Operating instructions and Spare parts list

Powder management system
OptiCenter OC06

Translation of the original operating instructions
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About these instructions

General information

This operating manual contains all important information which you require for the working with the OptiCenter OC06. It will safely guide you through the start-up process and give you references and tips for the optimal use when working with your powder coating system.

Information about the functional mode of the individual system components should be referenced in the respective enclosed documents.

These operating instructions describe all equipment and functions of this OptiCenter.

- Please note that your OptiCenter may not be equipped with all the described functions.
- Optional equipment is marked by double asterisks**.

Keeping the Manual

Please keep this Manual ready for later use or if there should be any queries.

Safety symbols (pictograms)

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

⚠️ DANGER

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠️ WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
Structure of Safety Notes
Every note consists of 4 elements:
- Signal word
- Nature and source of the danger
- Possible consequences of the danger
- Prevention of the danger

Software version
This document describes the operation of the control unit OptiCenter OC06 with software version starting from 1.2.40.
See chapter "Checking the software version" on page 51.
Presentation of the contents

Figure references in the text

Figure references are used as cross references in the descriptive text.

Example:

"The high voltage (H) created in the gun cascade is guided through the center electrode."
Safety

Basic safety instructions

– This product is built to the latest specification and conforms to the recognized technical safety regulations and is designed for the normal application of powder coating.

– 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 this product is to be used for other purposes or other substances outside of our guidelines then Gema Switzerland GmbH should be consulted.

– Start-up (i.e. the execution of intended operational tasks) is forbidden until it has been established that this product has been set up and wired according to the guidelines for machinery. The standard "Machine safety" must also be observed.

– Unauthorized modifications to the product exempt the manufacturer from any liability from resulting damage.

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

– Furthermore, the country-specific safety regulations also must be observed.
Product specific security regulations

- 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.

For further security information, see the more detailed Gema safety regulations!

⚠️ WARNING

Working without instructions

Working without instructions or with individual pages from the 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.
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, in order to have overhaul and repair 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 Switzerland GmbH.

**Packing material**

Not necessary for the internal transport. For external transport:

**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, the product must be transported using a forklift truck with long forks.

Fig. 1
Transport the unit only in the position according to its intended use.

ATTENTION
Risk of damage
The OptiCenter must not be placed fully in the horizontal position, since it is not designed for this purpose.

► In case of doubt contact Gema Switzerland GmbH!

Loading, transferring the load, unloading

Suitable lifting equipment is to be used for all procedures.
Product description

Intended use

The powder management center is designed for easy and clean handling of the coating powder and is operated via a touch panel.

The center will only operate in combination with Gema powder conveyors, which are designed to convey coating powder to the spray guns.

As a part of the process controlled coating plant, the center is designed for automatic or semi-automatic operation. It enables an automated cleaning process and consequently a quick color change. The design concept includes all powder conveyors, gun and axis control units, as well as the complete fresh powder dosing.

Fig. 2

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

Any other use is not considered as intended use. The manufacturer is not responsible for any incorrect use and the risks associated with such actions are assumed by the user alone!

For a better understanding of the interrelationships in powder coating, it is recommended that the operating instructions for all other components be read as well, so as to be familiar with their functions.
Field of application

The powder management center is suitable for use in plants with a completely closed powder circuit:

Conveying

- Fresh powder directly from the (original) powder bag
- Fresh powder from a Gema fresh powder system
- Powder directly from the optional powder hopper
- Precision conveying from the OptiSpeeder to the applicators
- Recovered powder is returned to the system or target container
- Powder level monitoring by level sensor(s)

Cleaning

- Automatic internal cleaning of suction tubes, powder conveyors, 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 air system – the powder management center does not have its own exhaust air system and will be therefore connected directly to the after filter

Reasonably foreseeable misuse

- Operation without the proper training
- Use of moist powder
- Insufficient fluidization at the suction point
- Use with insufficient compressed air quality
- Input pressure too low
- Use in connection with unauthorized coating devices or components
## Technical Data

### Electrical data

<table>
<thead>
<tr>
<th>OptiCenter OC06</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Connected load</strong></td>
<td>230 V±E+N</td>
</tr>
<tr>
<td><strong>Frequency</strong></td>
<td>50/60 Hz</td>
</tr>
<tr>
<td><strong>Protection type</strong></td>
<td>IP54</td>
</tr>
<tr>
<td><strong>Approvals</strong></td>
<td>CE Ex II 3 D</td>
</tr>
</tbody>
</table>

### Pneumatic data

<table>
<thead>
<tr>
<th>OptiCenter OC06</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inlet pressure</strong></td>
<td>min. 6.5 bar</td>
</tr>
<tr>
<td><strong>Water vapor content of compressed air</strong></td>
<td>max. 1.3 g/m³</td>
</tr>
<tr>
<td><strong>Oil content of compressed air</strong></td>
<td>max. 0.1 mg/m³</td>
</tr>
</tbody>
</table>

### Powder transport

<table>
<thead>
<tr>
<th>OptiCenter OC06</th>
<th>24 guns</th>
<th>36 guns</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Recovery</strong></td>
<td>max. 3.5 kg/min.</td>
<td></td>
</tr>
<tr>
<td><strong>OptiSpeeder capacity</strong></td>
<td>6 kg</td>
<td>9 kg</td>
</tr>
</tbody>
</table>

### Compressed air consumption

<table>
<thead>
<tr>
<th>OptiCenter OC06</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Max. compressed air consumption during cleaning (120 seconds)</strong></td>
<td>300-400 Nm³/h</td>
</tr>
</tbody>
</table>

#### Coating operation

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fluidization OptiSpeeder + AirMover + process air</strong></td>
<td>15 Nm³/h</td>
</tr>
<tr>
<td><strong>Consumption per applicator</strong></td>
<td>5 Nm³/h</td>
</tr>
<tr>
<td><strong>Example for 10 applicators</strong></td>
<td>65 Nm³/h</td>
</tr>
</tbody>
</table>

#### Cleaning operation mode

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cleaning OptiSpeeder</strong></td>
<td>120 Nm³/h</td>
</tr>
<tr>
<td><strong>Cleaning OptiFeed hose to cyclone</strong></td>
<td>120 Nm³/h</td>
</tr>
<tr>
<td><strong>Cleaning conveying hose to an applicator</strong></td>
<td>30 Nm³/h</td>
</tr>
<tr>
<td><strong>Example for 6 applicators (for group size = 6)</strong></td>
<td>180 Nm³/h</td>
</tr>
</tbody>
</table>
Dimensions

<table>
<thead>
<tr>
<th>OptiCenter OC06</th>
<th>24 guns</th>
<th>36 guns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area (width x depth) (mm)</td>
<td>1350 x 1500</td>
<td>1350 x 1750</td>
</tr>
<tr>
<td>Overall height (mm)</td>
<td>2100 (2250 - OptiFeed connection)</td>
<td></td>
</tr>
<tr>
<td>Weight (kg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>unloaded</td>
<td>460</td>
<td>530</td>
</tr>
<tr>
<td>loaded</td>
<td>580</td>
<td>710</td>
</tr>
</tbody>
</table>

Sound pressure level

<table>
<thead>
<tr>
<th>OptiCenter OC06</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 this product itself and does not take into account external noise sources or cleaning impulses.

The sound pressure level may vary, depending on the product configuration and space constraints.

Rating plate

Fig. 3: Rating plate

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

Overall view

Fig. 4: Structure

1 Control unit/operating panel
2 Emergency stop button
3 OptiSpeeder fluidization
4 OptiSpeeder
5 Powder bag fixation
6 Powder bag cone with vibrator
9 Gun control unit All-in-One
10 Powder hopper venting connection

Touch Panel

All necessary operating procedures are activated by the Touch Panel.

Fig. 5:
Compressed air indicators

**Fig. 6:**

<table>
<thead>
<tr>
<th>Gema default values after installation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Designation</strong></td>
</tr>
<tr>
<td>33Q2</td>
</tr>
<tr>
<td>30Q3</td>
</tr>
<tr>
<td>33Q1</td>
</tr>
<tr>
<td>30Q1</td>
</tr>
</tbody>
</table>

Operating elements

**Fig. 7:**

<table>
<thead>
<tr>
<th>Designation</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>Touch Panel</td>
</tr>
<tr>
<td>L1</td>
<td>Indicator hopper full (green)</td>
</tr>
<tr>
<td>L2</td>
<td>Indicator powder volume (red)</td>
</tr>
</tbody>
</table>

**OptiSpeeder**

The OptiSpeeder offers the following automatic functions:
- Conditioning and fluidization of the coating powder
- Emptying the residual powder
- Cleaning using patented Gema-Airjet procedure
- Monitoring and control of the powder level
- Extraction/removal of excess free-floating powder particles and fluidizing air
Cleaning hose

- For cleaning the OptiSpeeder and rinsing the fluidizing/suction lance
- Adjustable air flow at the ball valve
- Can be connected instead of the air gun in the OptiCenter

Powder bag cone

- Capacity up to 25 kg
- Can be swiveled for easy powder emptying
- Fluidizing/suction lance
- Fresh powder pump connection
- Recovery powder pump connection

Ultrasonic sieve system US07**

The US07 Ultrasonic sieve system with the corresponding Ultrasonic sieve generator is used for the ultrasonic supported sieving of coating powder. It is exclusively used inside the OptiSpeeder powder hopper.
In addition to the standard version, a version with a sieve cover connection for external powder supply is also available.

The system is delivered from the factory with a mesh size of 250 µm. Additional mesh sizes are available: 140 µm, 200 µm, 300 µm, 500 µm and 1180 µm.

The sieve configuration and sieve selection are done on the Touch Panel.

**Vibrating trolley**
- Powder feed directly from the original powder manufacturer's container
- Use up to max. 12 guns
- Can be swiveled for easy powder emptying
- Fluidizing/suction lance
- Fresh powder pump connection
- Recovery powder pump connection
**Powder hopper**

![Powder hopper image]

*Fig. 13:*
- For larger quantities of one powder type
- Capacity 60 or 100 liters
- Connection point for fluidizing/suction lance
- Connection point for external powder supply
- Connection point for recovered powder
- Fluidized, with venting connector
- Suitable for metallic powders
- Level sensor optionally available

When using the powder hopper, the venting hose must be connected to the connector, and the ball valve (10) must be open during the entire operation.

---

**Is there no powder hopper, the ball valve must be closed.**

---

**Powder recovery system**

- Optional powder return into the powder bag cone or into the powder hopper or into the extraction system
- Plug position (extraction system) monitored by sensor

The parameterization of this option is done on the Touch Panel.
**Powder feed to guns**
- Powder feed to guns from powder bag cone or original powder container
- Use up to max. 2 guns
- Fluid/suction lance(s)
- Not included in the cleaning procedure of the OptiCenter
- For manual, simple coating tasks

**Injector unit**
- Powder feed to guns from the OptiSpeeder
- CAN bus capable gun control units mounted outside the OptiCenter
- Full integration into the cleaning procedure of the OptiCenter
- For manual coating tasks
- Up to 2 injector units can be used for optimum cleaning performance (rinsing)
- Supply of conveying air and supplementary air by the gun control unit
- Supply of the pinch valve air and rinsing air through the valve pool in the OptiCenter

The parameterization of this option is done on the Touch Panel.
Level sensor**
- For level detection in the powder bag cone or in the powder hopper
- Height adjustable
- Fluidized in the measuring range

Principle of function

**Powder circuit**
During the typical OptiCenter (7) operation, the powder bag is put in the powder bag cone. The powder is fluidized in the bag with the fluidizing/suction lance and then fed to the OptiSpeeder (9). The fluidized powder is sucked in by the conveyors 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 OptiSpeeder (9) by the dense phase conveyor (4), where it is prepared again for coating operation.
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Booth</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>Cyclone separator</td>
<td>7</td>
</tr>
<tr>
<td>3</td>
<td>Sieve</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>Dense phase conveyor</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>After filter</td>
<td>10</td>
</tr>
</tbody>
</table>

The rest of the non-separated powder (most of it is fine particles) goes into the after filter (5). The after filter separates the powder into a waste container (6), which is positioned directly under the filter elements and is very easy to empty. Then, the cleaned air leaves the filter and is fed directly back into the workshop environment.
Touch panel / operating panel

Typical characteristics

- Powder coating in 2 operating modes
- Cleaning in cleaning mode
- User administration and language management
- Configuration and parameter data management
- Alarm handling
- Diagnostic functions
- Operating data acquisition
- Storage of operating data on SD cards
- Data exchange with higher-level plant controls (option)
- 7.0” display with symbol elements
- TFT color screen with touch screen function
- CAN bus technology
- Multilingual version
# Technical Data

