Operating instructions and Spare parts list

Manual gun
OptiSelect GM03

Translation of the original operating instructions
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About these instructions

General information

This operating manual contains all important information which you require for the working with the OptiSelect GM03. 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.

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 which 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

Presentation of the contents

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

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

General information

This chapter provides the user and third parties who operate this product with all essential safety regulations, the adherence to which is imperative.

These safety regulations must be read and understood in their entirety before the product is put into operation.

The standards and guidelines applied during the development, manufacture and configuration are described in the EC declaration of conformity and in the manufacturer’s declaration.

**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.

Basic safety instructions

- This product is built to the latest specification and conforms to the recognized technical safety regulations and is designed for the normal application of powder coating.
- Any other use is considered non-compliant. The manufacturer shall not be liable for damage resulting from such use; the user bears sole responsibility for such actions. If this product is to be used for other purposes or other substances outside of our guidelines then Gema Switzerland GmbH should be consulted.
- Start-up (i.e. the execution of intended operational tasks) is forbidden until it has been established that this product has been set up and wired according to the guidelines for machinery. The standard "Machine safety" must also be observed.
- Unauthorized modifications to the product exempt the manufacturer from any liability from resulting damage.
The relevant accident prevention regulations, as well as other generally recognized safety regulations, occupational health and structural regulations are to be observed.

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

Product specific security regulations

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

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

Intended use

This gun is used for electrostatic coating of objects connectable to ground with organic powders in conjunction with the control units and accessories, as specified in the corresponding Type Examination Certificate.

fig. 1

Observance of the operating, service and maintenance instructions specified by the manufacturer is also part of conformity of 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 considered non-compliant. The manufacturer is not responsible for any incorrect use and the risks associated with such actions are assumed by the user alone!
### Reasonably foreseeable misuse

- Use with insufficient compressed air quality
- Input pressure too low

### Technical Data

#### Electrical data

<table>
<thead>
<tr>
<th>OptiSelect GM03</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal input voltage</td>
<td>eff. 10 V</td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>18 kHz (average)</td>
<td></td>
</tr>
<tr>
<td>Nominal output voltage</td>
<td>100 kV</td>
<td></td>
</tr>
<tr>
<td>Polarity</td>
<td>negative (optional positive)</td>
<td></td>
</tr>
<tr>
<td>Max. output current</td>
<td>100 µA</td>
<td></td>
</tr>
<tr>
<td>High voltage display</td>
<td>with LED</td>
<td></td>
</tr>
<tr>
<td>Ignition protection</td>
<td>Ex 2 mJ T6</td>
<td></td>
</tr>
<tr>
<td>Temperature range</td>
<td>0 °C - +40 °C (+32 °F - +104 °F)</td>
<td></td>
</tr>
<tr>
<td>Max. surface temperature</td>
<td>85 °C (+185 °F)</td>
<td></td>
</tr>
<tr>
<td>Protection type</td>
<td>IP64</td>
<td></td>
</tr>
</tbody>
</table>

**Approvals**

- CE 0102 Ex II 2D
- PTB 11 ATEX 5006

#### Dimensions

<table>
<thead>
<tr>
<th>OptiSelect GM03</th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>520 g</td>
<td></td>
</tr>
</tbody>
</table>

#### Processible powders

<table>
<thead>
<tr>
<th>OptiSelect GM03</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastic powder</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>Metallic powder</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>Enamel powder</td>
<td>no</td>
<td></td>
</tr>
</tbody>
</table>

---

Rev. 01 08/16
Structure

Overall view

fig. 2:

1  Spray nozzle system
2  Threaded sleeve
3  Shaft
4  Cover with remote control and hooks
5  Remote control
6  SuperCorona connection
7  Gun handle
8  Gun cable
9  Powder hose connection
10 Powder hose quick release connection
11 Electrode rinsing air connection
12 Trigger
Operating elements

*LED and remote control buttons*

![Diagram](image)

<table>
<thead>
<tr>
<th>Designation</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>Display <em>High voltage (intensity)</em></td>
</tr>
<tr>
<td>T1</td>
<td><em>Powder output</em> + key</td>
</tr>
<tr>
<td>T2</td>
<td><em>Powder output</em> – key</td>
</tr>
<tr>
<td>T3</td>
<td><em>Activate/stop rinsing process</em> key</td>
</tr>
</tbody>
</table>

