Operating instructions and spare parts list

OptiCenter OC05
Powder management center

Translation of the original operating instructions
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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 OptiCenter OC05.

These safety regulations must be read and understood in full before the OptiCenter OC05 is put into operation.

Safety symbols (pictograms)

The following warnings with their meanings can be found in the Gema Switzerland 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 OptiCenter OC05 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 OptiCenter OC05 is to be used for other purposes or other substances outside of our guidelines then Gema Switzerland GmbH should be consulted.

3. Observance of the operating, service and maintenance instructions specified by the manufacturer is also part of conformity of use. The OptiCenter OC05 should only be used,
maintained and started up by trained personnel, who are informed about and are familiar with the possible hazards involved.

4. Start-up (i.e. the execution of a particular operation) is forbidden until it has been established that the OptiCenter OC05 has been set up and wired according to the guidelines for machinery (2006/42 EG). EN 60204-1 (machine safety) must also be observed.

5. Unauthorized modifications to the OptiCenter OC05 exempt the manufacturer from any liability from resulting damage.

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

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

<table>
<thead>
<tr>
<th>Explosion protection</th>
<th>Protection type</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE Ex II 3D</td>
<td>IP54</td>
</tr>
</tbody>
</table>

Product specific security regulations

General information

The OptiCenter OC05 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.

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

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

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.

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 OptiFlex 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 Gema service 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 Gema Switzerland GmbH guarantee would no longer be valid.

NOTE:

We point out that the customer himself is responsible for the safe operation of the equipment! Gema Switzerland GmbH 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 Gema spare parts should be used! The use of spare parts from other manufacturers will invalidate the Gema guarantee conditions!
About this manual

General information

This operating manual contains all important information which you require for the working with the OptiCenter OC05. 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 application pump – should be referenced to their enclosed corresponding documents.

Software version

This document describes the operation of the Touch Panels to control the OptiCenter OC05 powder management center with software version starting from 1_2a.

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 OptiCenter OC05 Powder management center is conceived for simple and clean handling of the coating powder. It enables a semi-automated cleaning procedure and consequently a quick color change.

Utilization

The OptiCenter OC05 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 semi-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 (option)
Cleaning

- Automatic internal cleaning of the application pumps, 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

<table>
<thead>
<tr>
<th>OptiCenter OC05</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Conveying performance of each OptiSpray AP01</td>
<td>300 g/min.</td>
</tr>
<tr>
<td>Recovery</td>
<td>max. 3.5 kg/min.</td>
</tr>
</tbody>
</table>

Electrical data

<table>
<thead>
<tr>
<th>OptiCenter OC05</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Connected load</td>
<td>1x230 V+E+N</td>
</tr>
<tr>
<td>Frequency</td>
<td>50/60 Hz</td>
</tr>
<tr>
<td>Protection type</td>
<td>IP54</td>
</tr>
</tbody>
</table>

Pneumatic data

<table>
<thead>
<tr>
<th>OptiCenter OC05</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Input pressure</td>
<td>min. 6.5 bar</td>
</tr>
<tr>
<td>Compressed air consumption during coating operation</td>
<td>15 Nm³/h</td>
</tr>
<tr>
<td>Compressed air consumption during cleaning (incl. powder container and guns)</td>
<td>350 Nm³/h</td>
</tr>
<tr>
<td>Compressed air consumption during cleaning of the PP06 hose to the cyclone</td>
<td>120 Nm³/h</td>
</tr>
<tr>
<td>Water vapor content of compressed air</td>
<td>max. 1.3 g/m³</td>
</tr>
<tr>
<td>Oil content of compressed air</td>
<td>max. 0.1 mg/m³</td>
</tr>
</tbody>
</table>
### Dimensions

<table>
<thead>
<tr>
<th>OptiCenter OC05</th>
<th>with AS10</th>
<th>with AS10+ICS02 /05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base area (width x depth) (mm)</td>
<td>1700 x 1500</td>
<td>2600 x 1500</td>
</tr>
<tr>
<td>Overall height (mm)</td>
<td>2100 (2270 – PP06 connection)</td>
<td></td>
</tr>
<tr>
<td>Weight max. (kg)</td>
<td>approx. 380 (without AS and ICS)</td>
<td></td>
</tr>
</tbody>
</table>

### Processible powders

<table>
<thead>
<tr>
<th>OptiCenter OC05</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastic powder</td>
<td>yes</td>
</tr>
<tr>
<td>Metallic powder</td>
<td>yes</td>
</tr>
</tbody>
</table>

### Sound pressure level

<table>
<thead>
<tr>
<th>OptiCenter OC05</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal operation</td>
<td>75 dB(A)</td>
</tr>
<tr>
<td>Cleaning operation mode</td>
<td>for a short time up to 95 dB(A)</td>
</tr>
</tbody>
</table>

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.