## System

<table>
<thead>
<tr>
<th>MagicControl CM40</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>ARM Cortex-A9 800 MHz</td>
</tr>
<tr>
<td>Internal memory</td>
<td>512 MB RAM, 1 GB SLC</td>
</tr>
<tr>
<td>Remanent memory</td>
<td>128 kB</td>
</tr>
</tbody>
</table>

## Electrical data

<table>
<thead>
<tr>
<th>MagicControl CM40</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal voltage</td>
<td>24 VDC SELV, extra-low safety voltage</td>
</tr>
<tr>
<td>Voltage range</td>
<td>24 VDC acc. to DIN 19240 19.2 - 30.0 VDC effective</td>
</tr>
<tr>
<td>Reverse voltage protection</td>
<td>yes</td>
</tr>
<tr>
<td>Protection</td>
<td>yes (internal inaccessible melting fuse)</td>
</tr>
<tr>
<td>Electrical insulation</td>
<td>no</td>
</tr>
<tr>
<td>Current consumption</td>
<td>max. 21.6 W/24 VDC</td>
</tr>
<tr>
<td>Switch-on current max.</td>
<td>1 A²s</td>
</tr>
</tbody>
</table>

## Dimensions

<table>
<thead>
<tr>
<th>Touch Panel</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical dimensions</td>
<td>196 x 135 x 51 mm</td>
</tr>
<tr>
<td>Window</td>
<td>183 x 122 mm</td>
</tr>
</tbody>
</table>

## Display

<table>
<thead>
<tr>
<th>Touch Panel</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology</td>
<td>Projected Capacitive Touch (PCT)</td>
</tr>
<tr>
<td>Screen diagonal</td>
<td>7.0&quot;</td>
</tr>
<tr>
<td>Resolution</td>
<td>1024 x 600 pixels (WXGA)</td>
</tr>
<tr>
<td>Number of colors</td>
<td>≈ 16.7 million (color depth 24 Bit)</td>
</tr>
<tr>
<td>Display surface</td>
<td>154 x 90 mm</td>
</tr>
<tr>
<td>Operation</td>
<td>Multifinger touch</td>
</tr>
<tr>
<td>Front screen</td>
<td>Anti reflex coated, scratch-proof</td>
</tr>
</tbody>
</table>
Connections

<table>
<thead>
<tr>
<th>MagicControl CM40</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethernet 1</td>
<td>RJ-45 socket, 8-pin, 2 LEDs (CAT5e/6), LAN1, 10/100 Mbps</td>
</tr>
<tr>
<td>Ethernet 2</td>
<td>RJ-45 socket, 8-pin, 2 LEDs (CAT5e/6), LAN1, 10/100 Mbps</td>
</tr>
<tr>
<td>USB host</td>
<td>USB 2.0, not galvanically isolated, plug type A, full power (500 mA)</td>
</tr>
<tr>
<td>USB device</td>
<td>USB 2.0, not galvanically isolated, plug type B</td>
</tr>
<tr>
<td>COM1</td>
<td>RS-232, not galvanically isolated, SUB-D connector 9-pin</td>
</tr>
<tr>
<td>COM2</td>
<td>RS-485, not galvanically isolated, SUB-D connector 9-pin</td>
</tr>
<tr>
<td>CAN</td>
<td>CAN1, not galvanically isolated, SUB-D connector 9-pin</td>
</tr>
<tr>
<td>SD card slot</td>
<td>SDSC or SDHC according to SDA specification 2.0</td>
</tr>
</tbody>
</table>

Environmental conditions

<table>
<thead>
<tr>
<th>MagicControl CM40</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate</td>
<td>0-50 °C, 10-95% relative humidity, not condensing</td>
</tr>
<tr>
<td>Vibration / shock / drop test</td>
<td>Vibration – IEC 60068-2-6</td>
</tr>
<tr>
<td></td>
<td>Shock – IEC 60068-2-27</td>
</tr>
<tr>
<td></td>
<td>Drop test – IEC 60068-2-31</td>
</tr>
</tbody>
</table>

Rating plate

A rating place is attached to the back of the device for the purpose of identification. The rating place contains the following information:

- Type designation
- Version
- Required power supply
- Serial no.
- Arrangement of interfaces and operating elements

Fig. 19: Rating plate
Design and function

Operating and display elements

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Display, touch</td>
<td>Operating and display elements Acquisition of the actuation of the</td>
</tr>
<tr>
<td>sensor</td>
<td>operating elements shown on the display. Operated by touch using fingers.</td>
</tr>
<tr>
<td>2 SD card slot</td>
<td>Slot for SD card</td>
</tr>
<tr>
<td>3 CTRL button</td>
<td>Exits the visualization program</td>
</tr>
</tbody>
</table>
## Connections and interfaces

![Image of connections and interfaces]

**Fig. 21: Connections**

<table>
<thead>
<tr>
<th>Connection</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Ethernet 1</td>
<td>RJ-45 socket, 8-pin, 2 LEDs (CAT5e/6), LAN1, 10/100 Mbps</td>
</tr>
<tr>
<td>2 Ethernet 2</td>
<td>RJ-45 socket, 8-pin, 2 LEDs (CAT5e/6), LAN1, 10/100 Mbps</td>
</tr>
<tr>
<td>3 USB host</td>
<td>USB 2.0, not galvanically isolated, plug type A, full power (500 mA)</td>
</tr>
<tr>
<td>4 USB device</td>
<td>USB 2.0, not galvanically isolated, plug type B</td>
</tr>
<tr>
<td>5 COM1</td>
<td>RS-232, not galvanically isolated, SUB-D connector 9-pin</td>
</tr>
<tr>
<td>6 COM2</td>
<td>RS-485, not galvanically isolated, SUB-D connector 9-pin</td>
</tr>
<tr>
<td>7 CAN</td>
<td>CAN1, not galvanically isolated, SUB-D connector 9-pin</td>
</tr>
<tr>
<td>8 Power supply</td>
<td>MSTB plug connector, 3-pin</td>
</tr>
<tr>
<td>9 SD card slot</td>
<td>SDSC or SDHC according to SDA specification 2.0</td>
</tr>
</tbody>
</table>
Symbols

Fig. 22

1. Navigation bar
2. Mode-dependent bar
3. Process-dependent bar
4. Plant overview
5. Powder filling level indicator
6. Login status bar

Function keys

**ATTENTION**

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.

The function keys are distributed on the user interface.

<table>
<thead>
<tr>
<th>Coating with powder recovery</th>
<th>Cleaning operation mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coating without powder recovery (spray to waste container)</td>
<td>Main menu</td>
</tr>
<tr>
<td>OptiCenter OFF (Press and hold 2 seconds)</td>
<td>Vibrator ON/OFF</td>
</tr>
<tr>
<td>Extraction system ON/OFF</td>
<td>Gun hose rinsing</td>
</tr>
<tr>
<td>Manual coating</td>
<td>Confirm error messages</td>
</tr>
</tbody>
</table>
Cleaning (intensive)  Cleaning (quick)
Cleaning (adjustable procedure)  Overview of cleaning times
Cleaning ON  Cleaning OFF
Empty OptiSpeeder  Blow off OptiSpeeder
Clean powder hoses  Clean fresh powder pump

Meaning of the colors

Gray background
- present, but not active

Orange background
- active state
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.

Coating with powder recovery (spray)

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

In order to increase the coating quality after a color change, the function “Automatic change from coating without recovery to coating with recovery” can be used.

– See chapter "Parameter description" on page 56.

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

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:

– For smaller coating tasks
– If highest coating quality is required
Cleaning/color change operating mode

This operating mode allows the user to select **Intensive cleaning**, **Quick cleaning** or **User-defined cleaning** in the first cleaning menu. In the procedure 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 several parts.

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 plant, if very high quality is required on initial coating application
- Before every color change
- Before switching off the plant

The higher the requirement for cleanliness, the higher the time expenditure will be.

---

**During cleaning, no objects may be present in the booth and no objects may enter the booth.**

---

**Configuration**

This operating mode allows logged in operators to make certain configurations on the OptiCenter and to change parameters.

**Settings**

This operating mode allows logged in operators to make certain settings on the control unit or to read information:

- User administration
- Operator and system language
- Brightness, date/time, communication, diagnostics, network
- Information regarding operating hours, hardware and software

---

**User levels and access**

The user does not have to be logged in to operate the OptiCenter with its basic functions.

The plant control offers the possibility to define the access rights of the different users. Access is only possible after entering the appropriate password. Certain functions are available depending on the user level, which is defined in advance.

The software has 5 user levels as standard predefined by Gema:
- User level 0 (admin)
– User level 1 (Gema service)
– User level 2 (user 1)
– User level 3 (user 2)
– User level 4 (user 3)

These user levels are pre-programmed and cannot be changed.
The functions available depending on the user level are explained below.

### Functions available at user level

<table>
<thead>
<tr>
<th>User level</th>
<th>Admin</th>
<th>Gema Service</th>
<th>user 1</th>
<th>user 2</th>
<th>user 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>User groups</td>
<td>Administrator</td>
<td>Service</td>
<td>Supervisor</td>
<td>Operator</td>
<td>Painter</td>
</tr>
<tr>
<td>The panel can be used without any limitation</td>
<td>•</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Level for trained Gema personnel</td>
<td>•</td>
<td>•</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Configuration possible</td>
<td>•</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Plant parameters can be modified</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>If no user is logged on to the panel, operation is locked</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

### Inserting the SD card

The SD card contains the actual operating system and all important application information. In order for the operating panel to function properly, the SD card must be inserted before the plant is started.
The slot for inserting the SD card is located on the side of the operating panel.

**ATTENTION**

**Data loss**

A voltage drop or removal of the SD card while it is being written to can lead to data loss or destruction of the SD card.

► Only insert the SD card into the operating panel with the power switched off.
► Avoid writing data on to the SD card when there is also a drop in voltage.
► Only remove the SD card from the operating panel with the power switched off.
► Before switching off, make sure that no software is writing data on to the SD card.

### Inserting SD card

SD cards are protected against incorrect insertion.
1. Do not use force when inserting.
2. Push the SD card into the slot until it clicks into place.
Removing SD card
1. Push the SD card all the way into the SD card slot.
2. Pull the SD card out of the SD card slot.
3. Store the SD card in its packaging for protection.

CAN bus

General
The control is a CAN master system. Together with CAN slave participants, it forms the network.
The wiring and topology of the CAN network is specified in the electrical diagram.

User administration

Status display
The login status is displayed in the corresponding bar:
- ![User logged in](image)
- ![User logged out](image)

Login
The user can log in as follows:
- By clicking on the symbol in the login status bar ![login symbol](image), if another user has previously logged out

![Login interface diagram](image)

*Fig. 23: Login*
① Log in by user selection  
② Log in by entering user name  
③ Enter user password  
④ Confirm  
⑤ Cancel  
⑥ Login status:
  - User logged in
  - User logged out

**Login procedure**

1. Press the **Select** key

![Fig. 24: Login – Main page (not logged in)](image)

2. The screen switches to the next page:

![Fig. 25: Login – User selection](image)

3. Select the desired user profile and confirm by pressing the **key**

Alternatively, the user can enter their own name directly by pressing the **User** key
4. Enter user name and confirm by pressing RET

5. Press the **Password** key

6. Enter password and confirm by pressing RET

7. Press the **key**.
   - The following screen is displayed:
Log-out
The user can log out in two ways:
- By switching off the plant (See chapter “Switching off the OptiCenter (after each working day)” on page 67.)
- By pressing the symbol in the log-in status bar
  - User is logged off

Change user
The change of user takes place by logging out and in.

User profile
Depending on user rights, individual functions and settings may not be accessible and are locked.
- See chapter “Functions available at user level” on page 36.

Create user

1. Press the key
   The following page is displayed:
Fig. 30:

2. Press the key
   - The following page is displayed:

Fig. 31: Settings

3. Press the key
   - The following page is displayed:

Fig. 32:

4. Press the “User” key
A keyboard opens to enter the name of the new user.

**Fig. 33:**

5. Enter user name
6. Press the **RET** key to confirm
7. Press the **Groups** key
   - A corresponding dialog opens.

**Fig. 34:**

8. Assign the desired user group to the new user from the list of available user groups:
   - Select the desired group using the arrow keys (<<, <, >, >>).
   - Press the **MARK** key: the selected group is marked with *
   - Press the **RET** key to confirm
9. Press the **New password** key
   - A keyboard opens to enter a password for the new user.
Fig. 35:
10. Enter password
11. Press the RET key to confirm
12. Press the "Confirm password" key
   – A keyboard opens and the password for the new user must be entered again.

Fig. 36:
13. Press the RET key to confirm
14. Press the key

The new user now appears in the list of available users and can be deleted or changed at any time.

Delete users

1. In the Settings menu, press the key
   – The following page is displayed:
2. Press the **User** key
   - A keyboard opens to enter the user name to be deleted.

