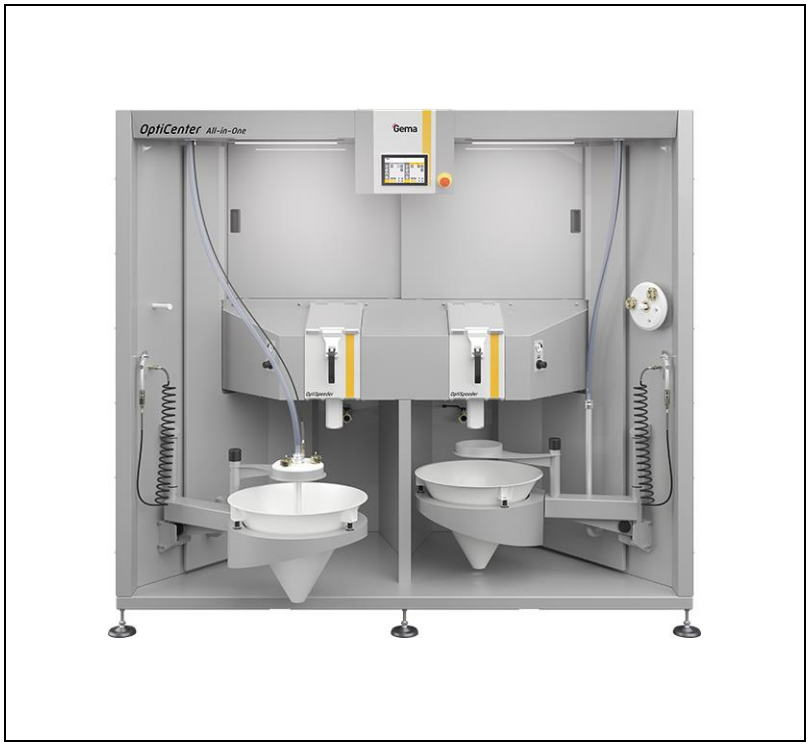
Operating instructions and Spare parts list

Powder management system OptiCenter All-in-One OC11



Translation of the original operating instructions

Gema

Documentation OptiCenter All-in-One OC11

For the latest information about Gema products, visit **www.gemapowdercoating.com**.

For information regarding patents, see **www.gemapowdercoating.com/patents** or **www.gemapowdercoating.us/patents**.

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Table of contents

Other applicable documents

References to relevant documents

In addition to the information contained in this manual, the following operating instructions and spare parts lists for the individual components must also be observed:

QR-Code	Manual	Revision
	Gun control unit OptiSpray All-in-One (CG26-CP)	Rev. 00 09/23

QR-Code	Manual	Revision
	Powder pump OptiFeed 4.0 (PP07)	Rev. 01 05/23

QR-Code	Manual	Revision
	Ultrasonic sieve system US07	V 03/19

QR-Code	Manual	Revision
	Monocyclone EZ05	Rev. 00 01/22

About these instructions

General information

This operating manual contains all the important information that is needed to operate the OptiCenter All-in-One OC11. 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.

⚠ CAUTION

Indicates a hazardous situation, which, if not avoided, could result in minor or moderate injury.

ATTENTION

Indicates a potentially harmful situation. If not avoided, the equipment or something in its surrounding may be damaged.

ENVIRONMENT

Indicates a potentially harmful situation, which, if not avoided, may have harmful consequences for the environment.

MANDATORY NOTE

Information that must be observed.

NOTICE

Useful information, tips, etc.

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

⚠ SIGNAL WORD

Nature and source of the hazard!

Possible consequences of the danger

► Prevention of the danger

Software version

This document describes the operation of the product OptiCenter All-in-One OC11 with software version starting from 1.2.40***.

See chapter "Checking the software version" on page 92.

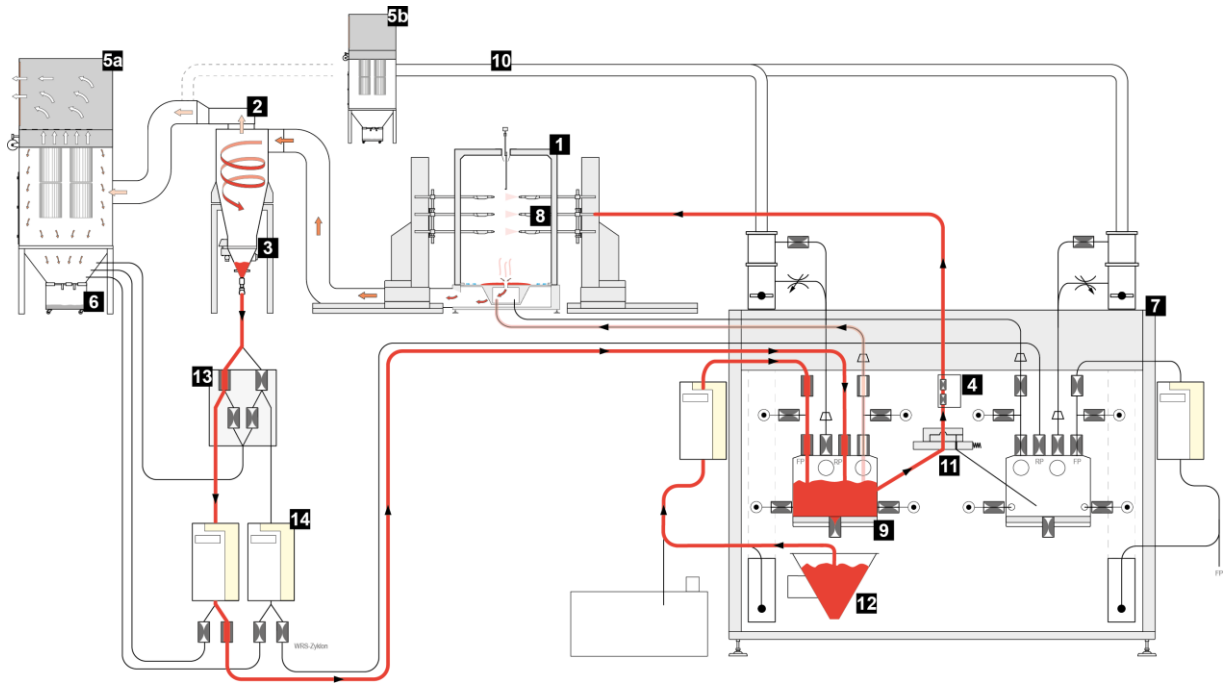
Presentation of the contents

Figure references in the text

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

Example:

*"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**)."*



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 not considered as intended use. 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 "EN ISO 12100 Machine safety" must also be observed. Machine safety
- 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 must pack themselves, 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: See chapter "Storage conditions" on page 153.

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: Mode of transportation

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

NOTICE

Risk of damage

The OptiCenter must not be placed 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.

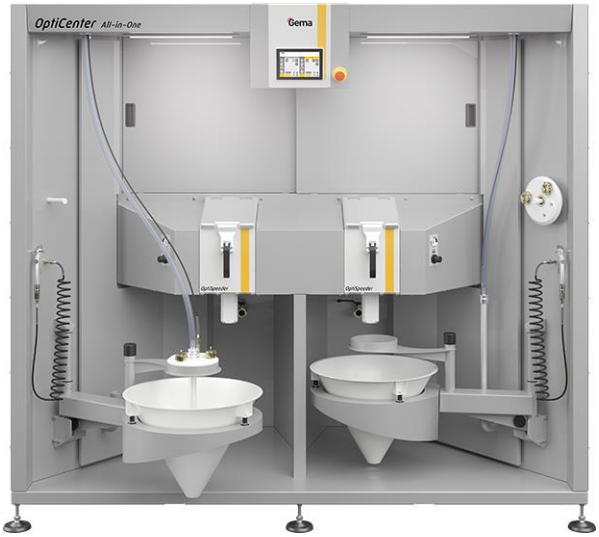


Fig. 2: OptiCenter All-in-One OC11

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 too.

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

Compressed air consumption

OptiCenter All-in-One OC11	
Max. compressed air consumption during cleaning (120 seconds)	300-400 Nm³/h
Coating operation	
Fluidization OptiSpeeder + AirMover + process air	15 Nm³/h
Consumption per applicator	5 Nm³/h
Example for 10 applicators	65 Nm³/h
Cleaning operation mode	
Cleaning OptiSpeeder	120 Nm³/h
Cleaning OptiFeed hose to cyclone	120 Nm³/h
Cleaning conveying hose to an applicator	30 Nm³/h
Example for 6 applicators (for group size = 6)	180 Nm³/h

Pneumatic data

OptiCenter All-in-One OC11	
Inlet pressure	min. 6.5 bar

Compressed air quality according to ISO 8573-1

OptiCenter All-in-One OC11	
Solid / dust	
Particle size in compressed air	max. 5 µm
Class	3
Water	
Residual content	1.3 g/m³
Class	4 (dew point ≤ 3 °C) or 5 (dew point ≤ 7 °C)
Oil	
Residual content	0.1 mg/m³
Class	2

▶ **Gema Switzerland GmbH recommends compressed air quality according to ISO 8573-1 class 3.4.2.**

Technical ventilation

OptiCenter All-in-One OC11	36 guns
Exhaust air volume during cleaning	1400 Nm³/h

Preferably, only one exhaust air unit should be in operation during cleaning. The exhaust air duct must have a nominal width of 150 mm and a wall thickness of at least 1.0 mm.

Powder transport

OptiCenter All-in-One OC11	36 guns
Recovery	max. 3.5 kg/min.
OptiSpeeder capacity	9 kg

Dimensions

OptiCenter All-in-One OC11	36 guns
Area (width x depth) (mm)	2325 x 1500
Overall height (mm)	2100
Weight(kg)	
unloaded	approx. 770
loaded	approx. 920
Lateral access on both sides (for operators)	min.300 mm (required to remove the side cover and access the exhaust air unit)
Rear access (for service)	min. 600 mm (required for maintenance and service work)

Sound pressure level

OptiCenter All-in-One OC11	
Normal operation	75 dB(A)
Cleaning operation mode	for a short time up to 95 dB(A)

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

The specified value is applicable only for 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: Nameplate (example)

Fields with a gray background contain contract-specific data!

Structure

Overall view

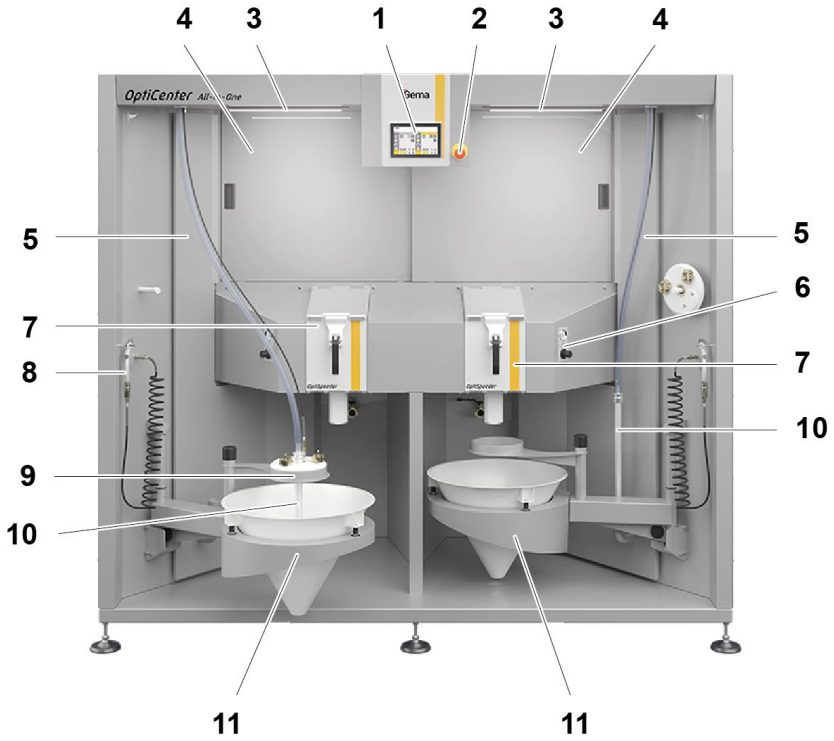


Fig. 4: Structure

1 Control unit/operating panel
2 Emergency stop button
3 Status light
4 Sliding door to OptiSpray
5 Technical ventilation
6 Display and adjustment of fluidization OptiSpeeder
7 OptiSpeeder
8 Blow gun
9 Powder bag fixation
10 Fluidizing/suction lance
11 Powder cone complete
12 Cleaning hose (not shown)
13 Slider (not shown)

Function description

OptiCenter All-in-One OC11

Fig. 5: OptiCenter All-in-One OC11

The OptiCenter All-in-One OC11 powder management center combines OptiSpray All-in-One pump technology for precise control of the application and powder handling process with a fast color change function. The system with dual OptiSpeeder powder containers (DualSpeeder) enables the preparation and handling of two independent colors - either one after the other for quick color changes or in parallel operation for simultaneous coating from both powder containers.

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.

Controling

– No own exhaust air system – the powder management center does not have its own exhaust air system and will be therefore connected directly to a filter

OptiControl (CM41)

The OptiCenter All-in-One is operated via the 7” touchscreen of the integrated OptiControl control unit.

All necessary operating procedures are activated by the touchscreen.

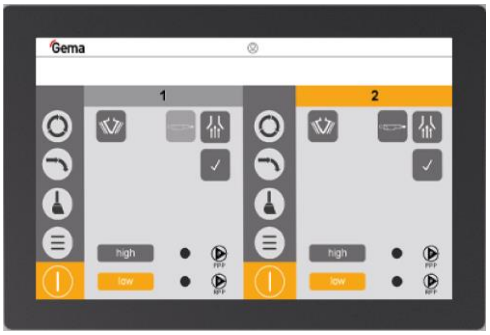


Fig. 6: Control unit/operating panel

The OptiControl control unit has the following functions, among others:

- Clear user interface
  - Simple operation of the coating and color change process
- Selection of the coating mode
  - Sequential operation with separately operated OptSpeeder powder containers for fast color changes
  - Parallel operation with independent but simultaneous operation with two powder sources
- Control of the coating process
  - Programmable switchover time from fresh powder to recovery mode
- Control for minimal fresh powder consumption
  - Coating in recovery mode through controlled additional fresh powder supply
- Selection of cleaning programs
  - Quick cleaning program or cleaning program with maximum powder recirculation from the powder circuit

▶ **Further information on the control panel**

See chapter "Touch panel / operating panel" on page 53.

Emergency stop button

The emergency stop button is used to manually switch off the OptiCenter in the event of danger. The push button locks into place when pressed and can be unlocked again by turning it to the right. The red button is placed on a yellow background. This ensures good recognizability.

Fig. 7: Emergency stop button

Status lights

The status lights on the OptiCenter are color-coded and visually indicate the current operating status of the machine.

Fig. 8: Status lights-Installation location

Meaning of colors

Status light	Meaning
	White: OptiCenter is in standstill/standby and ready for operation.
	Green: OptiCenter is in operation and shows the active work area.
	Blue: OptiCenter is in cleaning mode and shows cleaning in the active work area.
	Red: OptiCenter is in alarm mode and shows a fault or error.

NOTICE

Uncontrolled discharge of powder-air mixture.

▶ Do not open the OptiSpeeder when the status is “**Blue**” (cleaning active).

Sliding door to OptiSpray

The sliding doors (left/right) can be opened at the handles to provide access to the application pumps (OptiSpray).

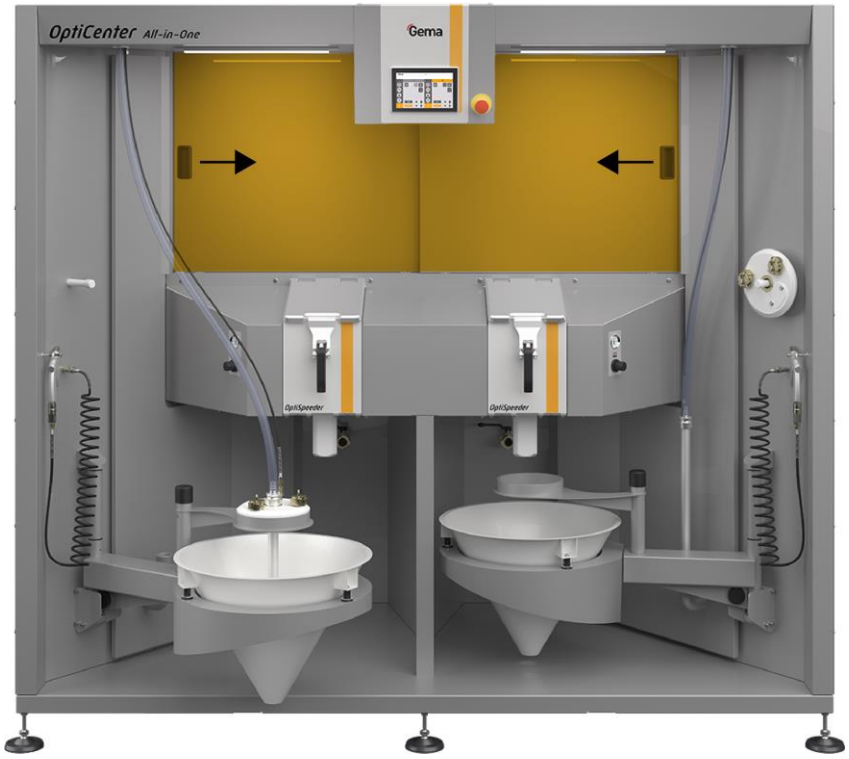


Fig. 9: Sliding doors (left/right)

Technical ventilation

Technical ventilation is a protective measure against the unintentional inhalation of coating powder.

This is achieved by controlling and diverting air flows and filtering particles to ensure that the operator is not exposed to harmful concentrations of the powder.

The technical ventilation is also equipped with a slider.

This allows the operator to increase the exhaust air supply to the lower working area of the OptiCenter if required, while the upper exhaust air supply is switched off.

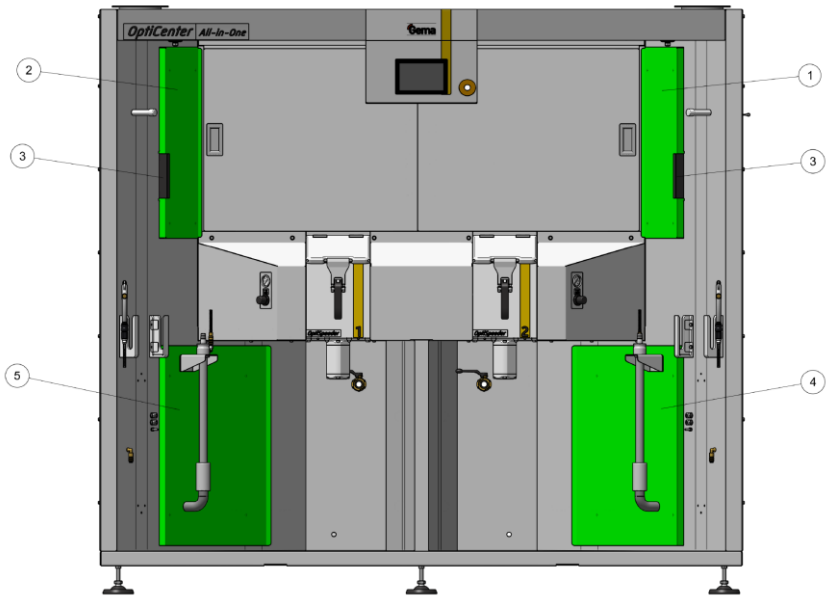
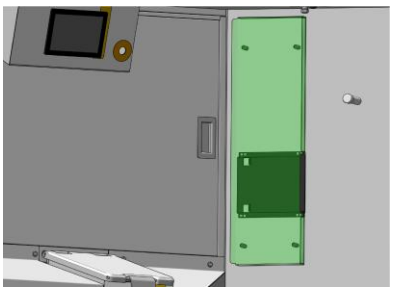
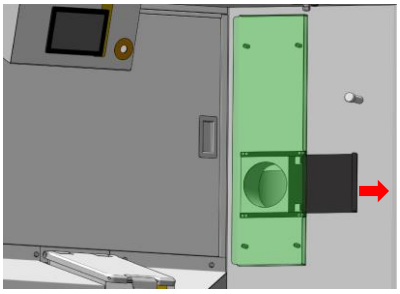


Fig. 10: Technical ventilation

1	Shield top right	4	Shield bottom right
2	Shield top left	5	Shield bottom left
3	Slider		



Slider closed



Slider open

State	Description
Closed	Increases the exhaust air supply in the lower area of the OptiCenter.
Open	Same exhaust air supply in the lower and upper areas of the OptiCenter.

OptiSpeeder indicator fluidization

The fluidization indicator allows the fluidization status of the powder in the OptiSpeeder to be monitored. The pressure regulator is used to adjust the volume flow of the fluidizing air.

Fig. 11: OptiSpeeder indicator fluidization

If the visual inspection of the powder in the OptiSpeeder reveals insufficient preparation, the intensity of the fluidization can be adjusted via the pressure regulator.

▶ **Open the OptiSpeeder lid and visually check the fluidization.**

– The powder should “simmer” slightly, otherwise readjust the corresponding pressure regulator.

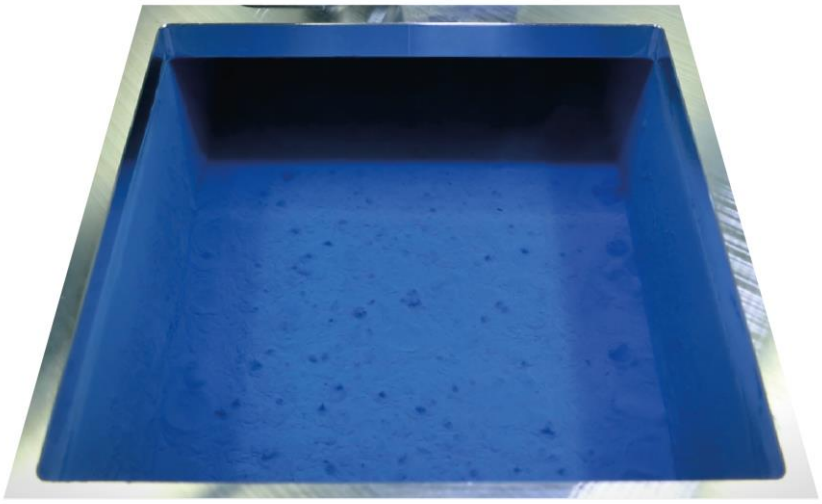


Fig. 12: Example - Optimal fluidization of the powder in the OptiSpeeder

▶ **Check the powder level visually.**

– The fill level in the OptiSpeeder is undercut --> See chapter "Fault clearance" on page 149.

OptiSpeeder

The OptiCenter All-in-One is equipped with DualSpeeder (2 powder hoppers), which can be operated sequentially or in parallel.

Operation with two independent OptiSpeeders enables a quick change from one color to another.

This allows the OptiSpeeder to be filled with the new color while the active OptiSpeeder conditions the powder for application.

In addition, the OptiSpeeder can be cleaned in parallel while the new color is being applied in coating mode without recovery.

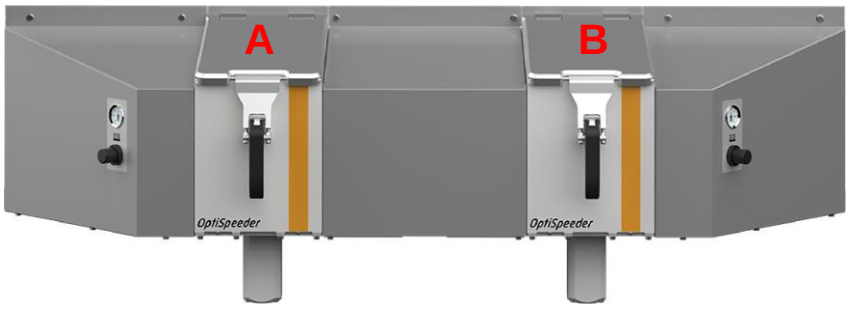


Fig. 13: OptiSpeeder A and B (DualSpeeder)

Inside the OptiSpeeder there are 2 independent outlets to prevent cross-contamination and 2 level probes for long and short batch.

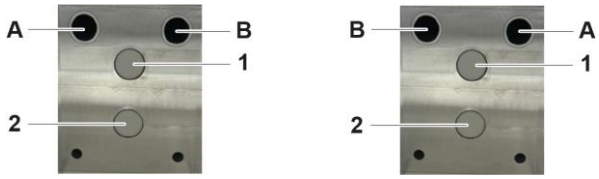


Fig. 14: OptiSpeeder - inside view

Pos.	Designation	Description
A	Output	Towards the exhaust air filter: Coating without recovery - powder cannot be reused
B	Output	Towards the cabin: Coating with recovery - powder can be reused
1	Level sensor high	**Long Batch**: For larger powder quantities in the OptiSpeeder
2	Level sensor deep	**Short Batch**: For small powder quantities in the OptiSpeeder

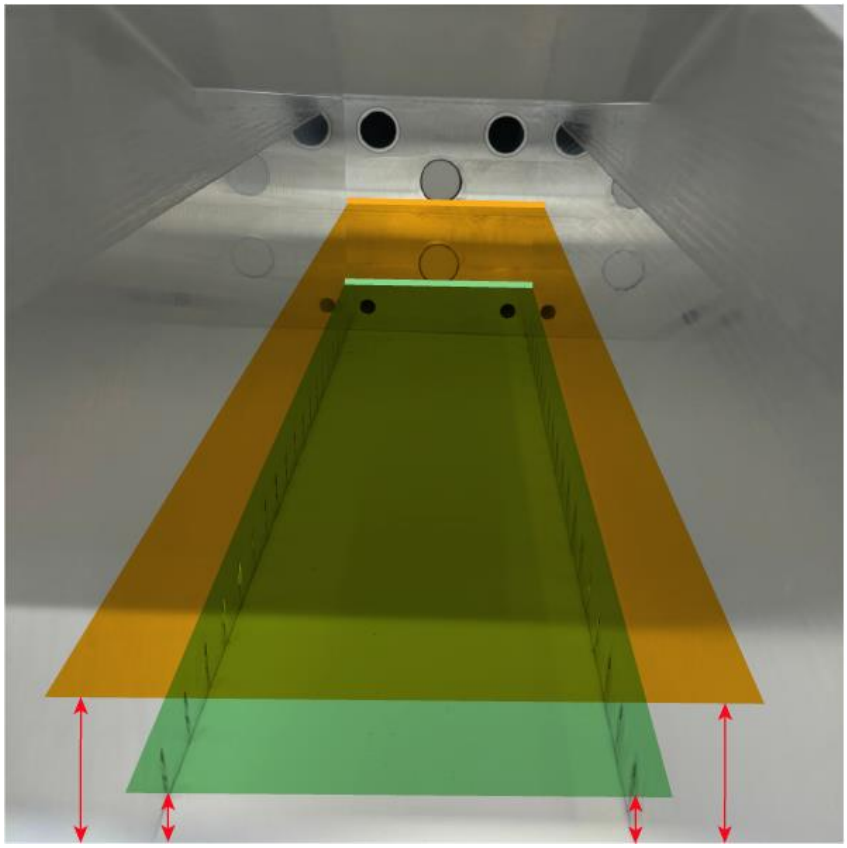


Fig. 15: Powder quantity in OptiSpeeder

Item	Description
	**Short color:** - 7 l capacity - 3.5 kg powder - Filling weight in fluidized state at density = 0.5 [g/cm^3]
	**Long color:** - 17 l capacity - 9 kg powder - Filling weight in fluidized state at density = 0.5 [g/cm^3]

The OptiSpeeder offers the following automatic functions:

– Conditioning and fluidization of the coating powder

– Emptying the residual powder

– Cleaning using patented Gema-AirWave procedure

– Monitoring and control of the powder level

– Extraction/removal of excess free-floating powder particles and fluidizing air

– Separate outlets to prevent cross-contamination

Blow gun

Two compressed air blow guns are connected to the OptiCenter and are used for cleaning. They can be used to efficiently remove any remaining powder residue from the suction lance, the lid, the cone and the general working area.

Fig. 16: Blow gun (example)

Equipped with several nozzle openings to protect the user and an antistatic hose package.

Cleaning hose

The cleaning hose is used to clean the OptiCenter powder container and to rinse the fluidizing/suction lance.

Fig. 17: Cleaning hose

– Adjustable air flow at the ball valve
– Can be connected instead of the air gun in the OptiCenter

Fluidizing/suction unit

The fluidizing/suction unit is used to pick up and transport the powder from the container (e.g. powder bag in the cone) into the powder system.

It puts the powder into a fluidized state. This is done by metering the supply of compressed air into the fluidizing/suction unit. This partially stirs up the powder near the suction opening. This is essential to ensure that the powder is removed evenly and reliably.

Fig. 18: Fluidizing/suction lance

– Powder conveying from powder containers
– Powder feed from powder bag cone
– Powder conveying from vibration trolleys

Powder bag cone complete

The powder bag cone is designed to direct the powder towards the center. This promotes an even distribution of the powder and facilitates its fluidization.

Fig. 19: Powder bag cone complete

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

MultiColor switch

The MultiColor switch enables quick switching between the two OptiSpeeder powder containers and changing colors for the color change in one process.

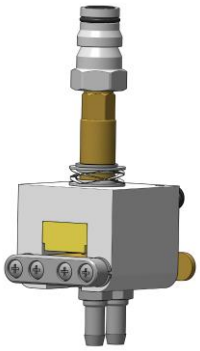


Fig. 20: MultiColore switch

In addition, the MultiColor switch allows the guns groups tob e operated independently of each other in the respective OptiSpeeder.

Notice

The gun groups must be defined in advance, as they form pneumatic a unit (set at the factory).

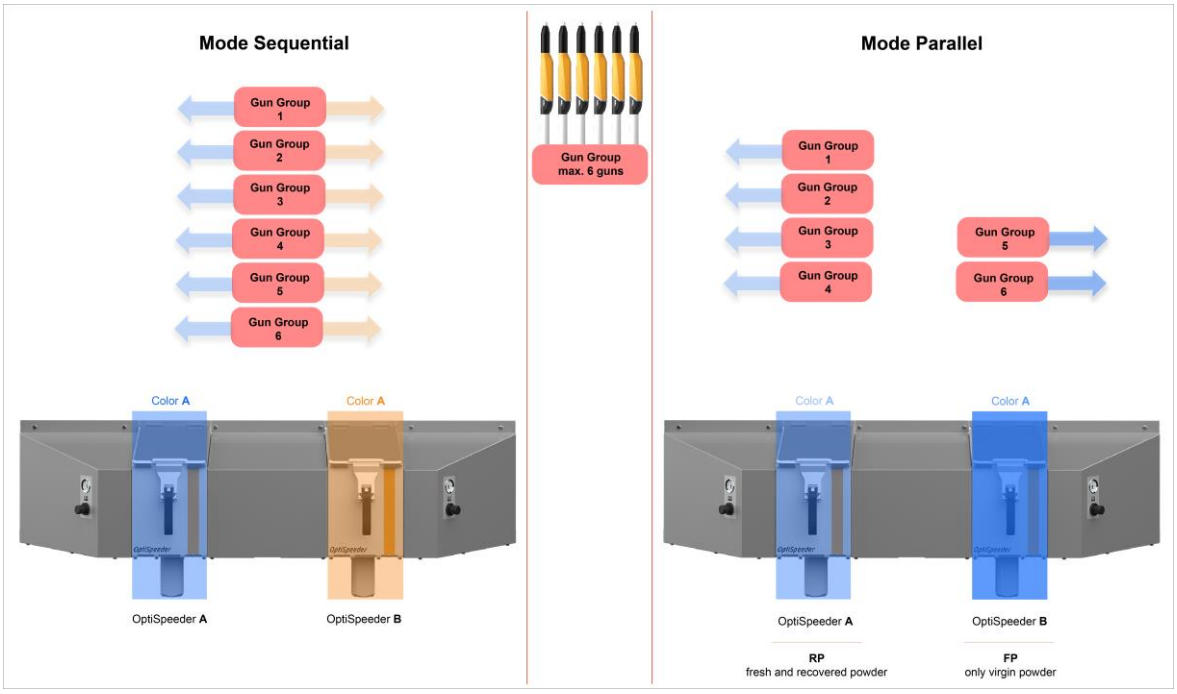


Fig. 21: Functional principle of gun grouping

The assignment of the gun groups to the respective OptiSpeeder can be selected in the Configuration menu under “Configure gun group”.

See chapter "Configuration" on page 71.

Powder bag cone with weighing function**

A weighing cell is fitted under the swing arm. This is used to evaluate the local powder consumption (in kg) and can therefore be assigned to the coating application.

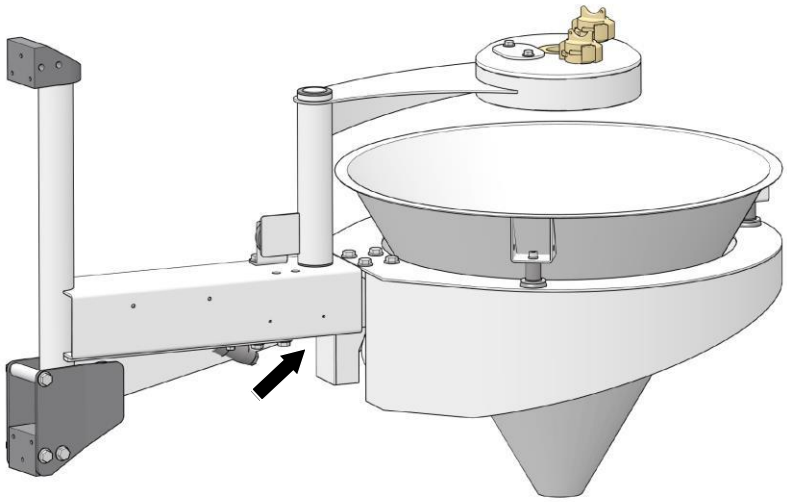


Fig. 22: Powder cone with weighing function

– Load capacity of over 100 kg
– Can be swiveled for easy powder emptying
– Fluidizing/suction unit
– Fresh powder pump connection
– Recovery powder pump connection

Airmover-Set**

The powder hopper can be vented using the Airmover-Set. This prevents powder escaping from the powder hopper.