### Rating plate

NOTE:
Fields with a gray background contain contract-specific data!
Design and function

General view

OptiCenter OC05 – layout

1 Key switch
2 Emergency stop push button
3 AS10 Control cabinet
4 TouchPanel
5 Powder container
6 Application pumps
7 Hand lever for powder container vent
8 Hand lever for exhaust air
9 Hand lever for emptying of the powder container
10 "Waste" connection
11 Hose cleaning connection
12 Recovery powder connection
13 Lighting
Compressed air indicators

DR1 Powder container fluidizing air

Operating elements

<table>
<thead>
<tr>
<th>Designation</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Touch Panel</td>
</tr>
<tr>
<td>2</td>
<td>Display of the control voltage</td>
</tr>
<tr>
<td>3</td>
<td>Key switch (control voltage ON/OFF)</td>
</tr>
<tr>
<td>4</td>
<td>Emergency stop push button</td>
</tr>
<tr>
<td>5</td>
<td>Illuminated push button (malfunction acknowledgement)</td>
</tr>
</tbody>
</table>
**Powder container**

The powder container is suited for the preparation and fluidization of the coating powder.

The powder container can contain 25 kg powder (approx. 60 liters fluidized powder) and can be equipped with up to 30 OptiSpray AP01 application pumps.

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**Touch Panel**

All necessary operating procedures are activated by the Touch Panel.

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**PS07 Sieve machine (option)**

The PS07 sieve machine is used for the vibration supported sieving of coating powder and can be equipped with different mesh sizes (see separate operating instructions).

If necessary, the sieve machine is manually switched on and off with the relevant push button.
Principle of function

**Powder circuit**

During the typical OptiCenter OC05 (7) operation the powder is filled into the powder container and fluidized. The fluidized powder is aspirated by the application pumps 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 OptiCenter by the dense phase conveyor (4), where it is prepared again for coating operation.

**Powder flow in the plant**

1. Booth  
2. Cyclone separator  
3. Sieve  
4. OptiFeed PP06 Powder pump  
5. After Filter  
6. Refuse container  
7. OptiCenter  
8. Automatic guns  
9. Powder container  
10. Exhaust air ducting
Commissioning

Set-up and assembly

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

WARNING:
The OptiCenter 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).

► After unpacking and installing, the OptiCenter is to be anchored to the floor with the supplied steel bolts.

Preparation for start-up

Compressed air supply

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

The OptiCenter requires a connection to a sufficient dimensioned compressed air circuit.

In order to ensure a perfect operation, a pressure of 6 bar must be adjusted with the main pressure regulator.
Grounding of the powder management center

DANGER:
The OptiCenter 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 OptiCenter is reserved for the potential equalization.

Potential equalization – connection point
Operation by touch panel

Touch panel/operating panel

NOTE:
The operation of the OC05 is integrated in the CM22/CM30 control.

► For this reason, it is necessary to be familiar with the functionality of the CM control (see corresponding operating manual).

The operation and monitoring of the OptiCenter 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. These are set at the factory and, therefore, may only be changed after consultation with a Gema service center.
Touch keypads

The key functions are activated by touching the screen within this area. An illumination means that the touch keypad was directly touched.

The screen layout

The exit key enables switching back to the previous program level. The other operating keys switch to the next corresponding program menu.

---

NOTE:
The symbols are designed for the user, who will be guided through the plant by means of pictures.

► All operation and error messages are not displayed as pictograms, and are adapted to the local language according to the Sales contract!
Key functions

**WARNING:**

Sensitive touch surface.

Damage to the touch surface due to the use of pointed or sharp objects.

- 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.

### Function keys

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Automatic Operation Mode" /></td>
<td>Automatic operation mode</td>
</tr>
<tr>
<td><img src="image" alt="Manual Operating Mode" /></td>
<td>Manual operating mode</td>
</tr>
<tr>
<td><img src="image" alt="Cleaning for Color Change" /></td>
<td>Cleaning for color change</td>
</tr>
<tr>
<td><img src="image" alt="Acknowledge Error" /></td>
<td>Acknowledge error</td>
</tr>
<tr>
<td><img src="image" alt="Adjustments" /></td>
<td>Adjustments</td>
</tr>
<tr>
<td><img src="image" alt="Parameters" /></td>
<td>Parameters</td>
</tr>
</tbody>
</table>

- Start the powder management center for coating
- Key is not activated, until boot is ready
- For this function, no log-in is necessary
- Cleaning for color change
- Key is not activated, until boot is ready
- For this function, no log-in is necessary
- Acknowledge error
- Adjustments
- For this function, a log-in is necessary
- Parameters
- For this function, a log-in is necessary
WARNING:
The function parameters are set at the factory and may not be changed by the customer!
► Parameters may only be modified after consultation with a Gema service center!