3. Enter the user name to be deleted
4. Press the RET key to confirm

**OR**

5. Press the “···” key
   - A corresponding dialog opens.
6. Select the user to be deleted using the arrow keys (<<, <, >, >>).

7. Press the RET key to confirm

8. Press the key
   - The following page is displayed:

![Image of the screen showing the user management interface]

**Fig. 40:**

**Change user password**

1. In the Settings menu, press the key
   The following page is displayed:

![Image of the screen showing the password change interface]

**Fig. 41:**

2. Press the “Password” key
   - A keyboard opens to enter the last password used.
3. Enter the last password used
4. Press the RET key to confirm
5. Press the "New password" key
   – A keyboard opens.
6. Enter the new password
7. Press the RET key to confirm
8. Press the “Confirm password” key
   – A keyboard opens and the new password must be entered again.
9. Press the RET key to confirm
10. Press the key

**Search users**

This function is used to display all created and active users.

1. Press the key

The following page is displayed:

---

**Fig. 43:**
2. Press the **key**
   - The following page is displayed:

![Fig. 44](image)

**User language**

The user language is part of the user profile and can be changed to one of the pre-installed languages if required.

The selected language is loaded each time you log in.

1. Press the **key**
   The following page is displayed:

![Fig. 45](image)
2. Press the \( \text{key} \) – The following page is displayed:

![Diagram](image1)

**Fig. 47:**

3. Press the \text{LANGUAGE} key – The following page is displayed:

![Diagram](image2)

**Fig. 48:**

4. Select desired language
– The change takes effect immediately and the control switches to the previous page

SD card – data backup

The contents of the SD card can be saved on another medium in order to be able to copy them back in case of card damage or data loss. Further information can be found in the “Technical Manual”.

Some operating systems do not display individual files. This is often the case with “autoexec.bat” files, for example.

– When copying the data, make sure that all data is visible and copied.
– If in doubt, contact your IT department.

Inserting the SD card: See chapter “Inserting the SD card” on page 36.

Diagnostic

1. Press the key
The following page is displayed:

![Diagnostic screen]

Fig. 49:

2. Press the key
The following page is displayed:
Fig. 50: Inputs

3. Press the ► key

The following page is displayed:

Fig. 51: Outputs

Operating hours

1. Press the clock icon

The following page is displayed:
Fig. 52:

**Automatic**
The productive plant utilization/coating time

**Waste mode**
Total productive time in operating mode
**Coating without recovery (waste)**

**Spray mode**
Total productive time in operating mode
**Coating with recovery (spray)**

**Cleaning mode**
Total productive time in operating mode

**Cleaning**

**Number of color changes**
Number of color changes

---

**Checking the software version**

1. Push the button

2. Push the button

3. Push the button
   - The following page with the actual software version is displayed:
**WARNING**

Risk of explosion: Lithium battery
If improperly handled, there is a risk of explosion due to the lithium battery installed in the operating panel.

► Ensure the operating panel is disposed of properly.

The recyclable materials should be taken to your local recycling center.
Operating panels that are no longer required must be disposed of properly in accordance with local regulations.

---

**Disassembly of component groups**

**WARNING**

Live components
Risk of fatal injury from electric shock if touched

► Only trained, authorized staff may open the electrical compartment
► Observe the safety symbols

1. Disconnect the mains supply and supply cables.
2. Remove all product covers.

The product is now prepared for disassembly.
Assembly / Connection

Set-up

The powder management center is used in combination with powder coating plants.

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

ATTENTION

Surrounding temperature too high

- Install the OptiCenter only in locations with an ambient temperature of between +10 °C and +40 °C, i.e. never next to heat sources (such as an enameling furnace) or electromagnetic sources (such as a control cabinet).

Grounding of the powder management center

DANGER

Missing or incorrect grounding

A poor or missing ground connection can be dangerous to the operator.

► Ground all OptiCenter metal parts in accordance with general local regulations.
► Check grounding regularly.

A corresponding connection point at the rear of the OptiCenter is reserved for the potential equalization.
Compressed air supply

The compressed air must be free of oil and water!

The OptiCenter 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 bar.

The other pressure regulators of the system are preset at the factory according to the pneumatic diagram.
Start-up

Preparation for start-up

**Basic conditions**

During start-up, the following general conditions, which have an influence on the powder feed, must be observed:

- Characteristic of hose layout
- Length and height difference of the suction section
- Length of the feed section
- Corresponding power and compressed air supply available
- Powder preparation and powder quality

**Basic information**

Compliance with the following principles will result in successful start-up:

- The OptiCenter works with all types of powders that can be fluidized. If the powder is for example humid or contaminated with other materials, then the conveying can be negatively influenced or does not work at all.
- At the suction point, a homogeneous fluidization must be ensured, so that no air ducts (craters) can be formed.
- The connecting hose between the AirMover and the booth should be as short as possible. An additional AirMover must be installed from 7 m.
Inserting the SD card

The SD card contains the actual operating system and all important application information. In order for the operating panel to function properly, the SD card must be inserted before the plant is started.

The slot for inserting the SD card is located on the side of the operating panel.

**ATTENTION**

Data loss

A voltage drop or removal of the SD card while it is being written to can lead to data loss or destruction of the SD card.

- Only insert the SD card into the operating panel with the power switched off.
- Avoid writing data on to the SD card when there is also a drop in voltage.
- Only remove the SD card from the operating panel with the power switched off.
- Before switching off, make sure that no software is writing data on to the SD card.

Inserting SD card

SD cards are protected against incorrect insertion.
1. Do not use force when inserting.
2. Push the SD card into the slot until it clicks into place.

Removing SD card

1. Push the SD card all the way into the SD card slot.
2. Pull the SD card out of the SD card slot.
3. Store the SD card in its packaging for protection.

Parameter description

General control settings are defined in the “Settings” menu and the associated submenus.

The OptiCenter parameters are edited and displayed in the "Configuration" menu and the associated submenus.

Depending on the access level of the user logged in, parameters can be edited or only displayed. Some parameters are reserved exclusively for Gema Service.

Depending on the selection of options, additional parameters are displayed and hidden.

<table>
<thead>
<tr>
<th>No.</th>
<th>Parameters</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>3400</td>
<td>OptiCenter type</td>
<td>Selection of OptiCenter type</td>
<td>OC06</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OC07</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OC08</td>
</tr>
<tr>
<td>No.</td>
<td>Parameters</td>
<td>Description</td>
<td>Value</td>
</tr>
<tr>
<td>------</td>
<td>----------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>3401</td>
<td>US sieve: 140 µm</td>
<td>Selection of ultrasonic sieve with mesh size 140 µm</td>
<td>0 / 1</td>
</tr>
<tr>
<td>3402</td>
<td>US sieve: 200 µm</td>
<td>Selection of ultrasonic sieve with mesh size 200 µm</td>
<td>0 / 1</td>
</tr>
<tr>
<td>3403</td>
<td>US sieve: 250-300 µm</td>
<td>Selection of ultrasonic sieve with mesh size 250 µm or 300 µm.</td>
<td>0 / 1</td>
</tr>
<tr>
<td>3404</td>
<td>US sieve: =&gt; 500 µm</td>
<td>Selection of ultrasonic sieve with mesh size 500 µm or larger (XXX-1180 µm)</td>
<td>0 / 1</td>
</tr>
<tr>
<td>3405</td>
<td>Fresh powder sieving</td>
<td>The recovery powder is sieved by default.</td>
<td>0 / 1</td>
</tr>
<tr>
<td>3406</td>
<td>Option Fresh powder system</td>
<td>Activates typical limits and default settings for an external fresh powder system.</td>
<td>0 / 1</td>
</tr>
<tr>
<td>3410</td>
<td>Second OptiCenter B</td>
<td>OptiCenter is configured as the second OptiCenter in a MultiColor MCS01 system.</td>
<td>0 / 1</td>
</tr>
<tr>
<td>3411</td>
<td>Option Trevisan / SAT</td>
<td>The OptiCenter control takes over the default settings for a SAT vertical coating system with a special closed cyclone.</td>
<td>0 / 1</td>
</tr>
<tr>
<td>3412</td>
<td>Option Operating mode Hand guns</td>
<td></td>
<td>0 / 1</td>
</tr>
<tr>
<td>3413</td>
<td>Option Powder recovery</td>
<td></td>
<td>0 / 1</td>
</tr>
<tr>
<td>3414</td>
<td>Option Level sensor</td>
<td>0 = Ultrasonic sensor (continuous powder level detection) – standard 1 = digital level sensor (no continuous powder level detection) – when using enamel powder or alternative level sensors</td>
<td>0 / 1</td>
</tr>
<tr>
<td>3415</td>
<td>Option WRS on OptiCenter</td>
<td>0 = WRS (Powder switch) installed under cyclone 1 = WRS (Powder switch) installed on the OptiCenter</td>
<td>0 / 1</td>
</tr>
<tr>
<td>3439</td>
<td>Number of injectors 1-12</td>
<td>Selection Number of injectors</td>
<td>1-12</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1-24</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1-36</td>
</tr>
<tr>
<td>3440</td>
<td>Filling level OptiSpeeder</td>
<td>Setting the desired powder filling level in the OptiSpeeder:</td>
<td>55-100%</td>
</tr>
<tr>
<td>3441</td>
<td>Filling level Hysteresis</td>
<td>Hysteresis of the powder level</td>
<td>5-10%</td>
</tr>
<tr>
<td>3442</td>
<td>Time until start of powder recovery after color change</td>
<td>In coating mode with powder recovery (spray), the recovery powder is first fed into the after filter (waste) after a color change, and then into the OptiSpeeder after the set time has elapsed in the case of increased quality requirements after a color change.</td>
<td>0-600 s</td>
</tr>
<tr>
<td>3460</td>
<td>Fresh powder request delay</td>
<td>In coating mode with powder recovery (spray), fresh powder is also fed into the OptiSpeeder after the set time has elapsed in addition to the recovery powder until the powder level set at parameter 3440 is reached again.</td>
<td>0-180 s</td>
</tr>
<tr>
<td>No.</td>
<td>Parameters</td>
<td>Description</td>
<td>Value</td>
</tr>
<tr>
<td>-------</td>
<td>----------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>3461</td>
<td>Monitoring the fresh powder request</td>
<td>If in automatic mode the powder level set in parameter 3440 is not reached after the set time has elapsed, an error message is triggered.</td>
<td>0.3-5.0 min</td>
</tr>
<tr>
<td>3462</td>
<td>Monitoring the level sensor stop powder circuit</td>
<td>If in automatic mode the powder level set in parameter 3440 is not reached after the set time has elapsed, the powder feed of fresh and recovery powder is stopped for safety reasons (overfill protection) and an error message is triggered.</td>
<td>3.0-10.0 min</td>
</tr>
<tr>
<td>3470</td>
<td>Ratio of fresh powder / recovery powder</td>
<td>For large production batches of the same color, metallic or effect powders can cause color changes if less than 50% of the applied powder adheres to the object. In order to maintain the quality of the coating, some of the recovery powder can be removed from the system and substituted with fresh powder.</td>
<td>0-100 %</td>
</tr>
<tr>
<td>3480</td>
<td>OC for Retrofit</td>
<td></td>
<td>0 / 1</td>
</tr>
</tbody>
</table>
Operation

During the initial commissioning of the device, the functional check is to be performed without powder!

Starting the OptiCenter

1. Turn the main switch to the ON position.
   - The control starts the operating system, the PLC control and the operating software to the main page.

   ![Main page (not logged in)](image)

   *Fig. 55: Main page (not logged in)*

2. Press the symbol in the login status bar to log in with a user name and password
The user does not have to be logged in to operate the OptiCenter with its basic functions.

- More about the login procedure See chapter "Login" on page 37.

After logging in, the following functions are available to the user:
- Configuration*
- Diagnostic
- Settings

3. Select operating mode:

- Coating with powder recovery
- Coating without powder recovery (spray to waste container)
- Cleaning operation mode

4. Set all other plant components to the correct operating mode (for more information, see the relevant operating instructions)
- If some plant components are not yet ready for operation, a message will be displayed.