Scope of delivery

- Manual gun with gun cable (6 m), negative polarity
- Powder hose (6 m, ID 10 mm)
- Rinsing air hose (6 m)
- Flat jet nozzle NF20, complete (incl. electrode holder)
- Flat jet nozzle NF21
- Cable tie with Velcro closure
- Gun cleaning brush
- Spare parts kit
- Operating manual
Available accessories**

- Rinsing module (with OptiStar CG09/CG13 manual powder gun control unit only)
- SuperCorona ring
- Flat jet nozzle (for specific applications)
- Round jet nozzles
- Gun extension 150 and 300 mm
- Gun cable extensions
- Application cup 150 and 500 ml
- Multi-spray adapter
- Various adapters for connection to earlier generations of control units
- Gloves, anti-static

**For more information, see spare parts list

PowerClean™ module – Option

Field of application
The PowerClean module can be used in combination with the OptiStar CG09/CG13 control unit.

The PowerClean module provides increased stability in application processes. It prevents the bridging phenomena that can lead to short circuiting when handling powders such as metallic powders.

In moist or tropical environments, any moisture is driven from the injector, powder hose and powder gun. The color change is also accelerated during non-extreme color switches.

fig. 4
SuperCorona ring

Field of application
The SuperCorona is an optional extension for the gun, allowing for a better surface quality when coating with the powder coating equipment.

When coating wheel rims, drawers, radiators, lamps etc., the surface quality is exceptional, also in places with higher coating layer requirements. By coating with several powder types, an “orange peel” finish can be completely avoided. By coating with structure powder, the “picture frame effect” is hardly visible.

The performance of the gun with SuperCorona is convincing due to its very good charging and very high deposition rate as well as an improved penetration into Faraday cages. The distance between nozzle and workpiece can be reduced to 100 mm without influencing the surface finish.

fig. 5
Due to its modular structure, the gun can be fast and easily extended with the light SuperCorona (approx. 60 g). The gun remains repair-friendly and easy to maintain even after reconfiguration.

SuperCorona assembly
Before fitting the SuperCorona ring, make sure that the connection and the plug-in connector are free from grease and powder, otherwise the electric contact cannot be guaranteed.
**Principle of operation**

**High voltage generation**

The control unit supplies a high-frequency low voltage signal of approx. 10 V eff. This voltage is fed through the gun cable (1) to the high voltage cascade (2) in the gun shaft.

In the high voltage cascade (2), the low voltage is high-transformed in a first step (c). This primary high voltage is subsequently rectified and multiplied in the high voltage cascade in a second step (d), until the required high voltage is obtained at the end (approx. 100 kV). The high voltage is now fed to the electrode (E) within the spray nozzle.

**Circuit**

In addition to the modulated low voltage needed for high voltage generation, there are signal lines fed through the gun cable. The control signals are used for monitoring gun trigger status and gun remote control functions.

The gun is released by a touch-free switch (3), which is operated by a magnet (4) in the trigger (5). The gun control unit switches on the modulated low voltage, the powder transport and the rinsing air.

**Powder flow and electrode rinsing air**

The electrode rinsing air is used by vented spray nozzles and is connected with its designated connection on the rear side of the gun control unit (see the operating manual of the gun control unit). The functions of the spray nozzles are described in the corresponding section of this manual.
Flat jet nozzle with vented central electrode

The vented flat jet nozzle serves for the spraying and the charging of the powder. The powder is charged by the central electrode (E). The high voltage (H) created in the gun cascade is guided through the center electrode.

![Fig. 7](image)

In order to prevent powder from sintering on the electrode, compressed air is used during the spray process.

The rinsing air (S) adjustment on the gun control unit is described in the corresponding operating manual.

Round jet nozzle with vented deflector and vented central electrode

The vented deflector is used, to give the powder stream emerging from the gun, a cloud formation. The powder is charged by the central electrode (E). The high voltage (H) created in the gun cascade is guided through the center electrode.

![Fig. 8](image)

Since powder can accumulate on the baffle plate, it must be rinsed with compressed air.

The electrode rinsing air (S) adjustment on the gun control unit is described in the corresponding operating manual.
Typical characteristics – properties of the functions

Remote control

– Adapt powder output (The powder output is correspondingly increased or reduced) – factory setting

or

– Program change (It is switching between programs P01-P20) – See chapter "Activate/deactivate the program change function via remote control" on page 27.