State of the keys
Some of the keys light up orange when pressed.
Some of the keys will start flashing if the corresponding process requires confirmation.

Meaning of the colors

Background color Grey
= present, but not active

Background color White
= Interaction

Border color Orange
= active state
Powder management system is ready

Border color Red
= Error
Operating modes

General information
The following operating modes are available:

- **Different coating modes**:

- **Cleaning / Color change**

- **Service / parameterization**

The operating modes are explicitly described in the following chapters.

The operation level of the control unit is designed with pictograms, so that only the really essential parameters are displayed, and the operator can therefore reach his solution quickly.

Basically, the control unit is not in one of these operating modes after switching on, or after a restart. The operating modes are selected on the panel.

The coating modes are selected manually by connecting the recovery hose to the corresponding connection.

Coating without powder recovery (spray to waste)
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:**

- When restarting the plant or after the color change (a few minutes)
- If highest coating quality is required
- If the volume of order is very small

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 time coating operation with the same powder and high coating quality with minimal powder loss
- Immediate coating following a powder change with not so high demands on quality and the smallest possible of powder loss
Cleaning / color change (clean)

This operating mode enables the user to clean the OptiCenter. The higher the requirement for cleanliness, the higher the time expenditure will be.

The cleaning mode consists of two parts, the coarse cleaning and the fine cleaning. During the coarse cleaning mode the powder can be recovered, but not during the fine cleaning mode (powder loss).

The cleaning of the components is partially automated, however, some of them must be cleaned manually.

The Cleaning operating mode can only be initiated when the plant cleaning mode is stopped, namely by pressing the corresponding key.

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

Setting

This mode allows the user to make specific OptiCenter 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.
Coating operation

Before switching on

Before switching on the OptiCenter, the following points must be observed:

- Observe the safety regulations
- Check the grounding of the OptiCenter, the booth and the other plant units and ensure it, if necessary
- Check the compressed air supply

Starting up the OptiCenter OC05

Commissioning

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 key switch:
   - the interior lighting switches on
3. Wait for booth release
   - the display shows the basic menu
4. Select desired coating mode on the OptiCenter (Coating with or without powder recovery)
   - Connect the recovery hose manually:
     - = Coating with powder recovery (spray)
     - = Coating without powder recovery (spray to waste)
5. Switch on the powder container fluidizing air with toggle valve

6. Fill the OptiCenter powder container with powder: Fill with maximum 25 kg powder (approx. 60 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.

7. 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"

**WARNING:**
If the fluidization has been incorrectly adjusted, then the coating powder can create a dust cloud capable of causing respiratory problems.

► Adjust the fluidization correctly

8. Set the powder container aeration with the hand lever
   - Turn the hand lever to the stop, so that the dust cloud is drawn slightly backwards
   - The stop can be set on the OptiCenter rear side

9. Turn on the recovery powder pump, if necessary:
   - Push the key
   - Push the key
   - The key turns red

10. Select desired operating mode (AUTOMATIC or MANUAL) on the booth control unit (see therefore the corresponding CM22 or CM30 operating manual)

11. Start the coating procedure
Switching off the OptiCenter OC05 (after each work day)

**NOTE:**
Before the equipment can be turned off, the contents of the container should be emptied into a powder bag.

- This will prevent the powder from absorbing moisture during the night, which can cause no or uneven fluidization.

The following steps must be taken to switch off the powder center:

1. Check if all the workpieces have been coated

2. Press the key
   The following menu appears on the display:

   ![Menu](image)

   - the level control is switched off

3. Clean the OptiCenter thoroughly, in order to avoid powder accumulation (see therefore in chapter "Cleaning / Color change")

**WARNING:**
Empty powder container!

4. Switch off the powder management center by key switch
   - The interior lighting is no longer lit
Cleaning / color change

WARNING:
If no dust mask or one of an insufficient filter class is worn when cleaning the OptiCenter, then the dust that is stirred up from the coating powder can cause respiratory problems.
► The ventilation system must be turned on for all cleaning work.
► A dust mask corresponding to filter class FFP2 or N95 at minimum must be worn during any cleaning work.

WARNING:
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 OptiCenter unless absolutely necessary!
► Wear adequate hearing protectors (e.g. ear muffs per EN 352-1)!

WARNING:
If no safety glasses are worn when cleaning the OptiCenter, then the dust that is stirred up from the coating powder can cause eye irritations.
► Safety glasses must be worn during any cleaning work!

NOTE:
A great deal of air is required for the cleaning procedure!
► Make sure that 6 bar is always available!
Cleaning operating mode

Cleaning procedure

*Plant control (e.g. Magic Control CM22)*

1. End the coating procedure
2. Select the cleaning mode:
   - Press the key
3. The following menu appears:
4. Close the booth doors
5. Clean the guns externally
6. Adjust the movement axes to the cleaning position, so that the guns can be cleaned from the inside.