Coating with powder recovery (spray)

1. If a US sieve** has already been configured, insert and close the OptiSpeeder cover with the appropriate mesh size
- If there are several mesh sizes, the corresponding menu appears for selecting the mesh size used
ATTENTION

Overheating of the US sieve**
The US sieve can break if it has already been configured in the configuration menu and is not inserted in the OptiSpeeder (dry operation).
► Insert US sieve into the OptiSpeeder

ATTENTION

Clogging of the US sieve**
The US sieve can become clogged if it has not been configured in the configuration menu and is still inserted in the OptiSpeeder (operation without or with insufficient sieving capacity).
► Set US sieve parameters correctly

4. – The fluidization of the suction lance switches on
   – The vibrator switches on and runs at intervals
   – US sieve** switches on
5. The OptiSpeeder is filled until the filling level is reached.
   – The vibrator switches off
6. The extraction system is switched off by default, but can be manually switched on and off as needed
7. Open the OptiSpeeder cover and visually check the fluidization.
   – The powder should “simmer” slightly, otherwise reset at the corresponding pressure regulator
8. Coating can now commence

If an error message is displayed, correct the error and acknowledge the error message so that the coating process continues.
Coating without powder recovery (spray to waste container)

1. If a US sieve** has already been configured, insert and close the OptiSpeeder cover with the appropriate mesh size
   - If there are several mesh sizes, the corresponding menu appears for selecting the mesh size used

**ATTENTION
Overheating of the US sieve**
The US sieve can break if it has already been configured in the configuration menu and is not inserted in the OptiSpeeder (dry operation).

► Insert US sieve into the OptiSpeeder

**ATTENTION
Clogging of the US sieve**
The US sieve can become clogged if it has not been configured in the configuration menu and is still inserted in the OptiSpeeder (operation without or with insufficient sieving capacity).

► Set US sieve parameters correctly
4. The fluidization of the suction lance switches on
   - The vibrator switches on and runs at intervals
   - US sieve** switches on
5. The OptiSpeeder is filled until the filling level is reached.
   - The vibrator switches off
6. The extraction system is automatically switched on and cannot be manually switched off
7. Open the OptiSpeeder cover and visually check the fluidization.
   - The powder should “simmer” slightly, otherwise reset at the corresponding pressure regulator
8. Coating can now commence

If an error message is displayed, correct the error and acknowledge the error message so that the coating process continues.

Powder recovery in the powder hopper**

To use this function, parameter 3413 must be set and the optional “powder recovery system” extension must be installed.
   - See chapter “Parameter description” on page 56.

If the customer works with powder that tends to segregate, the recovered powder can be fed back into the optional large-volume powder hopper. The recovered powder is then mixed with the fresh powder, fluidized and prepared for transport into the OptiSpeeder.

1. Insert the powder hopper and connect fluidization
2. Connect the extraction system and open the ball valve
3. Connect the recovery hose to the powder hopper

![Image of recovery hose connection]

**ENVIRONMENT**

Recovered powder escapes into the environment

If the recovery hose is not connected to the powder hopper, the recovered powder will escape into the environment.

- Connect the recovery hose in the cleaning position.

4.

5. Insert level sensor**

6. Connect the external fresh powder supply** to the powder hopper or fill the powder hopper manually

7. Press the key to start coating

8. Adjust the fluidization of the powder hopper on the corresponding manometer and check visually

This function can be deactivated at any time. The recovered powder is then fed directly back into the OptiSpeeder.

- Press or Screen selection

If the customer uses more than one screen, the OptiCenter panel displays a relevant choice of mesh sizes.

Only previously configured mesh sizes are displayed, however.

- See chapter “Parameter description” on page 56.
The selected mesh size remains active until the system is switched on again.

Starting recovery after a color change (waste/spray)

In coating mode with powder recovery (spray), the recovery powder can first be fed into the after filter and then into the OptiSpeeder after the set time has elapsed in the event of increased quality requirements after a color change.

Parameter 3442 is used to set an automatic change from coating without recovery (waste) to coating with recovery (spray).

A pinch valve distributor is used to feed the recovery powder to the after filter during the adjustable time period. After the time set in parameter 3442 has elapsed, the recovery powder is returned to the powder cycle.

Fig. 56:
(See chapter "Parameter description" on page 56.)
Delayed fresh powder request

In coating mode with powder recovery (spray), fresh powder is also fed into the OptiSpeeder after the set time has elapsed in addition to the recovery powder until the powder level set at parameter 3440 is reached again.

To prevent the powder collection unit (under the cyclone) from overfilling, the fresh powder supply is delayed by parameter 3460. This ensures that priority is given to recovering the powder from the powder collection unit before fresh powder is introduced into the powder cycle. After the delay, the OptiSpeeder is simultaneously filled with the fresh and recovery powder until the powder level is reached.

The coating is correctly set when the powder collection unit (under the cyclone) does not overfill.
– This must be set with parameter 3460.

Fig. 57:
(See chapter "Parameter description" on page 56.)

Ratio of fresh powder / recovery powder

For large production batches of the same color, metallic or effect powders can cause color changes if less than 50% of the applied powder adheres to the object.

The proportion of recovered powder (RP) increases steadily, the powder circulates several times in the powder circuit and fine particles are removed by the separation system.

The fine particles are known to have an influence on the color tone. To obtain the color tone, a certain amount of recovered (aged) powder must be removed from the circuit.

A controlled addition of fresh powder (FP) stabilizes the ratio between the RP and FP. A stable ratio ensures good coating results with large production batches.
For customers who have high requirements for coating results with large production batches, the OptiCenter offers the possibility to control this ratio with parameter 3470. (See chapter "Parameter description" on page 56.)

<table>
<thead>
<tr>
<th>Set value</th>
<th>100%</th>
<th>60%</th>
<th>0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of powder to be recovered</td>
<td>100%</td>
<td>60%</td>
<td>0%</td>
</tr>
<tr>
<td>Proportion of powder taken from the system and substituted by fresh powder</td>
<td>0%</td>
<td>40%</td>
<td>100%</td>
</tr>
</tbody>
</table>

The highest possible initial application efficiency has a stabilizing effect on the color tone of large production batches of the same color.

To achieve this, the following is recommended:
- Use of gap control
- Dense, optimized object suspension
- Well maintained and adjusted application equipment

---

**Working interruptions or coating breaks**

If the coating process is interrupted for a longer period of time, the system should be brought into an economical state.

1. Check if all the workpieces have been coated
2. Press the key for 2 seconds
   - The Coating menu is closed and switches back to the main menu
   - The level control is switched off
   - The vibrator switches off

---

**Switching off the OptiCenter (after each working day)**

To shut down, the following steps must be taken:

1. Check if all the workpieces have been coated
2. Press the key for 2 seconds
The Coating menu is closed and switches back to the main menu

- The level control is switched off
- The vibrator switches off

3. Clean the OptiCenter
   - See chapter "Cleaning" on page 73.

4. Turn the main switch to the OFF position
   - the interior lighting goes out

---

Replaces the powder bag

1. Check visually the powder level in the bag cone
2. Hold the full powder bag ready

3. Switch this on if it is has not been switched on already

4. 

5. 

6. 

7. 

8. 

9. 
11. Empty the used powder bag with the residual powder into another container or dispose of it.

12. If an error message appears, correct the error and acknowledge it to ensure that the coating process continues to run!

Color change

1. Clean the OptiCenter
   - See chapter "Cleaning" on page 73.

2. 3.

4. 5. Insert the cleaned OptiSpeeder cover with US sieve**, if already configured.
ATTENTION

Overheating or clogging of the US sieve

The US sieve can break if it has already been configured in the configuration menu and is not inserted in the OptiSpeeder.

► Insert the OptiSpeeder cover WITH the US sieve

The US sieve can become clogged if it has not been configured in the configuration menu and is inserted in the OptiSpeeder.

► Insert the OptiSpeeder cover WITHOUT US sieve

6.

7. Select the desired operating mode

8. Do not coat before the set powder level has been reached.
   – The OptiSpeeder is now filled with powder.

If an error message is displayed, correct the error and acknowledge the error message so that the coating process continues.
Maintenance / Repairs

ATTENTION
Any unauthorized modifications and alterations to the product are not permitted for safety reasons and exclude the manufacturer’s liability for any resulting damage!

Regular and conscientious cleaning and maintenance increase the service life of the product and ensure consistent high coating quality!

- The parts to be replaced during maintenance work are available as spare parts. These parts can be found in the appropriate spare parts list!

ATTENTION
Any unauthorized modifications and alterations to the product are not permitted for safety reasons and exclude the manufacturer’s liability for any resulting damage!

Regular, careful cleaning and maintenance extends the service life of the product and ensures long-lasting, uniform coating quality!

- The parts to be replaced during maintenance work are available as spare parts. For further information, see chapter "Spare parts list".

General information
The product is designed to require a minimum of maintenance.
OptiCenter maintenance

Maintenance schedule

The following components or modules are subject to a maintenance schedule:

<table>
<thead>
<tr>
<th>Component</th>
<th>Activity</th>
<th>Tool</th>
<th>Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Pneumatic parts, pinch valves</td>
<td>Check for unusual noises</td>
<td>–</td>
<td>1 x daily</td>
</tr>
<tr>
<td>2 Side panels, interior</td>
<td>Check for powder residues and clean</td>
<td>Air guns</td>
<td>1 x daily</td>
</tr>
<tr>
<td>3 Ring injector (Airmover)</td>
<td>Clean</td>
<td>Thinner</td>
<td>1 x monthly</td>
</tr>
<tr>
<td>4 Fluid plate in OptiSpeeder</td>
<td>Visual function check</td>
<td>–</td>
<td>1 x annually</td>
</tr>
<tr>
<td>5 Pinch hoses in all pinch valves NW15</td>
<td>Replace</td>
<td>–</td>
<td>1 x annually</td>
</tr>
<tr>
<td>6 Fluid plate level sensor</td>
<td>Replace</td>
<td>–</td>
<td>1 x annually</td>
</tr>
<tr>
<td>7 Filter element check valves injectors</td>
<td>Replace</td>
<td>–</td>
<td>1 x annually</td>
</tr>
<tr>
<td>8 Hose lines and fittings</td>
<td>Check</td>
<td>–</td>
<td>1 x annually</td>
</tr>
<tr>
<td>9 All electrical screw and clamp connections</td>
<td>Check if firmly fitted</td>
<td>–</td>
<td>1 x annually</td>
</tr>
<tr>
<td>10 Pinch hose in pinch valve (OptiSpeeder emptying)</td>
<td>Replace</td>
<td>–</td>
<td>Every 2 years</td>
</tr>
</tbody>
</table>

The specified intervals are based on operation of 8 hours per day.

The service life of the components depends heavily on the service duration, the powder quality and the quality of the air supply.

Check for unusual noises

During operation of the machine pay attention to unusual noises. Stop the machine immediately if an unusual noise can be heard. Check the components at the noise source.

If no clear cause can be found, contact Gema customer service.

Wearing parts

Wearing parts replaced during maintenance can be individually purchased (refer to spare parts list).
Cleaning

⚠️ WARNING

Cleaning with compressed air!
Eye injury and bodily injury from compressed air and flying parts.
► Wear eye protection.
► DO NOT point the compressed air jet at persons.
► DO NOT point the compressed air jet at loose objects.

⚠️ CAUTION

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

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

⚠️ ATTENTION

Powder can escape if the OptiSpeeder cover is not closed properly.
► Check that the cover fits properly
► Check that the lock is properly engaged. The lock tension has been set at the factory and must not be changed under any circumstances!

⚠️ ATTENTION

Damage to the sieve mesh tension
When using an ultrasonic sieve**, the sieve mesh tension is damaged during cleaning!
► The OptiSpeeder must only be cleaned with the cover on WITHOUT a US sieve.

Cleaning procedure (standard)

1. End the coating procedure

2. To exit **Coating mode**, press and hold the key for 2 seconds.

The following menu appears on the display:
3.

4. Select the desired cleaning mode

5. Exhaust air starts automatically

6.

7.

8.

9.

10.

11.
12.

13. Press **Start**

If necessary, the cleaning process can be interrupted at any time by pressing the stop button.

14.

15. The pinch valve below the OptiSpeeder opens and the powder in the OptiSpeeder flows into the powder bag.

16. The process step is complete when the key looks like this. The key can be pressed once again if necessary. This is a sign that the next cleaning step will be activated.

17.
18. The OptiSpeeder is cleaned, the powder from the OptiSpeeder is transported to the booth.

19. The OptiSpeeder is cleaned, the powder from the OptiSpeeder is transported to the booth.

20. The powder is conveyed from the booth.

21. The process step is complete once this symbol is displayed (after approx. 180 seconds for intensive cleaning and approx. 30 seconds for quick cleaning).

22.

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

23. The process step is complete once this symbol is displayed.

- The key can be pressed once again if necessary. Otherwise the next cleaning step is activated.
The fresh powder pump is cleaned, the powder is transported to the after filter.

The process is complete when this screen is displayed:

Any individual step can be repeated as needed by pressing the corresponding key again.

Only the selected cleaning step is carried out.

Visually check the inside of the OptiSpeeder, if necessary clean with compressed air gun.

Booth cleaning can now be started: Activate the corresponding command on the MagicControl control unit.

Clean the OptiCenter.

Open the monocyclone.
ATTENTION
Sieve damage
The sieve can be damaged when backwashing the transport hose.
► Swing out the sieve completely during this cleaning step.