– Activate/stop PowerClean process (injector, powder hose and gun are rinsed) – only if the optional PowerClean module is present and attached

Powder hose quick release connection

– Quick and simple connection and disconnection from powder hose and application cup

Connection for SuperCorona Ring

– Quick and simple connection and disconnection of the SuperCorona ring
Assembly / Connection

Connecting the gun

The gun is delivered ready-to-use by the manufacturer. Just a few cables and hoses must be connected.

*The compressed air must be free of oil and water!*

The gun is connected as follows:

1. Connect electrode rinsing air hose and powder hose to gun
2. Lay out gun cable, electrode rinsing air hose and powder hose and bind using Velcro strips (included)
3. Connect the gun cable plug to the socket 2.3 on the rear side of the control unit
4. Connect electrode rinsing air hose to coupling 1.4
5. Connect powder hose to injector
fig. 9

1 Gun
2 Injector
3 Fluidizing air hose
4 Maintenance unit
5 PowerClean™ module (Option)
Start-up

Preparation for start-up

Basic conditions
When starting up the gun control unit, the following general conditions impacting the coating results must be taken into consideration:

– Gun correctly connected
– Gun control unit correctly connected
– Corresponding power and compressed air supply available
– Powder preparation and powder quality OK
Initial start-up

If a malfunction occurs, see the troubleshooting guide, as well as the gun control unit operating manual!

1. [Image]

2. [Image] 5,5 bar

3. [Image] 110 V/230 V

4. [Image] on

5. [Image]

Fig. 10

The remainder of the start-up procedure for the Gun is explicitly described in the operating instructions for the OptiStar CG08/CG13 powder gun control unit (chapter "Initial start-up" and "Start-up")!
Operation

WARNING

Holding the gun incorrectly
During the coating process, the gun can discharge along the body of the coater if not held using its intended handle, which has been grounded.

► Always hold gun only by the handle!
► Do not touch any other parts of the gun!

Setting powder output and powder cloud
The powder output depends on the selected powder output (in %), and the powder cloud on the selected total air volume.

As a factory default value, a powder rate of 50% and a total air volume of 4 Nm³/h are recommended.

– If values are entered that the gun control unit cannot implement, then the operator is informed of this by a blinking in the relevant display and a temporary error message!

Setting the total air volume

1. Adjust the total air volume on the gun control unit with the T3/T4 keys
   – Adjust the total air volume according to the corresponding coating requests
**Setting the powder output**

1. Adjust the powder output volume (e.g. according to the desired coating thickness)
   - Factory default setting of 50% is recommended for initial operation. The total air volume is thereby kept constant automatically by the control unit.

   **To achieve maximum efficiency, we recommend avoided an overly high powder volume where possible!**

2. Check fluidization of the powder in the powder container
3. Point the gun into the booth, switch the gun on and visually check the powder output

**Setting the electrode rinsing air**

1. Press the \(sel\) key.
   
   The second display level will be shown.

2.
Adjust the correct electrode rinsing air according to the applied nozzles (deflector plate, flat jet nozzle)

- ≈ 0.1 Nm³/h
- ≈ 0.5 Nm³/h

3. If in this display level is no operation for 3 seconds, the first display level is switched over independently.

Rinsing mode

The rinsing mode enables blowing off powder accumulations in the powder hose.

Activating the rinsing function

*Manual equipment without optional PowerClean module (system parameter P01=0)*

The rinsing mode can only be activated from standby mode (main menu display, no powder conveying).

*On OptiFlex 2 F Manual coating equipment, the injector must be disconnected prior to cleaning procedure, on OptiFlex 2 B, the suction unit must be lifted, and on OptiFlex 2 S, the powder container must be empty.*

1. Detach the injector
2. or

3 sec.
3. **START** =

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Effect</th>
</tr>
</thead>
</table>
| Automatic (automatic) | - The rinsing process is started  
- Injector, powder hose, gun and spray nozzle are purged using compressed air  
- The PowerClean function enables parallel cleaning of other components, such as the fluid intake unit, powder container, etc.  
- The rinsing mode is exited if the automatic rinsing sequence has finished. |
| Manual (manual)   | The operator controls the number and length of the PowerClean impulse by pressing the gun trigger a second time |

4. **STOP** =

the cleaning mode is terminated automatically.

After completion of the PowerClean procedure, the controller switches back to coating mode.

**Manual equipment with optional PowerClean module (system parameter P01= 1 or P01=2)**

The rinsing mode can only be activated from standby mode (main menu display, no powder conveying).