*OptiCenter*

7. Open fully the exhaust air with hand lever
8. Empty the powder container
   - Place the powder packaging (box or similar) under the powder container
   - Press the hand lever parts together and turn it 90° counterclockwise. The powder in the powder container empties into the packaging.
9. Press the key
10. 

11. Select the powder recovery mode (**with** or **without powder recovery**)

   - Connect the recovery hose manually:

   - **Coating with powder recovery (spray)**
   - **Coating without powder recovery (spray to waste)**

12. Press the **RPP** key, in order to switch on the recovery powder pump

   - The key turns red

13. Press the **RPP** key, in order to clean the powder hoses to the guns

14. 

   - The powder hoses are cleaned and the powder is transported to the booth
- The corresponding cleaning program is displayed on the OptiStar CG12-CP control units:

![Cleaning program display](image)

- The process is complete once this symbol is displayed. Depending on the number of application pumps, cleaning will last for:
  - **40-60 seconds (1-15 application pumps)** or
  - **80-120 seconds (1-30 application pumps)**.

The button can be pressed once again if necessary. Otherwise, the next cleaning step can be activated.

15. Basic booth cleaning can be started now already. Activate the corresponding command on the Magic Control CM30/22

16. Switch off the powder container fluidization

17. Press the key, in order to switch off the recovery powder pump

- the key turns white

18. Use a squeegee to empty the powder container completely

19. Turn the hand lever back, closing the emptying valve and remove the powder packaging

20. Open fully the powder container aeration with hand lever

21. Continue with fine cleaning of the powder container, OptiCenter and booth with compressed air

22. Connect the recovery hose to the cleaning connection and make sure that the hose is firmly fitted

**WARNING:**

This hose must be CONNECTED BY ALL MEANS; otherwise large volumes of compressed air can stream out from the connection without any control.

23. Press the key
24. - the user MUST be sure, that the recovery hose is connected to the cleaning connection

25. - The powder hose is cleaned, the powder is gently purged backwards to the cyclone
- The process is completed after a certain period of time

26. Close the exhaust air and the powder container aeration with corresponding hand levers
NOTE:
Any individual step can be repeated as needed by pressing the corresponding key again. Otherwise, the next cleaning step can be activated.

27. Open the monocyclone

WARNING:
In order to avoid damage to the sieve, when forceful purging through the recovery hose is started, make sure that the sieve is swung out completely during the cleaning process!

28. Slowly swing out the sieve and clean it with the compressed air gun

29. Press the key

30.
- The hose is blown through from the OC05 with strong pulses, the powder is gently purged backwards to the cyclone
- The process is completed after a certain period of time

NOTE:
The procedure can be stopped or resumed manually by the user.

31. Swing the funnel on the cyclone slowly away and, at the same time, clean it off with the compressed air gun
32. Clean the inside of the cyclone with the cleaning wand
33. Close the sieve and funnel on the cyclone again

Coating after the cleaning

34. Connect the recovery hose manually to the connection
35. Fill the powder container with powder
36. Press the key, in order to switch on the recovery powder pump
   - The key turns red
37. Keep the guns switched on until the first hangers have passed.
38. Press the key, in order to switch off the recovery powder pump
   - The key turns white
39. Connect the recovery hose manually to the connection
40. Press the key, in order to switch on the recovery powder pump
   - The key turns red
Adjustments

WARNING:
All OptiCenter settings are set at the factory and may only be modified after consultation with a Gema service center!
Fault localization

General information

The causes of these errors must be eliminated, before further procedures are carried out.

