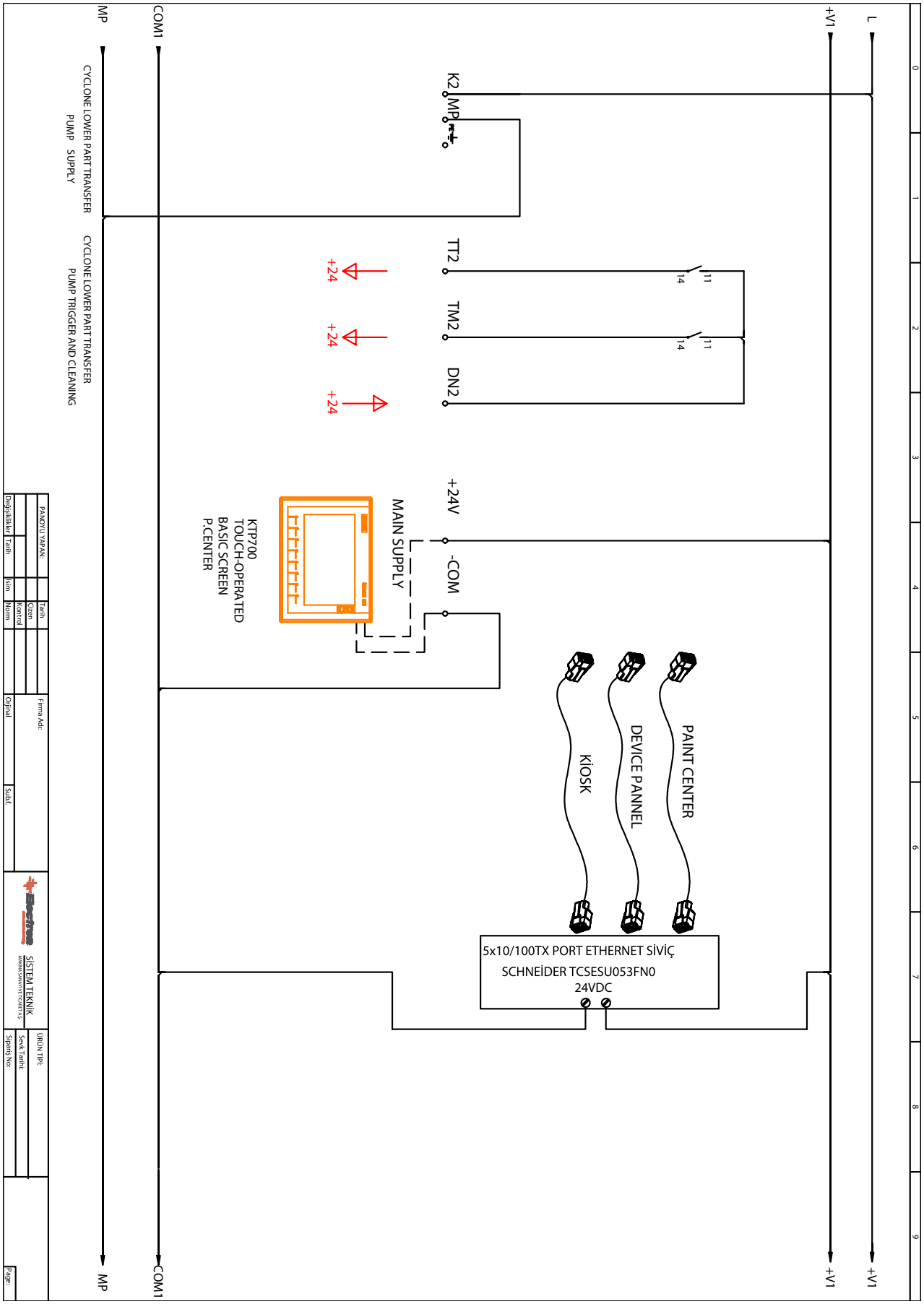
Loading, transferring the load, unloading

Suitable lifting equipment is to be used for all procedures.