The connection of the Airmover-Set is shown in the pneumatic diagram.

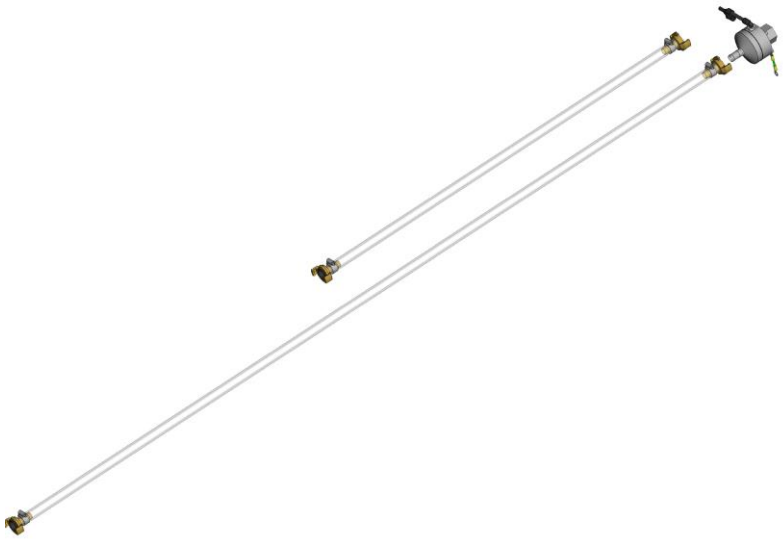


Fig. 23: Airmover-Set

Level sensor**

Fig. 24: Level sensor

– For level detection in the powder bag cone or in the powder hopper
– Height adjustable
– Fluidized in the measuring range

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.

Fig. 25: Ultrasonic sieve system

For additional information, please see the operating instructions of the ultrasonic sieve system!

See chapter "Other applicable documents" on page 9.

Powder hopper**

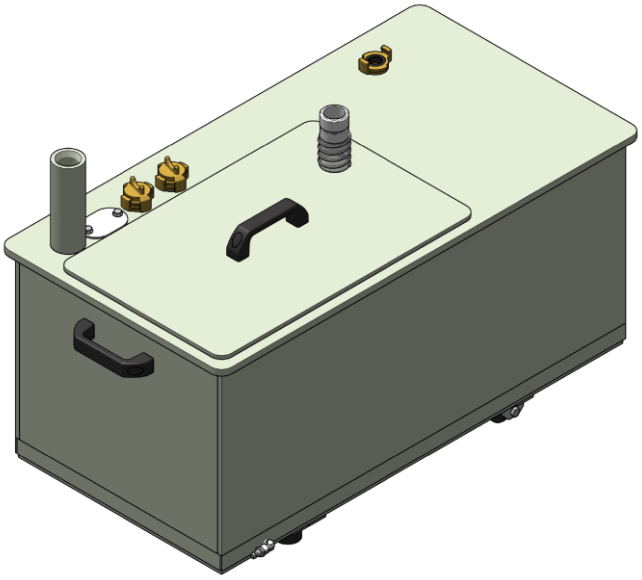


Fig. 26: Powder hopper (optional)

– 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.

Principle of operation

Powder cycle “spray to waste”

During the typical OptiCenter (**7**) operation, the powder bag is put in the powder bag cone (**12**). 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 application pumps (**4**) 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 conveyed directly into the waste container (**6**).

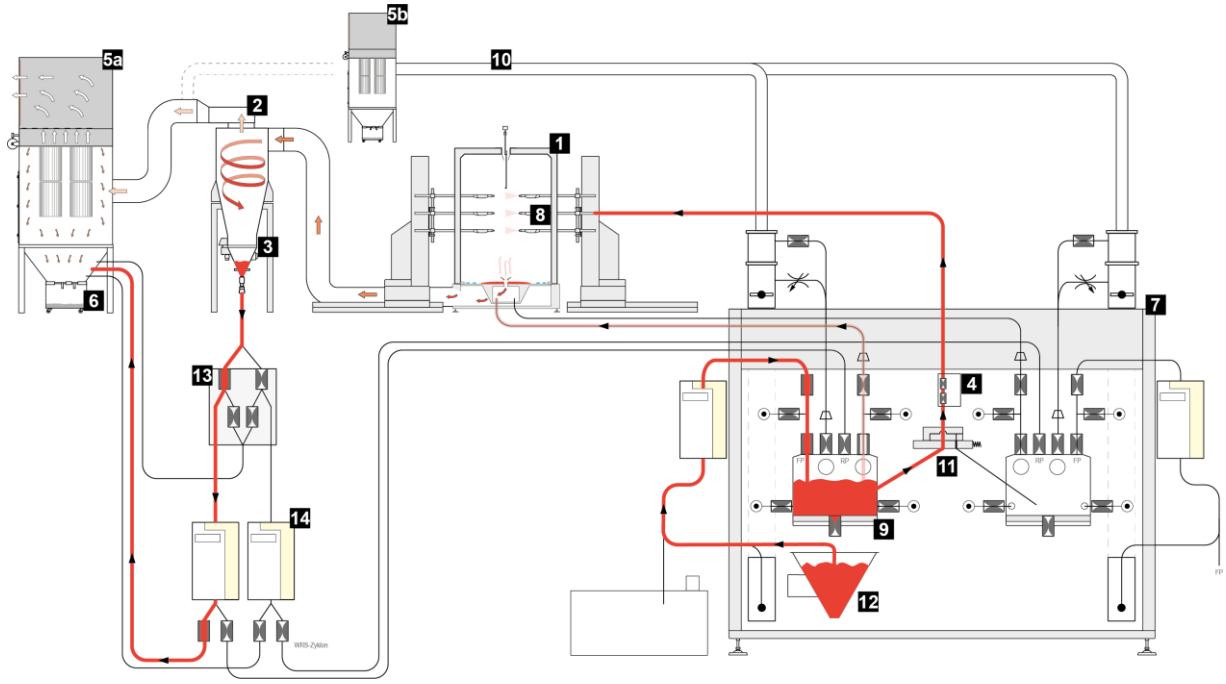


Fig. 27: Powder flow “spray to waste”

1 Booth
2 Cyclone separator
3 Sieve
4 OptiSpray application pump
5a After filter
5b OC-After filter
6 Waste container
7 OptiCenter
8 Automatic powder guns
9 OptiSpeeder
10 Exhaust air ducting
11 MultiColor switch
12 Powder bag cone
13 MultiColor switch-Cyclon
14 OptiFeed Dense phase conveyor

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. The cleaned air then exits the filter and is fed directly back into the workshop environment.

Powder cycle “Recycling”

During the typical OptiCenter (**7**) operation, the powder bag is put in the powder bag cone (**12**). 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 application pumps (**4**) 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 (**14**), where it is prepared again for coating operation.

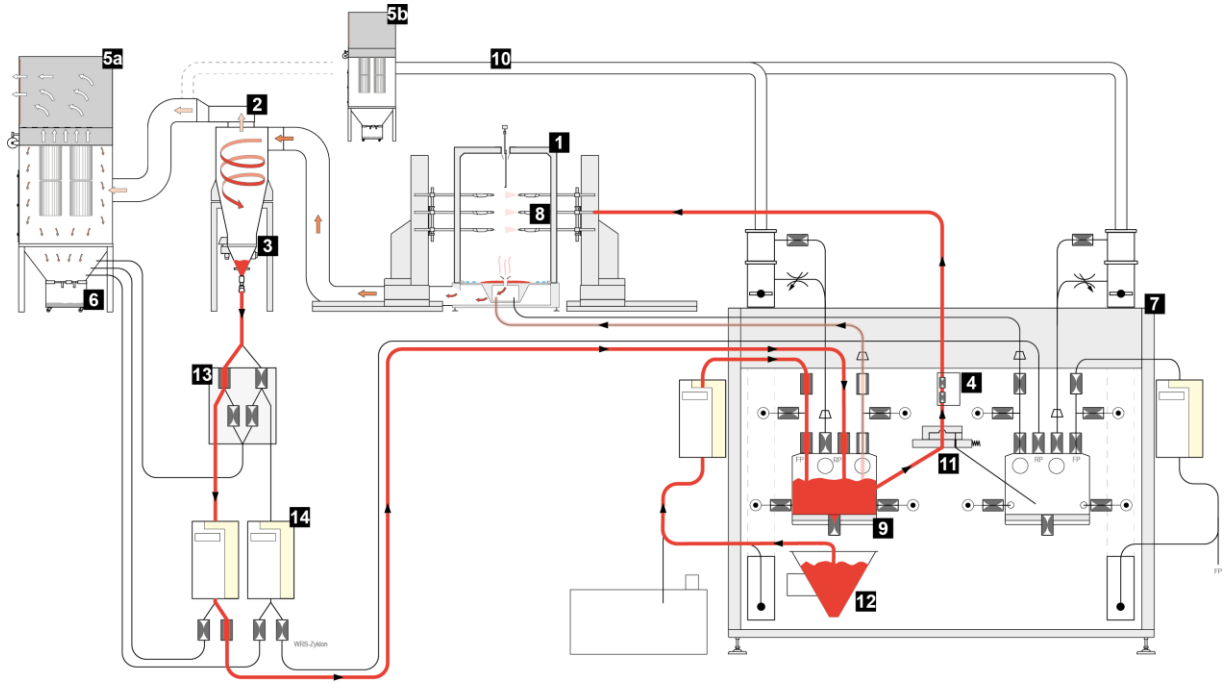


Fig. 28: Powder flow “Recycling”

1	Booth	8	Automatic powder guns
2	Cyclone separator	9	OptiSpeeder
3	Sieve	10	Exhaust air ducting
4	OptiSpray application pump	11	MultiColor switch
5a	After filter	12	Powder bag cone
5b	OC-After filter	13	MultiColor switch-Cyclone
6	Waste container	14	OpitFeed Dense phase conveyor
7	OptiCenter		

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. The cleaned air then exits the filter and is fed directly back into the workshop environment.

Operating modes

Mode – Sequential

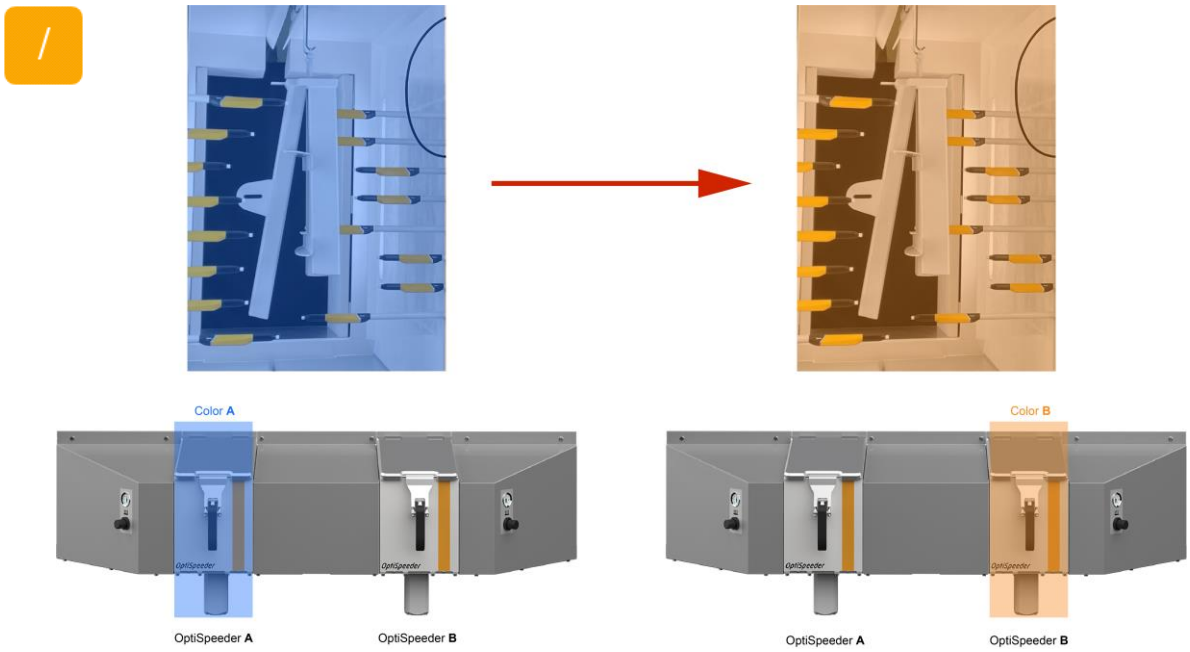


Abb. 29: Sequential mode

Coating with powder recovery (spray)

- There is witch powder recovery in this coating mode. The powder, which does not adhere to the object, is returned to the powder cycle.
- Automatic switchover from fresh to recovery mode after color change

Use of this coating type:

– 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.

The cabin must be cleaned manually.

Coating without powder recovery (waste)

- There is no powder recovery in this coating mode. The powder, which does not adhere to the object, is fed directly to the waste
- Enables the handling and color change of two different colors in a parallel process. This ensures a color change in 60 seconds without interrupting operation

Use of this coating type:

– If highest coating quality is required

No cabin cleaning required.

Mode – Parallel

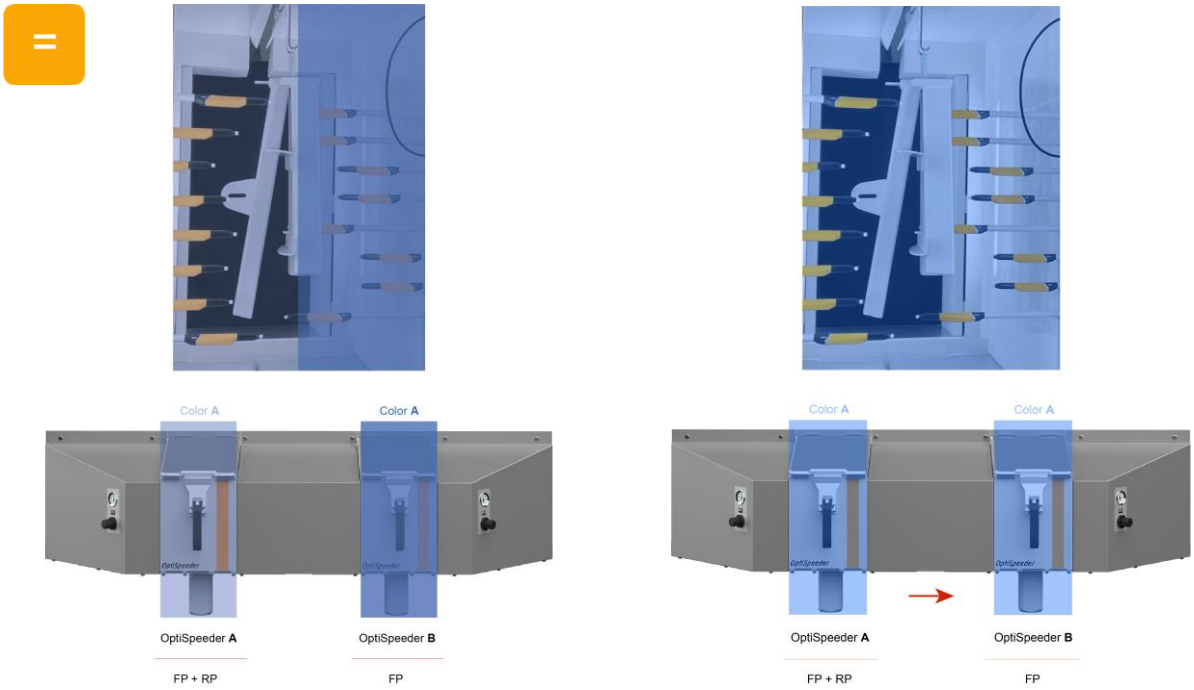


Fig. 30: FP + RP simultaneously and independently (left) / Redundant powder source (right)

Coating with fresh and recovered powder

1. **Use of the coating with fresh and recovered powder:**
   - In this type of coating, fresh and recovered powder are used simultaneously, but independently of each other.
   - The OptiSpeeder **A** is filled with fresh and recovery powder (**FP+RP**).
   - The OptiSpeeder **B** is filled with fresh powder (**FP**) only.
2. **Use of the coating with different types of powder:**
   - Two different types of powder can be used in this type of coating. For example, with specially adjusted powders to optimize the punching edge problem.
3. **Use of the coating with redundant powder source:**
   - This type of coating works with fresh and recovered powder (**FP+RP**).
   - The OptiSpeeder **B** forms the redundantly available powder source.

     The assignment of the powder source is controlled via the gun group.

▶ **The assignment of the powder source is controlled via the gun group.**

See chapter "Configuration" on page 71.

Mode - Cleaning

This operating mode allows the user to flexibly select the cleaning modes and perform the cleaning steps either automatically or manually:

– **Cleaning mode (waste):**
Quick cleaning program for color changes within the same color tones and between contrasting colors.

– **Cleaning mode (spray):**
Cleaning program for color changes within the same or adjacent color tones.

▶ **The higher the quality requirement, the higher the time expenditure will be.**

▶ **TIP:**

To achieve an optimum result, the color change should ideally carried out within the same color tones or to an adjacent color tones.

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

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

Parameter description

Starting recovery after a color change (waste/spraqy)

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 fed back into the powder circuit.

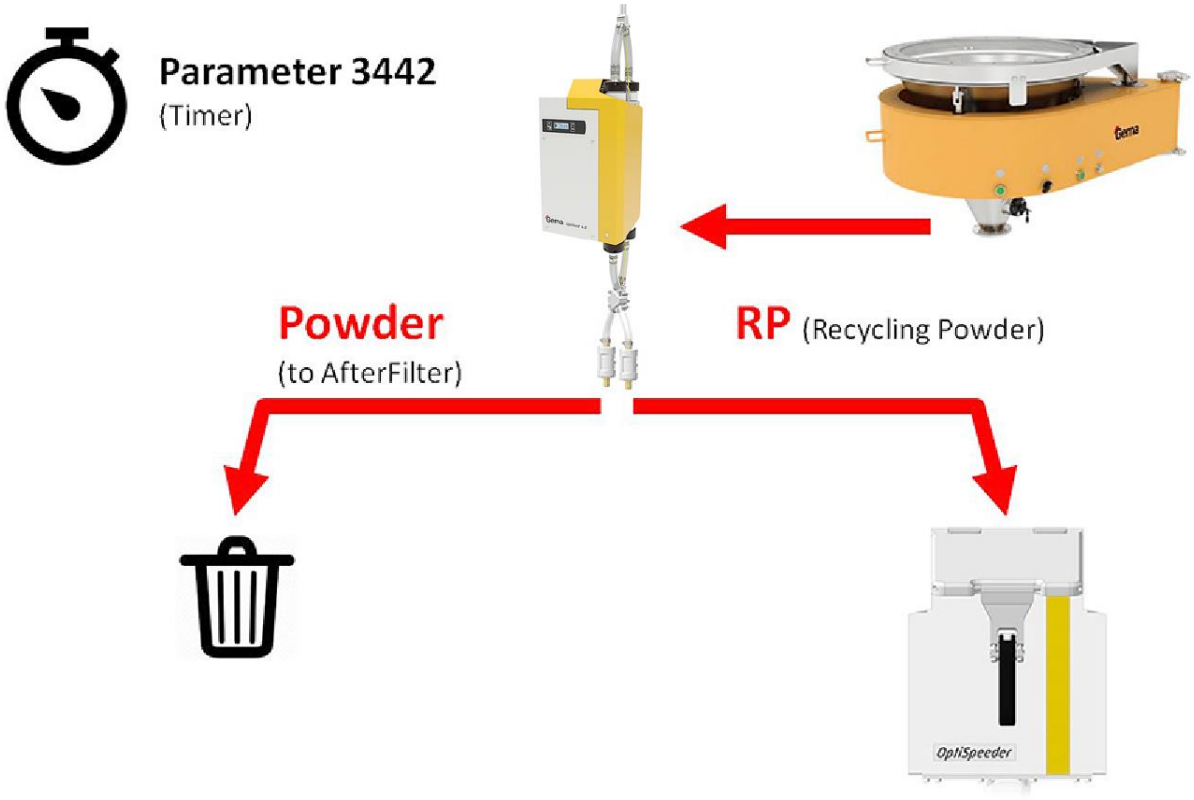


Fig. 31: Starting recovery after a color change [3442]

The delay time can be set in the parameter list in the Configuration menu.

See chapter "Configuration" on page 71.

Delay freshpowder demand

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 at parameter 3440 the powder level is reached again.

To prevent the powder collection unit (under the cyclone) from overfilling, the fresh powder supply by parameter 3460 is delayed 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 with parameter 3460 be set

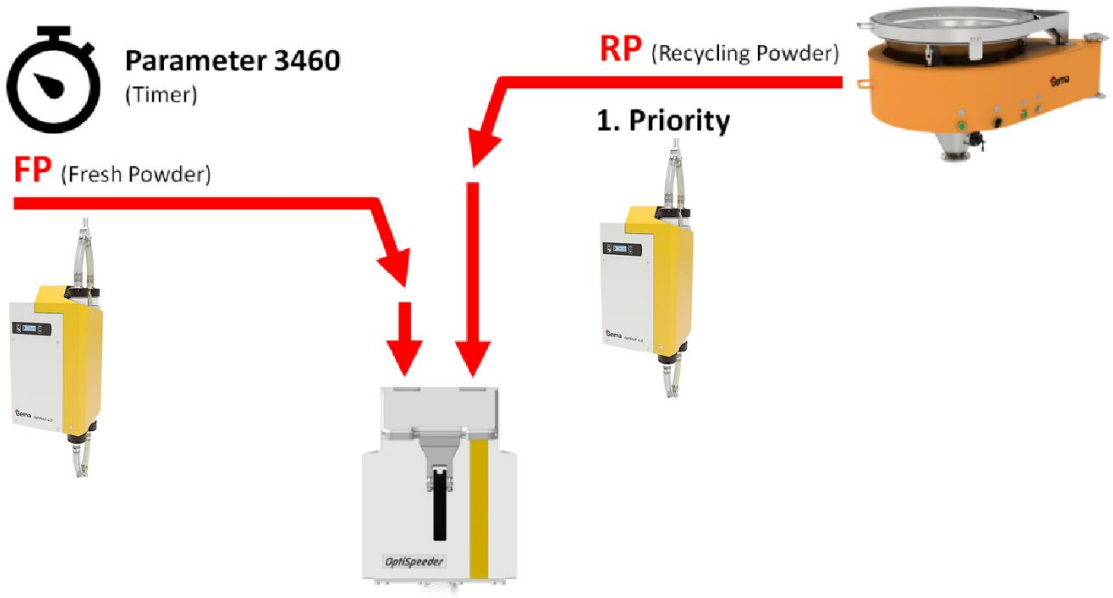


Fig. 32: Delay freshpowder demand [3460]

▶ **The delay time can be set in the parameter list in the Configuration menu.**

See chapter "Configuration" on page 71.

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.

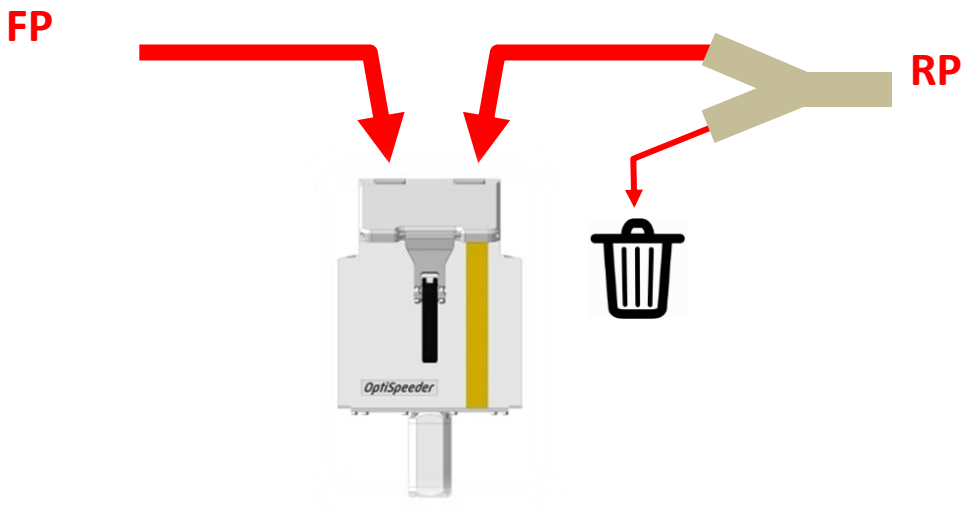


Fig. 33: Ratio recovery/fresh powder [3470]

For customers who have high requirements for coating results with large production batches, the OptiCenter offers the possibility this ratio with parameter 3470 to control.

Set value	100%	60%	0%
Proportion of powder to be recovered	100%	60%	0%
Proportion of powder taken from the system and substituted by fresh powder	0%	40%	100%

▶ **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

The ratio of fresh and recovery powder can be set in the parameter list in the Configuration menu.

See chapter "Configuration" on page 71.

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

MagicControl CM40	
Processor	ARM Cortex-A9 800 MHz
Internal memory	512 MB RAM, 1 GB SLC
Remanent memory	128 kB

Electrical data

MagicControl CM40	
Nominal voltage	24 VDC SELV, extra-low safety voltage
Voltage range	24 VDC acc. to DIN 19240 19.2 - 30.0 VDC effective
Reverse voltage protection	yes
Protection	yes (internal inaccessible melting fuse)
Electrical insulation	no
Current consumption	max. 21.6 W/24 VDC
Switch-on current max.	1 A^2s

Dimensions

Touch Panel	
Mechanical dimensions	196 x 135 x 51 mm
Window	183 x 122 mm

Display

Touch Panel	
Technology	Projected Capacitive Touch (PCT)
Screen diagonal	7.0"
Resolution	1024 x 600 pixels (WXGA)
Number of colors	≈ 16.7 million (color depth 24 Bit)
Display surface	154 x 90 mm
Operation	Multifinger touch
Front screen	Anti reflex coated, scratch-proof

Connections

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

Environmental conditions

Touch Panel	
Climate	10-40 °C, 10-95% relative humidity, not condensing
Vibration / shock / drop test	Vibration – IEC 60068-2-6 Shock – IEC 60068-2-27 Drop test – IEC 60068-2-31

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

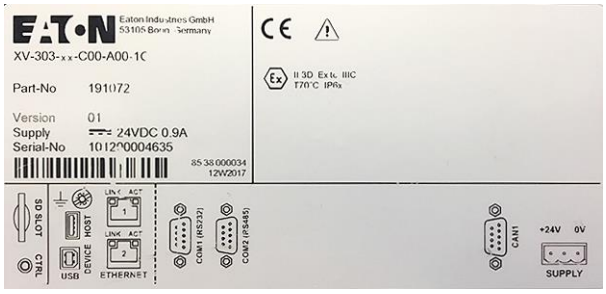


Fig. 34: Rating plate

Design and function

Operating and display elements

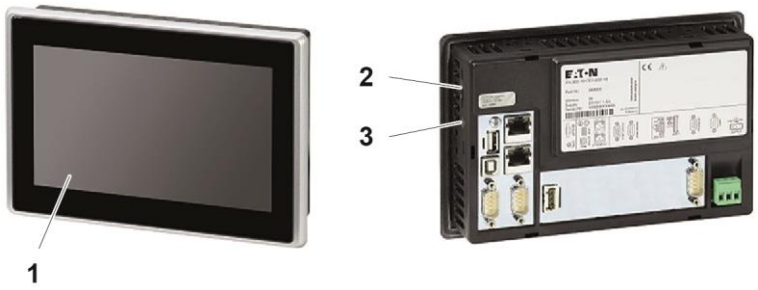


Fig. 35: Front and back

	Designation	Description
1	**Display, touch sensor**	Operating and display elements Acquisition of the actuation of the operating elements shown on the display. Operated by touch using fingers.
2	**SD card slot**	Slot for SD card
3	**CTRL button**	Exits the visualization program

Connections and interfaces

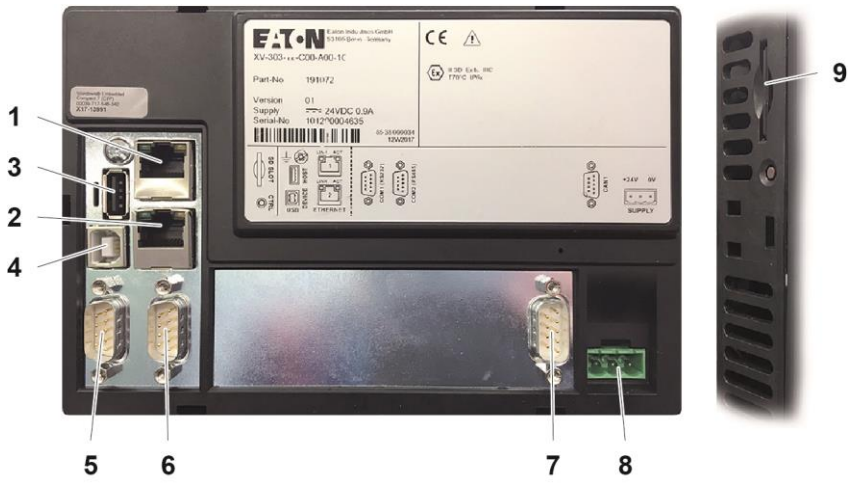


Fig. 36: Connections

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

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.

NOTICE

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.

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 operating instructions for the SD card.

► **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.

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.

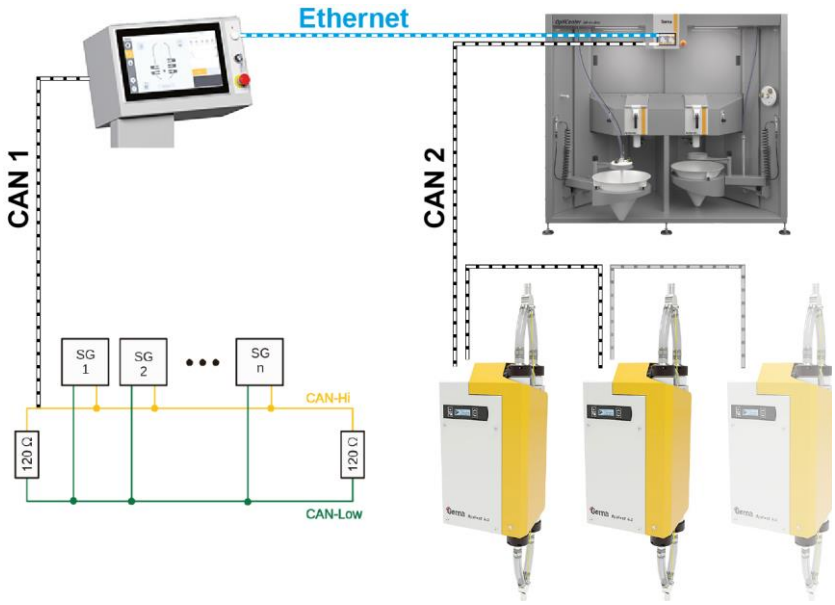


Fig. 37: System integration with CAN BUS

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

users	**Admin**	**Gema Service**	**user 1**	**user 2**	**user 3**
User level	**0**	**1**	**2**	**3**	**4**
User groups	Administrator	Service	Supervisor	Operator	Painter
The panel can be used without any limitation	•	–	–	–	–
Level for trained Gema personnel	•	•	–	–	–
Configuration possible	•	–	–	–	–
Plant parameters can be modified	•	•	•	–	–
If no user is logged on to the panel, operation is locked	–	–	–	–	–
Diagnosis possible	•	•	–	–	–

Menu structure

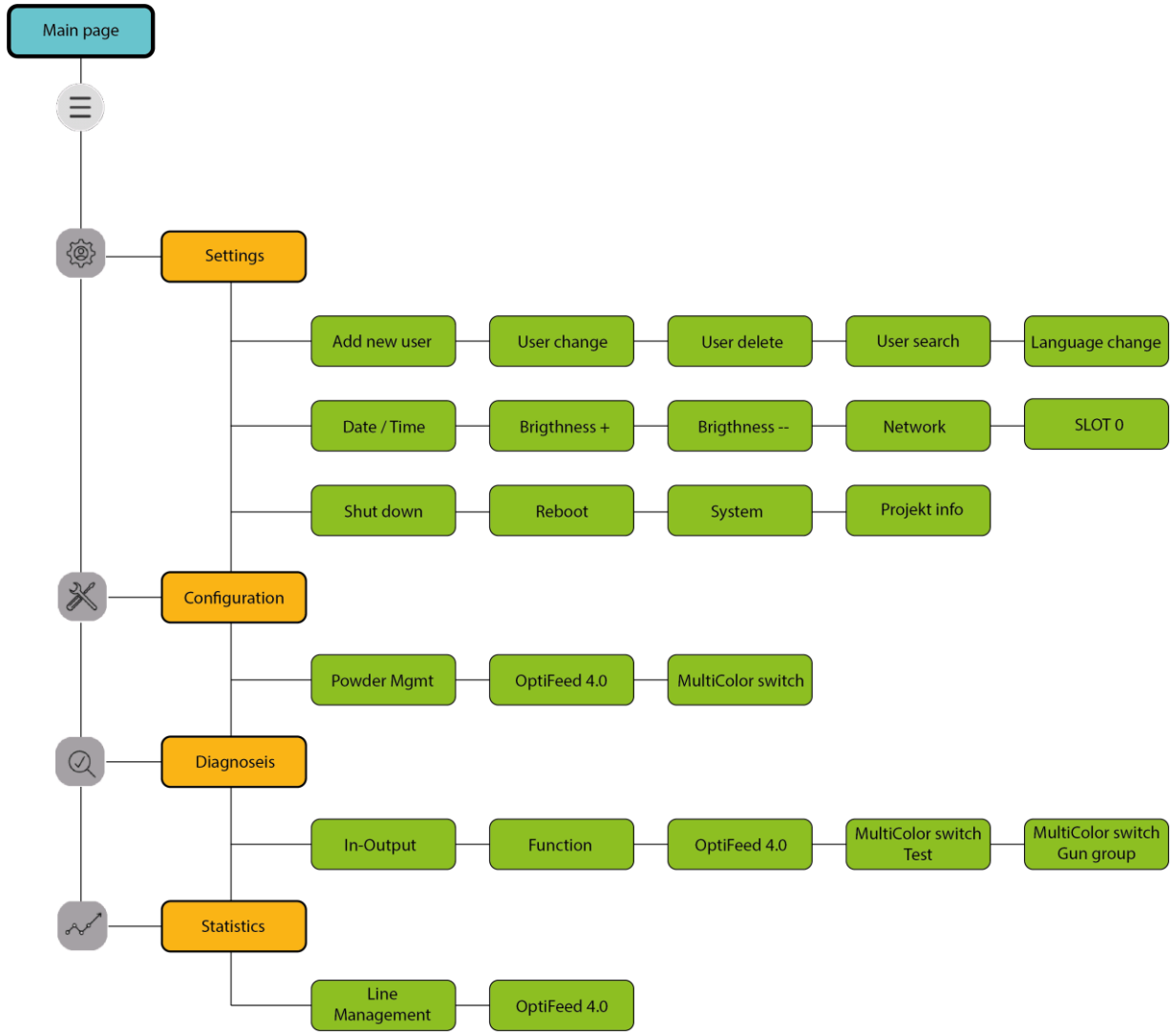


Fig. 38: Menu structure

Level	Designation	Corrective action
1. Level	Main page	This level represents the main working area. Coating and cleaning processes are carried out here.
2. Level	Navigation toolbar	The settings and information levels can be accessed via the navigation toolbar.
3. Level	Setting and information levels	Settings can be made and information viewed at these levels.