<table>
<thead>
<tr>
<th>Fault</th>
<th>Causes</th>
<th>Corrective action</th>
</tr>
</thead>
<tbody>
<tr>
<td>No coating operation possible</td>
<td>Powder container empty</td>
<td>Refill powder</td>
</tr>
<tr>
<td></td>
<td>Powder is not or improperly fluidized</td>
<td>Adjust the fluidization correctly</td>
</tr>
<tr>
<td></td>
<td>Suction tube clogged</td>
<td>Clean, check the powder quality</td>
</tr>
<tr>
<td></td>
<td>Powder accumulation on level sensor</td>
<td>- Clean the sensor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Readjust the sensor sensitivity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Check the fluidizing of the sensor if necessary, increase the fluidizing air</td>
</tr>
<tr>
<td></td>
<td></td>
<td>pressure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Remove the fluidizing air hose and check it</td>
</tr>
<tr>
<td></td>
<td>Sensor defective</td>
<td>replace</td>
</tr>
<tr>
<td></td>
<td>Cable defective</td>
<td>replace</td>
</tr>
<tr>
<td>Powder recovery pump</td>
<td>Pump defective</td>
<td>- see corresponding operating manual OptiFeed PP06</td>
</tr>
<tr>
<td>conveying problem</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Powder pump does not</td>
<td>Hose clogged</td>
<td>Check the recovery system</td>
</tr>
<tr>
<td>function properly</td>
<td></td>
<td>- Check the level sensor (see also Error message no. 03)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Check the cyclone funnel for powder abrasion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- contact Gema Service</td>
</tr>
<tr>
<td>Powder recovery pump</td>
<td>Hose clogged or connected incorrectly</td>
<td>Check the recovery system and/or connect correctly</td>
</tr>
<tr>
<td>overpressure</td>
<td>Pressure sensor at the OptiFeed PP06</td>
<td>replace (see also corresponding OptiFeed PP06 operating manual)</td>
</tr>
<tr>
<td>Powder pump is switched off</td>
<td>Circuit breaker in the electrical panel is tripped</td>
<td>- Check the lamp</td>
</tr>
<tr>
<td>Lighting does not switch on</td>
<td>CAN Bus participant defective</td>
<td>- Reset the breaker (see enclosed wiring diagram)</td>
</tr>
<tr>
<td>CAN bus malfunction</td>
<td></td>
<td>- otherwise contact a Gema service center</td>
</tr>
</tbody>
</table>
Maintenance

Maintenance schedule

Daily after longer working interruptions and at the end of shift

⚠️ WARNING:
Before switching off the plant, the OptiSpeeder must be emptied and cleaned.

Check weekly
- Check the application pumps and replace them, if necessary
- Clean the Touch Panel

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).

1. Clean the touch surface carefully with a clean, soft, damp cloth.
   - With stubborn contamination, spray a little cleaning agent onto the damp cloth first.
Maintenance of the OptiSpray AP01 Application pump

NOTE:
For further information, see the separate OptiSpray AP01 operating manual!

The OptiSpray AP01 Application pump is designed in such a way, that only a minimum maintenance is required.

Daily maintenance

Clean the Application pump with a dry cloth and check the connection points of the powder hoses. Replace the powder hoses, if necessary.

Rinse the Application pump by using the rinsing program. Therewith, the filter elements are cleaned and possible, unintended powder deposits in the Application pump and in the powder hoses are avoided.

OptiSpray AP01 – maintenance plan

The following components or modules are subject to a maintenance plan:
- Pinch valves
- Filter elements

The service life of the filter elements and pinch valves depends on the service duration, the powder quality and the quality of the air supply.

Wearing parts

The wearing parts to be replaced during the OptiSpray AP01 Application pump maintenance are available separately (see corresponding spare parts list).

Replacing the Application pump

1. Remove the powder from the system
2. Start the cleaning program, rinse in both directions
3. Depressurize/vent OptiCenter
4. Loosen the screws and remove the pumps cover
5. Remove all pneumatic and electrical connections as well as the powder hoses
6. Take out the application pump

NOTE:
The installation takes place in reverse order!
- Replace only one pump after another, in order to avoid the confusion of the connections!
Decommissioning, storage

Introduction

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 Gema.

Storage conditions

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.

Space requirements
The space requirements correspond to the size of the OptiCenter.
The load-bearing capacity of the floor should be at least 500 kg/m².
There are no special requirements concerning distance to neighboring equipment.

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

Shut-down

Decommissioning
Before starting any kind of work, the OptiCenter must be disconnected from the compressed air supply.
- Relieve pneumatic pressure on the system
- Unplug the power cable
- Unplug the ground cable
- Empty the powder container (see "Cleaning")

Cleaning
The complete OptiCenter is to be cleaned according to the instructions in the operating manual.

Disassembly/attachment of transport safety devices
- Fasten the powder container cover

Packing
It is recommended that the OptiCenter is placed on a dimensionally stable, adequately large palette using a forklift truck with long forks. To prevent damage to the components, collisions with other parts must be prevented.

Identification
Apply the label "Protect from dampness and moisture" on the product and the packaging.

Maintenance during storage

Maintenance schedule
No maintenance schedule is necessary.

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

Return to service

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

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, such as to have renovations or service work carried out by the manufacturer

or

- the product must be shipped for disposal (recycling).

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 Gema.
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

Transport the unit only in the position according to its intended use.
Loading, transferring the load, unloading

Suitable lifting equipment is to be used for all procedures.
Spare parts list

Ordering spare parts

When ordering spare parts for powder coating equipment, please indicate the following specifications:

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

Example:

- **Type** OptiCenter OC05
  **Serial number** 1234 5678
- Order no. 203 386, 1 piece, Clamp – Ø 18/15 mm

When ordering cable or hose material, the required length must also be given. The spare part numbers of this bulk stock is always marked with an *.