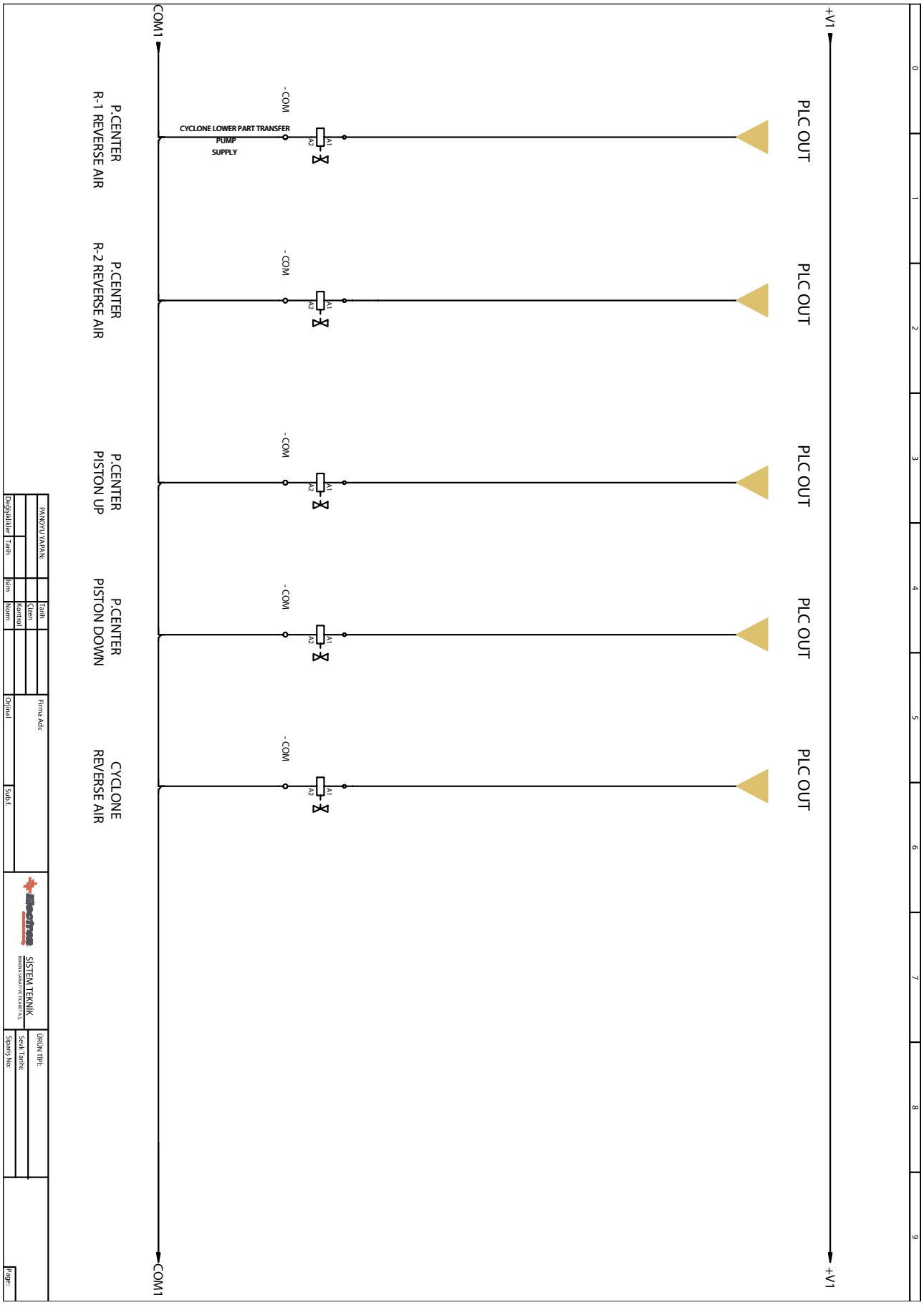
ELECTRICITY SCHEMA



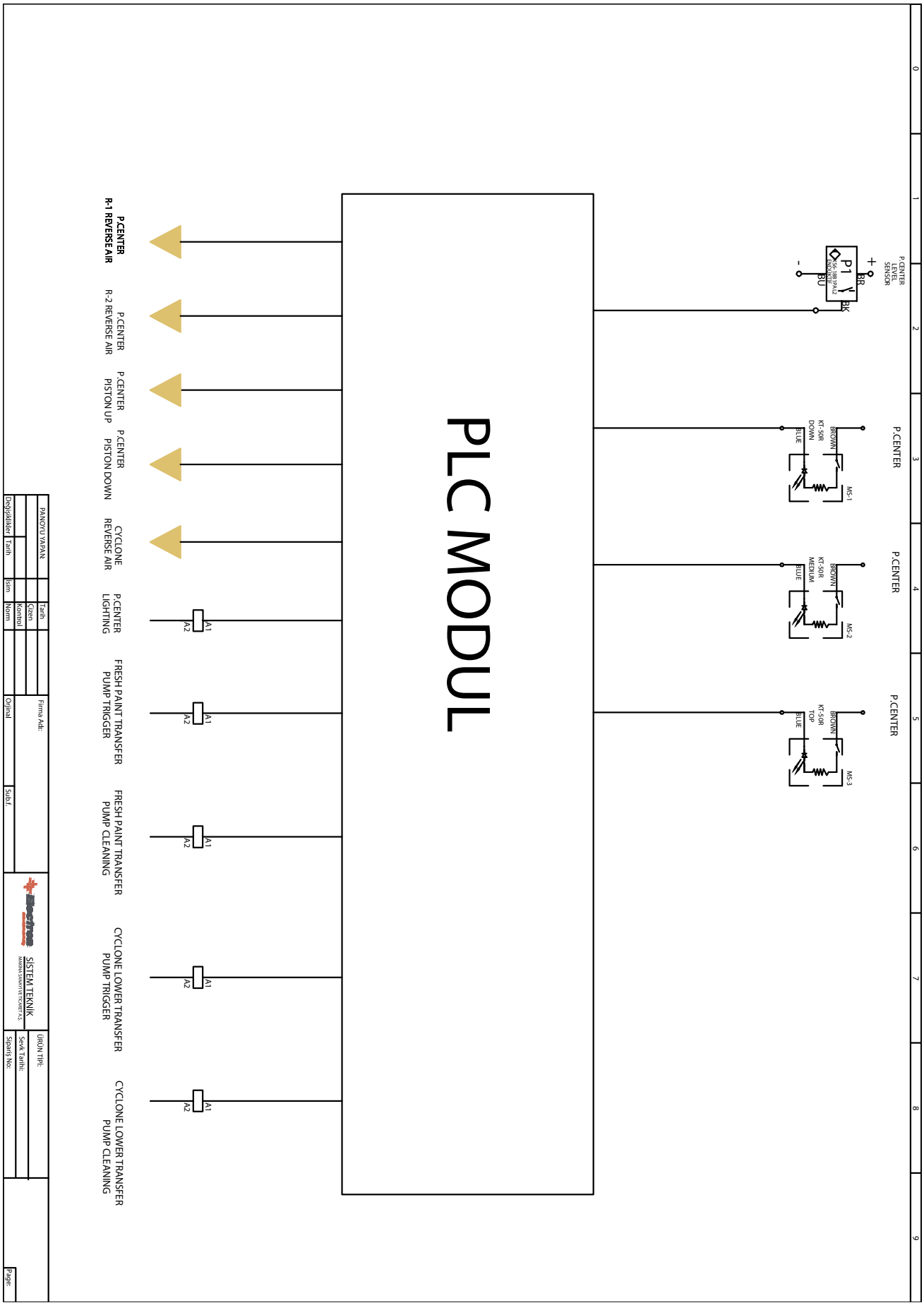
ELECTRICITY SCHEMA



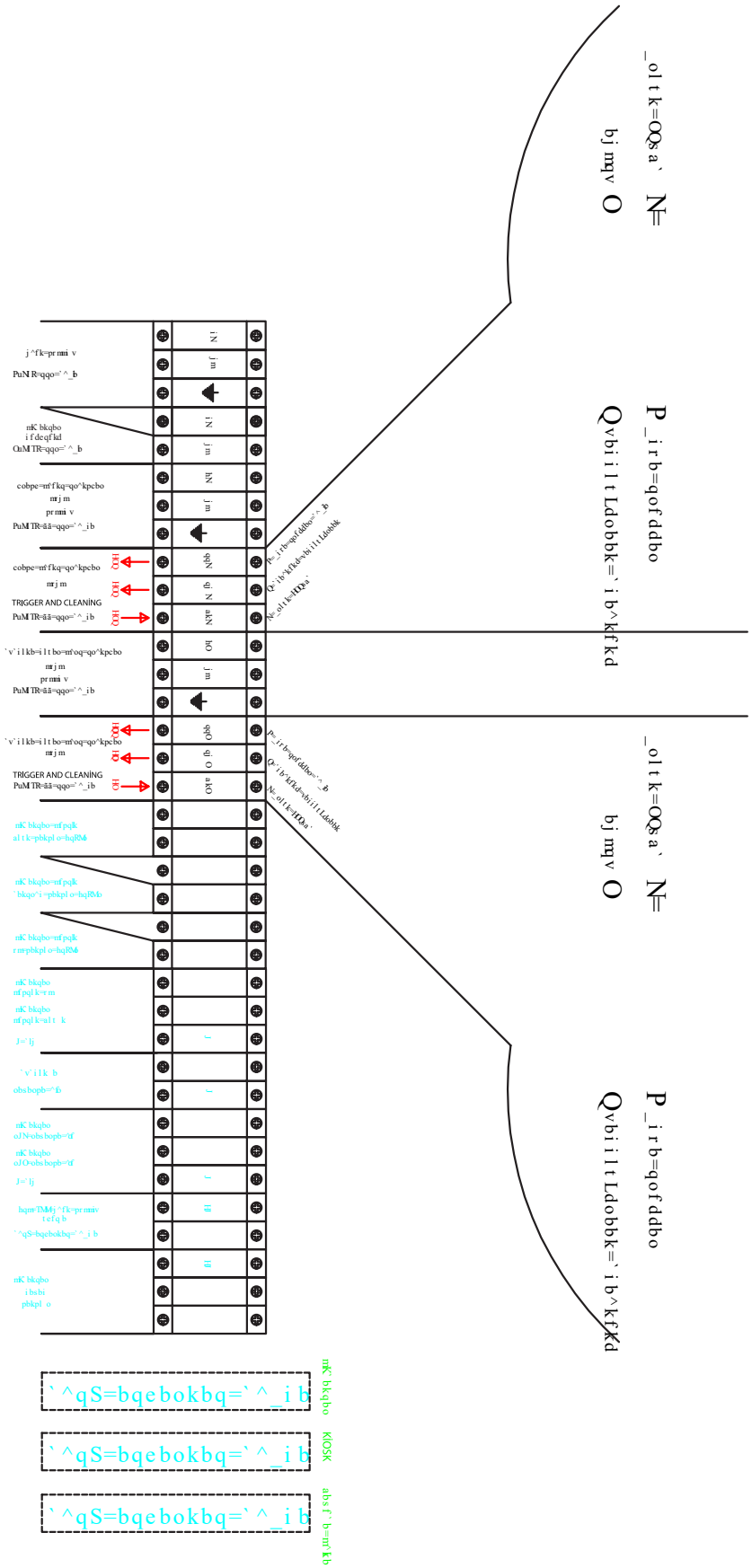
ELECTRICITY SCHEMA



ELECTRICITY SCHEMA



ELECTRICITY SCHEMA



Service and Maintenance Table

DATE	MAINT.TYPE -Weekly -Yearly -Service	MAINT. OR SERVICE PERSONNEL	PROCEDURE CHANGED PARTS NOTES	CONTROL SUPERVISOR

Product Life and Warranty

1. Product Life

- The economic life of E-FEED PM220 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 productlife.

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.

3. Operating Conditions

- Read the user manual before using the gun.
- Only legally allowed people can operate E-FEED PM220.
- Only trained and authorized people can operate E-FEED PM220.
- 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.

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