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

31. Press the button on the monocyclone
   – The cleaning process is started.

32. Compressed air pulses blow through the hose from the OptiCenter to the cyclone
   The process can be manually stopped and resumed by the operator.

33. Swing the funnel on the cyclone slowly away and, at the same time, clean it off with the air gun

34. Clean the inside of the cyclone with the cleaning wand

35. Reconnect the sieve machine and funnel to the cyclone

36. If a new color is to be used: See chapter “Color change” on page 69.

OTHERWISE
37. To switch the OptiCenter to stand-by mode, press and hold the key for 2 seconds.

38. Store the powder properly

Cleaning with recovery in the powder hopper**
To use this function, parameter 3413 must be set and the optional “powder recovery system” extension must be installed.
   – See chapter “Parameter description” on page 56.

1. End the coating procedure

2. To exit Coating mode, press and hold the key for 2 seconds.
   The following menu appears on the display:
3. Select the desired cleaning mode

4. Exhaust air starts automatically

5. Ensure that the recovery hose is connected to the powder hopper
10. Check that the extraction system is already connected and that the ball valve is open

11.

12. Press **Start**

If necessary, the cleaning process can be interrupted at any time by pressing the stop button.

13.

14. The pinch valve below the OptiSpeeder opens and the powder in the OptiSpeeder flows into the powder hopper
15. The process step is complete when the key looks like this. The key can be pressed once again if necessary. This is a sign that the next cleaning step will be activated.

16.

17. The OptiSpeeder is cleaned, the powder from the OptiSpeeder is transported to the booth.

18. The powder is conveyed from the booth.

19. The process is complete once this symbol is displayed (after approx. 180 seconds for intensive cleaning and approx. 30 seconds for quick cleaning).

20. – The powder hoses are cleaned and the powder is transported to the booth

– The powder is conveyed from the booth
The corresponding cleaning program is displayed on the OptiStar control units:

21. The process step is complete once this symbol is displayed.
   - The key can be pressed once again if necessary. Otherwise the next cleaning step is activated.

22. The following screen is displayed:

   - The fresh powder pump is cleaned

23. Booth cleaning can now be started: Activate the corresponding command on the MagicControl control unit
   - The resulting powder is fed into the powder hopper

24. Once the booth has been cleaned, reposition the recovery hose in the cleaning position

25. The cleaning of the recovery hoses starts automatically (sensor monitored)
26. The process is complete when this screen is displayed:

Any individual step can be repeated as needed by pressing the corresponding key again.

– Only the selected cleaning step is carried out.

27. Visually check the inside of the OptiSpeeder, if necessary clean with compressed air gun.

28. Clean the OptiCenter

29. Open the monocyclone

**ATTENTION**

Sieve damage

The sieve can be damaged when backwashing the transport hose.

► Swing out the sieve completely during this cleaning step.

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

31. Press the button on the monocyclone

– The cleaning process is started.
32. Compressed air pulses blow through the hose from the OptiCenter to the cyclone.

The process can be manually stopped and resumed by the operator.

33. Swing the funnel on the cyclone slowly away and, at the same time, clean it off with the air gun.

34. Clean the inside of the cyclone with the cleaning wand.

35. Reconnect the sieve machine and funnel to the cyclone.

36. If a new color is to be used: See chapter “Color change” on page 69.

OTHERWISE

37. To switch the OptiCenter to stand-by mode, press and hold the key for 2 seconds.

38. Store the powder properly.

Cleaning with recovery in the powder bag

To use this function, parameter 3413 must be set and the optional “powder recovery system” extension must be installed.

– See chapter “Parameter description” on page 56.
– See chapter “Color change” on page 69.

The powder circuit could contain more than 20 kg of powder.

– Be sure to estimate the powder volume in the system.
– If you suspect that there is too much powder in the system, the process must be monitored and stopped if necessary.

1. End the coating procedure.

2. To exit Coating mode, press and hold the key for 2 seconds.

The following menu appears on the display:

3. Select the desired cleaning mode.
5. Exhaust air starts automatically

6. [Image]

7. [Image]

8. [Image]

9. [Image]

10. [Image]

11. [Image]

12. [Image]

13. Press **Start**

   If necessary, the cleaning process can be interrupted at any time by pressing the stop button.
14.

15. The pinch valve below the OptiSpeeder opens and the powder in the OptiSpeeder flows into the powder bag.

16. The process step is complete when the key looks like this. The key can be pressed once again if necessary. This is a sign that the next cleaning step will be activated.

17.

18.

19. Connect the extraction system and open the ball valve.

20. Connect the recovery hose to the cover.
21.  

22.  The OptiSpeeder is cleaned, the powder from the OptiSpeeder is transported to the booth

23.  The powder from the booth is fed into the powder bag

24.  The process step is complete once this symbol is displayed (after approx. 180 seconds for intensive cleaning and approx. 30 seconds for quick cleaning).

25.  

   – The powder hoses are cleaned and the powder is transported to the booth
   – The powder from the booth is fed via the cyclone into the powder bag
   – The corresponding cleaning program is displayed on the OptiStar control units:

26.  The process is complete once this symbol is displayed.
- The key can be pressed once again if necessary. Otherwise the next cleaning step is activated.

27. The following screen is displayed:

![Screen 1]

- The fresh powder pump is cleaned

28. The booth can now be cleaned: Activate the corresponding command on the MagicControl control unit
- The powder is fed into the powder bag

29. Once the booth has been cleaned, reposition the GK coupling in the cleaning position

![Screen 2]

30. The cleaning of the recovery hoses starts automatically (sensor monitored)

31. The process is complete when this screen is displayed:

![Screen 3]

Any individual step can be repeated as needed by pressing the corresponding key again.
- Only the selected cleaning step is carried out.
32. Visually check the inside of the OptiSpeeder, if necessary clean with compressed air gun
33. Clean the OptiCenter

34. Open the monocyclone

**ATTENTION**

Sieve damage

The sieve can be damaged when backwashing the transport hose.

► Swing out the sieve completely during this cleaning step.

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

36. Press the button on the monocyclone
   – The cleaning process is started.
37. Compressed air pulses blow through the hose from the OptiCenter to the cyclone
   The process can be manually stopped and resumed by the operator.

38. Swing the funnel on the cyclone slowly away and, at the same time, clean it off with the air gun
39. Clean the inside of the cyclone with the cleaning wand
40. Reconnect the sieve machine and funnel to the cyclone
41. If a new color is to be used: See chapter “Color change” on page 69.

**OTHERWISE**
42. To switch the OptiCenter to stand-by mode, press and hold the key for 2 seconds.
43. Store the powder properly
Cleaning and maintenance of the operating panel
The operating panel is maintenance-free. However, the following work may be necessary:

– Cleaning the screen if it becomes dirty.
– Recalibrating the capacitive screen if it no longer responds correctly to touch.

Touch-sensitive screen
If dirty:

**ATTENTION**

Pointed, sharp objects or corrosive liquids can damage the screen

Cleaning the screen

► Do not use any pointed or sharp objects (e.g. knife).
► Do not use any aggressive or abrasive cleaning agent or solvent.
► Ensure liquids do not enter the operating panel (risk of short circuit) and no damage is caused to the operating panel
► Clean the touch screen surface carefully with a clean, soft, damp cloth.

Battery
The built-in battery for buffering the real-time clock is maintenance-free and designed for a buffer time with the power switched off while maintaining the ambient conditions of typically 10 years at 25 °C (77 °F).

Periodic checks
The periodic checks include examining all connecting cables and hoses.
The corresponding parts should be replaced immediately if any damage to cables or hoses is discovered.
All plugs must be properly tightened.
Repair work

In the event of malfunctions or faults, the product must be checked and repaired by an authorized Gema service workshop. The repairs must only be performed by an authorized specialist.

Improper tampering can result in serious danger for user and equipment.

Repairs

For repairs, please contact Gema Technical Support.

ATTENTION

Destruction of the operating panel
The operating panel may only be opened by the manufacturer or an authorized body.

► Operate the operating panel only with the housing completely closed.

Use appropriate packaging when transporting.

SD card – data backup

The contents of the SD card can be saved on another medium in order to be able to copy them back in case of card damage or data loss. Further information can be found in the "Technical Manual".

Some operating systems do not display individual files. This is often the case with “autoexec.bat” files, for example.

► When copying the data, make sure that all data is visible and copied.
► If in doubt, contact your IT department.

Inserting the SD card: See chapter "Inserting the SD card" on page 56.
Fault clearance

Error messages

If faults occur in the powder management center, an error message shown in red lettering appears on the display.

1. Booth not ready
2. No release for cleaning, X axes not in cleaning position
3. Sieve error or switched off
4. No powder
5. No fresh powder
6. Powder circuit stopped
7. Level sensor detects no powder

The causes of these errors must be eliminated, before further procedures can be carried out (refer to troubleshooting guide).

If the error has been eliminated, the display returns to the previous menu again.