Wearing parts are always marked with a #.

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)

**WARNING!**

Only original Gema spare parts should be used, because the explosion protection will also be preserved that way. The use of spare parts from other manufacturers will invalidate the Gema guarantee conditions!
**OptiCenter**

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Touch Panel – 5.7&quot; complete (see enclosed wiring diagram)</td>
<td>1008 968</td>
</tr>
<tr>
<td></td>
<td>SD card – for pos. 1 (not shown)</td>
<td>1009 230</td>
</tr>
<tr>
<td>2</td>
<td>Powder container – see corresponding spare parts list</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Powder container pneumatics – see corresponding spare parts list</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Pneumatics – see corresponding spare parts list</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Fluorescent tube</td>
<td>1004 542</td>
</tr>
<tr>
<td>6</td>
<td>Powder transport – see corresponding spare parts list</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>OptiFeed PP06 Powder pump – see corresponding operating manual</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:**
For all other electric components, see also the Spare parts list in the enclosed wiring diagram!
## Powder container – complete

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>OptiSpray AP01 Application pump – see corresponding operating manual</td>
<td>1010 301</td>
</tr>
<tr>
<td>2</td>
<td>Powder hose – Ø 4.50/8.10 mm</td>
<td>1005 454*#</td>
</tr>
<tr>
<td>3</td>
<td>O-ring – Ø 22x1.5 mm</td>
<td>231 614#</td>
</tr>
<tr>
<td>4</td>
<td>Screw – M4x8 mm</td>
<td>216 259</td>
</tr>
<tr>
<td>5</td>
<td>Pump connection</td>
<td>1011 880</td>
</tr>
<tr>
<td>6</td>
<td>Butterfly valve – DN32 G 1 1/4&quot;, complete</td>
<td>1011 293</td>
</tr>
<tr>
<td>7</td>
<td>Cover strip – long</td>
<td>1011 745</td>
</tr>
<tr>
<td>8</td>
<td>Cover strip – short</td>
<td>1011 998</td>
</tr>
<tr>
<td>9</td>
<td>Plug cap</td>
<td>1012 026</td>
</tr>
<tr>
<td>10</td>
<td>Container cover – complete</td>
<td>1012 015</td>
</tr>
<tr>
<td>11</td>
<td>Level sensor (option) – see corresponding spare parts list</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Hose connection – Ø 8.10/4.50 mm</td>
<td>1010 372</td>
</tr>
<tr>
<td>13</td>
<td>O-ring – Ø 8x1.5 mm</td>
<td>248 878#</td>
</tr>
<tr>
<td>14</td>
<td>Nut – M12x1-Ø 8 mm</td>
<td>263 079</td>
</tr>
<tr>
<td>15</td>
<td>Squeegee</td>
<td>244 015</td>
</tr>
</tbody>
</table>

* Wearing part

* Please indicate length
Powder container – Fluidizing plate

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bottom fluidizing plate 30P – complete</td>
<td>1011 832#</td>
</tr>
<tr>
<td>2</td>
<td>Spacing frame</td>
<td>1011 895</td>
</tr>
<tr>
<td>3</td>
<td>Gasket 30P</td>
<td>1011 896</td>
</tr>
<tr>
<td>4</td>
<td>Allen cylinder screw – M4x12 mm</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Fastening plate</td>
<td>1011 742</td>
</tr>
<tr>
<td>6</td>
<td>Adapter nipple – 1/4”-1/2”</td>
<td>253 995</td>
</tr>
<tr>
<td>7</td>
<td>Flow restrictor – Ø 2.5 mm, complete</td>
<td>652 113</td>
</tr>
<tr>
<td>8</td>
<td>Elbow joint – 1/8”-Ø 8 mm</td>
<td>251 372</td>
</tr>
<tr>
<td>9</td>
<td>O-ring – Ø 80x2.5 mm</td>
<td>#</td>
</tr>
<tr>
<td>10</td>
<td>O-ring – Ø 95x2 mm</td>
<td>#</td>
</tr>
<tr>
<td>11</td>
<td>Connector</td>
<td>1011 833#</td>
</tr>
</tbody>
</table>