Symbols

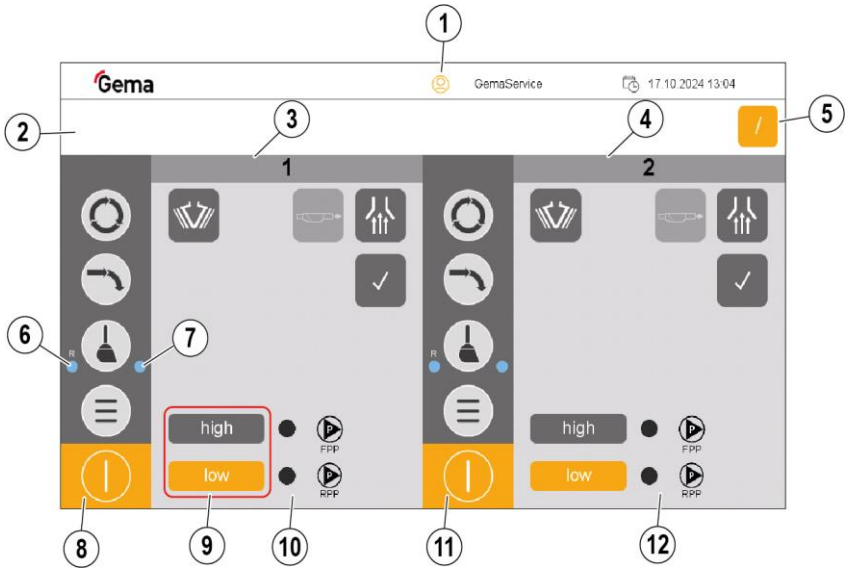


Fig. 39: Symbols

1 Login status bar
2 Display area for messages
3 Working area left (orange = **active**)
4 Work area right (gray = **inactive**)
5 Quick switchover from “Sequential” mode to “Parallel” mode
6 **With recovery:** Cleaned powder-guiding components
- OptiSpeeder
- Powder hoses
- Pumps (application and large-volume conveying)
- Cyclone cleaning completed

7 **Without recovery:** Cleaned powder-guiding components
- OptiSpeeder
- Powder hoses
- Pumps (application and large-volume conveying)

8 Navigation bar (left work area)
9 OptiSpeeder level sensor:
high: Detection for larger powder quantities in the OptiSpeeder
low: Detection for small powder quantities in the OptiSpeeder
10 Mode-dependent bar (left working area)
11 Navigation bar (right work area)
12 Mode-dependent bar (right working area)

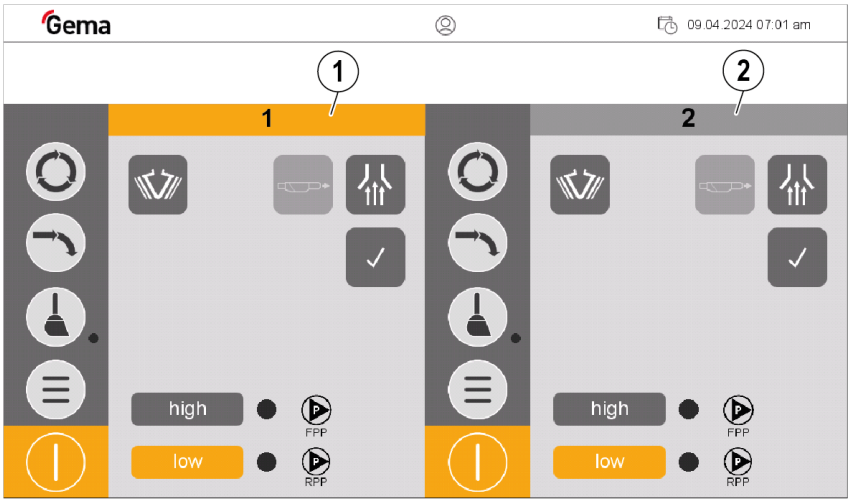
Meaning of the colors

Gray background
= present, but not active

Orange background
= active state

Gray background (hatched)
= locked function

Orange background (hatched)
= locked function



1 **Orange background =** active working area

2 **Gray background =** inactive working area

Function keys

NOTICE

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.

	Coating with powder recovery		Cleaning operation mode
	Coating without powder recovery (spray to waste container)		Main menu
	OptiCenter OFF (Press and hold 2 seconds)		Vibrator ON/OFF
	Extraction system ON/OFF		Gun hose rinsing
	Manual coating		Confirm error messages
	Cleaning (manually controlled)		Cleaning (time-controlled)
	Cleaning ON		Cleaning OFF
	Empty OptiSpeeder		Blow off OptiSpeeder
	Clean powder hoses		Clean fresh powder pump
	US sieve ON/OFF		Fluidize OptiHopper
	Suction ON/OFF		Back key
	Mode: Sequential		Mode: Parallel

Diagnostics

Access to diagnostics can be restricted or blocked depending on user authorization.

– See chapter "Functions available at user level" on page 60.

In-/Outputs

All inputs, outputs and valves are labeled and correspond to the designations in the pneumatic diagram. All assigned inputs and outputs can be activated and deactivated at this level.

1. Press the  key.
2. Press the  key.
3. Press the  key (inputs/outputs).
   – The following page is displayed:

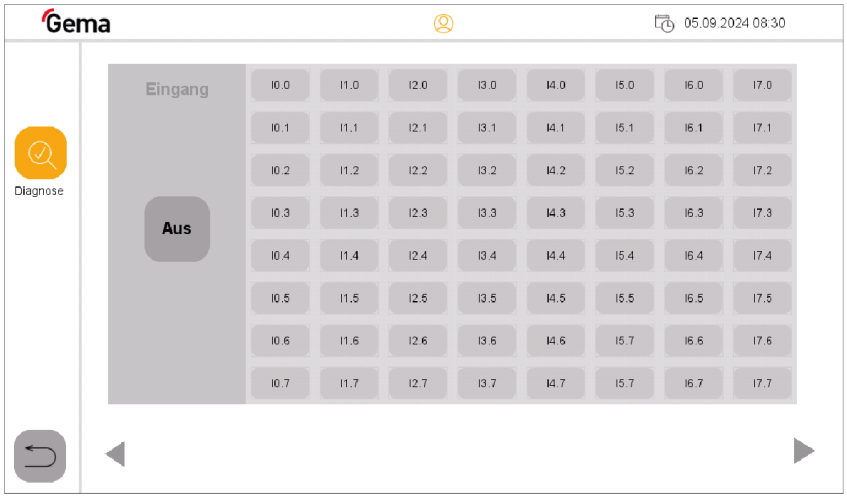


Fig. 40: Inputs

4. Press the ► key
   – The following page is displayed:

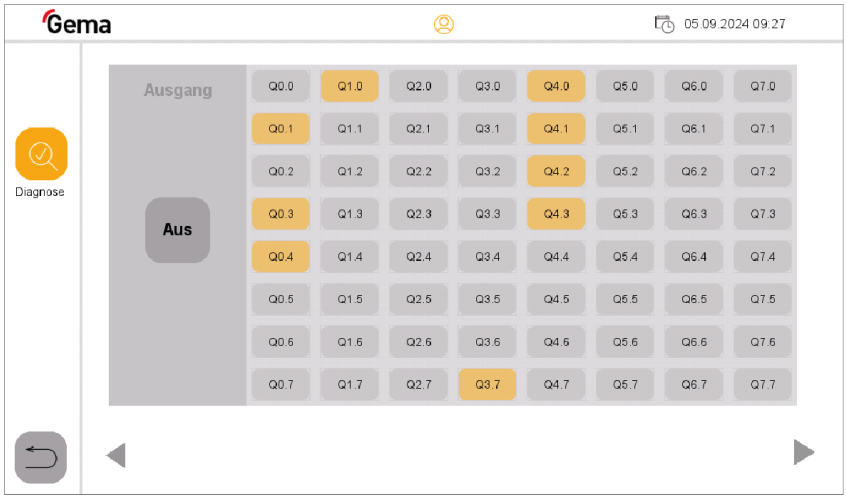


Fig. 41: Outputs

5. Press the ► key
   – The following page is displayed:

Fig. 42: Valves pool

Process monitoring

The current operating mode is displayed schematically and the process can be tracked in real time.

1. Press the  key.
2. Press the  key.
3. Press the  key (function)
   – The following page is displayed:

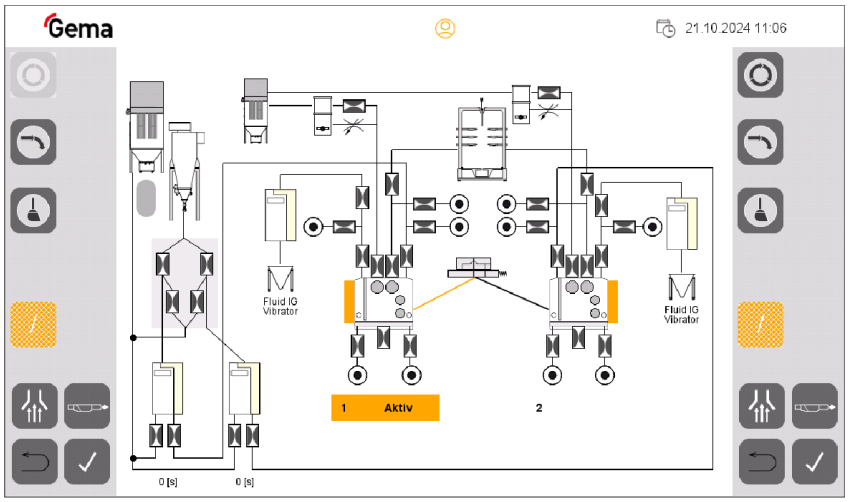


Fig. 43: Process illustration

MultiColor switch function test

By activating the “**Test**” tile, the MultiColor switches can be checked for functionality using the other tiles displayed.

NOTICE

Possible powder dust development!

Powder dust may form during the test.

- Wear suitable protective equipment, e.g. safety goggles and face mask.

NOTICE

Overpressure development in OptiSpeeder!

Overpressure can only occur if there is a valve misalignment or a control error.

- Remove the lid and check whether there is any powder inside is located. Observe protective measures!

1. Press the  key.
2. Press the  key.
3. Press the  key (MultiColor switch test)
   – The following page is displayed:

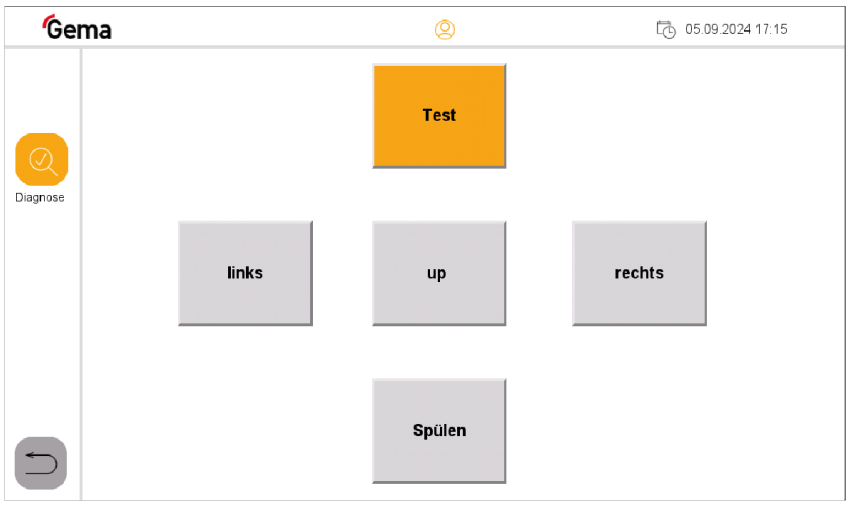


Fig. 44: MultiColor switch function test

Tile	Function
Test	Activation of the test run.
left	• Movement to the left (end position of the brass plate is flush) • Aspiration of powder from OptiSpeeder A • Flushing the intake section to the OptiSpeeder B
up	Activation of the elevation of the MultiColor switches for wear-free movement
right	• Movement to the right (end position of the brass plate is at the front) • Aspiration of powder from OptiSpeeder B • Flushing the intake section to the OptiSpeeder A
rinsing	• Activation of the flushing of the suction hose • Position to the left of the MultiColor switches = flushing of the intake section to OptiSpeeder B • Position to the right of the MultiColor switches = flushing of the intake section to OptiSpeeder A

Assign gun group

1. Press the  key.
2. Press the  key.
3. Press the  key (MultiColor switch Gun group)
   – The following page is displayed:

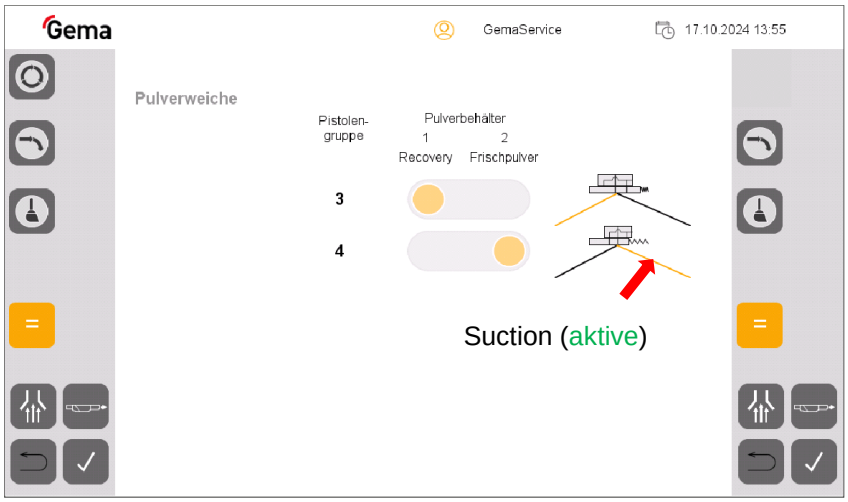


Fig. 45: Assign gun group

Statistics

Operating data

1. Press the  key.
2. Press the  key.
3. Press the  key (Line Management)
   – The following page is displayed:

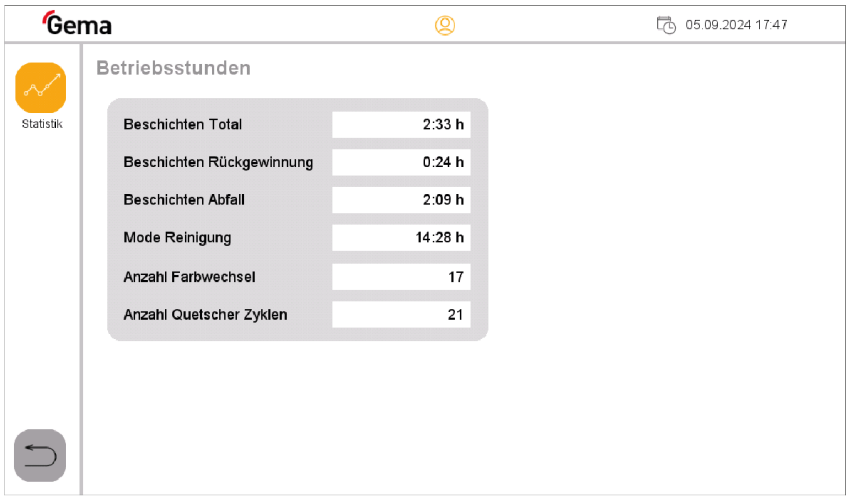


Fig. 46: Operating data

Mode paint total	The productive plant utilization/coating time
Mode paint recovery	Total productive time in operating mode **Coating with recovery (spray)**
Mode paint waste	Total productive time in operating mode **Coating without recovery (waste)**
Mode Cleaning	Total productive time in operating mode **Cleaning**
Number of color changes	Number of color changes
Number of cycles	Number of times the pinch valve is switched on and off during operation.

Configuration

Configuration and parameters

1. Press the  key.
2. Press the  key.
3. Press the  key (Powder Mgmt).
   – The following page is displayed:

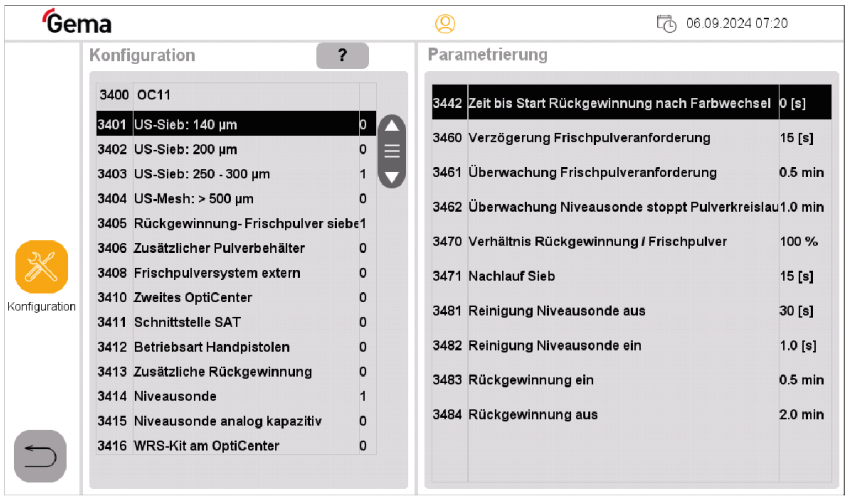


Fig. 47: Configuration– parameters

4. Use the  key to scroll down the list (configuration).
5. Press the required configuration or parameter setting.
   – Configuration: Activate/deactivate
   – Parameterization: Make settings

Assign gun group

Notice

The individual labels on the display (e.g. A-01 to A-06) correspond to the labeling (adhesive) on each individual OptiSpray pump.

1. Press the  key.
2. Press the  key.
3. Press the  key (MultiColor switch).
   – The following page is displayed:

Fig. 48: Configure gun group

Settings

Depending on user rights, individual functions and settings may not be accessible and are locked.

– See chapter "Functions available at user level" on page 60.

1. Press the  key.
2. Press the  key.
   – The following page is displayed:

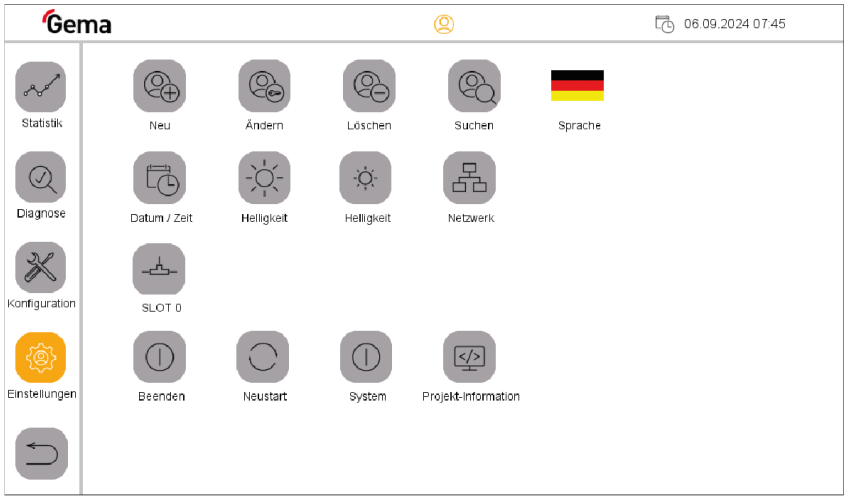


Fig. 49: Settings

The following settings can be made:

Icon	Setting
	Create user
	Password change
	Delete users
	Search users
	Set date / time
	Increase the brightness of the touch panel
	Reducing the brightness of the touch panel
	Network features

Icon	Setting
	Can only be activated or deactivated.
	**Shut down:** Switches the touch panel off **System:** Additional setting options
	Restart the OptiControl
	View system information (software version)
	Change language

User administration

Status display

The login status is displayed in the corresponding bar:

User logged in

User logged out

Login

The user can log in as follows:

– By clicking on the symbol in the login status bar , if another user has previously logged out

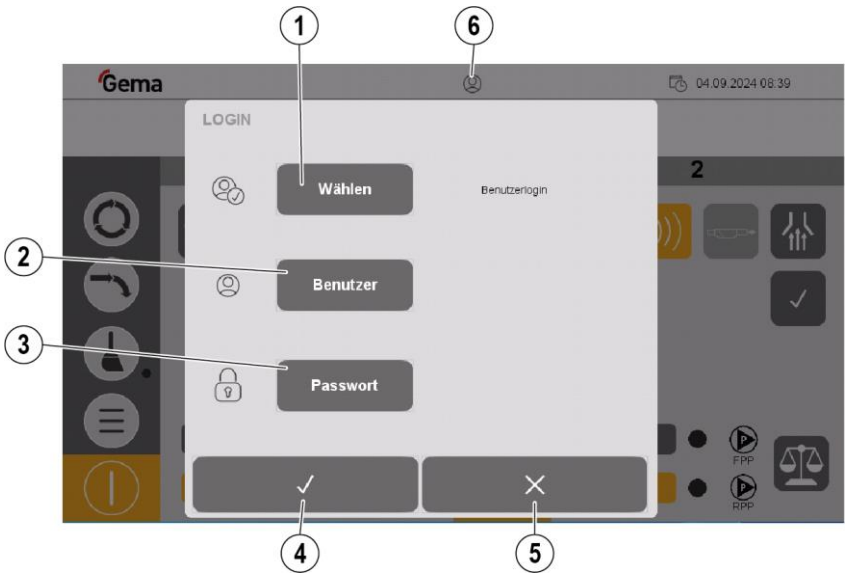


Fig. 50: Login

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

Log-in procedure

1. Press the **Select** key

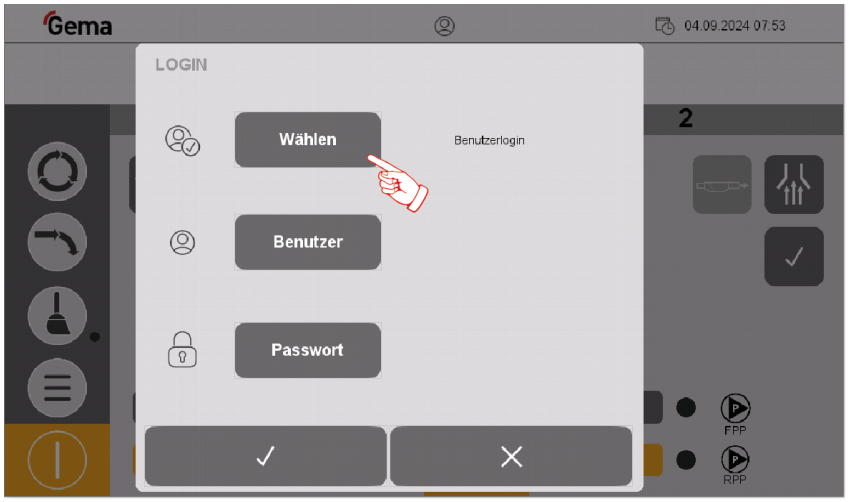


Fig. 51: Login – Main page (not logged in)

2. Select the desired user profile and confirm by pressing the ✓ key

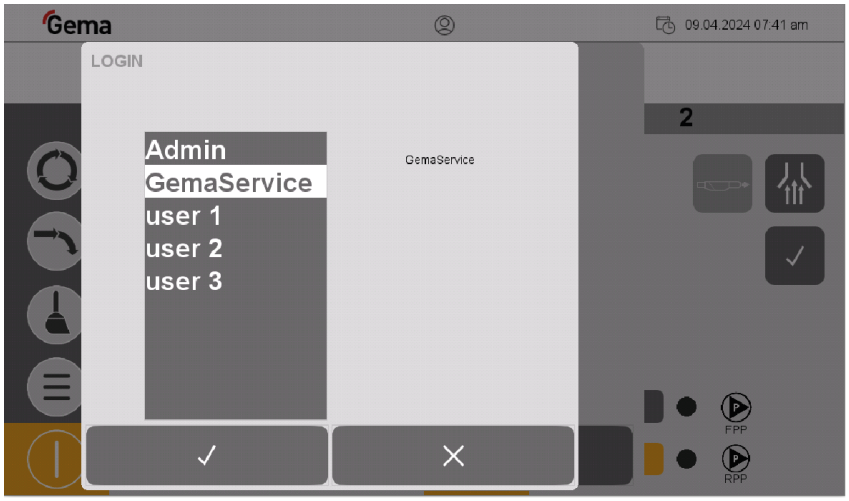


Fig. 52: Login – User selection

Alternatively, the user can enter their own name directly by pressing the **User** key

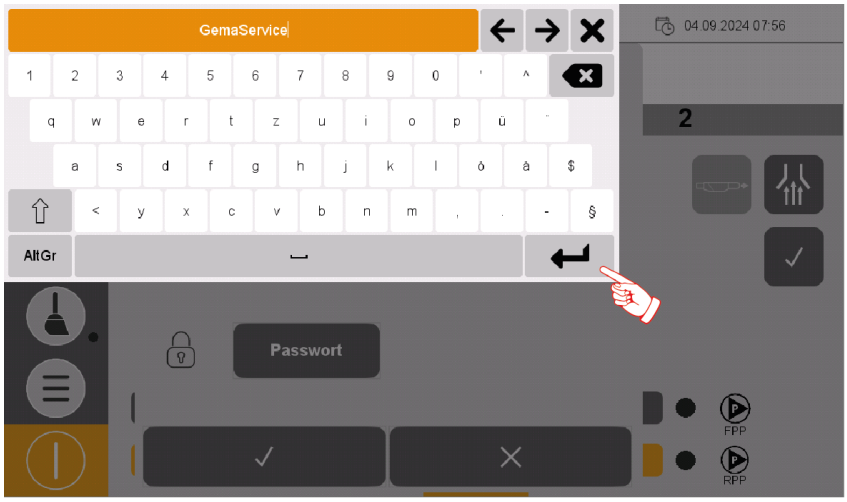


Fig. 53: Login – User input

3. Enter user name and confirm by pressing **ENTER**

4. Press the **Password** key

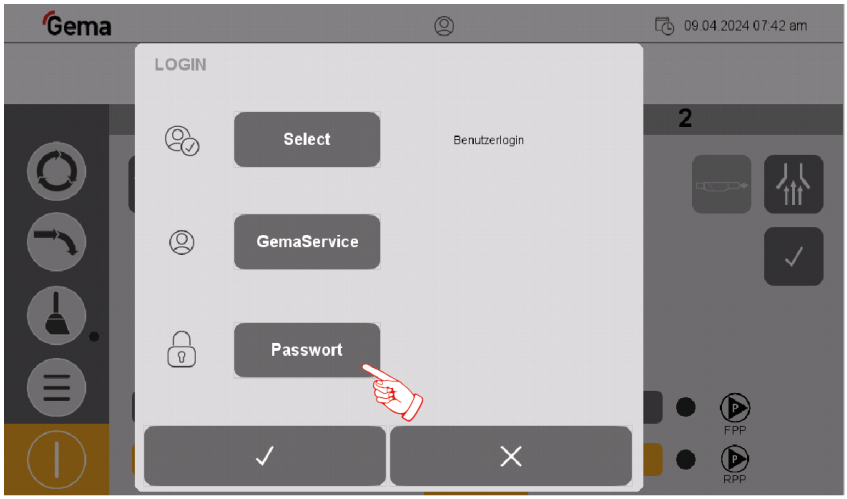


Fig. 54: Login – Password

5. Enter password and confirm by pressing **ENTER**

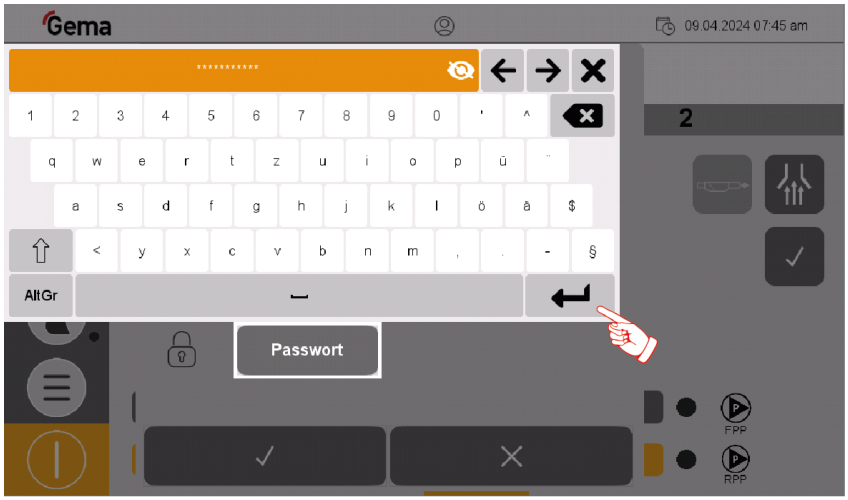


Fig. 55: Login – Password input

6. Press the ☑ key.

Fig. 56: Login – Confirmation

– The following screen is displayed:

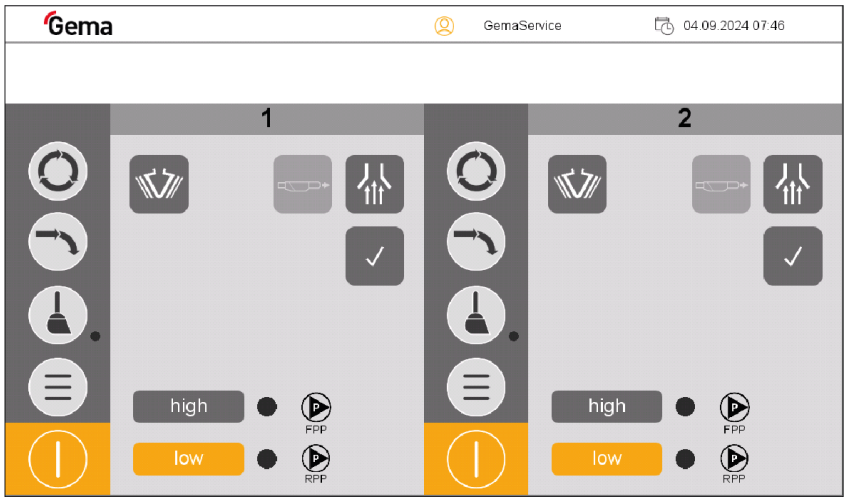


Fig. 57: Login – Main page (logged in)

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 143.)

– 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 60.