Troubleshooting guide

<table>
<thead>
<tr>
<th>Fault</th>
<th>Cause</th>
<th>Corrective action</th>
</tr>
</thead>
<tbody>
<tr>
<td>No extraction in the OptiCenter</td>
<td>Incorrect operating mode selected</td>
<td>Select correct operating mode</td>
</tr>
<tr>
<td>No AirMover function in the OptiSpeeder</td>
<td>Corresponding valve in the valve pool defective or dirty</td>
<td>Check function at corresponding output (see also &quot;Pneumatic diagram&quot;), replace if necessary</td>
</tr>
<tr>
<td>Exhaust air flap does not move</td>
<td>Clean</td>
<td>Check for movement or replace</td>
</tr>
<tr>
<td>No AirMover function in the OptiSpeeder</td>
<td>Ring injector clogged or dirty</td>
<td>Clean</td>
</tr>
<tr>
<td>Corresponding valve in the valve pool defective or dirty</td>
<td>Check function at corresponding output (see also &quot;Pneumatic diagram&quot;), replace if necessary</td>
<td></td>
</tr>
<tr>
<td>AirMover function in OptiSpeeder in cleaning mode too low</td>
<td>Corresponding valve in the valve pool does not switch over:</td>
<td>Check function at corresponding output (see also &quot;Pneumatic diagram&quot;), replace if necessary</td>
</tr>
<tr>
<td></td>
<td>– Defective or dirty</td>
<td></td>
</tr>
<tr>
<td>Fault</td>
<td>Cause</td>
<td>Corrective action</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>-----------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>No fluidization or fluidization too low in</strong></td>
<td><strong>Fault clearance</strong></td>
<td><strong>OptiCenter OC06</strong></td>
</tr>
<tr>
<td><strong>the OptiSpeeder</strong></td>
<td><strong>Compressed air regulator incorrectly set</strong></td>
<td>Set the appropriate pressure</td>
</tr>
<tr>
<td></td>
<td><strong>Corresponding valve in the valve pool</strong></td>
<td>Check function at corresponding output (see also “Pneumatic diagram”), replace if necessary</td>
</tr>
<tr>
<td></td>
<td><strong>defective or dirty</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Compressed air regulator dirty or defective</strong></td>
<td>Clean, replace if necessary</td>
</tr>
<tr>
<td></td>
<td><strong>Fluid plate clogged</strong></td>
<td>Replace</td>
</tr>
<tr>
<td><strong>Powder residues in the fresh powder pump</strong></td>
<td><strong>Corresponding valve in the valve pool</strong></td>
<td>Check function at corresponding output (see also “Pneumatic diagram”), replace if necessary</td>
</tr>
<tr>
<td><strong>after cleaning</strong></td>
<td><strong>defective or dirty</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Pinch valve(s) defective (at rear of OC)</strong></td>
<td>Replace pinch hose</td>
</tr>
<tr>
<td><strong>Powder residues in the recovery pump</strong></td>
<td><strong>Corresponding valve in the valve pool</strong></td>
<td>Check function at corresponding output (see also “Pneumatic diagram”), replace if necessary</td>
</tr>
<tr>
<td><strong>after cleaning</strong></td>
<td><strong>defective or dirty</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Pinch valve(s) defective (at rear of OC)</strong></td>
<td>Replace pinch hose</td>
</tr>
<tr>
<td></td>
<td><strong>Pinch valve defective (mono-cyclone)</strong></td>
<td>Replace pinch hose</td>
</tr>
<tr>
<td><strong>No cleaning or insufficient cleaning of the</strong></td>
<td><strong>Corresponding valve in the valve pool</strong></td>
<td>Check function at corresponding output (see also “Pneumatic diagram”), replace if necessary</td>
</tr>
<tr>
<td><strong>powder hoses</strong></td>
<td><strong>defective or dirty</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Insufficient emptying of the</strong></td>
<td><strong>Corresponding valve in the valve pool</strong></td>
<td>Check function at corresponding output (see also “Pneumatic diagram”), replace if necessary</td>
</tr>
<tr>
<td><strong>OptiSpeeder during cleaning</strong></td>
<td><strong>defective or dirty</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Pinch valve defective</strong></td>
<td>Replace pinch hose</td>
</tr>
<tr>
<td><strong>Complete failure of powder output in coating</strong></td>
<td><strong>Fluid plate level sensor dirty:</strong></td>
<td>Set the appropriate pressure</td>
</tr>
<tr>
<td></td>
<td>– <strong>Pressure regulator defective or adjusted incorrectly</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>– <strong>Throttle valve on the level sensor defective or adjusted incorrectly</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Optional booster function not available</strong></td>
<td>Check function at corresponding output (see also “Pneumatic diagram”), replace if necessary</td>
</tr>
<tr>
<td></td>
<td><strong>Clean corresponding solenoid valve or replace</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Powder escapes from the</strong></td>
<td><strong>Cover seal defective or missing</strong></td>
<td>Insert or replace</td>
</tr>
<tr>
<td><strong>OptiSpeeder during cleaning</strong></td>
<td><strong>Seal surface damaged</strong></td>
<td>Smooth or repair with liquid metal adhesive</td>
</tr>
<tr>
<td></td>
<td><strong>No or too little AirMover function</strong></td>
<td>See above</td>
</tr>
<tr>
<td>Fault</td>
<td>Cause</td>
<td>Corrective action</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-----------------------------------</td>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>No powder feed from the OptiSpeeder</td>
<td>OptiSpeeder empty:</td>
<td>Open OptiSpeeder service cover and front panel:</td>
</tr>
<tr>
<td></td>
<td>Powder accumulation on level sensor</td>
<td>Clean the sensor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adjust the sensor sensitivity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check the fluidizing of the sensor if necessary,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>increase the fluidizing air pressure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Remove the fluidizing air hose and check it</td>
</tr>
<tr>
<td></td>
<td>Level sensor defective</td>
<td>Replace</td>
</tr>
<tr>
<td></td>
<td>Cable defective</td>
<td>Replace</td>
</tr>
<tr>
<td>Vibrator defective</td>
<td>Motor protection switch Q6 has reacted</td>
<td>Remove the small maintenance panel and switch on the motor protection switch again. With repeated Alarms, contact a Gema service center</td>
</tr>
<tr>
<td>Conveying problem with recovery powder pump</td>
<td>Powder pump does not function properly</td>
<td>See corresponding operating manual OptiFeed PP06</td>
</tr>
<tr>
<td></td>
<td>Pump defective</td>
<td>Check the recovery system</td>
</tr>
<tr>
<td></td>
<td>Hose clogged</td>
<td>Check level sensor (see above)</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>Overpressure recovery powder pump</td>
<td>Powder pump is switched off</td>
<td>Check the recovery system</td>
</tr>
<tr>
<td></td>
<td>Hose clogged or connected incorrectly</td>
<td>Check the recovery system and/or connect correctly</td>
</tr>
<tr>
<td></td>
<td>Pressure sensor at the OptiFeed PP06 Powder pump defective</td>
<td>Replace (see also corresponding OptiFeed PP06 operating manual)</td>
</tr>
<tr>
<td>Valve battery failure</td>
<td>Safety equipment (F7) has reacted, control unit switches to stand-by mode</td>
<td>Check the 24 VDC Power pack (G4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check the safety equipment whether all 4 LEDs illuminate green</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If one or more LEDs illuminate, reset the corresponding channel and if necessary, restart</td>
</tr>
<tr>
<td>Fault</td>
<td>Cause</td>
<td>Corrective action</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-----------------------------------------------------------------------</td>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>Fuse Fxx defective</td>
<td>Fuse (1 AT) in the WAGO module A1 defective, control unit switches to stand-by mode</td>
<td>Replace the fuse, otherwise contact a Gema service center</td>
</tr>
<tr>
<td>Powder alert in OptiSpeeder</td>
<td>Powder warning, flashlight activated</td>
<td>Check the powder bag, otherwise powder shortage</td>
</tr>
<tr>
<td>Powder shortage in OptiSpeeder</td>
<td>Powder bag empty, chain conveyor stops, flashlight activated</td>
<td>Replace powder bag</td>
</tr>
<tr>
<td>CAN bus malfunction</td>
<td>No communication with CM40/CM41</td>
<td>Switch on higher-level control unit CM40/CM41</td>
</tr>
<tr>
<td></td>
<td>CAN bus participant defective</td>
<td>Contact Gema Service</td>
</tr>
</tbody>
</table>
Decommissioning / Storage

**Shutdown**

1. End the coating procedure
2. Switch off the control unit

| The adjustments for high voltage, powder output volume and electrode rinsing air remain stored. |

**If in disuse for several days**

1. Switch off the plant with the main switch
2. Clean the gun and the components for powder conveying (see therefore the corresponding user manuals)
3. Turn off the compressed air main supply

**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.

**Type of storage**

For safety reasons, the product should only be stored in a vertical position.

**Space requirements**

The space requirements correspond to the size of the components plus the packaging.

The load-bearing capacity of the floor should be at least 500 kg/m².

There are no special requirements for the spacing to adjacent devices.
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.

Maintenance during storage

Maintenance schedule
No maintenance schedule is necessary.

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

Storage and transport of the operating panel

ATTENTION
UV light
Plastics become brittle under the influence of UV light. This artificial aging reduces the service life of the operating panel.
▶ Protect the operating panel from direct sunlight or other sources of UV radiation.

ATTENTION
Risk of short-circuit
In the event of climatic fluctuations (ambient temperature or humidity), moisture may be deposited on or inside the operating panel. If the control panel is subjected to condensation, there is a risk of short-circuit.
▶ Never switch on the operating panel when condensation is present.
▶ If condensation is present and the operating panel has been exposed to climatic fluctuations, allow the operating panel to adjust to room temperature before start-up.
▶ Do not expose the operating panel to direct heat radiation from heaters.

Observe the ambient conditions when transporting and storing the operating panel.
The maximum ambient temperature for storage and transport must not exceed the specified value:
### Climatic ambient conditions

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Air pressure (operation)</td>
<td>795 - 1080 hPa</td>
</tr>
<tr>
<td></td>
<td>max. 2000 m ü. NHN</td>
</tr>
<tr>
<td>Temperature (operation)</td>
<td>± 0 – +50 °C (+32 – +122 °F)</td>
</tr>
<tr>
<td>Temperature (storage / transport)</td>
<td>-20 – + 60 °C (-4 – +140 °F)</td>
</tr>
<tr>
<td>Air humidity</td>
<td>Relative air humidity 10 - 95 %</td>
</tr>
<tr>
<td>Condensation</td>
<td>Non-condensing</td>
</tr>
</tbody>
</table>

Whilst the operating panel has a robust design, the built-in components are sensitive to excessive vibrations and/or shocks.

The operating panel must be protected from mechanical loads outside its intended use.

The operating panel may only be transported in the appropriate packaging and in the correct manner.

**Before recommissioning**

During storage and transport in cold weather, and in the event of extreme temperature differences, ensure that no moisture is deposited on or inside the unit (condensation).

If condensation is present, the unit may only be switched on after it is fully dry.
Disposal

Introduction

Requirements on personnel carrying out the work

The disposal of the product is to be carried out by the owner or operator. When disposing of components that are not manufactured by Gema, the instructions in the respective manufacturer’s documentation must be observed.

Disposal regulations

The product must be disassembled and disposed of properly at the end of its service life.

► When disposing of the product, the applicable local and regional laws, directives and environmental regulations must be complied with!

Materials

The materials must be sorted according to material groups and taken to the appropriate collection points.

Disassembly of component groups

⚠️ WARNING

Live components
Risk of fatal injury from electric shock if touched

► Only trained, authorized staff may open the electrical compartment
► Observe the safety symbols

1. Disconnect the mains supply and supply cables.
2. Remove all product covers.

The product is now prepared for disassembly.
⚠️ WARNING

Risk of explosion: Lithium battery
If improperly handled, there is a risk of explosion due to the lithium battery installed in the operating panel.

► Ensure the operating panel is disposed of properly.

The recyclable materials should be taken to your local recycling center.
Operating panels that are no longer required must be disposed of properly in accordance with local regulations.
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** OptiGun GA03 automatic powder gun
  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)

**ATTENTION**

Use of non-original Gema spare parts

When using the spare parts from other manufacturers the explosion protection is no longer guaranteed. If any damage is caused by this use all guarantee claims become invalid!

- Only original Gema spare parts should be used!
OptiCenter OC06

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Touch Panel – 7” complete (see enclosed wiring diagram)</td>
<td>1015 525</td>
</tr>
<tr>
<td></td>
<td>SD card – for pos. 1 (not shown)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Pneumatics – see corresponding spare parts list</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>All-in-One (CG22-C) gun control unit – see corresponding operating manual</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>OptiSpeeder – see corresponding spare parts list</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Powder supply – see corresponding spare parts list</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Rubber buffer – Ø 35x40 mm</td>
<td>211 664</td>
</tr>
<tr>
<td>6.1</td>
<td>Stop</td>
<td>1018 740</td>
</tr>
<tr>
<td>10</td>
<td>Powder feed – see corresponding spare parts list</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>OptiFeed PP06 Powder pump – see corresponding operating manual</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>WRS kit (Powder switch) – see corresponding spare parts list</td>
<td></td>
</tr>
</tbody>
</table>

For all other electrical components, see also the spare parts list in the enclosed wiring diagram!

![Diagram of OptiCenter OC06](image-url)
### Cone trolley

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cone</td>
<td>1007 465</td>
</tr>
<tr>
<td>2</td>
<td>Rubber damper set – Ø 20x25 mm, M6/21 mm (3 pieces)</td>
<td>720 000</td>
</tr>
<tr>
<td>3</td>
<td>Roller set – 4 rollers + 4 screws</td>
<td>720 001</td>
</tr>
<tr>
<td>4</td>
<td>vibrator motor – 220-240 V</td>
<td>1009 251</td>
</tr>
<tr>
<td>5</td>
<td>GEKA blind coupling</td>
<td>1002 405</td>
</tr>
<tr>
<td>6</td>
<td>Cover</td>
<td>1007 177</td>
</tr>
<tr>
<td>7</td>
<td>GEKA coupling – 3/4&quot;</td>
<td>254 339</td>
</tr>
<tr>
<td>8</td>
<td>Cover bushing</td>
<td>1005 245</td>
</tr>
<tr>
<td>9</td>
<td>Fluidizing/suction unit – Ø 28 mm, complete</td>
<td>1005 332</td>
</tr>
<tr>
<td>10</td>
<td>Tube connection – complete, incl. pos. 11</td>
<td>1007 658</td>
</tr>
<tr>
<td>11</td>
<td>O-ring – Ø 16x2 mm</td>
<td>1007 794#</td>
</tr>
<tr>
<td>12</td>
<td>Quick release connection – NW5-Ø 6 mm</td>
<td>200 840</td>
</tr>
</tbody>
</table>

# Wear part

* Please specify length

---

**Fig. 60:**
## Fluidizing/suction unit

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Connector – NW5.0-1/8&quot;</td>
<td>200 859</td>
</tr>
<tr>
<td>2</td>
<td>Elbow joint – 1/8&quot;-1/8&quot;</td>
<td>235 733</td>
</tr>
<tr>
<td>3</td>
<td>Adapter nipple – 1/8&quot;-1/8&quot;</td>
<td>200 930</td>
</tr>
<tr>
<td>4</td>
<td>Flow restrictor – Ø 0.3 mm</td>
<td>338 303</td>
</tr>
<tr>
<td></td>
<td>Fluidizing ring set – incl. pos. 5, 6, 7</td>
<td>720 002#</td>
</tr>
<tr>
<td>5</td>
<td>O-ring – Ø 22.1x1.6 mm</td>
<td>233 340#</td>
</tr>
<tr>
<td>6</td>
<td>Fluidizing ring</td>
<td>1005 330</td>
</tr>
<tr>
<td>7</td>
<td>O-ring – Ø 14x1.5 mm</td>
<td>263 486#</td>
</tr>
<tr>
<td>8</td>
<td>Foot piece</td>
<td>1005 327</td>
</tr>
</tbody>
</table>

- Wear part
- Please specify length

![Diagram of Fluidizing/suction unit](image)
### OptiSpeeder – complete

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Cat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ultrasonic sensor – complete, see corresponding spare parts list</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>OptiSpeeder cover – see corresponding spare parts list</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Pinch valve – DN32 G 1 1/4&quot;, complete</td>
<td>1007 648</td>
</tr>
<tr>
<td>4</td>
<td>Sealing plug (not shown)</td>
<td>1008 085</td>
</tr>
<tr>
<td>5</td>
<td>Pinch valve – DN15, complete</td>
<td>1018 025</td>
</tr>
<tr>
<td>6</td>
<td>Pinch valves distributor RP – complete, see corresponding spare parts list</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Pinch valves distributor FP – complete, see corresponding spare parts list</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>AirMover – NW40, complete, see corresponding spare parts list</td>
<td>1008 066</td>
</tr>
</tbody>
</table>