1. or

or

or

or

3 sec.
2. **START =**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic (automatic)</td>
<td>- The rinsing process is started</td>
</tr>
<tr>
<td></td>
<td>- Injector, powder hose, gun and spray nozzle are purged using compressed air</td>
</tr>
<tr>
<td></td>
<td>- The PowerClean function enables parallel cleaning of other components, such as the fluid intake unit, powder container, etc.</td>
</tr>
<tr>
<td></td>
<td>- The rinsing mode is exited if the automatic rinsing sequence has finished.</td>
</tr>
<tr>
<td>Manual (manual)</td>
<td>The operator controls the number and length of the PowerClean impulse by pressing the gun trigger a second time</td>
</tr>
</tbody>
</table>

3. **STOP =**

   - the cleaning mode is terminated automatically.

   After completion of the PowerClean procedure, the controller switches back to coating mode.

---

**Activate/deactivate the program change function via remote control**

The remote control function has been set in the factory to change the powder output.

If the operator prefers the possibility to switch between the programs, this function is to be activated/deactivated on the control unit.

**Activate/deactivate the program change function on the gun control unit**

1. Hold the `key pressed`
2. Press the `sel` key
   - The display flashes once, and the program change function is activated/deactivated
Decommissioning / Storage

Decommissioning

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

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

If in disuse for several days

1. Separate from power mains
2. Clean guns, injectors and powder hoses (see therefore the corresponding user manuals)
3. Turn off the compressed air main supply

Storage conditions

Hazard notes

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

Type of storage

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

Storage duration

If the physical conditions are maintained, the unit can be stored indefinitely.

Space requirements

The space requirements correspond to the size of the product.

There are no special requirements concerning distance to neighboring equipment.
Physical requirements
Storage must be inside a dry building at a temperature between +5 and +50 °C. Do not expose to direct sunlight!

Maintenance during storage

Maintenance schedule
No maintenance schedule is necessary.

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

Interval

Gun maintenance
The gun is designed to require only a minimum amount of maintenance.
1. Clean the gun with dry cloth, see chapter "Maintenance"
2. Check connection points to powder house.
3. Replace the powder hoses, if necessary.

Cleaning

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!

Gun cleaning

ATTENTION
Impermissible solvents
The following solvents may not be used to clean the gun:
  ► Ethylene chloride, acetone, ethyl acetate, methyl ethyl ketone, methylene chloride, premium gasoline, turpentine, tetrachloromethane, toluene, trichloroethylene, xylene!
Only cleaning agents with a flash point of at least 5 Kelvin above the ambient temperature, or cleaning places with technical ventilation are allowed!

Before cleaning the powder gun, switch off the control unit. The compressed air used for cleaning must be free of oil and water!

**Daily:**
1. Blow off the outside of the gun and wipe, clean etc.

**Weekly:**
2. Remove powder hose
3. Remove the spray nozzle from the gun and clean it with compressed air
4. Blow through the gun with compressed air, beginning from the connection in flow direction
5. Blow through the gun with compressed air, beginning from the connection in flow direction
6. Clean the integrated gun tube with the brush supplied if necessary
7. Blow through the gun with compressed air again
8. Clean the powder hose
9. Reassemble the gun and connect it

**Cleaning the spray nozzle**

**Daily or after every shift**
1. Clean the inside and outside of the spray nozzle with compressed air.
   Never immerse the parts in solvents!
2. Check the seating of the spray nozzles.

**ATTENTION**
Threaded sleeve not tightened well
If the spray nozzle is just fitted loosely, there is danger of a flash-over of the gun high voltage, which can damage the gun!

► Always tighten the threaded sleeve well!

**Weekly:**
1. Remove the spray nozzle and clean on the inside with compressed air. If sinterings should have formed, then they have to be removed!

**Monthly**
1. Check spray nozzle for wear
   The flat jet nozzle is to be replaced, if:
   – the spray pattern is no longer a regular oval
– deeper grooves are in the nozzle slot, or even the wall thickness is no longer recognizable
– the wedge of the electrode holder is worn

Nozzles with deflectors:
– if the wedge of the electrode holder is worn down, then the electrode holder is to be replaced

**Replacing parts**

Except for the replacement of possible defective parts, there are very few repairs to be made.

> The replacement of the cascade and the repair of the powder gun cable connection is only permitted by an authorized Gema Service center!
– Contact your Gema representative!
Fault clearance

Additional error descriptions are to be found also in the control unit operating instructions!