# Wearing part
Powder container – Level sensor (option)

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Level sensor set (incl. pos. 1, 2, 3)</td>
<td>720 003</td>
</tr>
<tr>
<td>1</td>
<td>Level sensor – N.O., 10...65 VDC</td>
<td>1002 436</td>
</tr>
<tr>
<td>2</td>
<td>Cap screw – M5x12 mm</td>
<td>239 941</td>
</tr>
<tr>
<td>3</td>
<td>O-ring – Ø 34x2 mm</td>
<td>1003 151</td>
</tr>
<tr>
<td>4</td>
<td>Cable – for pos. 1 (not shown)</td>
<td>1005 498</td>
</tr>
<tr>
<td></td>
<td>Fluidizing plate set (incl. pos. 5, 6, 7, 8, 9)</td>
<td>720 004</td>
</tr>
<tr>
<td>5</td>
<td>Fluidizing plate – Ø 44x4 mm</td>
<td>1005 646#</td>
</tr>
<tr>
<td>6</td>
<td>Gasket – Ø 47.5x1 mm</td>
<td>1007 639#</td>
</tr>
<tr>
<td>7</td>
<td>Compressed air connector</td>
<td>1005 544</td>
</tr>
<tr>
<td>8</td>
<td>Throttle valve – Ø 4-M5x0.8 mm</td>
<td>1005 634</td>
</tr>
<tr>
<td>9</td>
<td>Cap screw – M4x35 mm</td>
<td>237 965</td>
</tr>
<tr>
<td>10</td>
<td>Support</td>
<td>1005 644</td>
</tr>
</tbody>
</table>

# Wearing part
## OptiCenter – Pneumatics

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Spare Part ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Main air supply – see corresponding spare parts list</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Manifold – see corresponding spare parts list</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>AS Pneumatics – see corresponding spare parts list</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Powder container pneumatics – see corresponding spare parts list</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Butterfly valve – see corresponding spare parts list</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Powder hose – Ø 16/23 mm</td>
<td>1010 040*#</td>
</tr>
<tr>
<td>5</td>
<td>Compressed air hose – Ø 16.4/26.6 mm</td>
<td>105 155*</td>
</tr>
</tbody>
</table>

* Wearing part

Please indicate length
Main air supply

1  Pressure regulator/Filter unit – 0.5-8 bar, 1”  1006 547
2  Pressure gauge – 0-10 bar, 1/4”  1010 964
3  Double nipple – 1”-1”  1003 544
4  Ball valve – 1”-1”  1006 065
Powder container – Pneumatic manifold

1. Pressure regulator – 0-8 bar, 1/2"
   1007 168
2. Pressure gauge – 0-10 bar, 1/8"
   259 179
3. Check valve – 1/2"-1/2"
   259 160
4. Hose connector – Ø 17-1/2"
   223 069
5. Solenoid valve – 1/2", NW13.5 mm, without coil
   1005 120
6. Valve coil – 24 VDC
   1005 119#
7. Elbow joint – 1/4"-Ø 8/3 x 1 mm
   1002 614
8. Adapter nipple – 1/4"-1/2"
   253 995
9. Double nipple – 1/2"-1/2", divisible
   243 582
10. Double nipple – 1"-1", divisible
    1005 563
11. Hose connector – Ø 25 mm-1"
    1005 856

# Wearing part
# Powder container – pneumatics

| 1 | Pressure regulator – 0.5-6 bar, 1/4" | 264 342 |
| 2 | Plug cap – 1/4" | 258 695 |
| 3 | Pressure gauge – 0-10 bar, 1/8" | 259 179 |
| 4 | Elbow joint – 1/4"-Ø 8 mm | 254 002 |
| 5 | Toggle valve | 1012 283 |
| 6 | Elbow joint – 1/4"-Ø 8 mm | 254 029 |
| 7 | Plastic tube – Ø 8/6 mm | 103 152 |

* Please indicate length
# OptiFlex AS10 – pneumatics

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Plug cap – 1&quot;</td>
<td>258 679</td>
</tr>
<tr>
<td>10</td>
<td>Compressed air distributor – 18-fold</td>
<td>1008 805</td>
</tr>
<tr>
<td>11</td>
<td>Plug – Ø 8 mm</td>
<td>238 023</td>
</tr>
<tr>
<td>12</td>
<td>Pressure gauge – 1-10 bar, 1/8&quot;</td>
<td>259 179</td>
</tr>
<tr>
<td>13</td>
<td>Adapter nipple – 1&quot;-1/2&quot;</td>
<td>252 875</td>
</tr>
<tr>
<td>14</td>
<td>Screw-in nipple – 1/4&quot;-Ø 10 mm</td>
<td>266 990</td>
</tr>
<tr>
<td>15</td>
<td>Double nipple – 1/2&quot;-1/2&quot;, divisible</td>
<td>243 582</td>
</tr>
<tr>
<td>16</td>
<td>Hose connector – Ø 17 mm, 1/2&quot;</td>
<td>223 069</td>
</tr>
<tr>
<td>17</td>
<td>Elbow joint – 1/2&quot;-1/2&quot;</td>
<td>223 166</td>
</tr>
<tr>
<td></td>
<td><strong>Pressure regulator unit – complete, pos. 20, 21, 22, 23, 23.1, 24</strong></td>
<td><strong>1010 967</strong></td>
</tr>
<tr>
<td>20</td>
<td>R/F unit- 0.5-8 bar, 1/2&quot;</td>
<td>1010 963</td>
</tr>
<tr>
<td>21</td>
<td>Elbow joint – 1/2&quot;-1/2&quot;</td>
<td>223 166</td>
</tr>
<tr>
<td>22</td>
<td>Pipe nipple – 1/2&quot;, 90 mm</td>
<td>1008 807</td>
</tr>
<tr>
<td>23</td>
<td>Solenoid valve – without pos. 23.1</td>
<td>1005 120</td>
</tr>
<tr>
<td>23.1</td>
<td>Valve coil – 230 VAC (for pos. 23)</td>
<td>1005 117</td>
</tr>
<tr>
<td>23.2</td>
<td>Valve coil – 110 VAC (for pos. 23)</td>
<td>1005 116</td>
</tr>
<tr>
<td>23.3</td>
<td>Valve coil – 24 VDC (for pos. 23)</td>
<td>1005 119</td>
</tr>
<tr>
<td>23</td>
<td>Adapter – 1/2&quot;-1/2&quot;</td>
<td>202 622</td>
</tr>
<tr>
<td>24</td>
<td>Pressure gauge – 0-10 bar, 1/4&quot;</td>
<td>1010 964</td>
</tr>
</tbody>
</table>
## Monocyclone – Powder transport