Create user

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

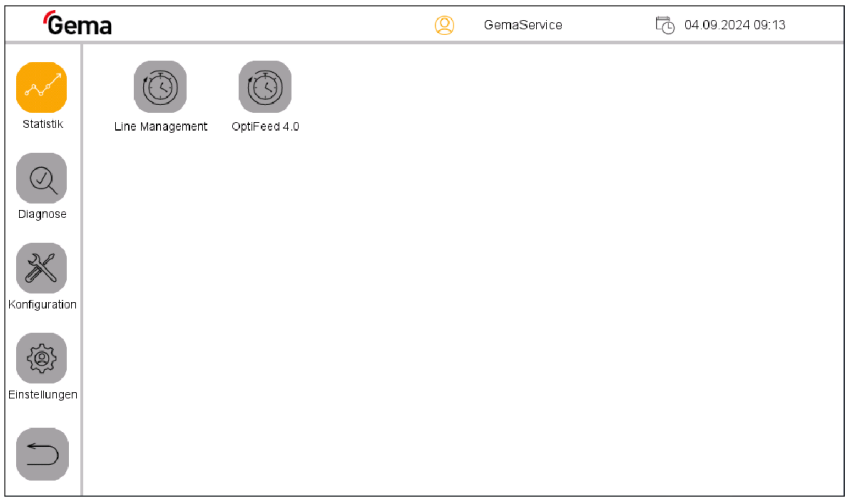


Fig. 58: Create user

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

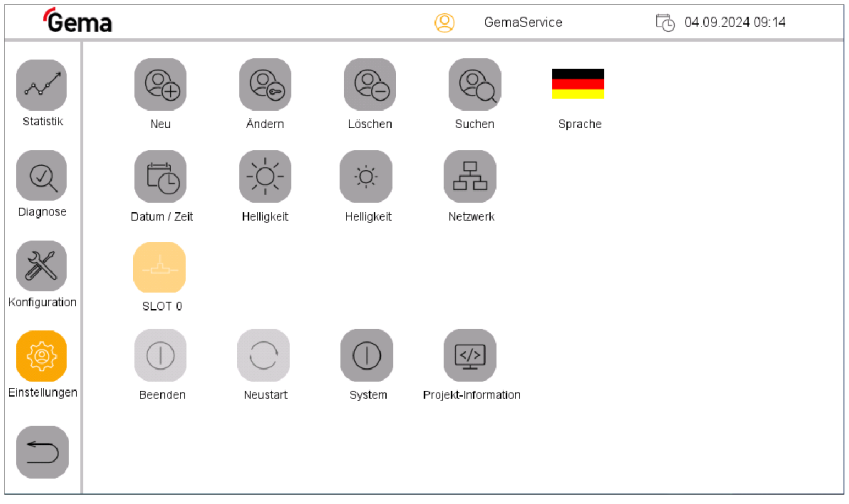


Fig. 59: Settings

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

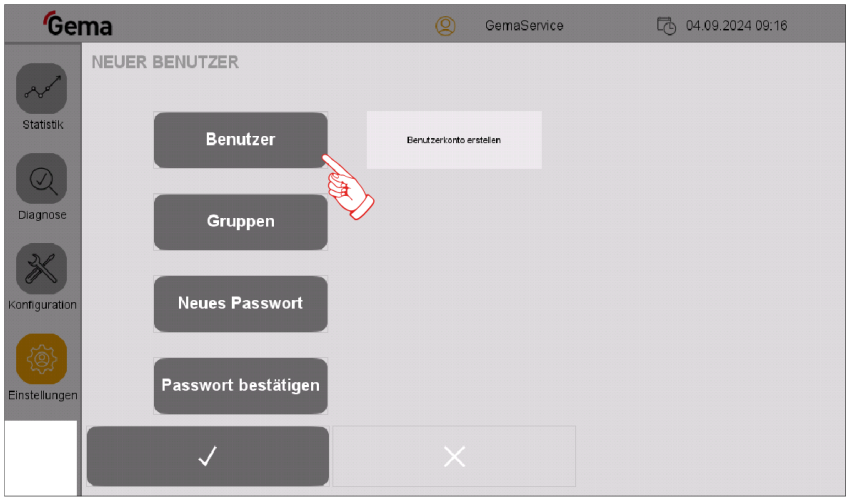


Fig. 60: New user

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

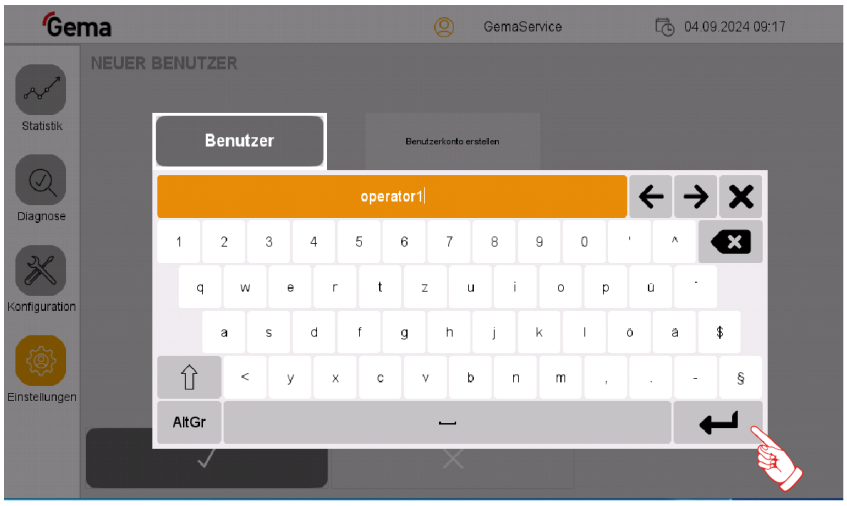


Fig. 61: User name

5. Enter user name
6. Press the **ENTER** key to confirm

7. Press the “**Groups**” key
   – A corresponding dialog opens.

Fig. 62: Select group

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 **ENTER** key to confirm
9. Press the “**New password**” key
   – A keyboard opens to enter a password for the new user.

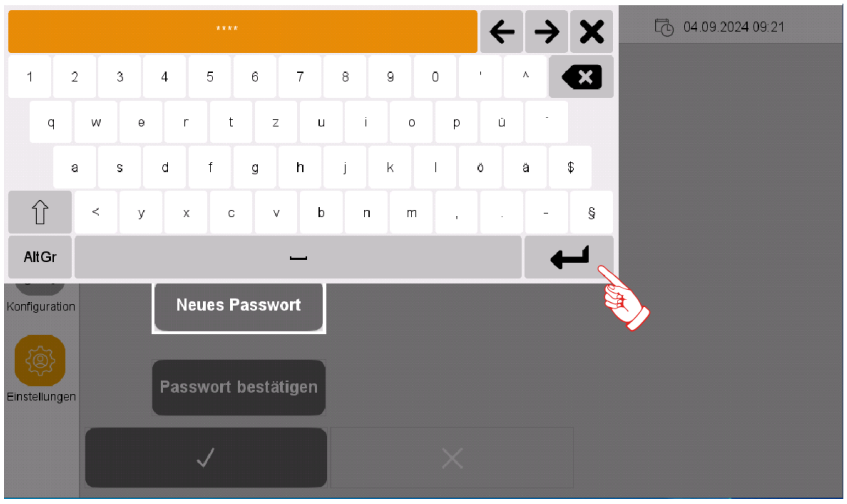


Fig. 63: Generate new password

10. Enter password
11. Press the **ENTER** key to confirm

12. Press the “**Confirm password**” key
    – A keyboard opens and the password for the new user must be entered again.

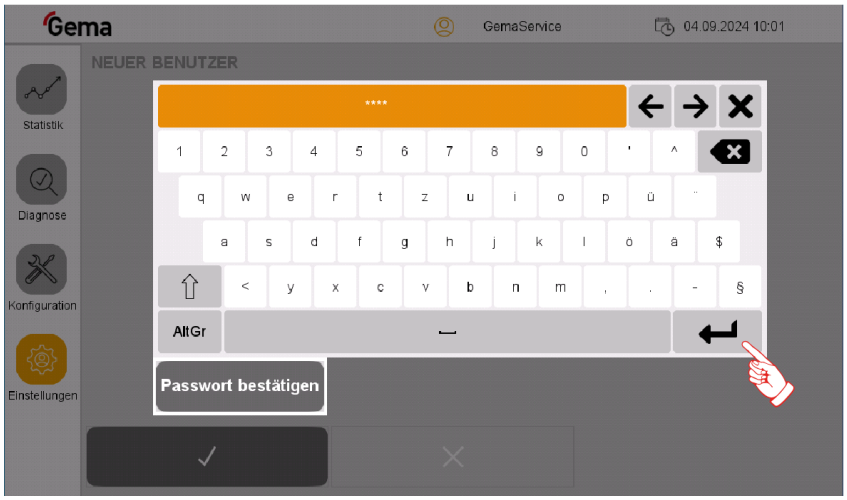


Fig. 64: Confirm new password

13. Press the **ENTER** 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. Press the ☰ key
    – The following page is displayed:

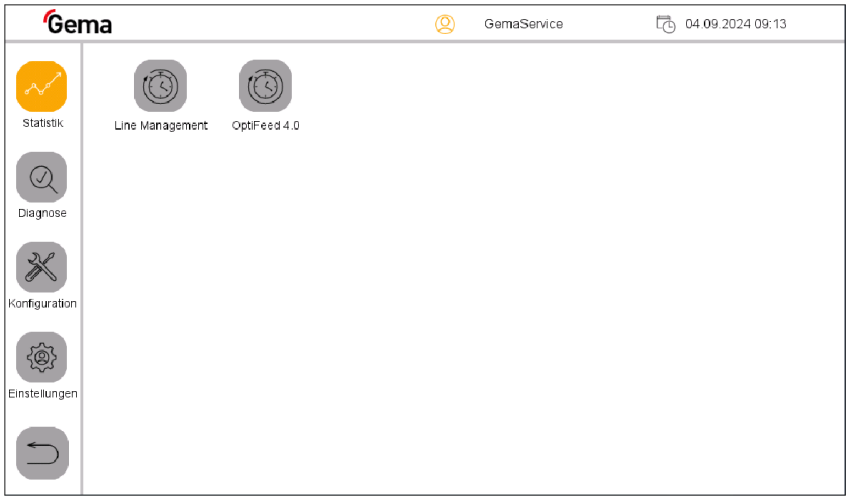


Fig. 65: Navigation bar

2. Press the ⚙ key
    – The following page is displayed:

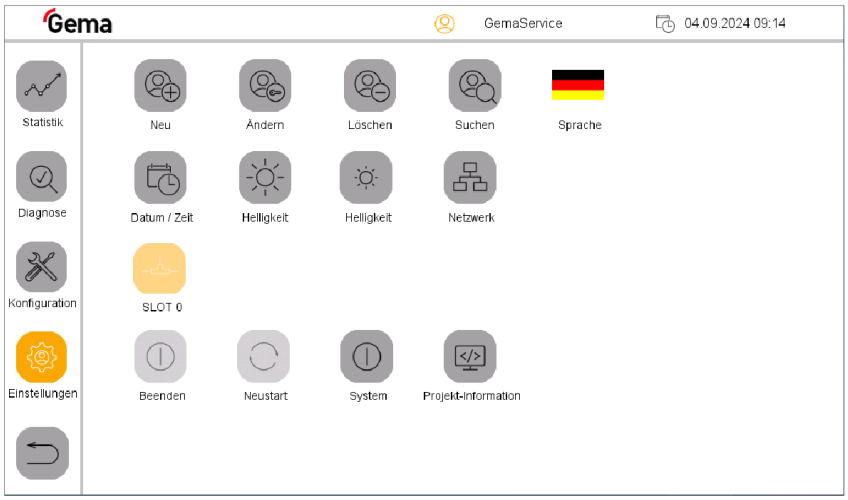


Fig. 66: Settings

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

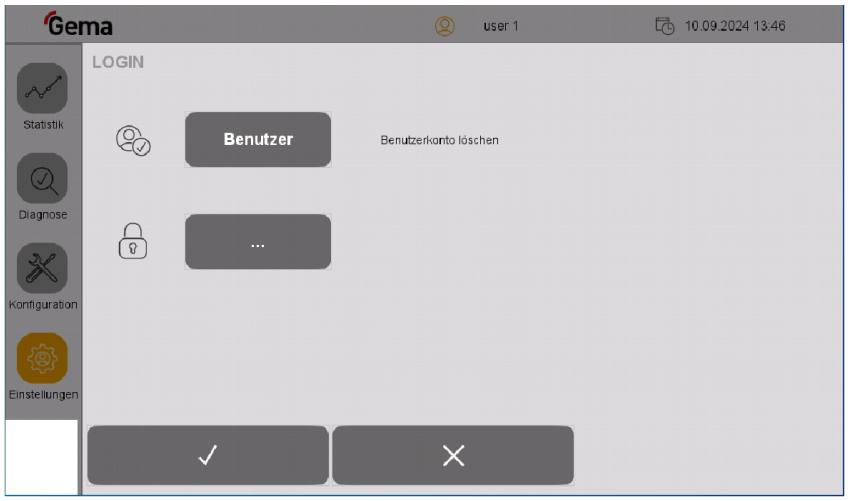


Fig. 67: Delete users

4. Press the “**User**” key.
   – A keyboard opens to enter the user name to be deleted.

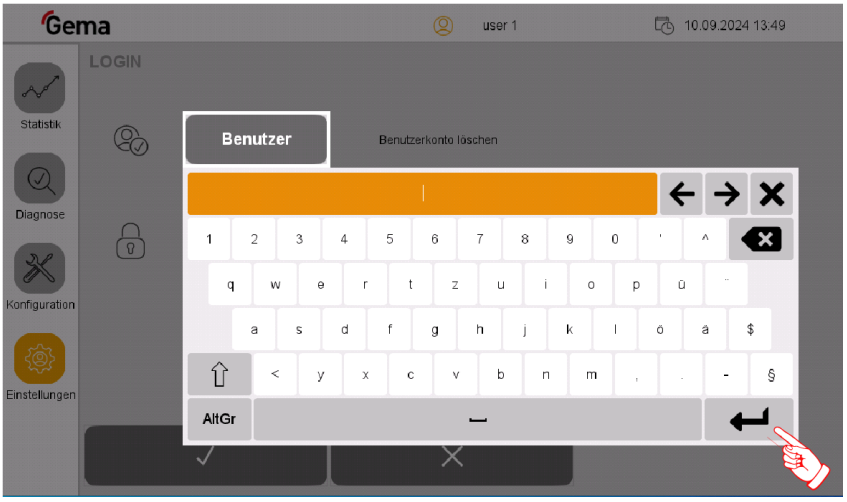


Fig. 68: Search users

5. Enter the user name to be deleted.
6. Press the **ENTER** key to confirm.

OR

7. Press the ... key.
   – A corresponding dialog opens.

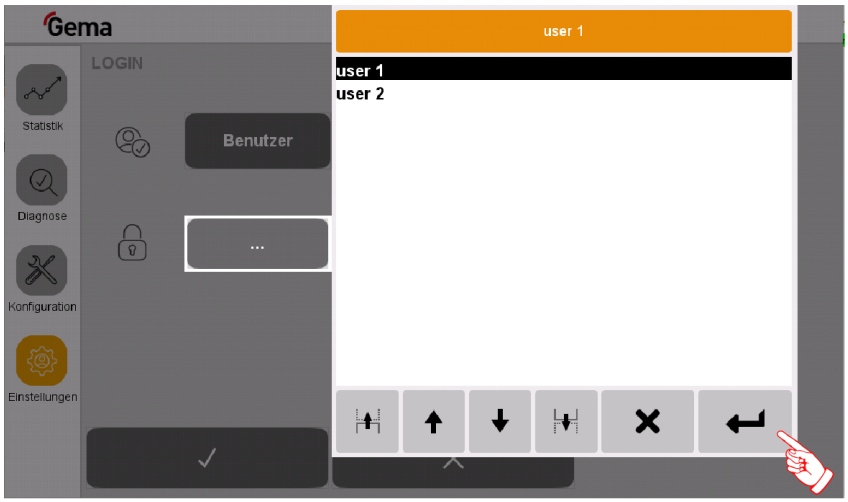


Fig. 69: Select user

8. Select the user to be deleted using the arrow keys (<<, <, >, >>).
9. Press the **ENTER** key to confirm
10. Press the ✓ key
    – The following page is displayed:

Fig. 70: User successfully deleted

Change user password

1. Press the ☰ key.
   – The following page is displayed:

Fig. 71: Navigation bar

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

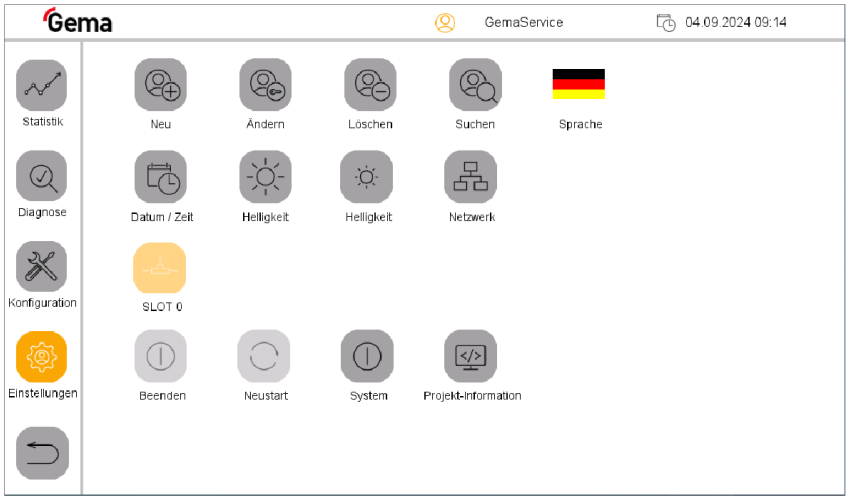


Fig. 72: Settings

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

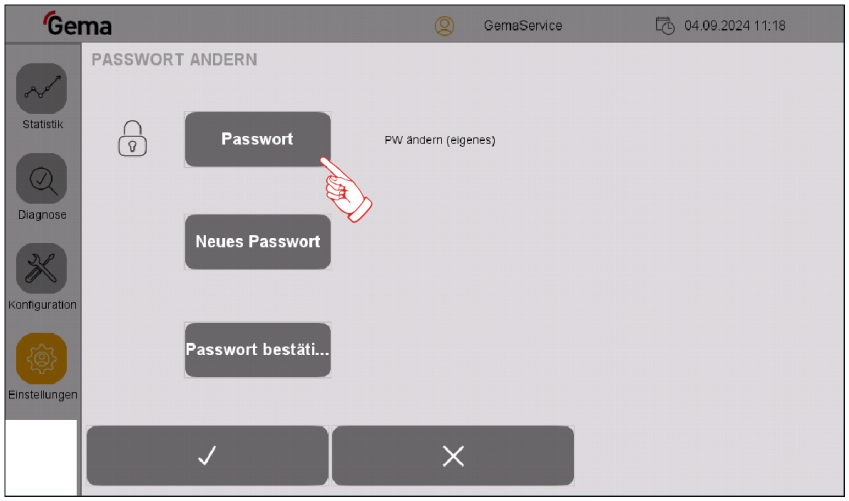


Fig. 73: Password change

4. Press the “**Password**” key.
   – A keyboard opens to enter the last password used.

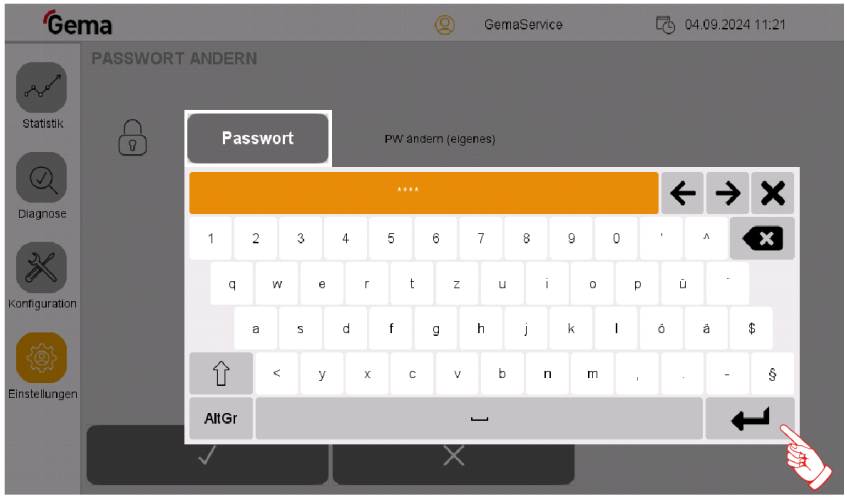


Fig. 74: Enter old password

5. Enter the last password used.
6. Press the **ENTER** key to confirm.
7. Press the “**New password**” key.
   – A keyboard opens.
8. Enter the new password.
9. Press the **ENTER** key to confirm.
10. Press the “**Confirm password**” key.
    – A keyboard opens and the new password must be entered again.
11. Press the **ENTER** key to confirm.
12. 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:

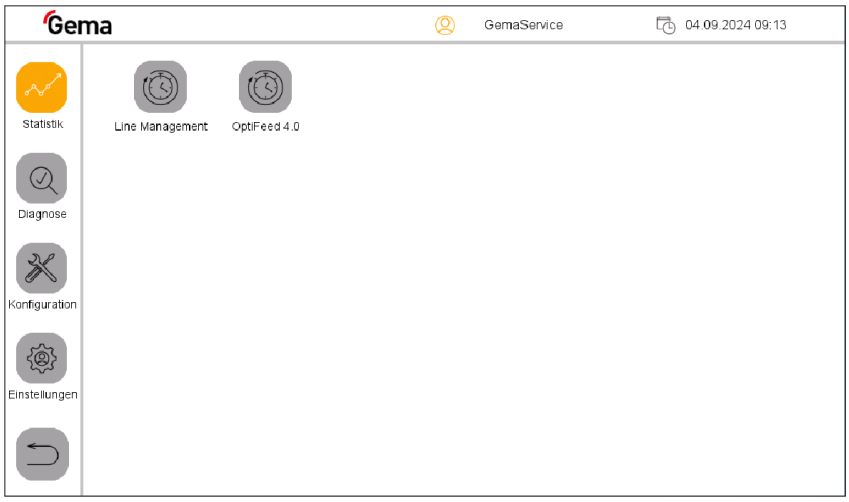


Fig. 75: Navigation bar

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

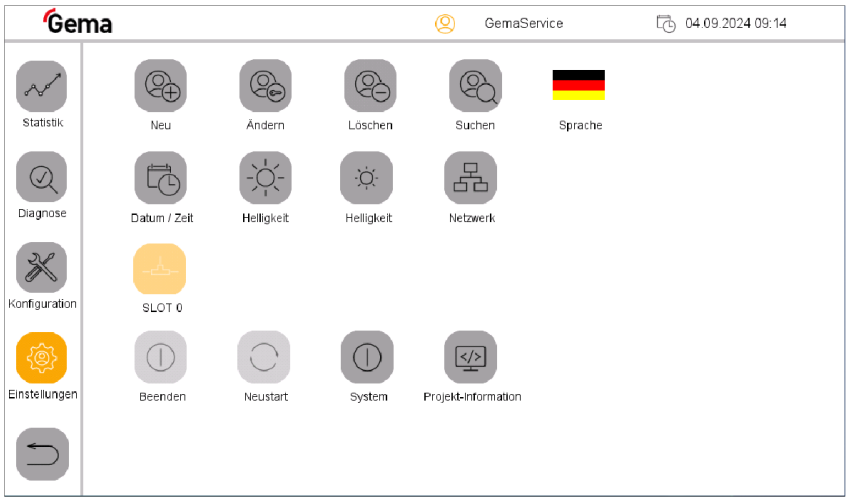


Fig. 76: Settings

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

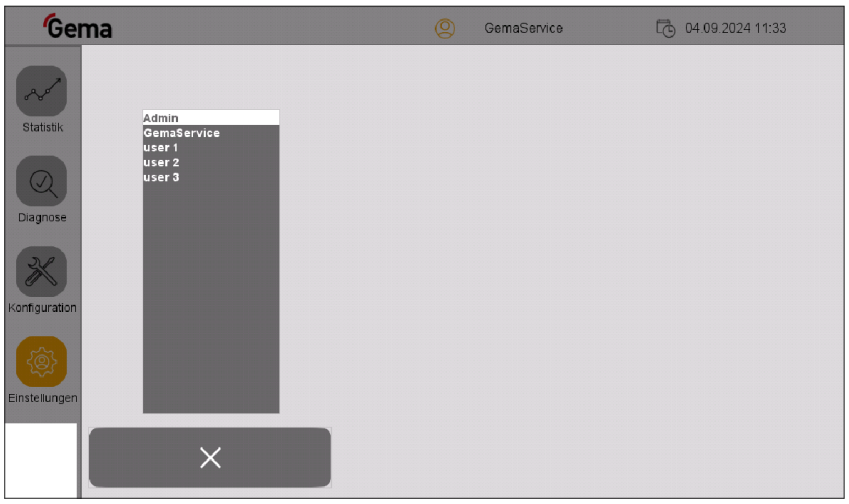


Fig. 77: Search users

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. 78: Navigation bar

2. Press the  key

   – The following page is displayed:

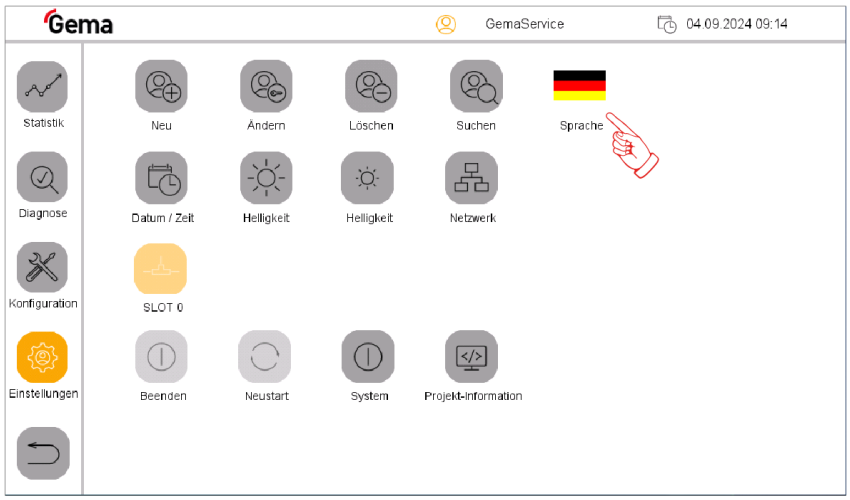


Fig. 79: Select desired language

3. Press the **LANGUAGE** key
   – The following page is displayed:

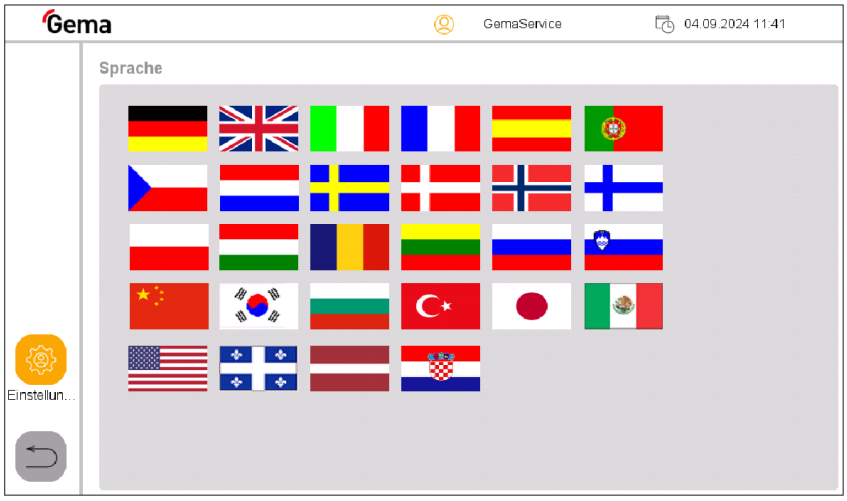


Fig. 80: Change language

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

Checking the software version

1. Press the  key
2. Press the  key
3. Press the  key
   – The following page with the actual software version is displayed:

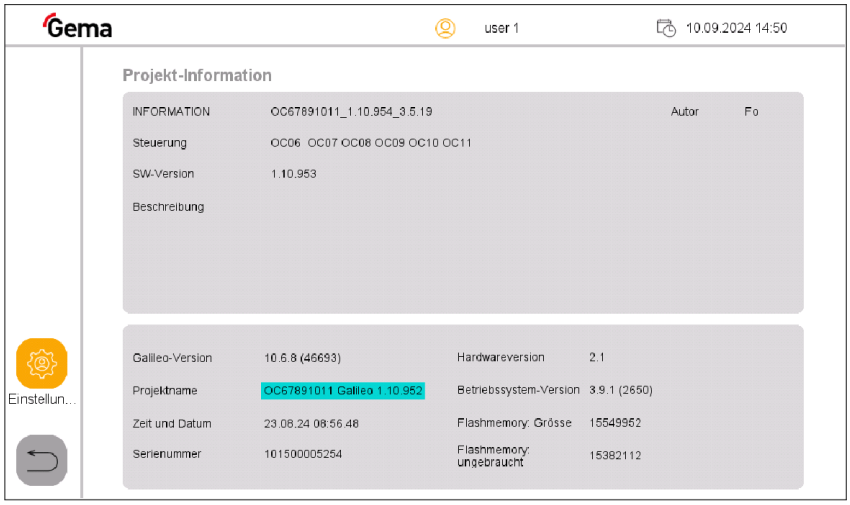


Fig. 81: Project info

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 machine operator.

► Ground all metal parts of the OptiCenter in accordance with the general local regulations.

► Check grounding regularly.

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

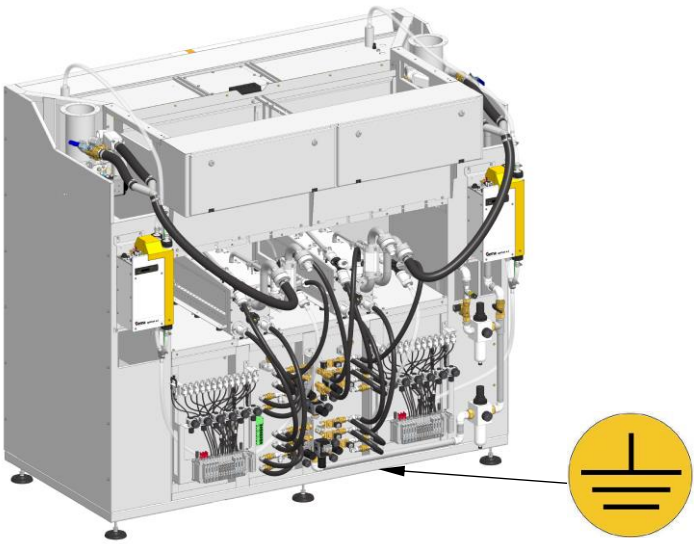


Fig. 82: Potential equalization – connection point

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**.

Fig. 83: Compressed air supply

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.

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.

NOTICE

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.

Operation

Operation

Take care when working with powder!

⚠ 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)!

⚠ CAUTION

Large dust formation possible!

If no dust mask or one of an insufficient filter class is worn when cleaning the product, then the dust that is stirred up from the coating powder can cause respiratory problems.

- ► The ventilation system must be turned on for all cleaning work!
- ► 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!

NOTICE

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!

NOTICE

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.

Starting the OptiCenter

1. Turn the main switch to the **ON position**.

2. Turn the key switch on the CM40 to **1** (returns automatically).

   – Activation lamp lights up

   – The control starts the operating system, the PLC control and the operating software to the main page.

3. Press the  key CM40.

4. Press the symbol in the login status bar  to log in with a user name and password

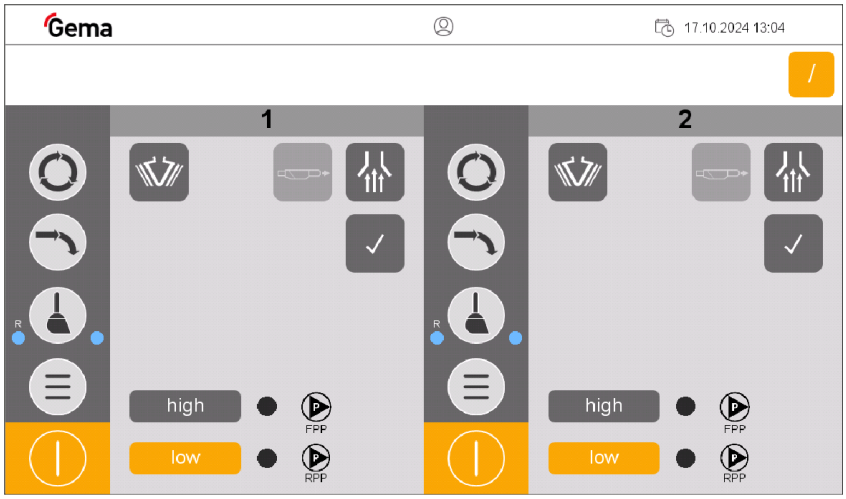


Fig. 84: Main page (not logged in)

▶ **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 75.

Coating with powder recovery (spray) – sequential mode

Overview neutral state OptiControl (CM41)

▶ In the neutral state, the operator is free to decide which work area (OptiSpeder A or B) to start with.

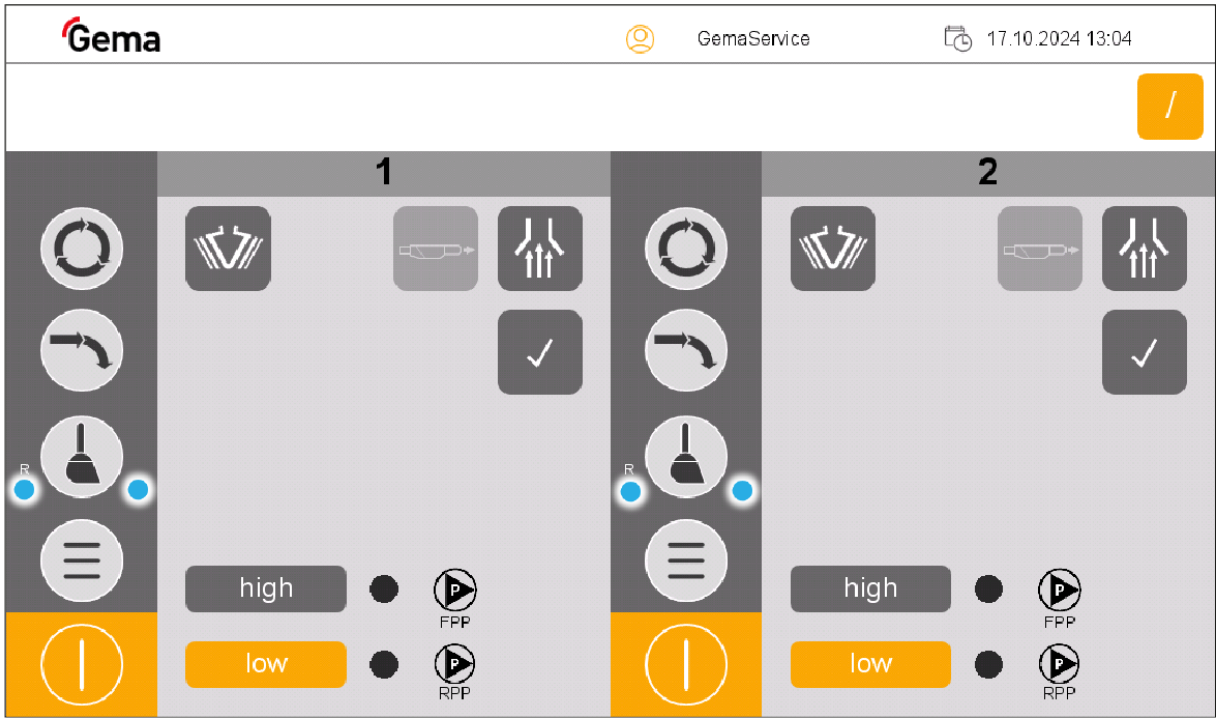


Fig. 85: Neutral state in “Sequential” mode - ready for operation

Powder preparation

1. Switch on the extraction system  .

2. 