---

**fig. 62:**

---
## OptiSpeeder – Cover

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Handle</td>
<td>1018 036</td>
</tr>
<tr>
<td>2</td>
<td>O-ring – Ø 21x3 mm</td>
<td>214 981#</td>
</tr>
<tr>
<td>3</td>
<td>Support</td>
<td>1008 064</td>
</tr>
<tr>
<td>4</td>
<td>Screw – M6x16 mm</td>
<td>216 410</td>
</tr>
<tr>
<td>5</td>
<td>Plug</td>
<td>1018 032</td>
</tr>
<tr>
<td>6</td>
<td>Gasket 24P</td>
<td>1018 023</td>
</tr>
<tr>
<td></td>
<td>Gasket 36P</td>
<td>1018 737</td>
</tr>
<tr>
<td>7</td>
<td>X-ring</td>
<td>1018 069#</td>
</tr>
</tbody>
</table>

# Wear part

![Fig. 63: OptiSpeeder – Cover](image-url)
# OptiSpeeder – Ultrasonic sensor

<table>
<thead>
<tr>
<th>Part Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ultrasonic sensor – complete</td>
<td>1018 048</td>
</tr>
<tr>
<td>1 Sensor cable – 5 pin</td>
<td>1018 038</td>
</tr>
<tr>
<td>2 Sensor sleeve nut</td>
<td>1018 775</td>
</tr>
<tr>
<td>3 O-ring – Ø 15x1.5 mm</td>
<td>261 564#</td>
</tr>
<tr>
<td>4 Sensor</td>
<td>1019 789</td>
</tr>
<tr>
<td>5 Throttle valve¹ – Ø 4-M5x0.8 mm</td>
<td>1005 634</td>
</tr>
<tr>
<td>6 Sensor rinsing</td>
<td>1018 049</td>
</tr>
<tr>
<td>7 O-ring – Ø 28x2.5 mm</td>
<td>263 842#</td>
</tr>
</tbody>
</table>

¹ After replacement, open the throttle valve until the compressed air begins to flow, then open it further by one turn

# Wear part

Fig. 64:
# OptiSpeeder – Fluidizing plate

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bottom fluidizing plate 24P – complete</td>
<td>1018 017#</td>
</tr>
<tr>
<td></td>
<td>Bottom fluidizing plate 36P – complete</td>
<td>1018 732#</td>
</tr>
<tr>
<td>2</td>
<td>Gasket 24P</td>
<td>1018 022</td>
</tr>
<tr>
<td></td>
<td>Gasket 36P</td>
<td>1018 736</td>
</tr>
<tr>
<td>3</td>
<td>Fastening plate 24P</td>
<td>1018 016</td>
</tr>
<tr>
<td></td>
<td>Fastening plate 36P</td>
<td>1018 731</td>
</tr>
<tr>
<td>4</td>
<td>Allen cylinder screw – M6x20 mm</td>
<td>216 429</td>
</tr>
<tr>
<td>5</td>
<td>Elbow joint – 1/8&quot;-Ø 8 mm</td>
<td>251 372</td>
</tr>
<tr>
<td>6</td>
<td>Pinch valve – DN32 G 1 1/4&quot;, complete</td>
<td>1007 648</td>
</tr>
<tr>
<td></td>
<td>Pinch valve hose – NW32</td>
<td>1007 647#</td>
</tr>
<tr>
<td>7</td>
<td>O-ring – Ø 33x3 mm</td>
<td>244 252#</td>
</tr>
<tr>
<td>8</td>
<td>O-ring – Ø 40x3 mm</td>
<td>225 053#</td>
</tr>
<tr>
<td>9</td>
<td>Connector</td>
<td>1007 571#</td>
</tr>
<tr>
<td>10</td>
<td>Elbow joint – 1/4&quot;-Ø 8 mm</td>
<td>254 029</td>
</tr>
</tbody>
</table>

# Wearing part

*fig. 65:*
<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Butterfly valve – complete (incl. pos. 1.1)</td>
<td>1006 445</td>
</tr>
<tr>
<td>1.1</td>
<td>Pneumatic rotary actuator – complete</td>
<td>1006 444</td>
</tr>
<tr>
<td>2</td>
<td>PP06 Powder pump – see corresponding spare parts list</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Pinch valves distributor FP – see corresponding spare parts list</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Pinch valves distributor RP – see corresponding spare parts list</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Ring injector (AirMover) – NW40 mm, complete</td>
<td>1008 066</td>
</tr>
<tr>
<td>6</td>
<td>Pinch valve – see corresponding spare parts list</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Pressure regulators pool – see corresponding spare parts list</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Valves pool – see corresponding pneumatic diagram</td>
<td>1019 190</td>
</tr>
<tr>
<td>9</td>
<td>Pneumatic manifold 2 – see corresponding spare parts list</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Vacuum filter – Ø 10 mm</td>
<td>1004 946</td>
</tr>
<tr>
<td>11</td>
<td>Pneumatic manifold 1 – see corresponding spare parts list</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Main air supply – see corresponding spare parts list</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Fluidization OptiSpeeder – see corresponding spare parts list</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Compressed air hose – Ø 16.4/26.6 mm (not shown)</td>
<td>105 155*</td>
</tr>
<tr>
<td>15</td>
<td>Powder hose – Ø 16/23 mm (not shown)</td>
<td>1010 040*#</td>
</tr>
</tbody>
</table>

# Wear part  
* Please specify length

fig. 66:
### Main air supply

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Part Number</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ball valve – 1”-1”</td>
<td>1006 065</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Pressure regulator/Filter unit – 0.5-8 bar, 1”</td>
<td>1006 547</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Pressure gauge – 0-10 bar, 1/4”</td>
<td>1010 964</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Plug – 1”</td>
<td>1019 095</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Filter unit</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*fig. 67:*
## OptiSpeeder – Pneumatic manifold

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pressure regulator – 0.5-10 bar, 1/2&quot;</td>
<td>259 187</td>
</tr>
<tr>
<td>2</td>
<td>Pressure gauge – 0-10 bar, 1/8&quot;</td>
<td>259 179</td>
</tr>
<tr>
<td>3</td>
<td>Solenoid valve – 1/2&quot;, NW13.5 mm, without coil</td>
<td>1005 120</td>
</tr>
<tr>
<td>4</td>
<td>Valve coil – 24 VDC</td>
<td>1005 119#</td>
</tr>
<tr>
<td>5</td>
<td>Valve cable – 3 pins</td>
<td>1006 902*</td>
</tr>
<tr>
<td>6</td>
<td>Hose connector – Ø 17-1/2&quot;</td>
<td>223 069</td>
</tr>
<tr>
<td>7</td>
<td>Elbow joint – 1/8&quot;-1/8&quot;</td>
<td>237 604</td>
</tr>
<tr>
<td>8</td>
<td>Adapter – 1/8&quot;-1/8&quot;</td>
<td>259 551</td>
</tr>
<tr>
<td>9</td>
<td>Double nipple – 1/4&quot;-1/8&quot;</td>
<td>242 209</td>
</tr>
<tr>
<td>10</td>
<td>Pressure regulator – 0.5-8 bar, 3/8&quot;</td>
<td>1017 787</td>
</tr>
<tr>
<td>11</td>
<td>Plug – 1/4&quot;</td>
<td>258 695</td>
</tr>
<tr>
<td>12</td>
<td>Elbow joint – 3/8&quot;-Ø 10/2 x</td>
<td>1017 189</td>
</tr>
<tr>
<td>13</td>
<td>Elbow joint – 1/4&quot;-Ø 8/3 x</td>
<td>1002 614</td>
</tr>
</tbody>
</table>

*Wearing part

* Please indicate length

---

*Figure 68:*
### OptiSpeeder – Fluidization

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pressure gauge – 0-6 bar, 1/8&quot;</td>
<td>1003 300</td>
</tr>
<tr>
<td>2</td>
<td>Elbow joint – 1/8&quot;-Ø 6 mm</td>
<td>254 061</td>
</tr>
<tr>
<td>3</td>
<td>Plug – 1/4&quot;</td>
<td>258 695</td>
</tr>
<tr>
<td>4</td>
<td>Pressure regulator – 0.5-6 bar, 1/4&quot;</td>
<td>264 342</td>
</tr>
<tr>
<td>5</td>
<td>Adapter nipple – 1/8&quot;-1/4&quot;</td>
<td>265 454</td>
</tr>
<tr>
<td>6</td>
<td>Elbow joint – 1/8&quot;-1/8&quot;</td>
<td>237 604</td>
</tr>
<tr>
<td>7</td>
<td>Flow restrictor – Ø 1.4 mm</td>
<td>404 497</td>
</tr>
<tr>
<td>8</td>
<td>Screw-in nipple – 1/8&quot;-Ø 8 mm</td>
<td>240 087</td>
</tr>
<tr>
<td>9</td>
<td>Double connecting nipple – Ø 8 mm</td>
<td>229 326</td>
</tr>
<tr>
<td>10</td>
<td>Check valve – Ø 8-Ø 8 mm</td>
<td>1005 575</td>
</tr>
<tr>
<td>11</td>
<td>Y-plug connection – Ø 8-2x Ø 8 mm</td>
<td>264 814</td>
</tr>
<tr>
<td>12</td>
<td>Plastic tube – Ø 8/6 mm</td>
<td>103 756*</td>
</tr>
<tr>
<td>13</td>
<td>Screw-in nipple – 1/4&quot;-Ø 6 mm</td>
<td>234 826</td>
</tr>
<tr>
<td>14</td>
<td>Plastic tube – Ø 6/4 mm</td>
<td>103 144*</td>
</tr>
<tr>
<td>15</td>
<td>Elbow joint – 1/8&quot;-Ø 6 mm</td>
<td>251 380</td>
</tr>
</tbody>
</table>

# Wearing part

* Please indicate length

---

fig. 69:
## Pressure regulators pool

<table>
<thead>
<tr>
<th>#</th>
<th>Item Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pressure regulator – 0.5-6 bar, 1/4&quot;</td>
<td>264 342</td>
</tr>
<tr>
<td>2</td>
<td>Elbow joint – 1/4&quot;-Ø 8 mm</td>
<td>254 029</td>
</tr>
<tr>
<td>3</td>
<td>Pressure gauge – 0-10 bar, 1/8&quot;</td>
<td>259 179</td>
</tr>
<tr>
<td>4</td>
<td>Sealing plug – 1/4&quot;</td>
<td>258 695</td>
</tr>
<tr>
<td>5</td>
<td>Elbow joint – 1/4&quot;-Ø 8 mm</td>
<td>265 136</td>
</tr>
<tr>
<td>6</td>
<td>Adjusting elbow – Ø 8-Ø 8 mm</td>
<td>1001 031</td>
</tr>
<tr>
<td>7</td>
<td>Double connecting nipple – Ø 8 mm</td>
<td>229 326</td>
</tr>
<tr>
<td>8</td>
<td>Check valve – Ø 8-Ø 8 mm</td>
<td>1005 575</td>
</tr>
<tr>
<td>9</td>
<td>Plug – Ø 8 mm (not shown)</td>
<td>238 023</td>
</tr>
</tbody>
</table>

---

*fig. 70:*
## Compressed air supply CG22-C

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pressure switch – 1-10 bar, 1/4”</td>
<td>233 757</td>
</tr>
<tr>
<td>2</td>
<td>Solenoid valve – 3/4” NW18, without coil</td>
<td>1005 121</td>
</tr>
<tr>
<td>3</td>
<td>Valve coil – 24 VDC</td>
<td>1005 119</td>
</tr>
<tr>
<td>4</td>
<td>Pressure gauge – 0-10 bar, 1/4”</td>
<td>1010 964</td>
</tr>
<tr>
<td>5</td>
<td>Pressure regulator/Filter unit – 0.5-8 bar, 1”</td>
<td>1006 547</td>
</tr>
<tr>
<td>6</td>
<td>Hose connector – Ø 17 mm-1/2”</td>
<td>223 069</td>
</tr>
</tbody>
</table>