<table>
<thead>
<tr>
<th>Incident</th>
<th>Causes</th>
<th>Corrective action</th>
</tr>
</thead>
<tbody>
<tr>
<td>H11 (Help code on control unit)</td>
<td>Gun not connected</td>
<td>Connect the gun</td>
</tr>
<tr>
<td></td>
<td>Gun plug or gun cable defective</td>
<td>Contact local Gema representative</td>
</tr>
<tr>
<td></td>
<td>Remote control on powder gun defective</td>
<td>Contact local Gema representative</td>
</tr>
<tr>
<td>Gun LED remains dark, although the gun is triggered</td>
<td>High voltage adjustment is set too low</td>
<td>Increase high voltage</td>
</tr>
<tr>
<td></td>
<td>Gun plug or gun cable defective</td>
<td>Contact local Gema representative</td>
</tr>
<tr>
<td></td>
<td>LED on gun defective</td>
<td>Contact local Gema representative</td>
</tr>
<tr>
<td>Powder does not adhere to object, although the gun is triggered and sprays powder</td>
<td>High voltage and current deactivated</td>
<td>Check the high voltage and current setting</td>
</tr>
<tr>
<td></td>
<td>High voltage cascade defective</td>
<td>Contact local Gema representative</td>
</tr>
<tr>
<td></td>
<td>The objects are not properly grounded</td>
<td>Check the grounding</td>
</tr>
<tr>
<td>The gun does not spray powder, although the control unit is switched on and the gun trigger is pressed</td>
<td>Compressed air not present</td>
<td>Connect the equipment to the compressed air</td>
</tr>
<tr>
<td></td>
<td>Injector or nozzle on the injector, powder hose or powder gun clogged</td>
<td>Clean the corresponding part</td>
</tr>
<tr>
<td></td>
<td>Insert sleeve in the injector is clogged</td>
<td>Clean/replace</td>
</tr>
<tr>
<td></td>
<td>Pressure valve in the control unit defective</td>
<td>Replace</td>
</tr>
<tr>
<td></td>
<td>Solenoid valve in the control unit defective</td>
<td>Replace</td>
</tr>
<tr>
<td></td>
<td>No conveying air:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>– Throttle motor defective</td>
<td>Contact local Gema representative</td>
</tr>
<tr>
<td></td>
<td>– Solenoid valve defective</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Front plate defective</td>
<td>Contact local Gema representative</td>
</tr>
<tr>
<td>Incident</td>
<td>Causes</td>
<td>Corrective action</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>---------------------------------------</td>
<td>-------------------------------------------------------------</td>
</tr>
<tr>
<td>Gun achieving only poor spray profile</td>
<td>Total air incorrectly configured</td>
<td>Increase the powder quantity and/or total air volume on the control unit</td>
</tr>
<tr>
<td></td>
<td>Bend or damage to air lines to injector</td>
<td>Check air lines to injector</td>
</tr>
<tr>
<td></td>
<td>Insert sleeve in the injector worn or not inserted</td>
<td>Replace or insert it</td>
</tr>
<tr>
<td></td>
<td>Fluidization not running</td>
<td>see above</td>
</tr>
</tbody>
</table>
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.
Spare parts list

Ordering spare parts

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

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

Example:

– Type OptiGun GA03 automatic powder gun
  Serial number 1234 5678
– Order no. 203 386, 1 piece, Clamp – Ø 18/15 mm

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

Wearing parts are always marked with a #.

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

Example:

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

ATTENTION

Use of non-original Gema spare parts

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

► Only original Gema spare parts should be used!
OptiSelect GM03 – Spare parts list

Only parts were included in the spare parts list, which the user can replace himself without problems!

- If the powder gun cable is defective, it is to be completely sent in for repair!