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Powder hose – Ø 16/23 mm</td>
<td>1010 040*</td>
</tr>
<tr>
<td>3</td>
<td>Hose clamp – 17-25 mm</td>
<td>223 085</td>
</tr>
<tr>
<td>4</td>
<td>OptiFeed PP06 Powder pump – see corresponding operating manual</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Plastic tube – Ø 6/4 mm</td>
<td>103 144*</td>
</tr>
<tr>
<td>6</td>
<td>GEKA coupling with grommet – Ø 16 mm</td>
<td>1003 872</td>
</tr>
<tr>
<td>7</td>
<td>Fluidizing unit – complete, see corresponding spare parts list</td>
<td>1005 507#</td>
</tr>
<tr>
<td>8</td>
<td>Allen cylinder screw – M8x20 mm</td>
<td>265 241</td>
</tr>
<tr>
<td>9</td>
<td>Gasket</td>
<td>395 439#</td>
</tr>
<tr>
<td>10</td>
<td>Hexagon shakeproof nut – M8</td>
<td>244 449</td>
</tr>
</tbody>
</table>

# Wearing part
Monocyclone – Powder transport connection

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Part</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Funnel piece</td>
<td></td>
<td>1005 502</td>
</tr>
<tr>
<td>1.1</td>
<td>Gasket for pos. 1</td>
<td></td>
<td>395 439#</td>
</tr>
<tr>
<td></td>
<td>Fluidizing unit – complete (pos. 2-6)</td>
<td></td>
<td>1005 507</td>
</tr>
<tr>
<td>2</td>
<td>Connector</td>
<td></td>
<td>1005 504</td>
</tr>
<tr>
<td></td>
<td>Fluidizing tube set (incl. pos. 3, 4, 5)</td>
<td></td>
<td>720 006</td>
</tr>
<tr>
<td>3</td>
<td>Fluidizing tube</td>
<td></td>
<td>1005 505#</td>
</tr>
<tr>
<td>4</td>
<td>O-ring – Ø 17x3 mm</td>
<td></td>
<td>242 489#</td>
</tr>
<tr>
<td>5</td>
<td>O-ring – Ø 26x2 mm</td>
<td></td>
<td>246 549#</td>
</tr>
<tr>
<td>6</td>
<td>Locking piece</td>
<td></td>
<td>1005 506</td>
</tr>
<tr>
<td>7</td>
<td>Connecting piece</td>
<td></td>
<td>1005 503</td>
</tr>
<tr>
<td>8</td>
<td>GEKA coupling – 1”-IG</td>
<td></td>
<td>1000 854</td>
</tr>
<tr>
<td>9</td>
<td>Pinch valve DN15 – complete, incl. pos. 9.1</td>
<td></td>
<td>1006 255</td>
</tr>
<tr>
<td>9.1</td>
<td>Pinch valve sleeve NW15</td>
<td></td>
<td>1006 256#</td>
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<tr>
<td>10</td>
<td>Elbow joint – 1/4”-Ø 8 mm</td>
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<td>224 359</td>
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<tr>
<td>11</td>
<td>Throttle valve – 1/8”-1/8”</td>
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<td>1002 127</td>
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<tr>
<td>12</td>
<td>Double nipple – 1/4”-1/8”</td>
<td></td>
<td>242 209</td>
</tr>
<tr>
<td>13</td>
<td>Inline regulator – 3 bar, 1/4”</td>
<td></td>
<td>1005 517</td>
</tr>
</tbody>
</table>

# Wearing part