![fig. 71:](image-url)
# Pneumatic manifold Cleaning

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pressure regulator – 0.5-10 bar, 1/2&quot;</td>
<td>259 187</td>
</tr>
<tr>
<td>2</td>
<td>Double nipple – 1/4&quot;-1/8&quot;</td>
<td>242 209</td>
</tr>
<tr>
<td>3</td>
<td>Adapter – 1/8&quot;-1/8&quot;</td>
<td>259 551</td>
</tr>
<tr>
<td>4</td>
<td>Elbow joint – 1/8&quot;-1/8&quot;</td>
<td>237 604</td>
</tr>
<tr>
<td>5</td>
<td>Pressure gauge – 0-10 bar, 1/8&quot;</td>
<td>259 179</td>
</tr>
<tr>
<td>6</td>
<td>Solenoid valve – 1/2&quot;, NW13.5 mm, without coil</td>
<td>1005 120</td>
</tr>
<tr>
<td>7</td>
<td>Valve coil – 24 VDC</td>
<td>1005 119#</td>
</tr>
<tr>
<td>8</td>
<td>Valve cable – 3 pins</td>
<td>1007 004</td>
</tr>
<tr>
<td>9</td>
<td>Hose connector – Ø 17 mm-1/2&quot;</td>
<td>223 069</td>
</tr>
</tbody>
</table>

# Wearing part

![Diagram of Pneumatic manifold Cleaning](image)

**fig. 72:**
# Pinch valves distributor (RP/FP)

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pinch valve NW15 – complete</td>
<td>1018 044</td>
</tr>
<tr>
<td>2</td>
<td>Pinch valve sleeve NW15</td>
<td>1006 256#</td>
</tr>
<tr>
<td>3</td>
<td>Connecting socket NW15</td>
<td>1018 043</td>
</tr>
<tr>
<td>4</td>
<td>Screw – Ø 5x26 mm</td>
<td>1006 263</td>
</tr>
<tr>
<td>5</td>
<td>O-ring – Ø 21x3 mm</td>
<td>214 981#</td>
</tr>
<tr>
<td>6</td>
<td>Screw – M6x25 mm</td>
<td>216 437</td>
</tr>
<tr>
<td>7</td>
<td>Y-distributor – 3m/0f</td>
<td>1018 047#</td>
</tr>
<tr>
<td>8</td>
<td>Socket end cover NW15 – m</td>
<td>1018 027#</td>
</tr>
<tr>
<td>9</td>
<td>Socket end cover NW15 – f</td>
<td>1018 054#</td>
</tr>
<tr>
<td></td>
<td>Powder hose – Ø 16/23 mm (not shown)</td>
<td>1010 040#*</td>
</tr>
</tbody>
</table>

# Wear part
* Please specify length

---

*fig. 73: ( diagram showing the components of the pinch valve distributor )*
# Powder hopper PH60-OC

<table>
<thead>
<tr>
<th>Part Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Powder hopper PH60-OC – complete (pos. 1-19)</td>
<td>1008 171</td>
</tr>
<tr>
<td>Powder hopper PH60-OC (incl. pos. 6-10, 18)</td>
<td>1008 313</td>
</tr>
<tr>
<td>Cover PH60-OC</td>
<td>1011 468</td>
</tr>
<tr>
<td>Hopper cover – complete</td>
<td>1011 642</td>
</tr>
<tr>
<td>GEKA coupling – 3/4”</td>
<td>254 339</td>
</tr>
<tr>
<td>GEKA blind coupling</td>
<td>1002 405</td>
</tr>
<tr>
<td>Grip</td>
<td>1006 013</td>
</tr>
<tr>
<td>Connector – NW5-1/8”</td>
<td>237 272</td>
</tr>
<tr>
<td>Elbow joint – 1/8”-1/8”</td>
<td>237 604</td>
</tr>
<tr>
<td>Fluidizing plate PH60-OC</td>
<td>1006 012</td>
</tr>
<tr>
<td>Countersunk Allen screw – M6x50 mm</td>
<td>1002 954</td>
</tr>
<tr>
<td>Level sensor cover</td>
<td>1007 178</td>
</tr>
<tr>
<td>Cover bushing</td>
<td>1011 499</td>
</tr>
<tr>
<td>Locknut – Ø 40x28xM8 mm</td>
<td>1008 285</td>
</tr>
<tr>
<td>Rubber profile</td>
<td>1007 172*</td>
</tr>
<tr>
<td>Hose for OptiSpeeder emptying – Ø 40 mm (not shown)</td>
<td>100 048*</td>
</tr>
<tr>
<td>Blind cover PH60-OC (not shown)</td>
<td>373 907</td>
</tr>
</tbody>
</table>

* Please indicate length

![Diagram of Powder hopper PH60-OC](image)

*fig. 74:*
## PH100-OC Powder Hopper

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Powder hopper PH100-OC – complete (pos. 1-21)</td>
<td>1008 303</td>
</tr>
<tr>
<td>2</td>
<td>Powder hopper PH100-OC (incl. pos. 6-10, 13, 18-20)</td>
<td>1008 315</td>
</tr>
<tr>
<td>3</td>
<td>Hopper cover – complete</td>
<td>1011 497</td>
</tr>
<tr>
<td>4</td>
<td>GEKA coupling – 3/4&quot;</td>
<td>254 339</td>
</tr>
<tr>
<td>5</td>
<td>GEKA blind coupling</td>
<td>1002 405</td>
</tr>
<tr>
<td>6</td>
<td>Grip</td>
<td>1006 013</td>
</tr>
<tr>
<td>7</td>
<td>Connector – NW5-1/8&quot;</td>
<td>237 272</td>
</tr>
<tr>
<td>8</td>
<td>Elbow joint – 1/8&quot;-1/8&quot;</td>
<td>237 604</td>
</tr>
<tr>
<td>9</td>
<td>Countersunk Allen screw – M6x50 mm</td>
<td>1002 954</td>
</tr>
<tr>
<td>10</td>
<td>Cover PH100-OC</td>
<td>1006 017</td>
</tr>
<tr>
<td>11</td>
<td>Fluidizing plate PH100-OC</td>
<td>1006 142</td>
</tr>
<tr>
<td>12</td>
<td>Level sensor cover</td>
<td>1007 178</td>
</tr>
<tr>
<td>13</td>
<td>Cover bushing</td>
<td>1011 499</td>
</tr>
<tr>
<td>14</td>
<td>Locknut – Ø 40x28xM8 mm</td>
<td>1008 285</td>
</tr>
<tr>
<td>15</td>
<td>Rubber profile</td>
<td>1007 172*</td>
</tr>
<tr>
<td>16</td>
<td>Rubber buffer – M40x1.5 mm</td>
<td>248 592</td>
</tr>
<tr>
<td>17</td>
<td>Roller</td>
<td>1009 141</td>
</tr>
<tr>
<td>18</td>
<td>Hose for OptiSpeeder emptying – Ø 40 mm (not shown)</td>
<td>100 048*</td>
</tr>
<tr>
<td>19</td>
<td>Blind cover PH100-OC (not shown)</td>
<td>362 719</td>
</tr>
</tbody>
</table>

* Please indicate length

\[fig. 75:\]
## LC01 Level sensor

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>LC01 Level sensor – complete (incl. pos. 2)</td>
<td>1006 089</td>
</tr>
<tr>
<td>2</td>
<td>O-ring – Ø 38 x 4 mm</td>
<td>239 151#</td>
</tr>
<tr>
<td>3</td>
<td>Plastic tube – Ø 6/Ø 4 mm</td>
<td>1001 973*</td>
</tr>
<tr>
<td>4</td>
<td>Connecting cable – complete</td>
<td>371 696</td>
</tr>
</tbody>
</table>

# Wearing part

* Please indicate length

**fig. 76:**
# Vibration trolley

<table>
<thead>
<tr>
<th>Part Description</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vibration trolley – complete</td>
<td>1017 770</td>
</tr>
<tr>
<td>Rubber buffer – Ø 20x15 mm</td>
<td>211 770</td>
</tr>
<tr>
<td>Rubber damper – Ø 25x30 mm</td>
<td>232 866</td>
</tr>
<tr>
<td>Connection plug</td>
<td>206 466</td>
</tr>
<tr>
<td>Swivel wheel – Ø 50 mm</td>
<td>260 606</td>
</tr>
<tr>
<td>Rubber buffer – 15x8 mm (not shown)</td>
<td>234 915</td>
</tr>
<tr>
<td>Rubber damper – Ø 20x20 mm</td>
<td>248 681</td>
</tr>
<tr>
<td>Fluidizing/suction unit – Ø 28 mm, complete</td>
<td>1005 332</td>
</tr>
<tr>
<td>Cover</td>
<td>1009 744</td>
</tr>
<tr>
<td>GEKA coupling – 3/4&quot;</td>
<td>1002 551</td>
</tr>
<tr>
<td>Double nipple – 3/4&quot;-3/4&quot;</td>
<td>228 028</td>
</tr>
<tr>
<td>Vibrator</td>
<td>1009 251</td>
</tr>
</tbody>
</table>

*Please indicate length*

![Diagram of Vibration trolley](image)

*fig. 77:*
## Monocyclone – Powder transport

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Powder hose – dia. 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

* Please indicate length

---

![Diagram](image.png)

**fig. 78:**
# Monocyclone – Powder transport connection

<table>
<thead>
<tr>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Powder transport connection – complete (pos. 1-13, incl. fixing screws)</td>
<td>1008 846</td>
</tr>
<tr>
<td>1 Funnel piece</td>
<td>1005 502</td>
</tr>
<tr>
<td>1.1 Gasket for pos. 1</td>
<td>395 439#</td>
</tr>
<tr>
<td>Fluidizing unit – complete (pos. 2-6)</td>
<td>1005 507</td>
</tr>
<tr>
<td>2 Connector</td>
<td>1005 504</td>
</tr>
<tr>
<td>Fluidizing tube set (incl. pos. 3, 4, 5)</td>
<td>720 006</td>
</tr>
<tr>
<td>3 Fluidizing tube</td>
<td>1005 505#</td>
</tr>
<tr>
<td>4 O-ring – Ø 17x3 mm</td>
<td>242 489#</td>
</tr>
<tr>
<td>5 O-ring – Ø 26x2 mm</td>
<td>246 549#</td>
</tr>
<tr>
<td>6 Locking piece</td>
<td>1005 506</td>
</tr>
<tr>
<td>7 Connecting piece</td>
<td>1005 503</td>
</tr>
<tr>
<td>8 GEKA coupling – 1”-IG</td>
<td>1000 854</td>
</tr>
<tr>
<td>9 Pinch valve DN15 – complete, incl. pos. 9.1</td>
<td>1006 255</td>
</tr>
<tr>
<td>9.1 Pinch valve sleeve NW15</td>
<td>1006 256#</td>
</tr>
<tr>
<td>10 Elbow joint – 1/4”-Ø 8 mm</td>
<td>224 359</td>
</tr>
<tr>
<td>11 Throttle valve – 1/8”-1/8”</td>
<td>1002 127</td>
</tr>
<tr>
<td>12 Double nipple – 1/4”-1/8”</td>
<td>242 209</td>
</tr>
<tr>
<td>13 Inline regulator – 3 bar, 1/4”</td>
<td>1005 517</td>
</tr>
</tbody>
</table>

# Wearing part

\*

---

fig. 79:
# WRS kit (Powder switch)

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>X-piece</td>
<td>1008 624</td>
</tr>
<tr>
<td>2</td>
<td>Hose clamp – Ø 17-25 mm</td>
<td>223 085</td>
</tr>
<tr>
<td>3</td>
<td>Pinch valve NW15 – complete</td>
<td>1006 255</td>
</tr>
<tr>
<td>4</td>
<td>Plastic tube – Ø 6/4 mm</td>
<td>103 144*</td>
</tr>
<tr>
<td>5</td>
<td>Powder hose – dia. 16/23 mm</td>
<td>1010 040#*</td>
</tr>
<tr>
<td>6</td>
<td>Grounding cable</td>
<td>1008 267</td>
</tr>
<tr>
<td>7</td>
<td>Hose connector – Ø 17-1/2”</td>
<td>223 069#</td>
</tr>
<tr>
<td>8</td>
<td>Shake proof washer – A-type, M6</td>
<td>216 054</td>
</tr>
<tr>
<td>9</td>
<td>Screw – M6x10 mm</td>
<td>216 399</td>
</tr>
<tr>
<td>10</td>
<td>Elbow joint – 1/4”, Ø 6 mm</td>
<td>265 691</td>
</tr>
</tbody>
</table>

# Wear part

* Please specify length

![Diagram of the WRS kit](image)

**fig. 80:**
## Pneumatics ES (AS05)

<table>
<thead>
<tr>
<th>Part Code</th>
<th>Description</th>
<th>Catalog Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1005 121</td>
<td>Solenoid valve – 3/4” NW18, without coil</td>
<td>1</td>
</tr>
<tr>
<td>1005 119#</td>
<td>Valve coil – 24 VDC</td>
<td>1</td>
</tr>
<tr>
<td>233 757</td>
<td>Pressure switch – 1-10 bar, 1/4”, PG7</td>
<td>3</td>
</tr>
<tr>
<td>259 268</td>
<td>Hose connector – Ø 16 mm, 1/2”</td>
<td>4</td>
</tr>
</tbody>
</table>

*Fig. 81:*

# Wearing part

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