3. 

4. 

5. 

6. 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

NOTICE

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

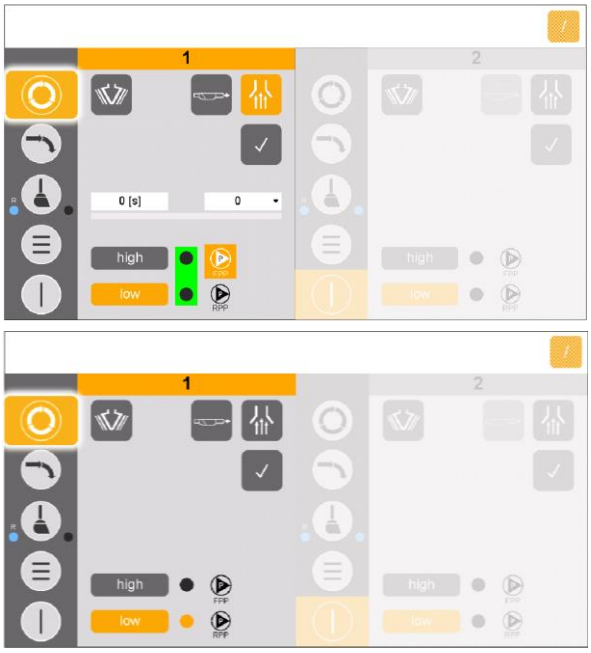
NOTICE

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

Starting the coating process (spray)



1. Fill the OptiSpeeder A (left).
   - The fluidization of the suction unit switches on
   - The vibrator switches on and runs at intervals
   - US sieve** switches on (if available)
   - The OptiSpeeder is filled until the filling level is reached
   - The vibrator switches off
2. Coating can now commence.

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

Changing color (spray)

1. Prepare powder in the right working area (inactive) --> See chapter "Powder preparation" on page 101.
2. Clean the active working area simultaneously --> See chapter "Cleaning process (spray) – sequential mode" on page 118.
3. Fill the OptiSpeeder B (right).
   - The fluidization of the suction lance switches on
   - The vibrator switches on and runs at intervals
   - US sieve** switches on (if available)
   - The OptiSpeeder is filled until the filling level is reached
   - The vibrator switches off
4. After cleaning, the second working area will be active and can be coated.

Coating without powder recovery (waste) – sequential mode

Overview neutral state OptiControl (CM41)

▶ In the neutral state, the operator is free to decide which work area (OptiSpeder A or B) to start with.

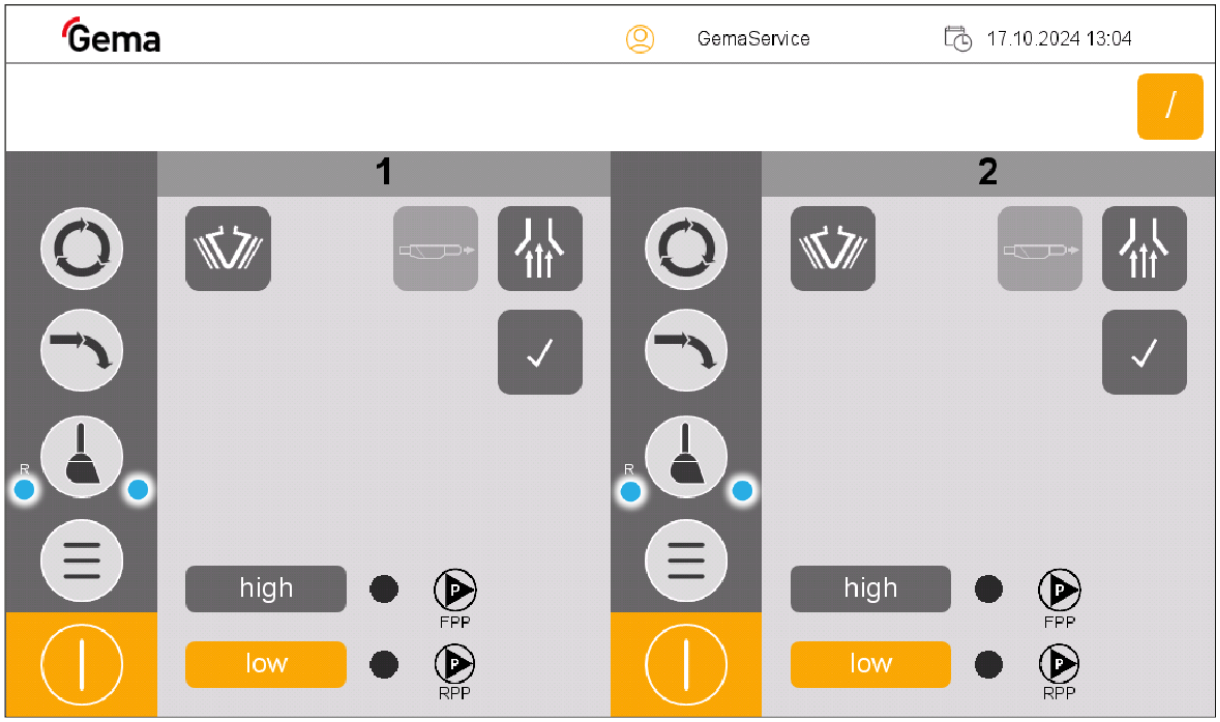


Fig. 86: Neutral state in “Sequential” mode - ready for operation

Powder preparation

2. Switch on the extraction system .

2. 

3. 

4. 

5. 

6. 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

NOTICE

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

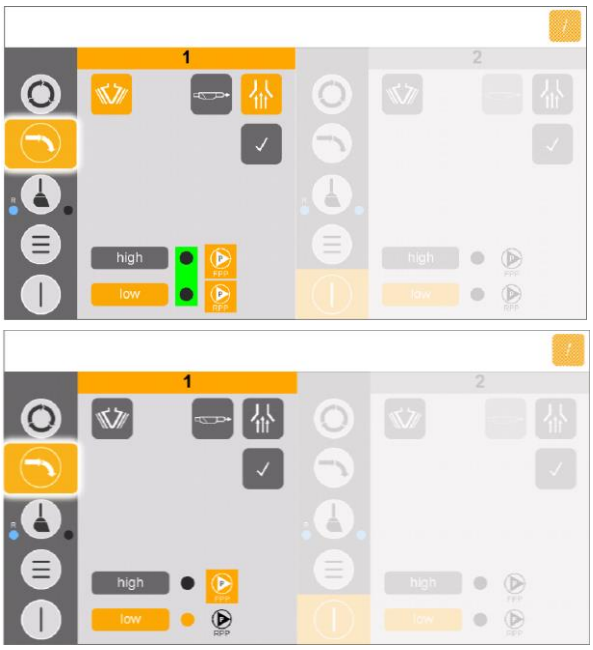
NOTICE

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

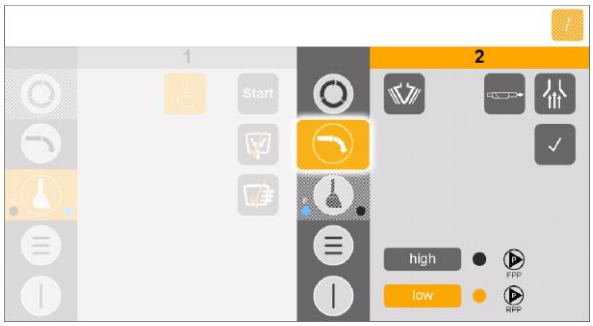
Starting the coating process (waste)



1. Fill the OptiSpeeder A (left).
   - The fluidization of the suction lance switches on
   - The vibrator switches on and runs at intervals
   - US sieve** switches on (if available)
   - The OptiSpeeder is filled until the filling level is reached
   - The vibrator switches off
2. Coating can now commence.

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

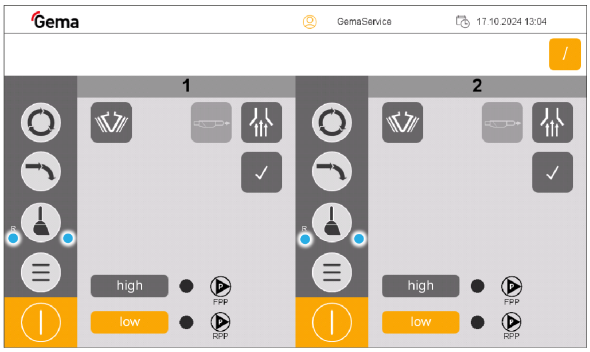
Changing color (waste)



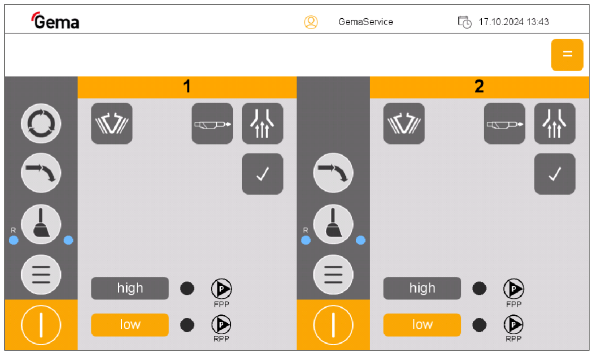
1. Prepare powder in the right working area (inactive) --> See chapter "Powder preparation" on page 105.
2. Clean the active working area simultaneously --> See chapter "Cleaning process (waste) – sequential mode" on page 115.
3. Fill the OptiSpeeder B (right).
   - The fluidization of the suction lance switches on
   - The vibrator switches on and runs at intervals
   - US sieve** switches on (if available)
   - The OptiSpeeder is filled until the filling level is reached
   - The vibrator switches off
4. After cleaning, the second working area will be active and can be coated.

Quick switching from sequential to parallel mode

The quick switchover function only works in standby mode when all cleaning in both working areas has been completed.



1. Press the / key.



2. Automatic switching to parallel mode.
   - Symbol = indicates parallel mode
   - The switch to parallel mode has been made

Coating – parallel mode

Overview of neutral state for OptiControl (CM41) – parallel mode

In the neutral state, the operator is free to choose:

1. Parallel coating with and without powder recovery
2. Parallel coating without powder recovery

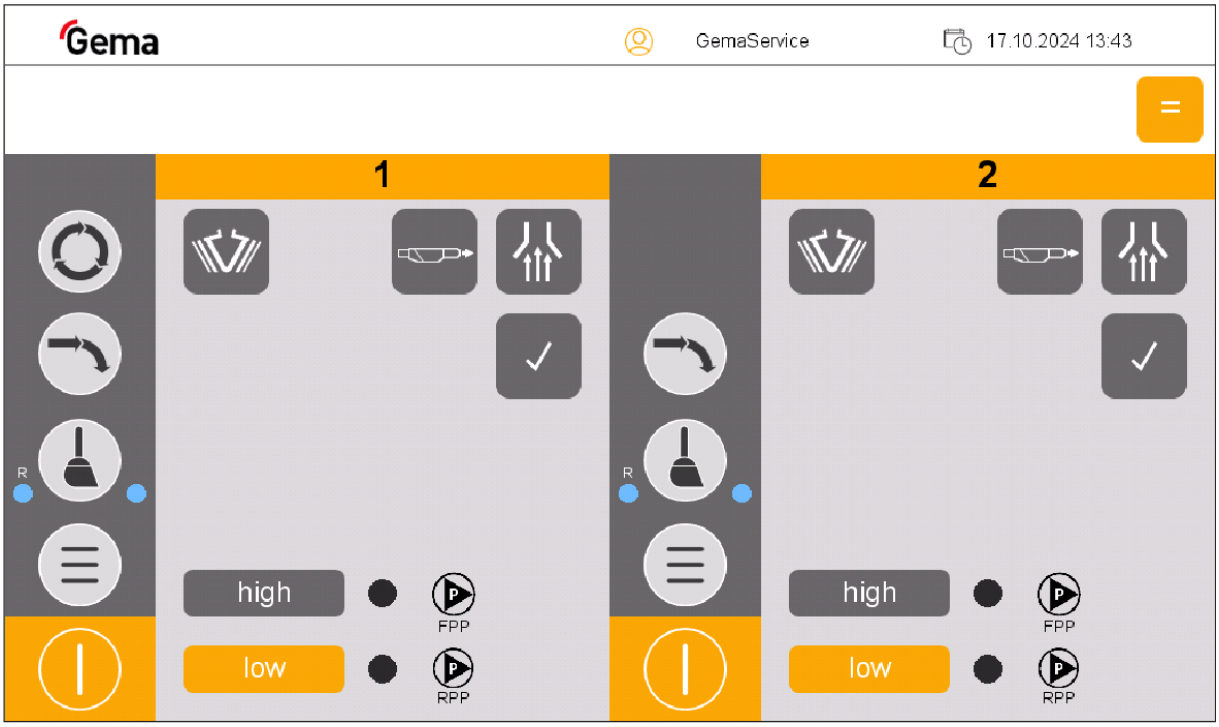
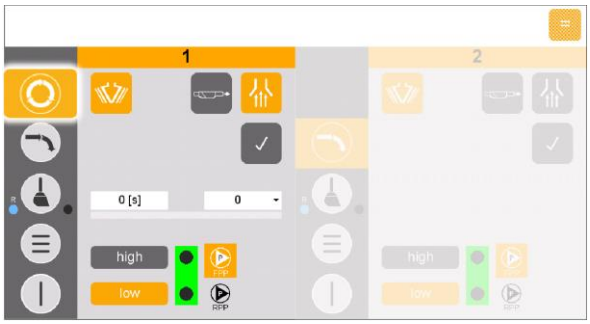
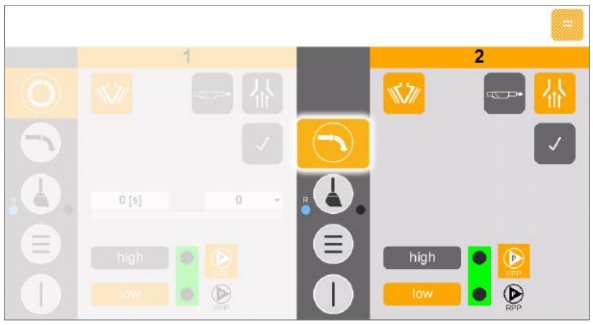


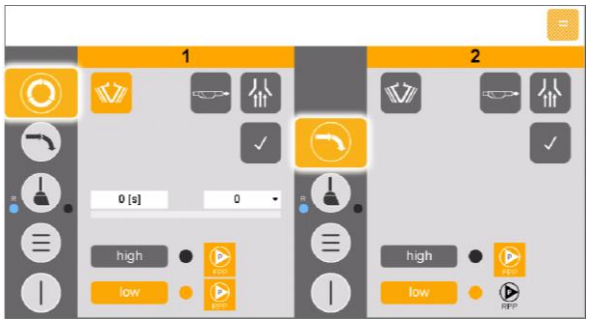
Fig. 87: Neutral state in “sequential” mode – ready for operation

Starting the coating process (spray/waste)

Coating is carried out simultaneously in both working areas. The following description explains coating with powder recovery (working area, left) and coating without powder recovery (working area, right).







1. Prepare powder in both working areas --> See chapter "Powder preparation" on page 101.
   - OptiSpeeder A
   - OptiSpeeder B
2. Fill the OptiSpeeder A (left) with powder recovery.
   - The fluidization of the suction lance switches on
   - The vibrator switches on and runs at intervals
   - US sieve** switches on (if available)
   - The OptiSpeeder is filled until the filling level is reached
   - The vibrator switches off
3. Simultaneously, the OptiSpeeder B (right) is filled without powder recovery.
   - The fluidization of the suction lance switches on
   - The vibrator switches on and runs at intervals
   - US sieve** switches on (if available)
   - The OptiSpeeder is filled until the filling level is reached
   - The vibrator switches off
4. Parallel coating can now commence.
   - OptiSpeeder A (left) = coating with powder recovery
   - OptiSpeeder B (right) = coating without powder recovery

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

Screen selection

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

Only previously configured mesh sizes are displayed, however.
–See chapter "Parameter description" on page 49.

1. Press the  key.
2. Press the  key.
   – The following page is displayed:

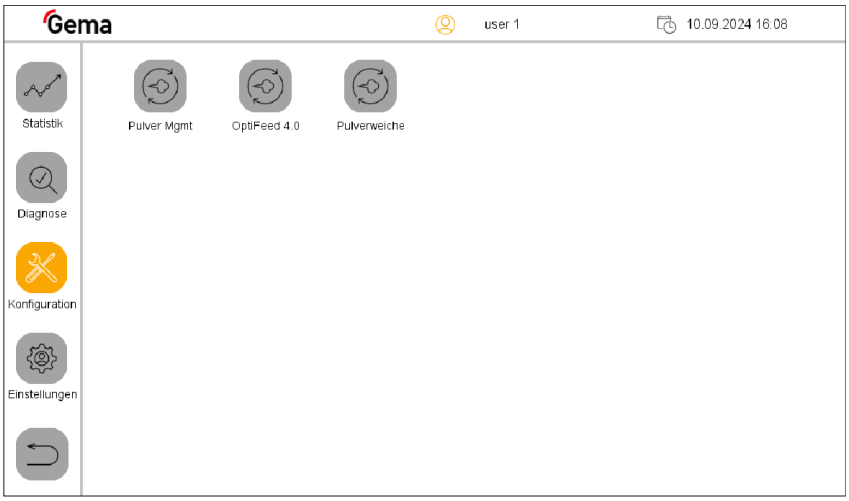


Fig. 88:

3. Press the  key (Powder Mgmt).
   – The following page is displayed:

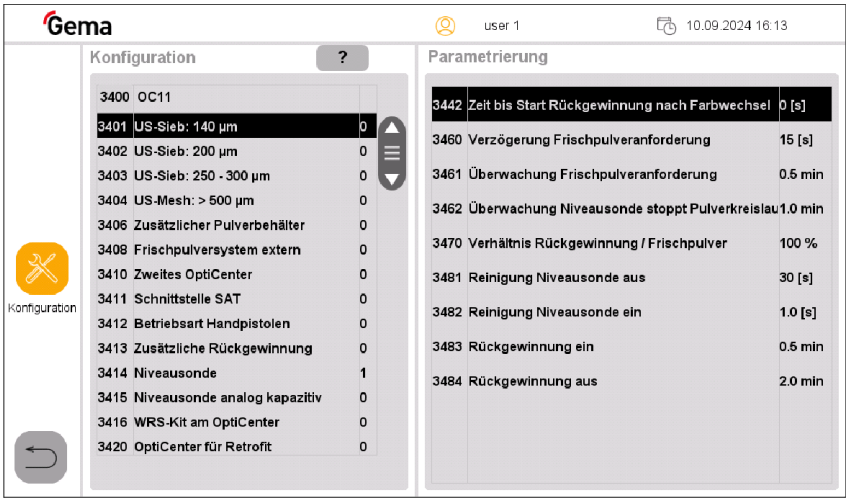


Fig. 89:

4. Select configured mesh size and activate with **ON**.

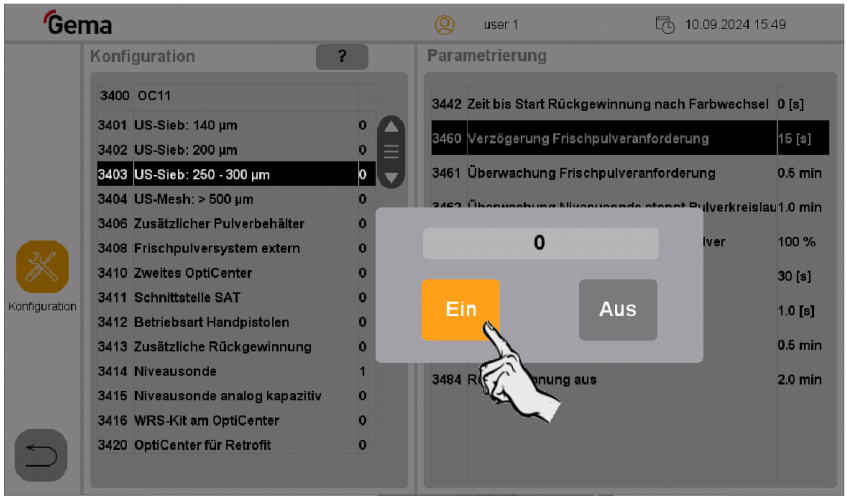


Fig. 90: Select sieve

4. Press the back  key twice in succession.

4. Configuration with  save.
   – The selected mesh size remains active until the system is switched on again.

Replace powder bag

1. Check visually the powder level in the bag cone.
2. Hold the full powder bag ready.
3. Switch on the extraction  if it is has not been switched on already.

4. 
5. 
6. 
7. 
8. 
9. 
10. 
11. 

12. Empty the used powder bag with the residual powder into another container or dispose of it
13. Insert the new powder bag in reverse order.

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

Cleaning

Cleaning process (waste) – sequential mode

The cleaning process is carried out in the active work area. This cleaning process describes the cleaning process in work area 1 (standard).

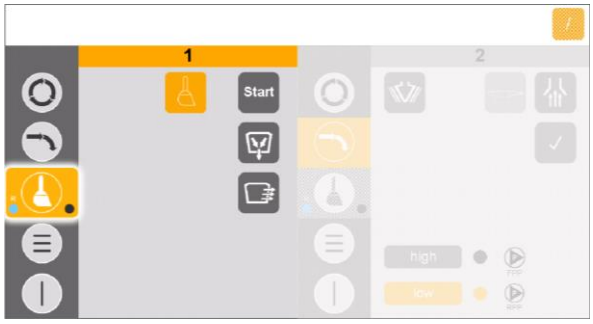
The cleaning process can be interrupted at any time by pressing the stop key Stopp..

If necessary, each individual step / can be repeated by pressing the corresponding key again.

– Only the selected cleaning step is carried out.

1. End the coating procedure.
2. To exit **Coating mode**, press and hold the key for 2 seconds.

3. Place the powder bag centered under the OptiSpeeder.



4. Activate cleaning.

5. Start cleaning.
   – Cleaning process is carried out automatically.

6. Process step 1:
   – Das Quetschventil unter dem The pinch valve below the OptiSpeeder A opens and the powder in the OptiSpeeder A flows into the powder bag.
   – The process step is complete when the  key looks like this.

7. Process step 2:
   – The OptiSpeeder is cleaned, the powder from the OptiSpeeder is transported to the booth.
   – The powder hoses are cleaned and the powder is transported to the booth.
   – The powder is conveyed from the booth to the waste.
   – The process is complete once this symbol  is displayed.
   – In this process step, the active work areas are changed.

8. Process step 3:
   – The “spray to waste” cleaning process is complete and is indicated by a blue point  ..
9. To carry out the complete cleaning (incl. recycling), continue with the cyclone cleaning.
10. Clean the cyclone.
    – See chapter "Cleaning the cyclone" on page 133.

11. Cleaning is complete and is indicated by two blue points  .

12. Press and hold the button for 2 seconds to switch the inactive work area to standby mode.

13. Coating can now be carried out in the active working area.

Cleaning process (spray) – sequential mode

The cleaning process is carried out in the active work area. This cleaning process describes the cleaning process in work area 1 (standard).

To be able to use this function, parameter 3413 must be set and "Powder recovery" must be installed.

–See chapter "Parameter description" on page 49.

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.

The cleaning process can be interrupted at any time by pressing the stop key Stopp..

If necessary, each individual step / can be repeated by pressing the corresponding key again.

- Only the selected cleaning step is carried out.

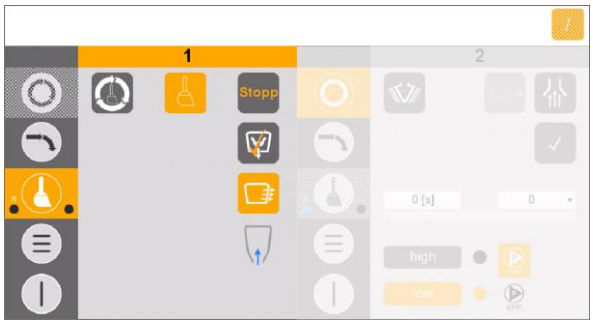
1. End the coating procedure.
2. To exit **Coating mode**, press and hold the key for 2 seconds.

3. Place the powder bag centered under the OptiSpeeder.

4. Activate cleaning.

14. Start cleaning.
    - Cleaning process is carried out automatically.
    - Exhaust air and cleaning starts automatically.

5. Process step 1:
    - The pinch valve below the OptiSpeeder opens and the powder in the OptiSpeeder flows into the powder bag.
    - The process step is complete when the  key looks like this.



6. Process step 2:
    - The OptiSpeeder is cleaned, the powder from the OptiSpeeder is transported to the booth.
    - The powder is conveyed from the booth to the powder bag.
    - The process is complete once this symbol  is displayed.

7. Process step 3:
    - 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 fresh powder pump is cleaned.

8. Visually check the interior of the OptiSpeeder and clean with a compressed air gun and/or cleaning hose if necessary.
9. Clean the OptiCenter and booth.
10. Clean the cyclone.

– See chapter "Cleaning the cyclone" on page 133.

11. Cleaning is complete and is indicated by two blue points  .
12. Press and hold the button for 2 seconds to switch the inactive work area to standby mode.
13. Coating can now be carried out in the active working area.
14. Store the powder properly.

Cleaning process spray (manually controlled) – sequential mode

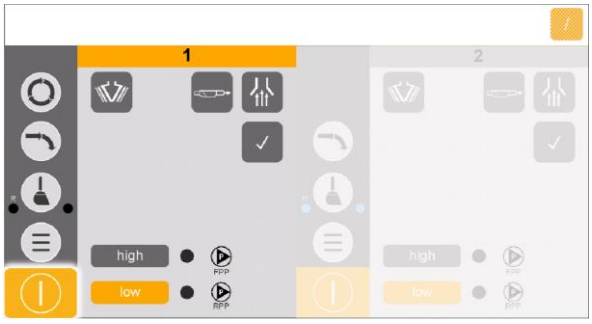
The cleaning process is carried out in the active work area. This cleaning process describes the cleaning process in work area 1 (standard).

The operator controls this cleaning process with the aim of achieving maximum recovery or collection of the powder.

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.

During the manually controlled cleaning process, the operator must stop the cleaning process (powder collection) manually.



1. End the coating procedure.
2. To exit **Coating mode**, press and hold the key for 2 seconds.

3. Place the powder bag centered under the OptiSpeeder.

4. Activate cleaning.

5. Activate manually controlled cleaning.

6. Start cleaning.
   – Cleaning process is carried out automatically.

7. Process step 1:
   – The powder is collected.
   – The pinch valve below the OptiSpeeder A opens and the powder in the OptiSpeedervA flows into the powder bag..
   – The process step runs continuously until the operator stops this process step manually.

8. Stop process step 1.

9. The process is complete once this symbol  is displayed.

10. Start process step 2.

11. Process step 2:
    - The OptiSpeeder is cleaned, the powder from the OptiSpeeder is transported to the booth.
    - The powder from the booth is fed into the powder bag.
    - This process step is completed automatically.
    - The process is complete once this symbol  is displayed.

12. Process step 3:
    - 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 fresh powder pump is cleaned.

13. Visually check the interior of the OptiSpeeder and clean with a compressed air gun and/or cleaning hose if necessary.
14. Clean the OptiCenter and booth.
15. Clean the cyclone.
    - See chapter "Cleaning the cyclone" on page 133.
16. Cleaning is complete and is indicated by two blue points  .

17. Press and hold the button for 2 seconds to switch the inactive work area to standby mode.

Cleaning sequence (spray/waste) – parallel mode

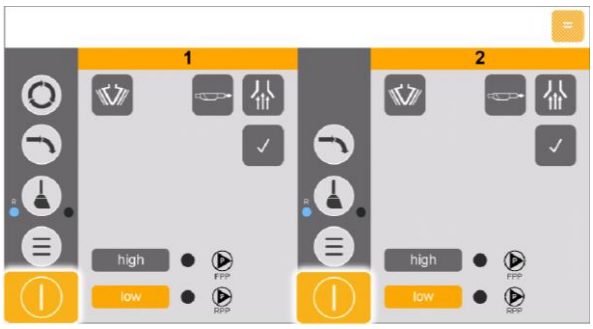
The cleaning process cannot be carried out in both working areas simultaneously.
The operator can choose which working area is cleaned first.
This cleaning sequence describes the cleaning process from working area 1 (spray) to working area 2 (waste).

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

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

– Only the selected cleaning step is carried out.

Cleaning sequence spray (working area 1)



1. End the coating procedure.
2. To exit **Coating mode**, press and hold the key for 2 seconds.

3. Position the powder bag in the center under the OptiSpeeder.

4. Activate cleaning.

5. Start cleaning.
   – The cleaning process is carried out automatically.

6. Process step 1:
   – The pinch valve below the OptiSpeeder A opens and the powder in the OptiSpeeder A flows into the powder bag.
   – The process step is complete when the  key looks like this.

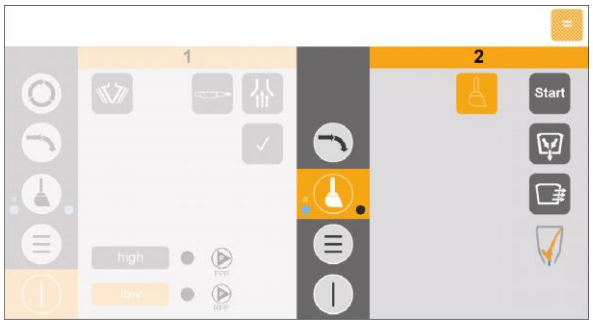
7. Process step 2:
   – The OptiSpeeder is cleaned, the powder from the OptiSpeeder is transported to the booth.
   – The powder from the booth is fed into the powder bag.
   – The process is complete once this symbol  is displayed.

8. Process step 3:
   – 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 fresh powder pump is cleaned.
   – The “spray to waste” cleaning is complete and is indicated by a blue dot  .
9. Visually check the inside of the OptiSpeeder and clean if necessary using the compressed air gun and/or cleaning hose.
10. Clean the OptiCenter and the cabin.
11. Clean the cyclone.

– See chapter "Cleaning the cyclone" on page 133.

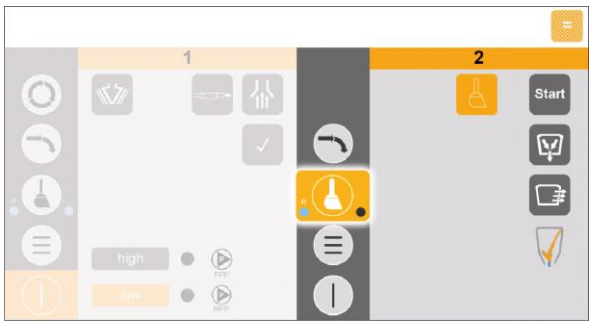
12. The cleaning is complete and is indicated by two blue dots  .
13. To switch inactive to standby mode, press and hold the key for 2 seconds.

Cleaning sequence waste (working area 2)

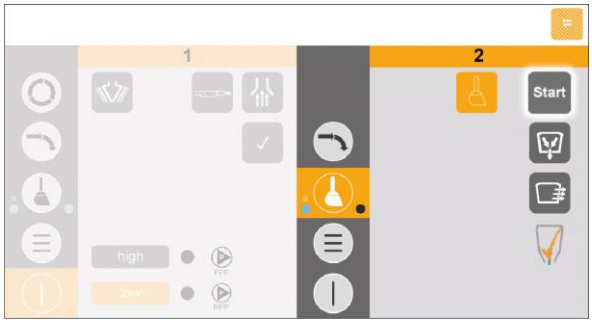


1. Switch to working area 2.

2. Position the powder bag in the center under the OptiSpeeder.

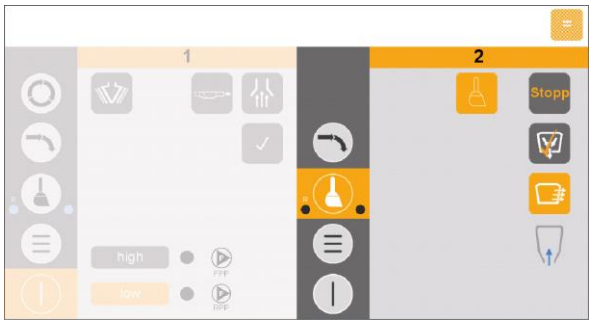


3. Activate cleaning.

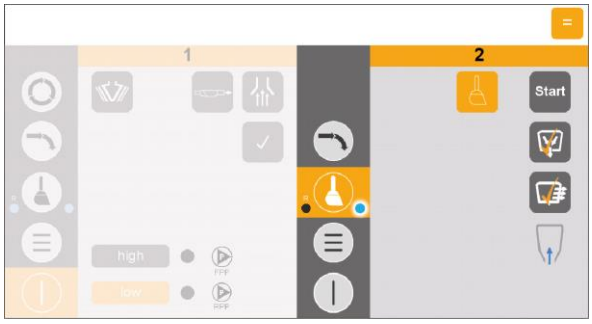


4. Start cleaning.
   – The cleaning process is carried out automatically.

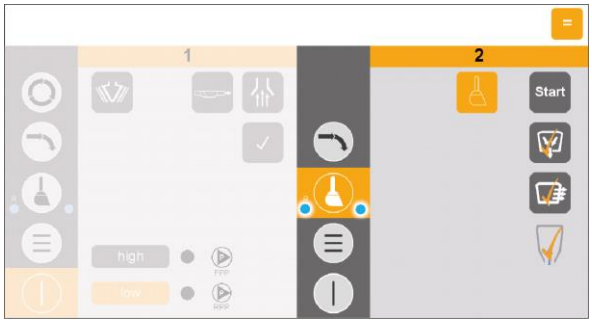
5. Process step 1:
   – The pinch valve below the OptiSpeeder A opens and the powder in the OptiSpeeder A flows into the powder bag.
   – The process step is complete when the  key looks like this.



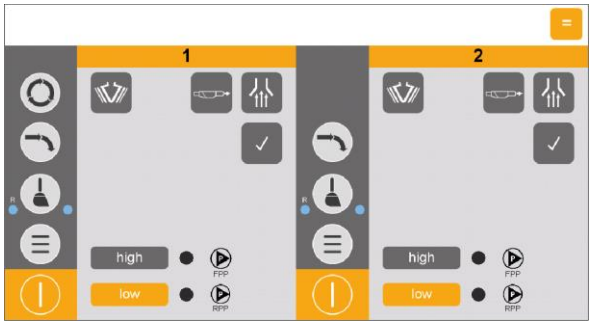
6. Process step 2:
   – The OptiSpeeder is cleaned, the powder from the OptiSpeeder is transported to the booth.
   – The powder hoses are cleaned and the powder is transported to the booth.
   – The powder is conveyed from the booth to the waste.
   – The process is complete once this symbol  is displayed.



7. Process step 3:
   – The “spray to waste” cleaning is complete and is indicated by a blue dot  .
8. In order to perform the complete cleaning (including recycling), proceed with the cyclone cleaning.
9. Clean the cyclone.
   – See chapter "Cleaning the cyclone" on page 133.



10. The cleaning is complete and is indicated by two blue dots  .
11. To switch inactive to standby mode, press and hold the key for 2 seconds.



12. OptiCenter is in standby mode.

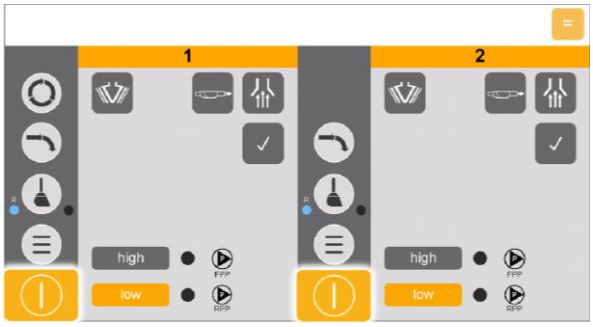
Cleaning sequence spray (manually controlled) – Parallel mode

▶ **The cleaning process is carried out in the working area with the "spray" coating mode (with powder recovery). This cleaning sequence describes the cleaning process in working area 1 (standard).**

▶ **The operator controls this cleaning sequence with the aim of maximizing powder recovery and collection.**

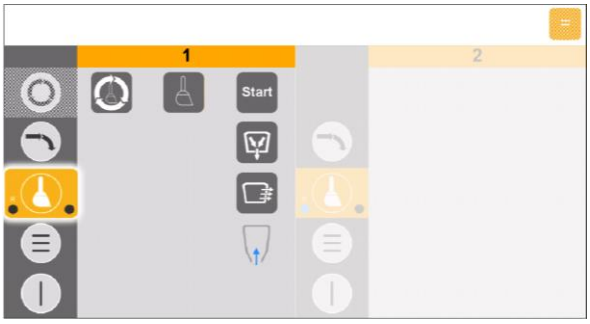
! **The powder circuit could contain more than 20 kg of powder.**
- Be sure to estimate the powder volume in the system.
- If you suspect that there is too much powder in the system, the process must be monitored and stopped if necessary.

! **When the cleaning sequence is controlled manually, the operator must stop the cleaning process**  **(powder collection) manually.**



1. End the coating procedure.
2. To exit **Coating mode**, press and hold the key for 2 seconds.

3. Position the powder bag in the center under the OptiSpeeder.

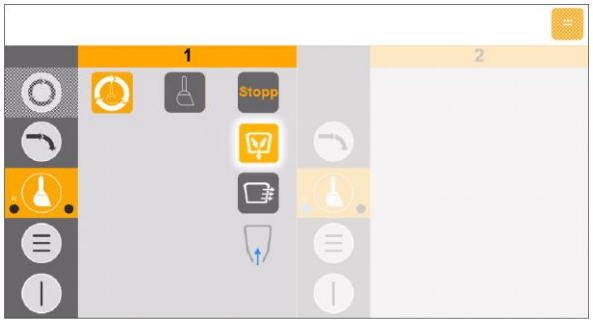


4. Activate cleaning.

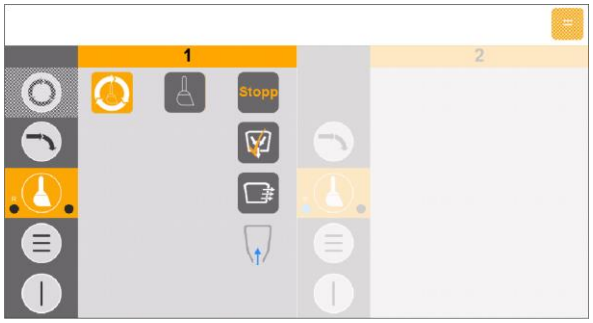
5. Activate manually controlled cleaning.

6. Start cleaning.
   – The cleaning process is carried out automatically.

7. Process step 1:
   – The powder is collected.
   – The pinch valve below the OptiSpeeder A opens and the powder in the OptiSpeeder A flows into the powder bag.
   – The process step runs continuously until the operator stops it manually.

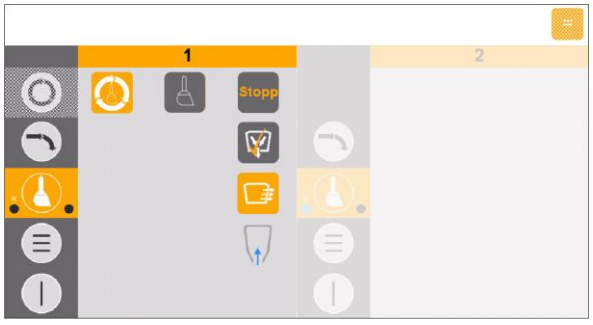


8. Stop process step 1.



9. The process is complete and this symbol  is displayed.

10. Start process step 2.



11. Process step 2:
    - The OptiSpeeder is cleaned, the powder from the OptiSpeeder is transported to the booth.
    - The powder from the booth is fed into the powder bag.
    - This process step is completed automatically.
    - The process is complete once this symbol  is displayed.

12. Process step 3:
    - 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 fresh powder pump is cleaned.

13. Visually check the inside of the OptiSpeeder and clean if necessary using the compressed air gun and/or cleaning hose.
14. Clean the OptiCenter and the cabin.

15. Clean the cyclone.
    – See chapter "Cleaning the cyclone" on page 133.
16. The cleaning is complete and is indicated by two blue dots  .
17. To switch inactive to standby mode, press and hold the key for 2 seconds.

Cleaning the cyclone

NOTICE

Sieve damage

The sieve can be damaged when backwashing the transport hose.

► Swing out the sieve completely during this cleaning step.

18. Open the cyclone.
19. Turn the switch (**1**) down and press both buttons (**2**) simultaneously.
    – The cyclone lowers.

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

21. Press the button on the cyclone.
    – The cleaning process is started.
    – Compressed air pulses blow through the hose from the OptiCenter to the cyclone.
22. Swing the funnel on the cyclone slowly away and, at the same time, clean it off with the air gun.
23. Press the button on the cyclone again.
    – The cleaning process ends.

24. Clean the inside of the cyclone with the cleaning wand.
25. Reconnect the sieve and funnel to the cyclone.

For additional information, please see the operating instructions for the EZ05 monocyclone!

See chapter "Other applicable documents" on page 9.

Batch management

Batch management is used to record the consumed powder, divided into production batches. The recorded consumption data is continuously updated and then processed in table form in MagicControl 4.0 (CM40).

Function keys

	Scale	+	Record weight
-	Subtract weight	Tara	Set to zero

Activating the scale in OptiControl (CM41)

Prerequisite:

- The information for each batch must be entered in the input mask in MagicControl 4.0 (CM40).
- Batch management has been started in MagicControl (CM40).

1. Press the  key.
2. Press the  key.
3. Press the  key (Powder Mgmt).
   - The following page is displayed:

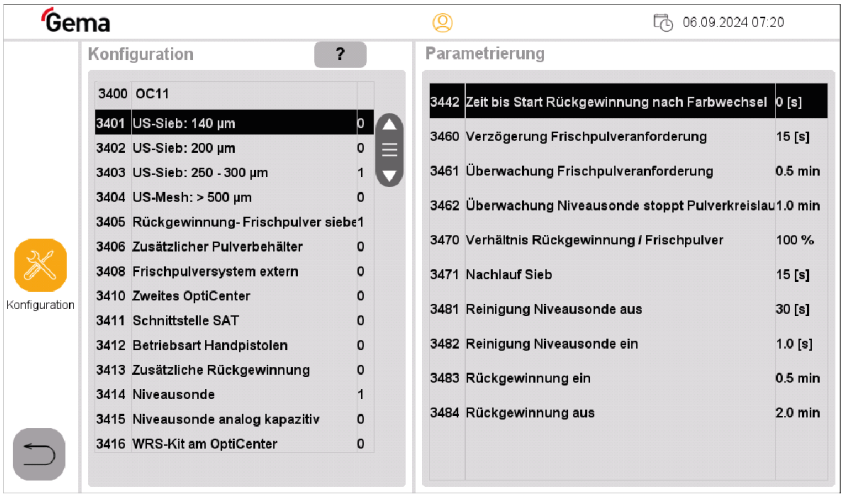


Fig. 91: Configuration – parameterization

4. Use the  key to scroll down the list (configuration) to the “Scale” parameter.
5. Tap on the scale (3425).
   – The following page is displayed:

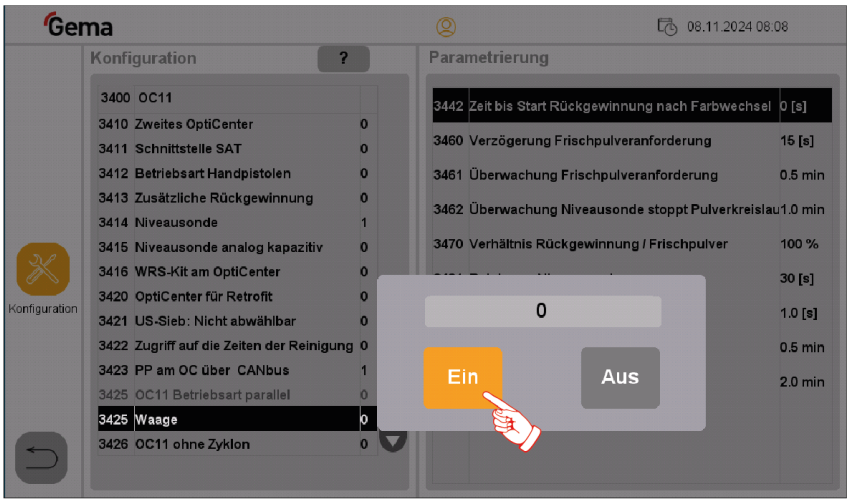


Fig. 92: Activating the scale

5. Tap the  key.

6. Tap the  key twice in succession.
   – The following page is displayed:

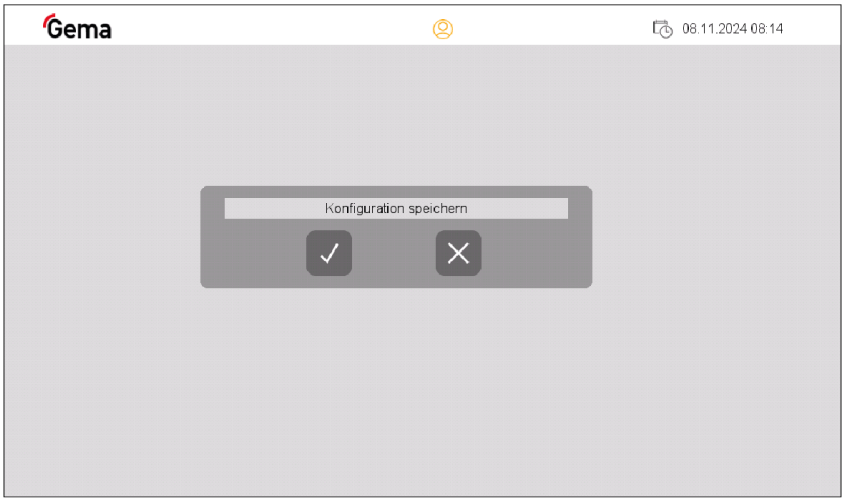


Fig. 93: Save configuration

7. Press the  key to save your selection.
   – The following page is displayed:

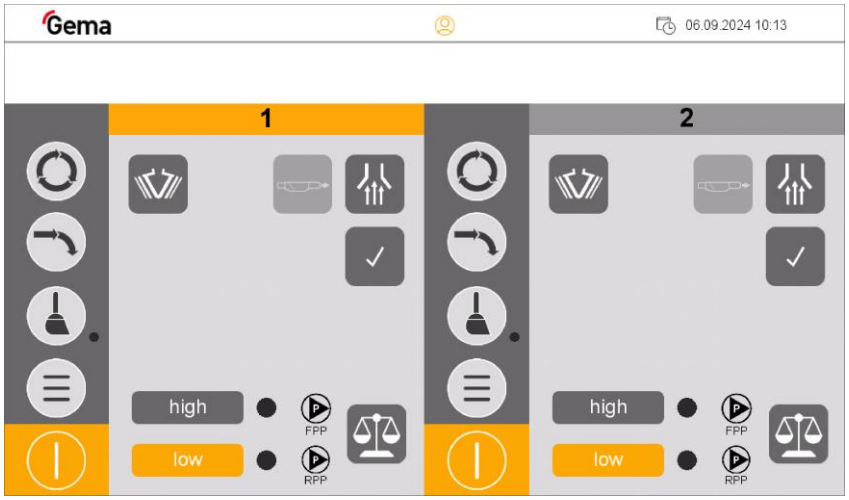


Fig. 94: Scale activated

   – The  symbol appears on the main screen.

Recording powder volume

The weight of the powder volume is recorded in the active working area.

1. Tap the  key.
   – The following page is displayed:

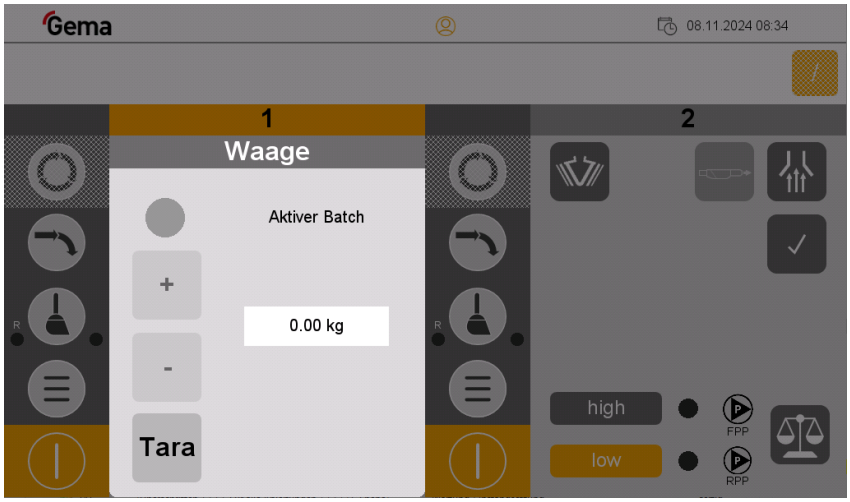


Fig. 95: Scale mode - working area 1

2. Place fresh powder in the cone.

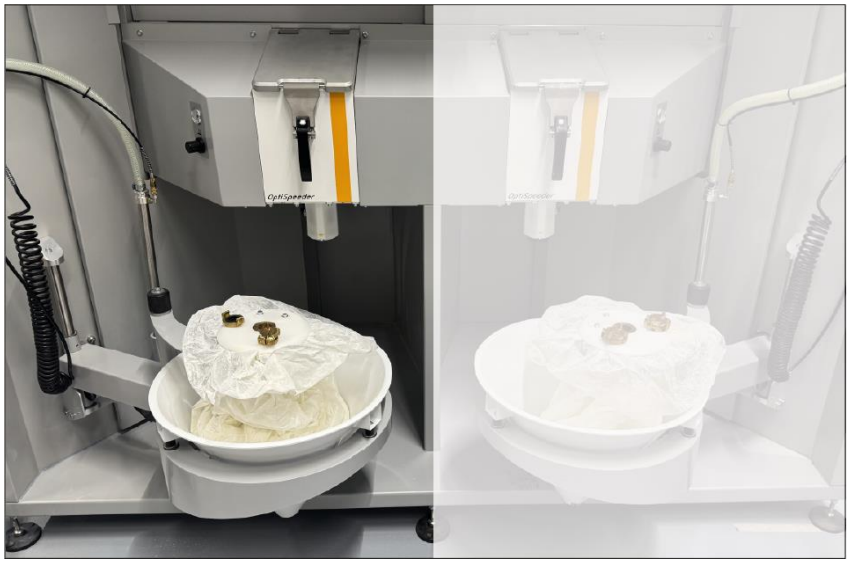


Fig. 96: Placing fresh powder - working area 1

3. Press the + key to record the weight.
   – The powder volume of the current batch is added in the batch management.
   – This step can be done once or with each additional supply of fresh powder.
4. Prepare fresh powder in the inactive working area.

Fig. 97: Placing fresh powder - working area 2

5. In the inactive working area in CM41, tap the key.
   – The following page is displayed:

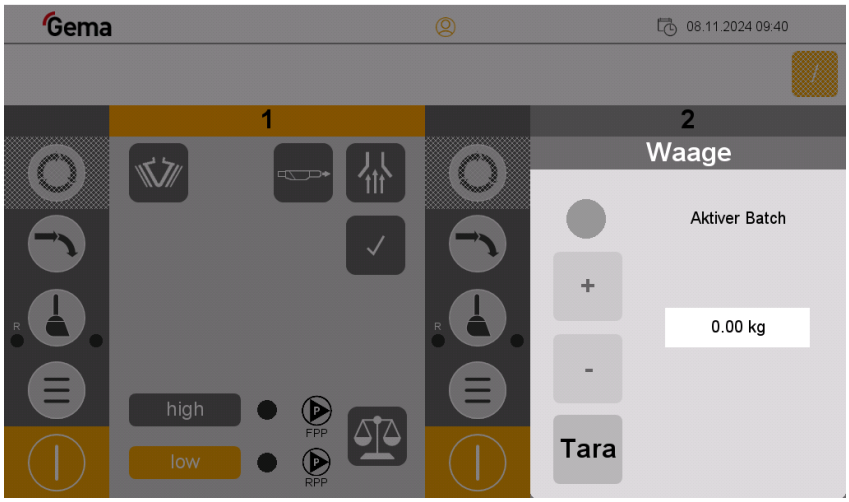


Fig. 98: Scale mode - working area 2

6. Tap the + key.
   – The weight of the powder volume is entered in the MagicControl 4.0 (CM40).
7. Back to the scale in the active working area.

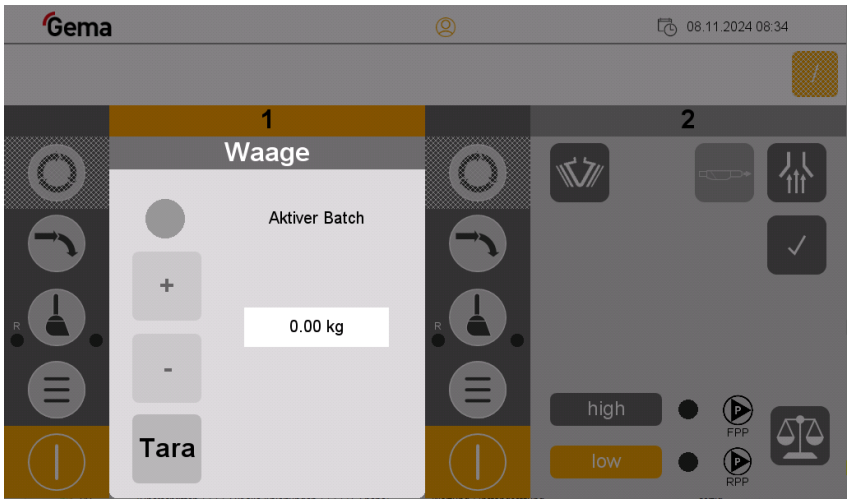


Fig. 99: Scale mode - working area 1

8. Clean the active working area.
   – Depending on the coating mode, carry out the corresponding cleaning to switch to the inactive, next working area:
     • See chapter "Cleaning process (waste) – sequential mode" on page 115.
     • See chapter "Cleaning process (spray) – sequential mode" on page 118.
9. After cleaning, weigh the remaining or recovered powder and subtract it from the current batch record using the - key.
10. Stop the current batch in MagicControl 4.0 (CM41).
11. Enter the information for the new batch in the input mask in MagicControl 4.0 (CM40).
12. Press **Start** in MagicControl 4.0 (CM40).
    – The previously entered weight of the powder volume is carried over to the new batch.
13. Use the + key to record the weight of the new fresh powder volume.
    – The powder volume of the current batch is added in the batch management.
    – This step can be done once or with each additional supply of fresh powder.
14. For a new batch, start with **step 5** for pre-entering.
15. The recorded batches are displayed in the overview page in MagicControl 4.0 (CM40).

Fig. 100: Chronological listing of batches produced

Switching off the OptiCenter (after each working day)

To shut down, the following steps must be taken:

1. Check that all objects are 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
4. Turn the key switch on the CM40 to **0**.

5. Turn the main switch to the **OFF position**.

   - the interior lighting goes out

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. See chapter "Spare parts list" on page 159.

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:

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

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.

Maintenance of the control 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:

NOTICE

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).

Wearing parts

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

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 at an authorized Gema service location. The repairs must only be performed by an authorized specialist.

Improper interventions can result in serious danger for user or the equipment and may result in loss of warranty!

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 SD card user 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 "SD card" on page 58.

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

Fault	Cause	Corrective action
No extraction in the OptiCenter	Incorrect operating mode selected	Select correct operating mode
	Corresponding valve in the valve pool defective or dirty	Check function at corresponding output (see also “Pneumatic diagram”), replace if necessary
	Exhaust air flap does not move	Check for movement or replace
No AirMover function in the OptiSpeeder	Ring injector clogged or dirty	Clean
	Corresponding valve in the valve pool defective or dirty	Check function at corresponding output (see also “Pneumatic diagram”), replace if necessary
AirMover function in OptiSpeeder in cleaning mode too low	Corresponding valve in the valve pool does not switch over: – Defective or dirty	Check function at corresponding output (see also “Pneumatic diagram”), replace if necessary
No fluidization or fluidization too low in the OptiSpeeder	Compressed air regulator incorrectly set	Set the appropriate pressure
	Corresponding valve in the valve pool defective or dirty	Check function at corresponding output (see also “Pneumatic diagram”), replace if necessary
	Compressed air regulator dirty or defective	Clean, replace if necessary
	Fluidizing plate clogged	Replace
Powder residues in the fresh powder pump after cleaning	Corresponding valve in the valve pool defective or dirty	Check function at corresponding output (see also “Pneumatic diagram”), replace if necessary
	Pinch valve(s) defective (at rear of OC)	Replace pinch hose
Powder residues in the recovery pump after cleaning	Corresponding valve in the valve pool defective or dirty	Check function at corresponding output (see also “Pneumatic diagram”), replace if necessary
	Pinch valve(s) defective (at rear of OC)	Replace pinch hose
	Pinch valve defective (mono-cyclone)	Replace pinch hose
No cleaning or insufficient cleaning of the powder hoses	Corresponding valve in the valve pool defective or dirty	Check function at corresponding output (see also “Pneumatic diagram”), replace if necessary
Insufficient emptying of the OptiSpeeder during cleaning	Corresponding valve in the valve pool defective or dirty	Check function at corresponding output (see also “Pneumatic diagram”), replace if necessary

Fault	Cause	Corrective action
	Pinch valve defective	Replace pinch hose
Complete failure of powder output in coating operation	Fluidizing plate of the level sensor dirty: – Pressure regulator defective or adjusted incorrectly – Throttle valve on the level sensor defective or adjusted incorrectly	Set the appropriate pressure
	Optional booster function not available	Check function at corresponding output (see also “Pneumatic diagram”), replace if necessary Clean corresponding solenoid valve or replace
Powder escapes from the OptiSpeeder during cleaning	Cover seal defective or missing	Insert or replace
	Seal surface damaged	Smooth or repair with liquid metal adhesive
	No or too little AirMover function	See above
No powder feed from the OptiSpeeder	OptiSpeeder empty:	
	Powder accumulation on level sensor	Open OptiSpeeder service cover and front panel: – Clean the sensor – Readjust the sensor sensitivity – Check the fluidizing of the sensor if necessary, increase the fluidizing air pressure – Remove the fluidizing air hose and check it
	Level sensor defective	Replace
	Cable defective	Replace
Vibrator defective	Motor protection switch Q6 has reacted	Remove the small maintenance panel and switch on the motor protection switch again. With repeated Alarms, contact a Gema service center
	Vibrator defective	Replace
	Cable broken	Replace
Conveying problem with recovery powder pump	Powder pump does not function properly	
	– Pump defective	– See corresponding operating manual OptiFeed PP..
	– Hose clogged	Check the recovery system
		– Check level sensor (see above)

Fault	Cause	Corrective action
		– Check the cyclone funnel for powder abrasion
		– Contact Gema Service
Overpressure recovery powder pump	Powder pump is switched off	
	– Hose clogged or connected incorrectly	Check the recovery system and/or connect correctly
	– Pressure sensor of the OptiFeed PP.. Powder pump defective	Replace (see also corresponding OptiFeed PP.. operating manual)
Valve battery failure	Safety equipment (F7) has reacted, control unit switches to stand-by mode	Check the 24 VDC Power pack (G4)
		Check the safety equipment whether all 4 LEDs illuminate green
		– If one or more LEDs illuminate, reset the corresponding channel and if necessary, restart
Fuse Fxx defective	Fuse (1 AT) in the WAGO module A1 defective, control unit switches to stand-by mode	Replace the fuse, otherwise contact a Gema service center
Powder alert in OptiSpeeder	Powder warning, flashlight activated	Check the powder bag, otherwise powder shortage
Powder shortage in OptiSpeeder	Powder bag empty, chain conveyor stops, flashlight activated	Replace powder bag
CAN bus malfunction	No communication with CM40/CM41	Switch on higher-level control unit CM40/CM41
	CAN bus participant defective	Contact Gema Service

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.**

When the product will not be used for several days

1. Switch off the power to the control unit at 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	
Air pressure (operation)	795 - 1080 hPa max. 2000 m ü. NHN
Temperature (operation)	+10 – +40 °C (+50 – +104 °F)
Temperature (storage / transport)	-20 – + 60 °C (-4 – +140 °F)
Air humidity	Relative air humidity 10 - 95 %
Condensation	Non-condensing

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 your product, please indicate the following specifications:

– Type and serial number of your product

– Order number, quantity and description of each spare part

Example:

– **Type** Powder management system OptiCenter All-in-One OC11

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 *****.

The wearing parts are always marked with a #. marked.

All dimensions of plastic hoses are specified with the external and internal diameter:

Example:

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

⚠ WARNING

Use of non-original Gema spare parts

Use of Non-Gema replacement spare parts may invalidate some or all approval certificates and accreditations; and the user assumes all explosion risks associated with use of these parts. Use of these replacement spare parts may void any and all warranty claims.

► Use only original Gema spare parts!

OptiCenter OC11

1	Touch Panel – 7" complete (see enclosed wiring diagram)	1015525
	SD card – for Pos.1 (not shown)	on request
2	Gun control unit OptiSpray (CG26-CP) – complete, see corresponding user manual (See chapter "Other applicable documents" on page 9.)	
3	Pneumatics – see corresponding spare parts list	
4	OptiSpeeder – see corresponding spare parts list	
5.6	Powder supply – see corresponding spare parts list	
7	Fluidization pressure regulator – complete	1012742

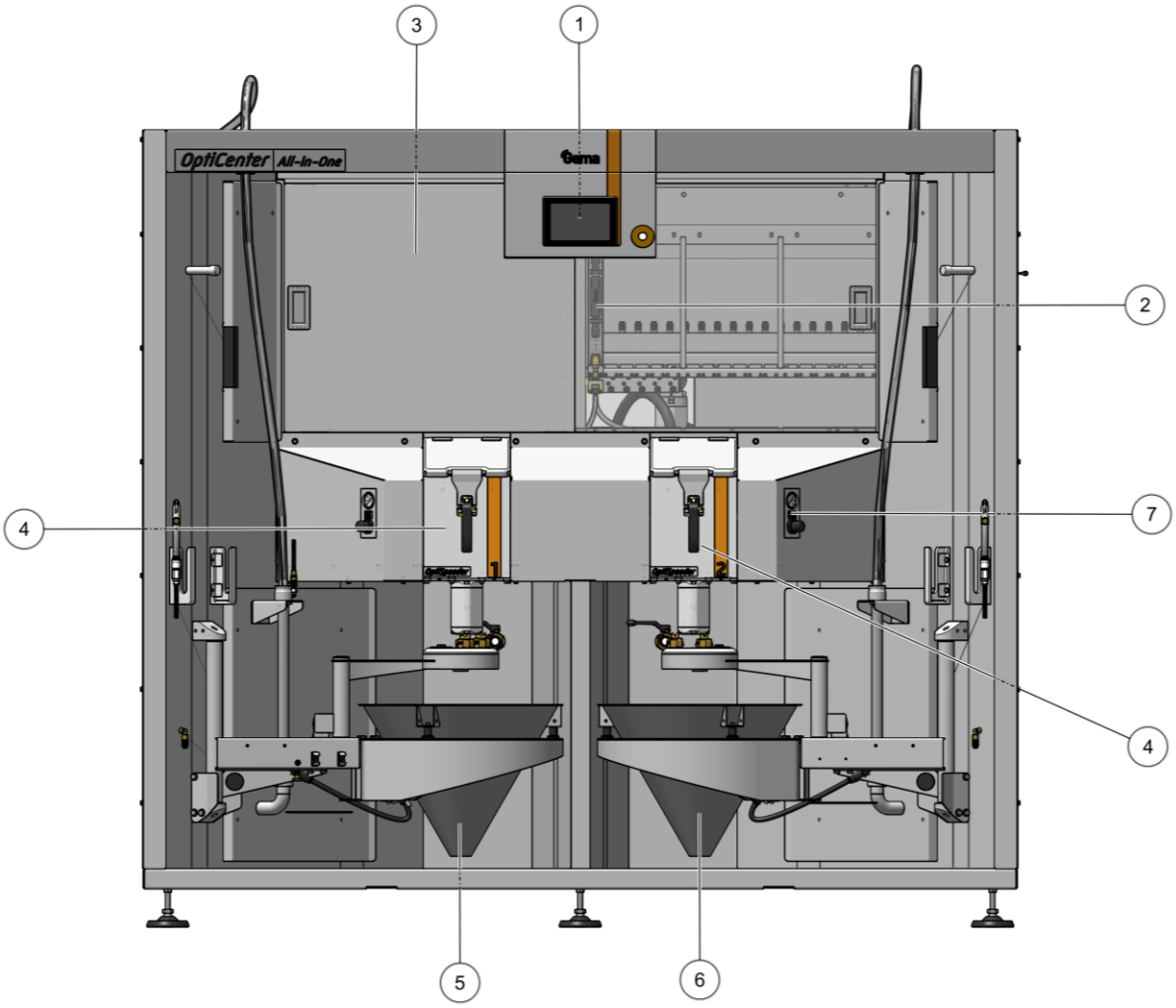


Fig. 101: OptiCenter OC11

Cone trolley

1	Cone	1027181
2	Rubber damper – ø20x25 mm, M6/21 mm (3 pieces)	237051
3	Vibrator motor – 220-240 V	1009981
4	Connection plug 4 pins	206466
5	Weighing cell**	1026567
6	Cover bushing	1005245
7	GEKA blind coupling	1002405
8	GEKA coupling – 3/4"	254339
9	Cover	1007177

** optional (cone trolley with scales)

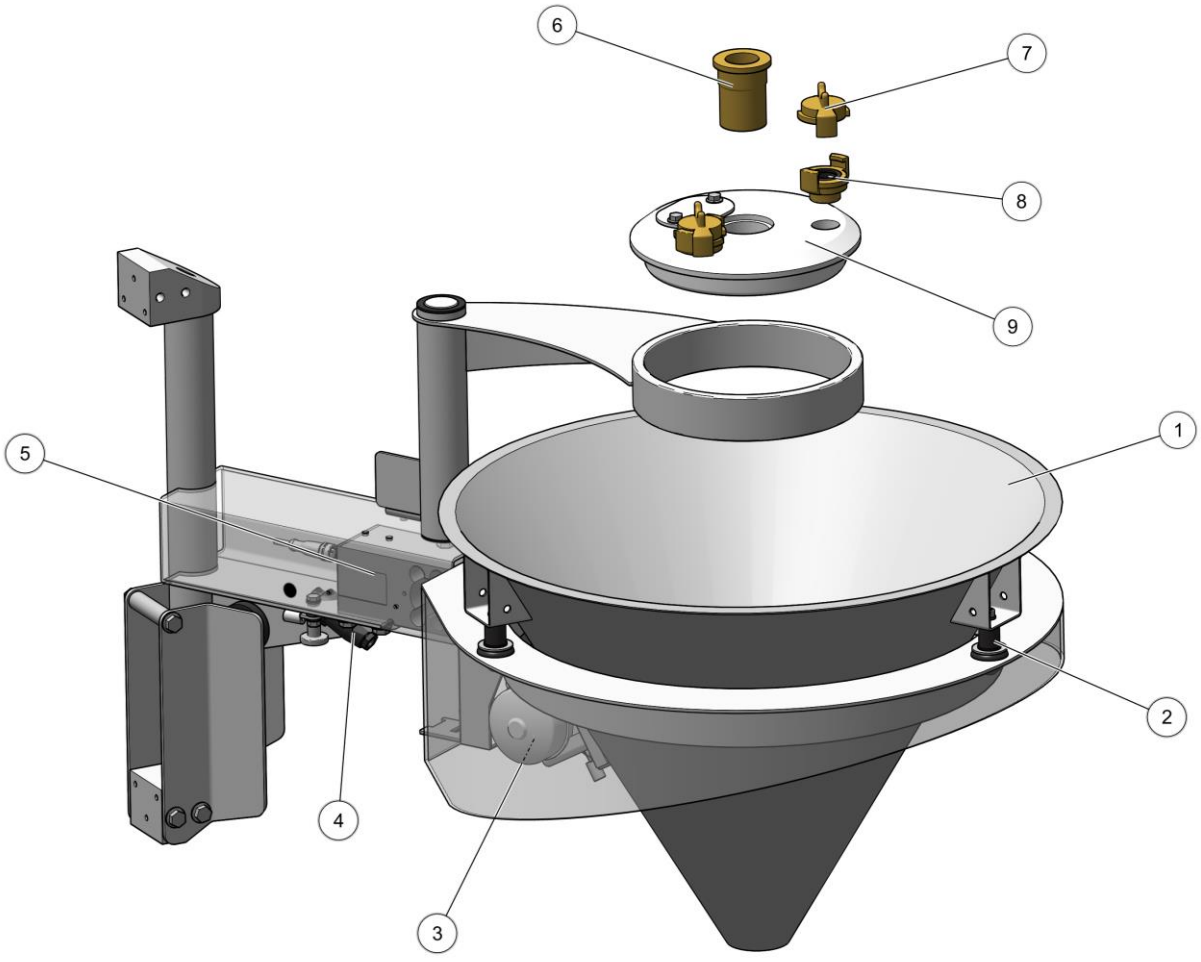


Fig. 102: Cone trolley

Fluidizing/suction unit

	Fluidizing/suction – ø28 mm, complete	1027638
1	Connector – NW5.0 -1/8"	200859
2	Elbow joint – 1/8"-1/8"	253733
3	Adapter nipple – 1/8"-1/8"	200930
4	Flow restrictor – ø0.3 mm	338303
5	O-ring – ø14x1.5 mm (2x)	263486 #
6	O-ring – ø22.1x1.6 mm (2x)	233340 #
7	Foot piece	1005327
8	Fluidizing ring	1005330

Wearing part

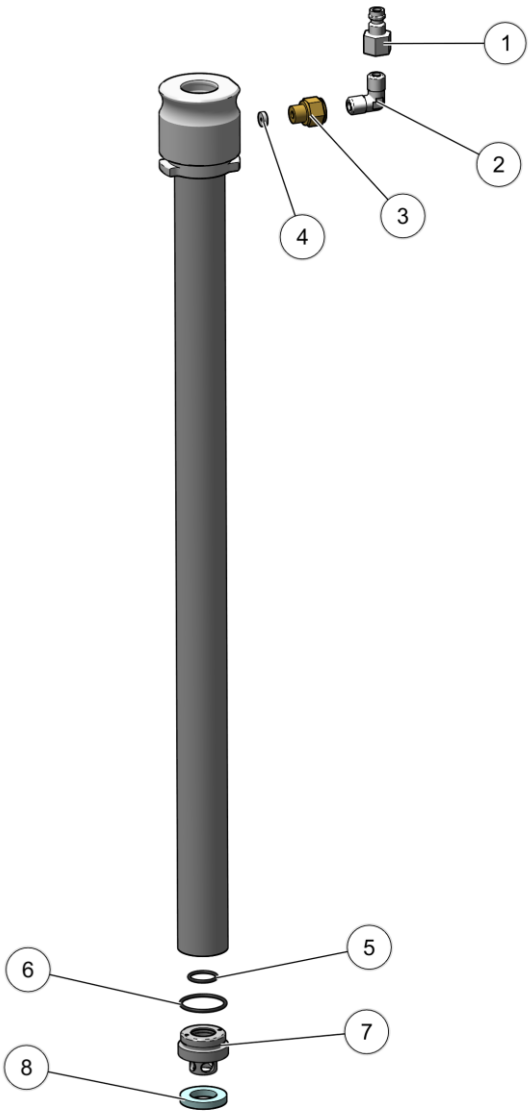


Fig. 103: Fluidizing/suction

OptiSpeeder – complete

1	36P powder Hopper – complete, see corresponding spare parts list	
2	Pinch valve DN15 – complete	1018025
3	Screw – M4x35 mm	237965
4	Initiator holder unit – complete, see corresponding spare parts list	
5	O-ring – ø21x3 mm (4x)	214981
6	Plug OS	1026463
7	Cover without sieve - complete, see corresponding spare parts list	
8	Cylinder screw – M6x30 mm– 6kt	216445
9	Fastener – complete	1018036
10	Cylinder screw – M6x20 mm– 6kt	216429
11	Pinch valve DN32 G 1¼"	1007648
12	Screw-in angle G ¼”	254029
13	Grub screw M6x10 mm – 6kt	234931

Wearing part

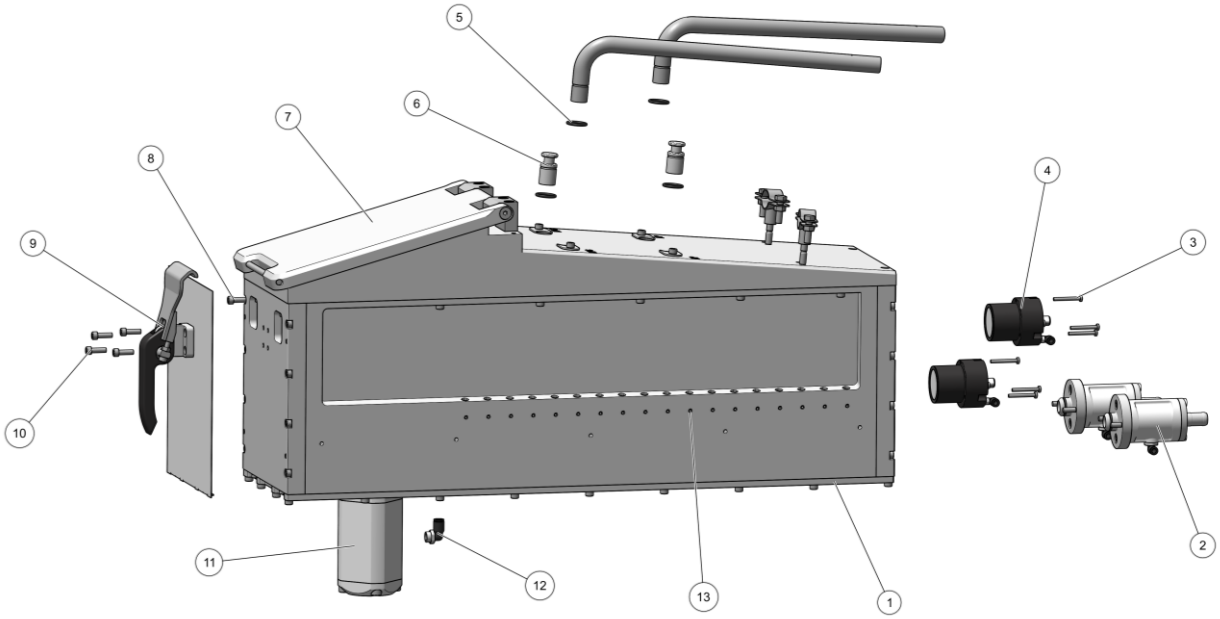


Fig. 104: OptiSpeeder – complete

Hopper - complete

1	Fastening plate	1024272
2	Gasket	1024276
3	Floor fluidizing plate - complete	1024273#
4	O-ring – ø40x3 mm (1x)	225053#
5	Connector	1007571 #
6	O-ring – ø33x3 mm (1x)	244252 #
7	Cylinder screw – M6x20 mm– 6kt	216429
8	Flat gasket frame	1024281
9	Hinge	1018024
10	Countersunk-head screw – M6x50 mm – 6kt	1002954

Wearing part

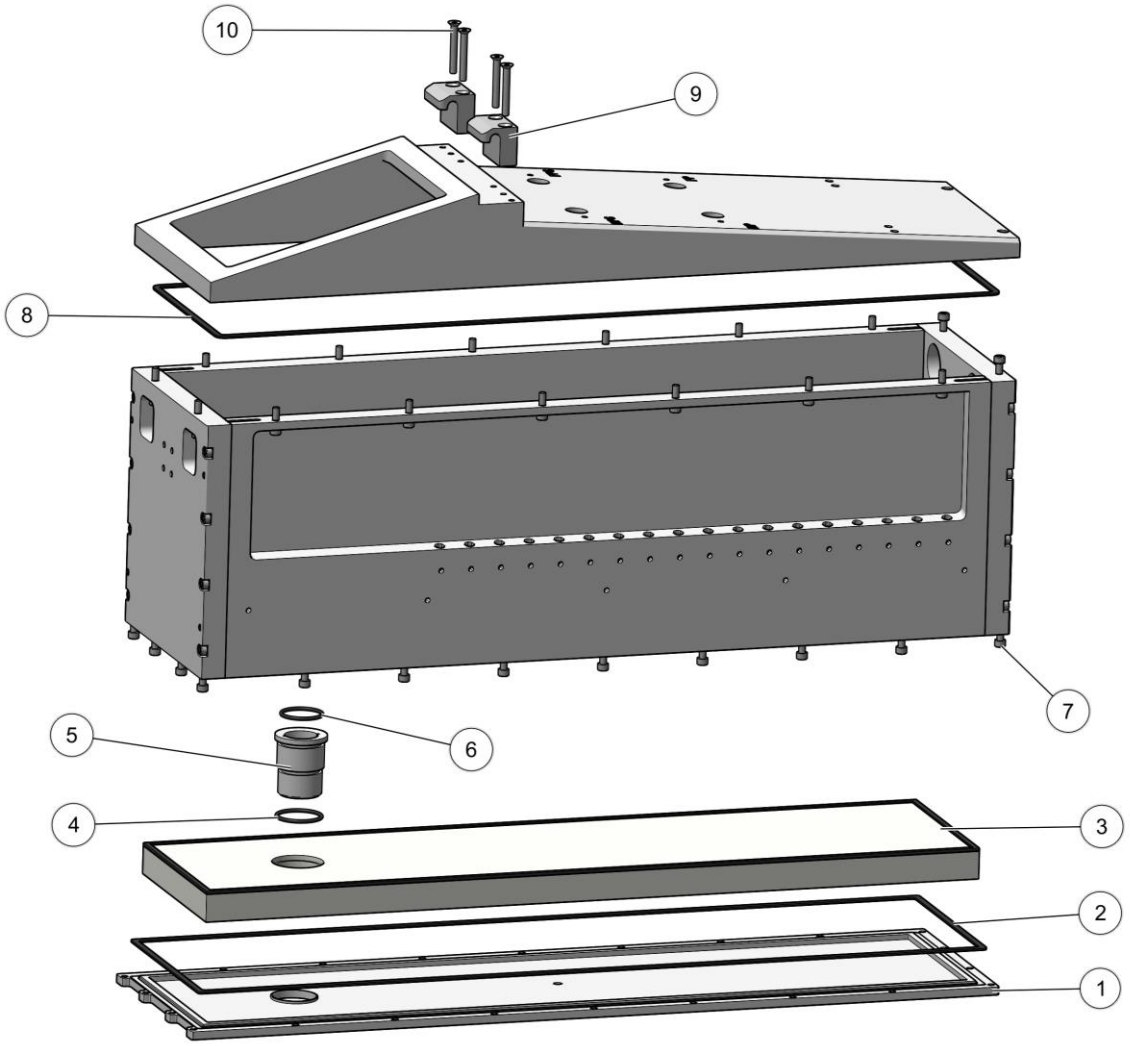


Fig. 105: Hopper - complete

Cover without sieve - complete

1	Cover without sieve	
2	Gasket – 266.07x5.34 mm	1018069 #

Wearing part

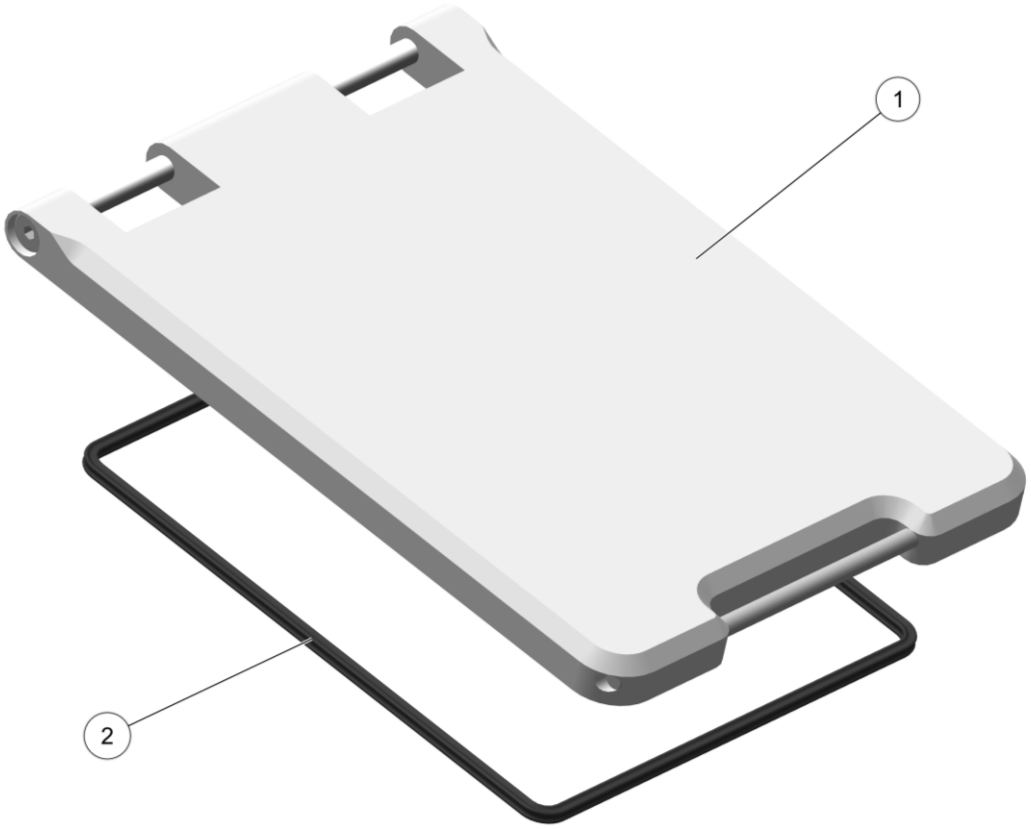


Fig. 106: Cover without sieve - complete

Initiator holder - complete

1	Gasket – ø47.5x1 mm	1007639 #
2	Fluidizing plate – ø44x4 mm	1005646 #
3	Sensor holder	1005644
4	Air connection Initiator	1005544
5	O-ring – ø34x2 mm (1x)	1003151 #
6	Elbow joint	1009941
7	Proximity switch PNP	1002436
8	Screw – M5x12 mm	239941

Wearing part

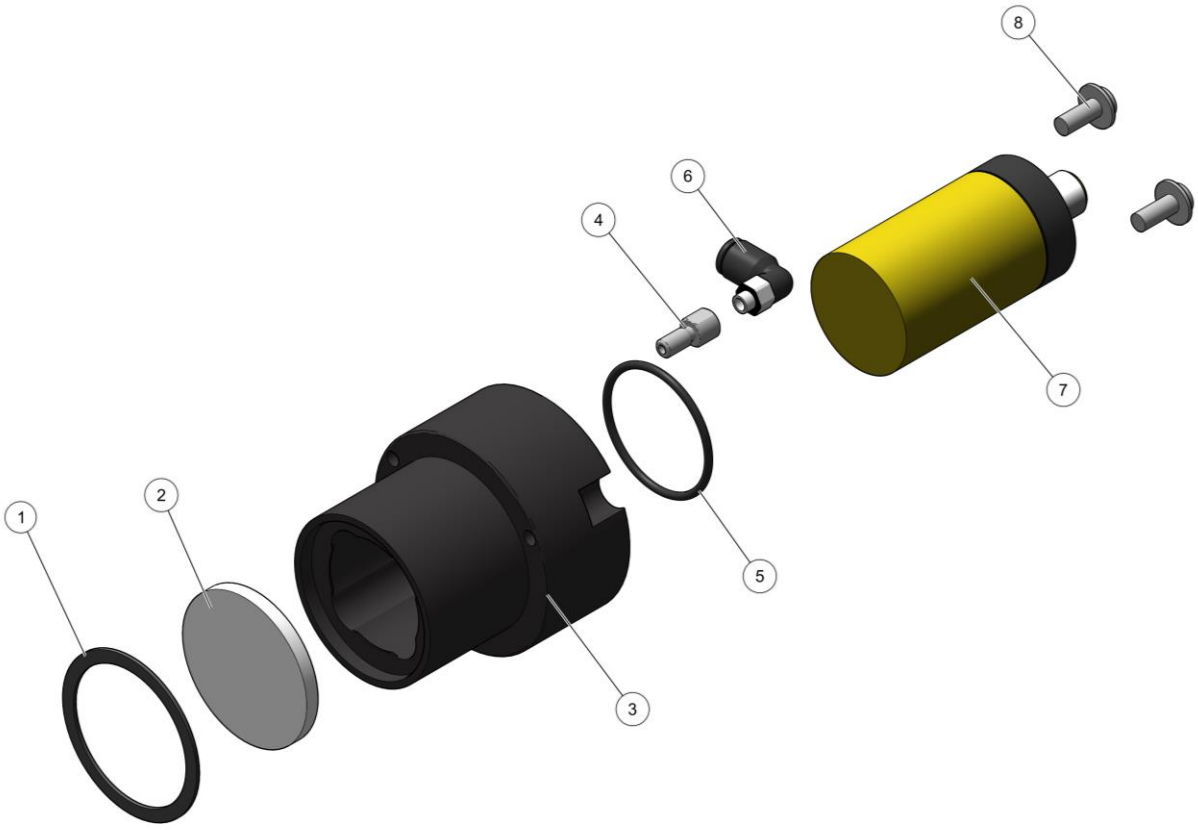


Fig. 107: Initiator holder - complete

OptiCenter – Pneumatics

1	Butterfly valve – complete (incl. pos. 1.1)	1006445
1.1	Pneumatic rotary actuator – complete	1006444
2	Exhaust air Waste – complete, see corresponding spare parts list	
3	Valve plate – complete, see corresponding spare parts list	
4	P valves distributor – complete, see corresponding spare parts list	
5	Compressed air distributor – complete, see corresponding spare parts list	
6	Ball valve - 1 “A/1 ”I with hand lever	1006065
7	Pressure switch – 1 to 10 10 bar	233757
8	OptiFeed PP07 Powder– see the corresponding operating manual (See chapter "Other applicable documents" on page 9.)	
9	Exhaust air recovery - see corresponding spare parts list	

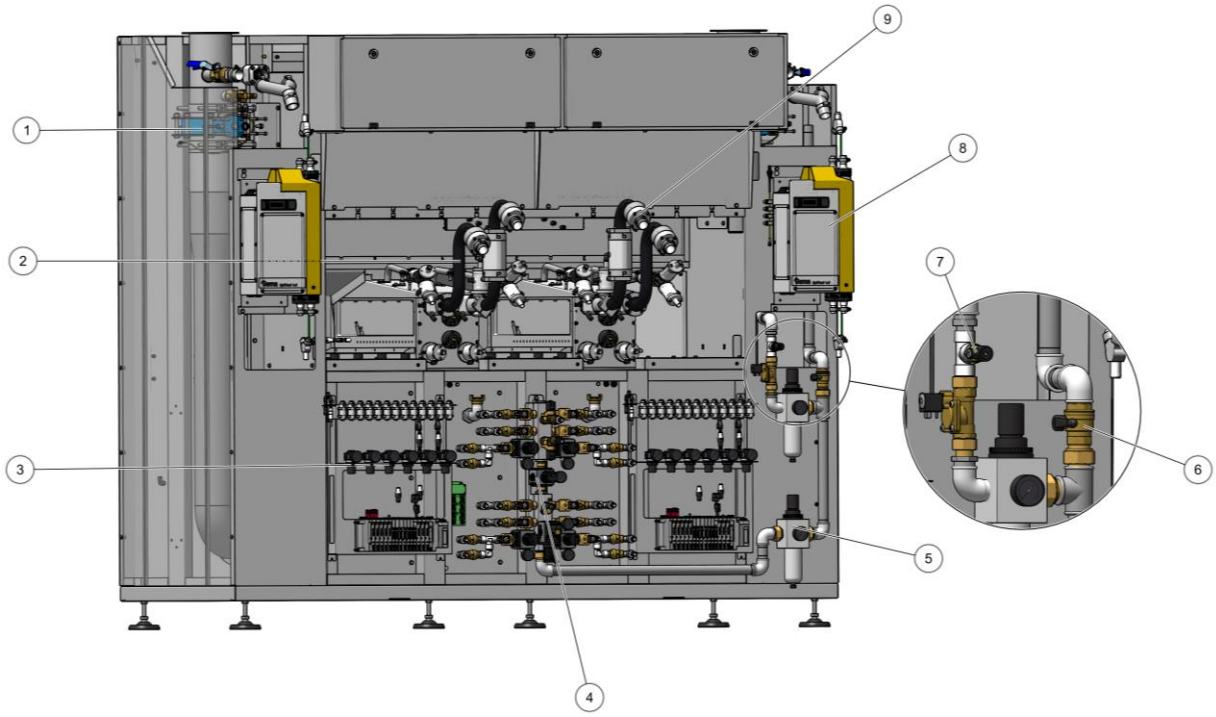


Fig. 108: OptiCenter – Pneumatics

Exhaust air Waste – complete

1	Exhaust air arc 60°	1026437
2	Socket DN32	1026430
3	Connecting socket DN32	1026438
4	Airmover NW40	1008066
5	O-ring – ø36x2 mm (1x)	252859
6	O-ring – ø37.77x2.62 mm (1x)	255319
7	Cylinder screw M6x16 mm – 6kt	216410
8	Cylinder screw M6x20 mm – 6kt	216429
9	Elbow joint G¼	254029
10	Powder Pinch valve DN32 G1¼, see corresponding spare parts list	

Wearing part

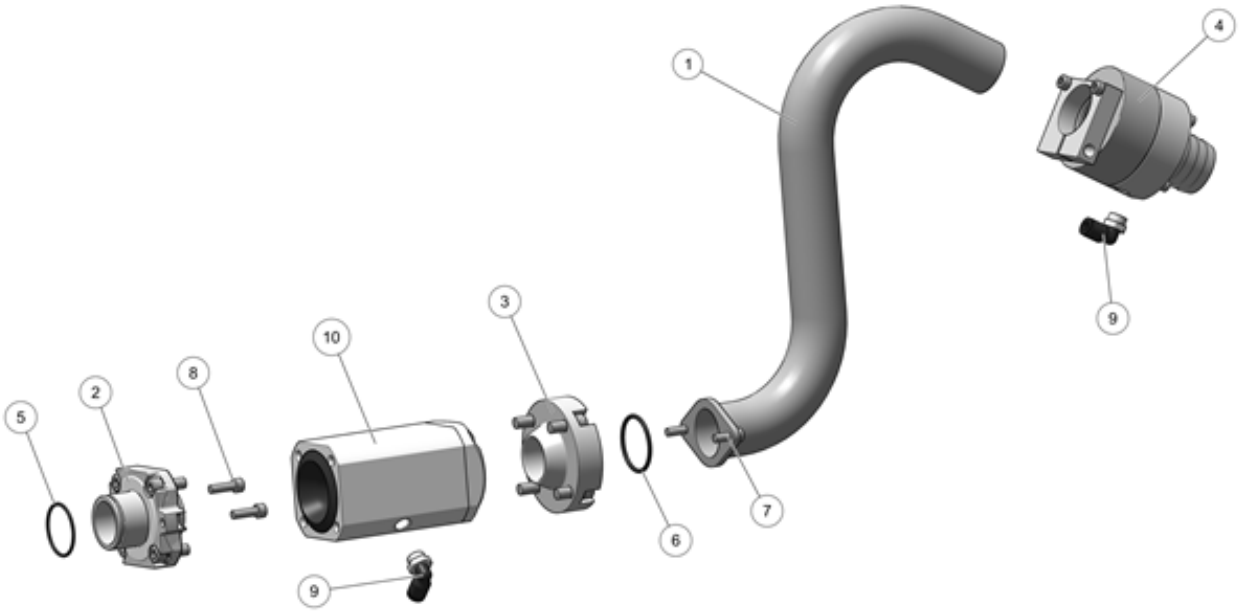


Fig. 109: Exhaust air Waste – complete

Exhaust air Recovery – complete

1	Exhaust air arc 60° short	1026457
2	Exhaust air arc 90° short	1026456
3	Socket D32-OS	1026430
4	Socket PV DN32	1026454
5	Flushing socket DN32	1026453
6	Clamping part	1007574
7	Airmover NW40	1008066
8	Powder pinch valve DN15 – complete, see corresponding spare parts list	
9	O-ring ø36x2 mm (1x)	252859
10	O-ring ø40x3 mm (3x)	225053
11	Cylinder screw M8x45 mm – 6kt	163923
12	Cylinder screw M6x16 mm – 6kt	216410
13	Cylinder screw M6x20 mm – 6kt	216429
14	Cylinder screw M6x25 mm – 6kt	216437
15	Elbow joint G¼	254029
16	Powder Pinch valve DN32 G1¼, see corresponding spare parts list	

Wearing part

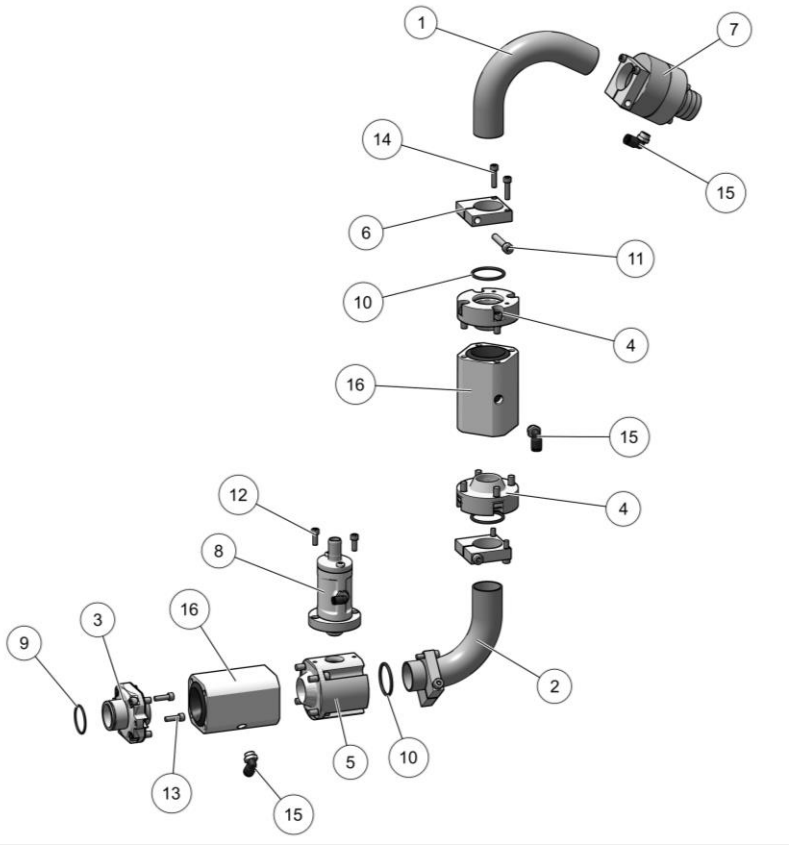


Fig. 110: Exhaust air Recovery – complete

Exhaust air Airmover Waste – complete

1	Y-pipe	1012717
2	Hose nozzle - G1 ¼	1012718
3	Hose clamp – ø35x50 mm	221376
4	Shut-off damper - 1 ¼ - 1 ¼	1022314
5	Pinch valve – DN32 complete, see corresponding spare parts list	
6	Hose Powder hose – ø40x48 mm	1005371

Wearing part

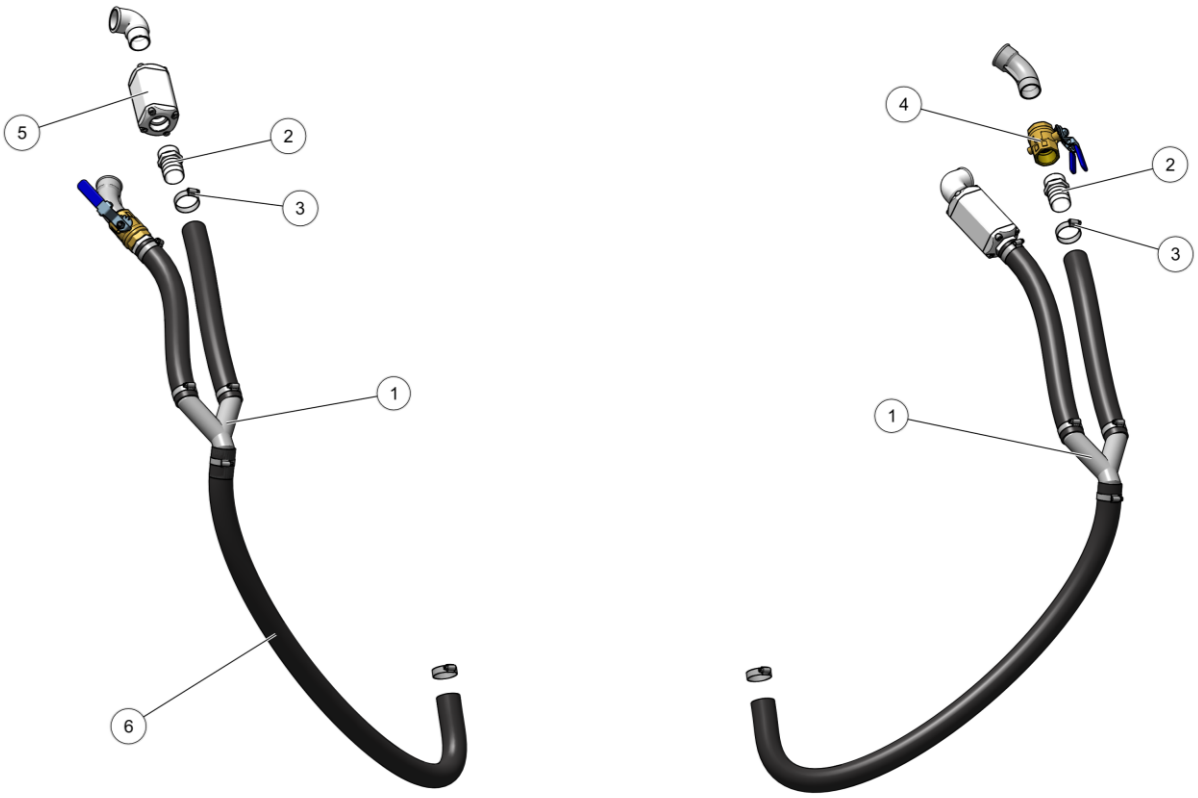


Fig. 111: Exhaust air Airmover Waste – complete

Pinch valve – complete

A	**Pinch valve DN15 – complete**	**1018025**
1	Muffle cover DN15	1018027
2	O-ring – ø19x2 mm (1x)	208264
3	Screw – ø5x26 mm	1006263
4	Pinch valve DN15	1018044
5	Connecting socket DN15	1018028
B	**Pinch valve DN15 – pre-assembled**	**1018044**
1	Press zone ring DN15	1006262
2	O-ring – ø32x1.5 mm (2x)	1006264
3	Housing DN15	1006260
4	Sleeve – DN15	1006256 #
5	Elbow joint G¼	265691
C	**Pinch valve DN32 – complete**	**1007648**
1	Cylinder screw – M8x20 mm– 6kt	216496
2	Pinch valve hose – NW32	1007647 #

Wearing part

A

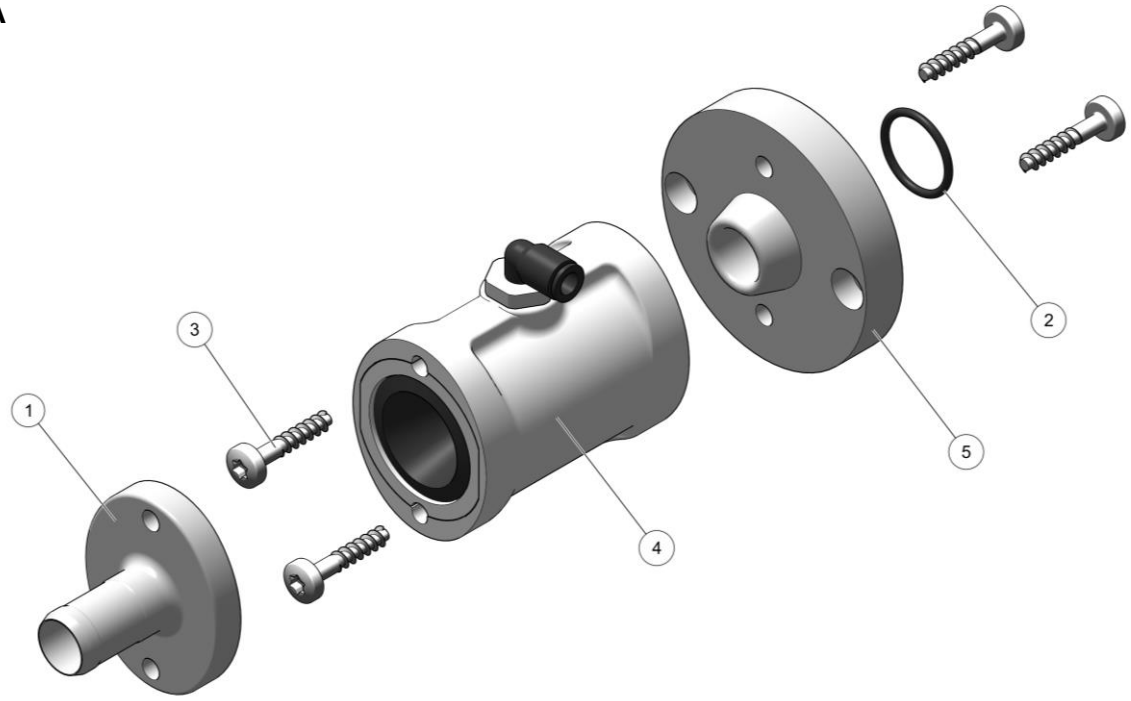


Fig. 112: Pinch valve DN15 – complete

B

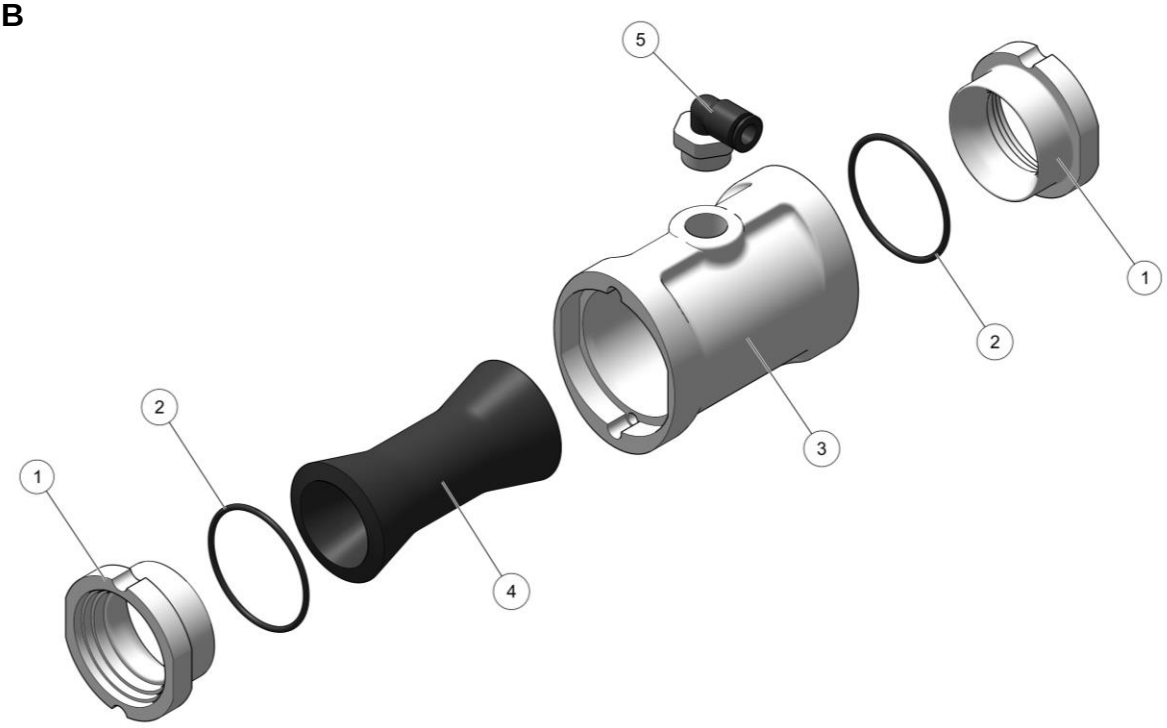


Fig. 113: Pinch valve DN15 – pre-assembled

C

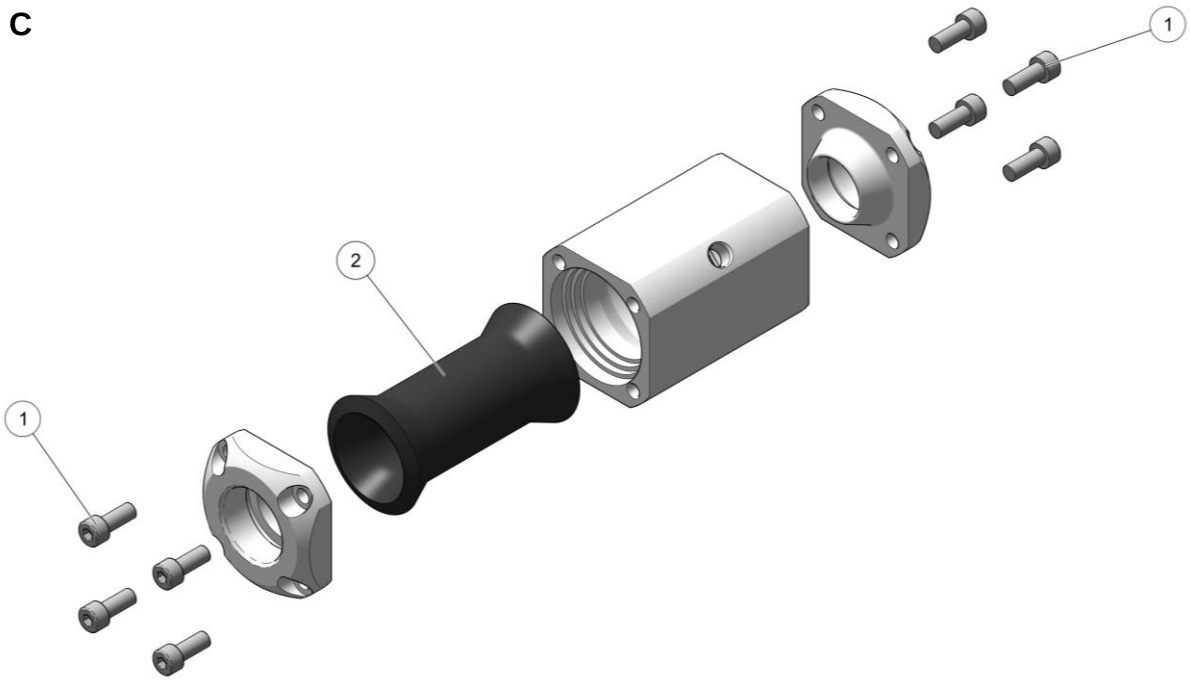


Fig. 114: Pinch valve D32 – complete

Compressed air distributor

1	Valve coil - 24VDC	1005119
2	Solenoid valve – 3/4", NW18 without coil	1005121
3	Pressure gauge – 0 to 10 bar	1010964
4	Filter control unit – 0,5 to 8 bar	1006547

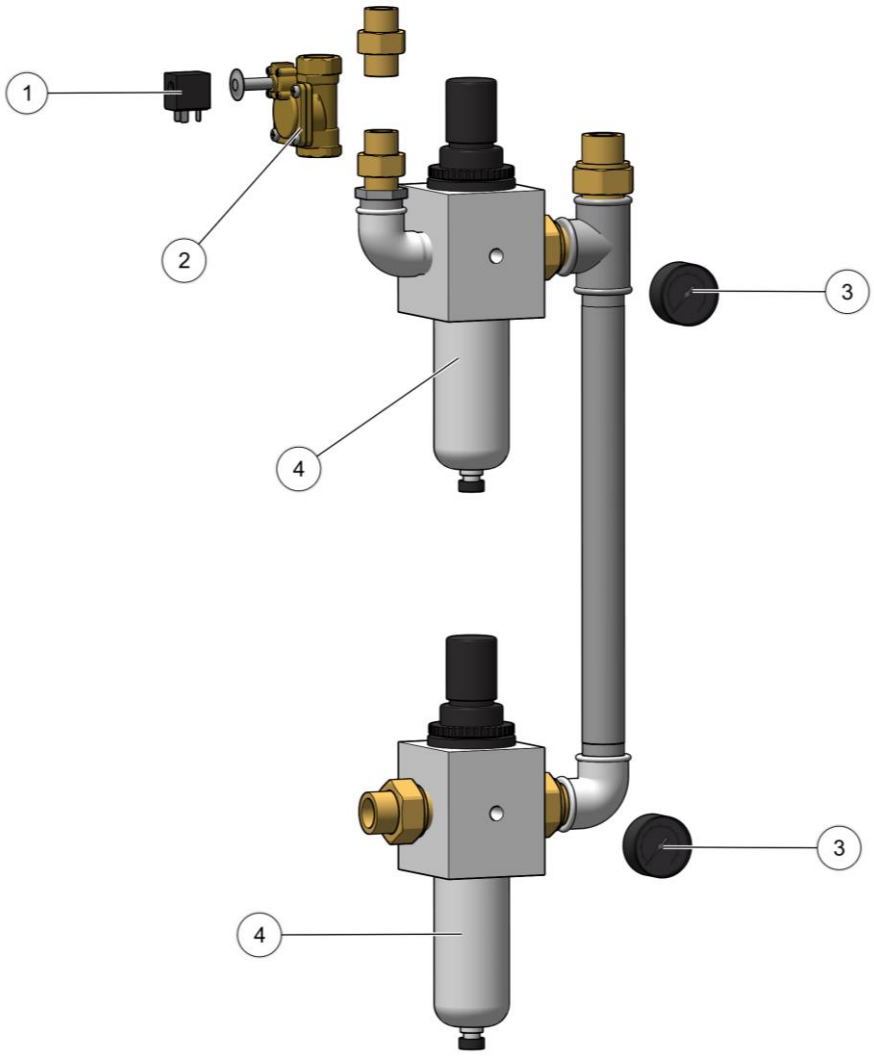


Fig. 115: Compressed air distributor

Pneumatic distributor – complete

1	Hose connector – ø17-1/2"	223069
2	Elbow joint – 1/8"– 1/8"	237604
3	Elbow joint –1/2"	1005493
4	Adapter nipple – 1/4"– -1/8"	1020052
5	Valve coil - 24VDC	1005119 #
6	Solenoid valve – NW13.5 without coil	1005120
7	Pressure gauge – 0 to 10 bar	259179
8	Pressure regulator – 0.5 to 10 bar	259187

Wearing part

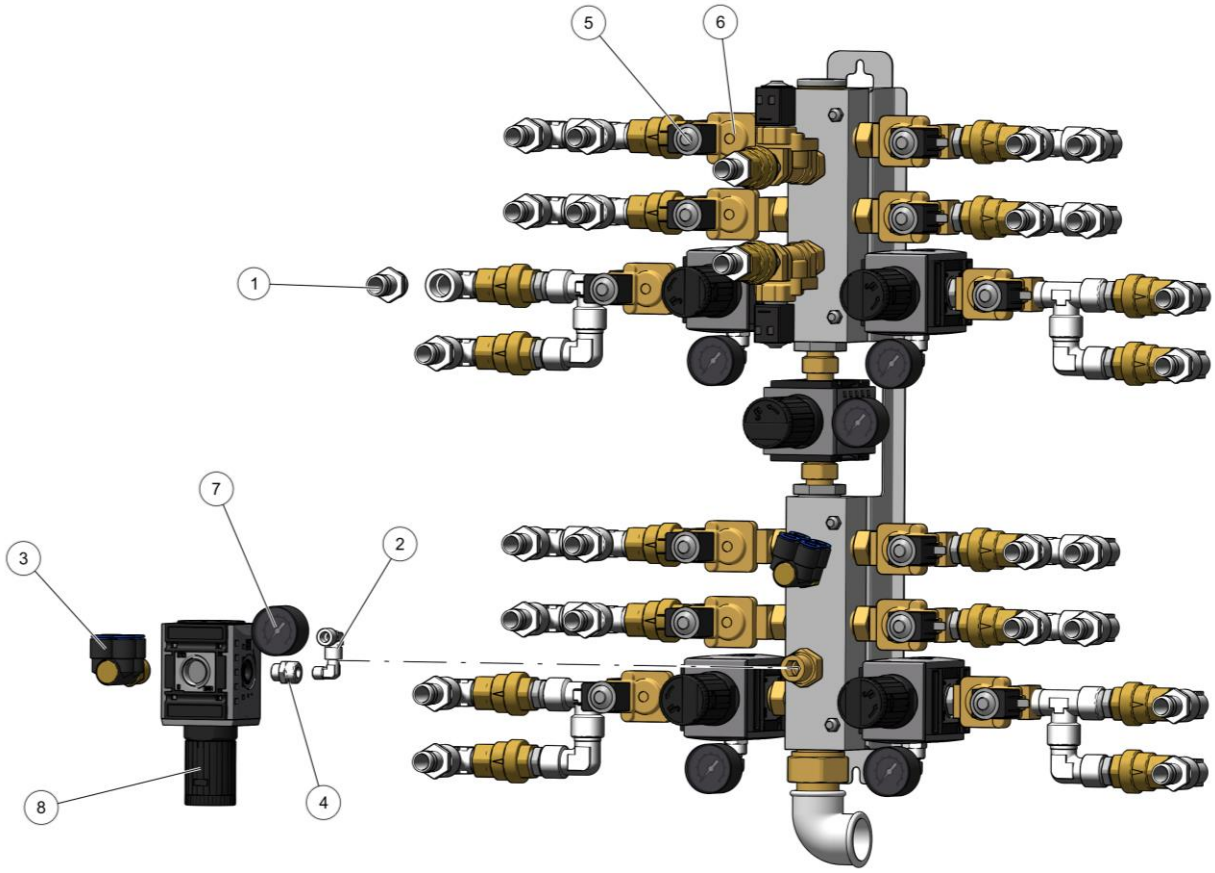


Fig. 116: Pneumatic distributor – complete

Valve plate – complete

1	Valve battery – 16-fold	1027640
2	Cylinder screw – M4x12 mm– 6kt	216275
3	Vacuum filter - Inline	1019437
4	Cylinder screw – M5x16 mm – 6kt	216356
5	Non-return valve - ø08-ø08	1005575
6	Pressure gauge – 0 to 10 bar	259179
7	DR valve - 1/8I - 1/8A	1002127
8	Pressure regulator – 1/4" 0.5 to 10 bar	264326

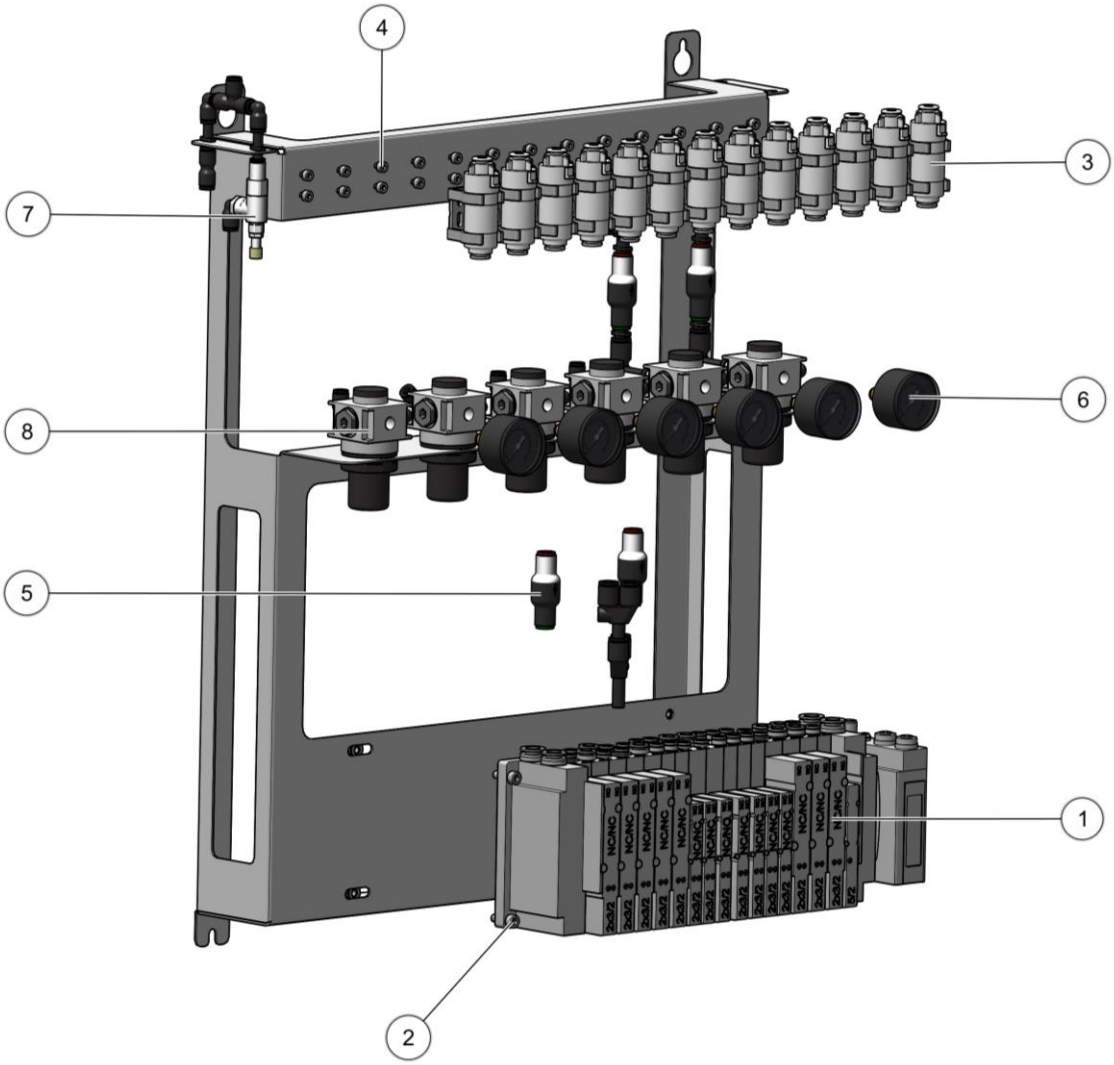


Fig. 117: Valve plate – complete

Equipment

1	Hose Powder hose – ø7/11.4, POE-80	1005097 #
2	Suction tube – complete	1026426
3	Suction plug – complete	1027606
4	MultiColor switch – complete, see corresponding spare parts list	
5	Plastic pipe - ø4/2.7SW, PA	1012710
6	Plastic pipe - ø6/4SW, PUR	103144
7	CG-Holder	1024244
8	Screw – M4x12 mm, 6rd	1026412
9	Screw – M5x12 mm, 6kt	257052
10	OptiSpray (CG26-CP) – complete, see corresponding user manual (See chapter "Other applicable documents" on page 9.)	

Wear part

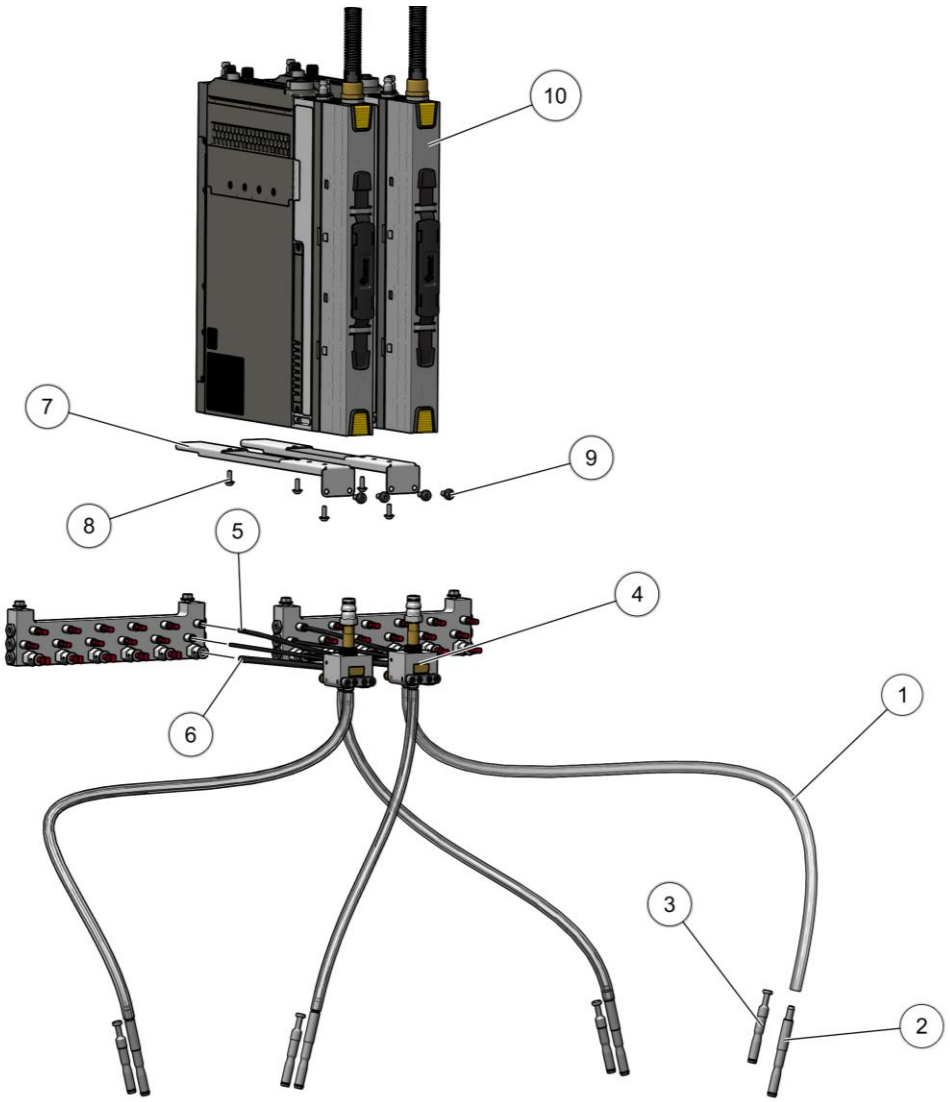


Fig. 118: Equipment

MultiColor switch – complete

1	Hose nipple	1025013
2	Connection nipple CG26	1025594
3	O-ring – ø5x1.5 mm, NBR70 (1x)	241334 #
4	O-ring – ø7x2 mm, NBR70 (1x)	261904 #
5	O-ring – ø10x1.5 mm, NBR70 (1x)	1002588
6	Screw-in nipple – ø4 mm	1025674
7	Screw-in nipple – ø6 mm	1025007
8	O-ring – ø4x2 mm, NBR70 (2x) (not shown)	1004731 #
9	O-ring – ø5x2 mm, NBR70 (1x) (not shown)	1024989 #

Wearing part

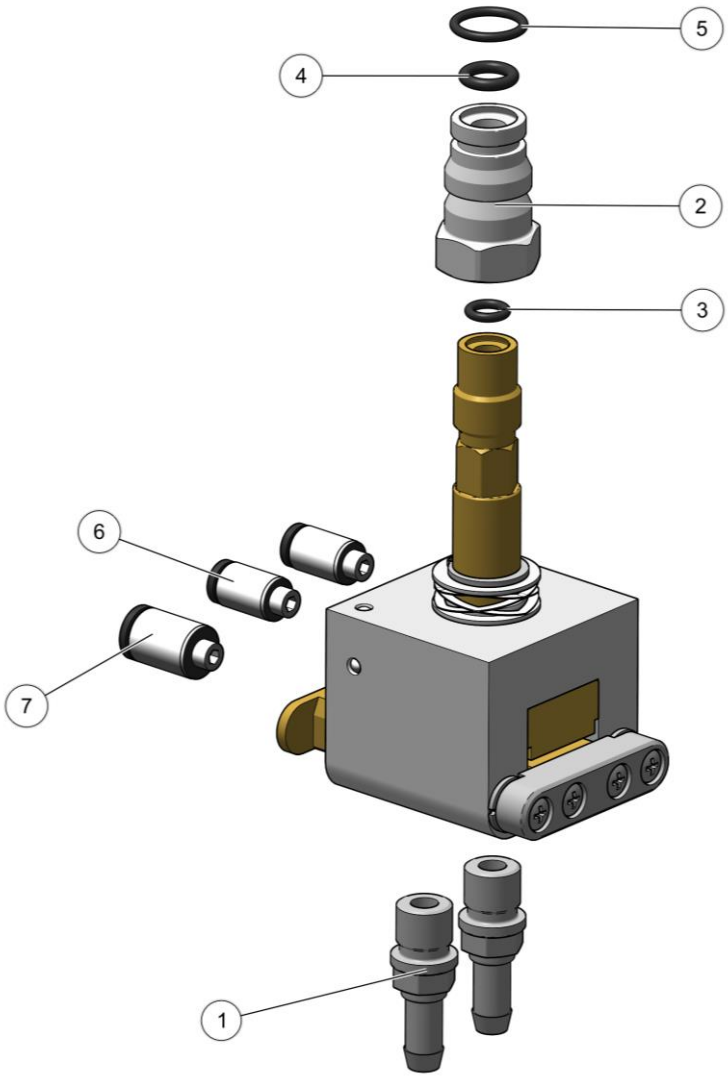


Fig. 119: MultiColor switch – complete

PH100 Powder Hopper

	PH100-OC Powder Hopper – complete	1008303
1	PH100-OC Powder Hopper	1008315
2	Rubber buffer	1011496
3	Roller	1011494
4	Cover PH100	1011497
5	Container cover – complete	1011642
6	Cover bushing	1011499
7	Level sensor cover	1007 178
8	GEKA blind coupling	1002405
9	GEKA coupling – 3/4"	254339
10	Hose connection – ø40 mm	1011492
11	Spiral hose – ø40/47 mm	100048*
12	Screw – M6x12 mm – 6kt	244406
13	Locknut – ø40x28xM8 mm	1008285
14	Elbow joint – 1/8"-1/8"	237604
15	Connector – NW5-1/8"	237272
16	Fluidizing plate PH100	1006017
17	Rubber profile	1007172*
18	Countersunk Allen screw – M6x50 mm	1002954
19	Handle	1006013

* Please specify length

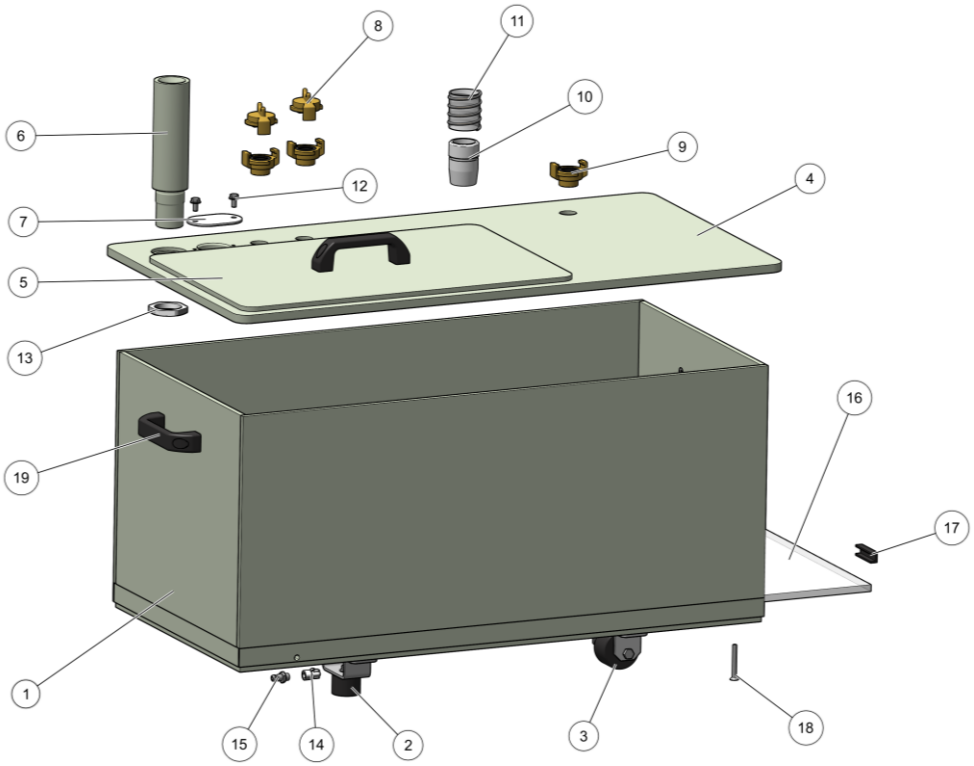


Fig. 120: PH100 Powder Hopper

PH60 Powder Hopper

	PH60-OC Powder Hopper – complete	1008 171
1	PH60-OC Powder Hopper	1008 313
2	Handle	1006013
3	Locknut – ø40x28xM8 mm	1008285
4	Container cover – complete	1011642
5	Level sensor cover	1007178
6	Cover bushing	1011499
7	Screw – M6x12 mm – 6kt	244406
8	GEKA blind coupling	1002405
9	GEKA coupling – 3/4"	254339
10	Spiral hose – ø40/47 mm	100048*
11	Hose connection – ø40 mm	1011492
12	Cover PH60	1011498
13	Fluidizing plate PH60-OC	1006012
14	Rubber profile	1007172*
15	Countersunk Allen screw – M6x50 mm	1002954
16	Elbow joint – 1/8"-1/8"	237604
17	Connector – NW5-1/8"	237272

* Please specify length

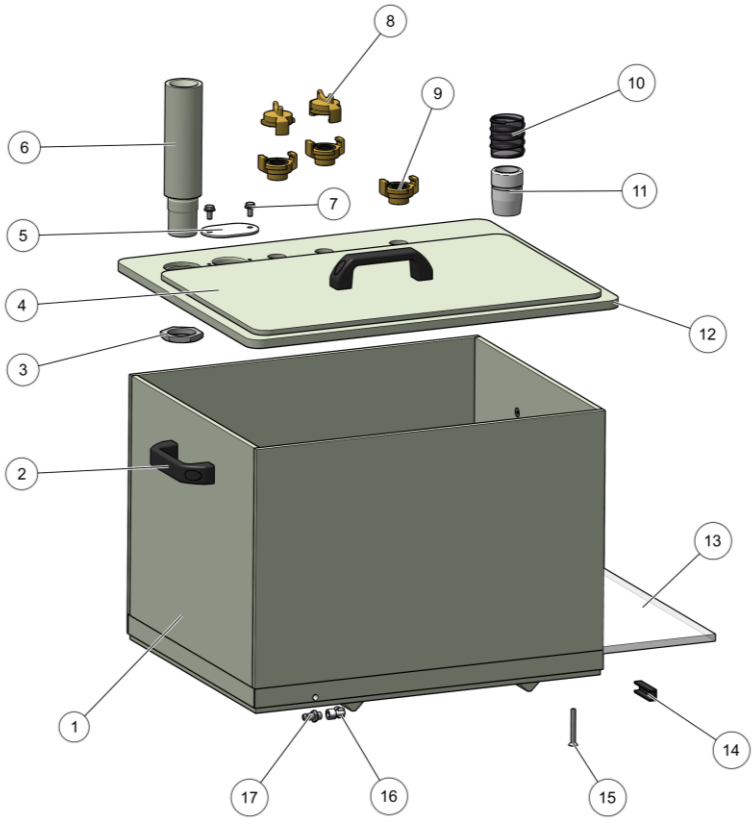


Fig. 121: PH60 Powder Hopper

LC01 Level sensor

1	LC01 Level sensor – complete	1006089
2	O-ring – ø38 x 4 mm (1x)	239151 #
3	Plastic pipe - ø6/4SW, EVA AS	1001973*
4	Connecting cable – complete	1009005

Wearing part

* Please specify length

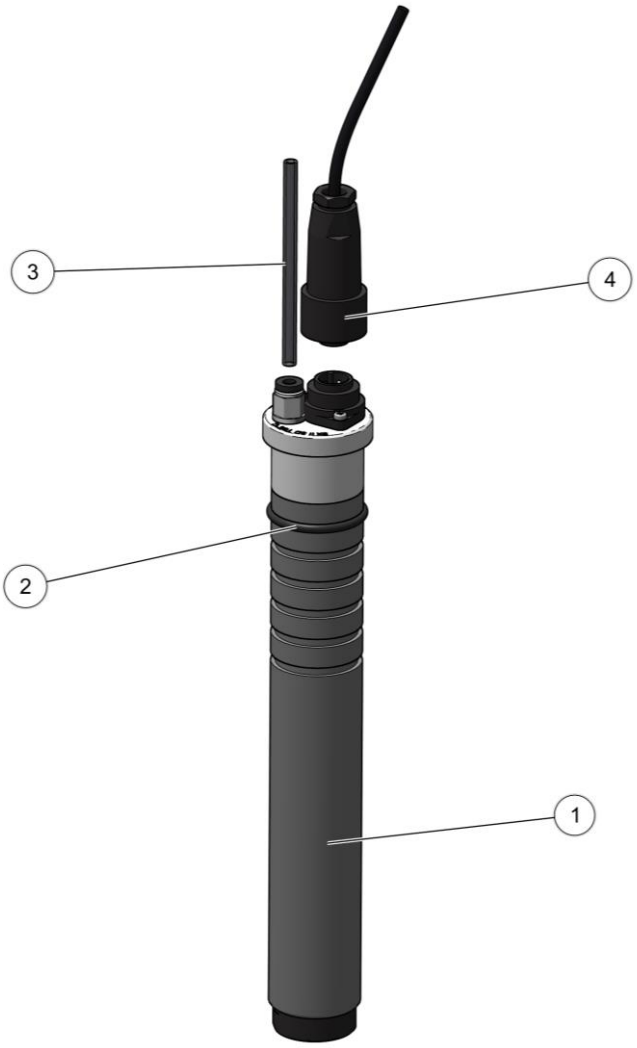


Fig. 122: LC01 Level sensor

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