| A | OptiSelect GM03 manual powder gun – complete negative polarity, incl. gun cable – 6 m, rinsing air hose – 6 m, flat jet nozzle, brush and parts kit, without powder hose | 1008 070 |
| B | OptiSelect GM03 manual powder gun – complete positive polarity, incl. gun cable – 6 m, rinsing air hose – 6 m, flat jet nozzle, brush and parts kit, without powder hose | 1008 073 |
| B | Manual powder gun shaft OptiSelect GM03 (incl. cascade) with: | |
| B | Gun cable 2 m, negative polarity (–) | 1007 971 |
| B | Gun cable 6 m, negative polarity (–) | 1007 971 |
| B | Gun cable 12 m, negative polarity (–) | 1007 973 |
| B | Gun cable 2 m, positive polarity (+) | 1007 974 |
| B | Gun cable 6 m, positive polarity (+) | 1007 975 |
| B | Gun cable 12 m, positive polarity (+) | 1007 968 |
| 1 | Gun body | 1007 220 |
| 2 | Cascade – complete, negative polarity | 1007 231 |
| 2 | Cascade – complete, positive polarity | 1007 232 |
| 3 | Print holder – complete | 1007 216 |
| 4 | End plate with hook | 1007 217 |
| 5 | Grip – complete (incl. pos. 5.1 and 5.2) | 1007 961 |
| 5.1 | Grub screw – M3x8 mm | 1008 157 |
| 5.2 | Grip sealing | 1007 633 |
| 6 | Trigger – complete | 1007 213 |
| 7 | Trigger cover | 1007 212 |
| 8 | Countersunk-head screw – M4x6 mm | 1000 845 |
| 9 | SuperCorona connection | 1007 238 |
| 10 | Gun cable 2 m – complete | 1007 963 |
| 10 | Gun cable 6 m – complete | 1007 964 |
| 10 | Gun cable 12 m – complete | 1007 965 |
| 11 | Rinsing air connection | 1000 804 |
| 11.1 | Rinsing air hose | 100 854* |
| 12 | Powder tube – complete | 1007 958 # |
| 13 | Compression spring | 1001 488 |
| 14 | Clip ring | 1007 960 |
| 15 | Hose connection Ø 11-12 mm – complete (incl. pos 15.1) | 1001 340 # |
| 15.1 | O-ring for pos. 15 | 1000 822 # |
| 16 | Threaded sleeve (see corresponding spare parts list) | |

* | ** | |
<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>Nozzle (see corresponding spare parts list)</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Cascade space gasket</td>
<td>1007 635#</td>
</tr>
<tr>
<td></td>
<td>Cleaning brush – Ø 12 mm</td>
<td>389 765</td>
</tr>
<tr>
<td><strong>Parts set (not shown), consisting of:</strong></td>
<td></td>
<td>1008 302</td>
</tr>
<tr>
<td></td>
<td>Flat jet nozzle NF21</td>
<td>1007 935#</td>
</tr>
<tr>
<td></td>
<td>MultiSpray-Adapter NF08</td>
<td>1003 634#</td>
</tr>
<tr>
<td></td>
<td>Cable clamp</td>
<td>303 070</td>
</tr>
<tr>
<td></td>
<td>Hose connector – complete, for hose interior Ø 9-10 mm</td>
<td>1002 030</td>
</tr>
<tr>
<td></td>
<td>Powder hose – Ø 10 mm (not shown)</td>
<td>1001 673#</td>
</tr>
<tr>
<td></td>
<td>Powder hose – Ø 11 mm (not shown)</td>
<td>105 139#</td>
</tr>
</tbody>
</table>

* Please indicate length

# Wearing part

*fig. 11: OptiSelect GM03 – spare parts*
# PowerClean™ module (Option)

<table>
<thead>
<tr>
<th>Component</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>PowerClean module – complete</td>
<td>1009 528</td>
</tr>
<tr>
<td>Elastomer valve</td>
<td>1000 089#</td>
</tr>
<tr>
<td>O ring – Ø 16x2 mm, anti-static</td>
<td>1007 794#</td>
</tr>
<tr>
<td>Fluidizing tube bearing</td>
<td>1007 356</td>
</tr>
<tr>
<td>Fluidizing tube</td>
<td>1007 355</td>
</tr>
<tr>
<td>Retaining bracket</td>
<td>1009 524</td>
</tr>
<tr>
<td>Gasket</td>
<td>1010 101</td>
</tr>
<tr>
<td>O-ring – Ø 27x2 mm</td>
<td>1009 525</td>
</tr>
</tbody>
</table>

*# Wearing part*

---

![Diagram](image.png)

*fig. 12*
## SuperCorona

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SuperCorona PC05</td>
<td>1008 165#</td>
</tr>
</tbody>
</table>

# Wearing part

![Fig. 13](image-url)
## Accessories

### Flat jet nozzles – overview (wearing parts)

<table>
<thead>
<tr>
<th>Application</th>
<th>A</th>
<th>B</th>
<th>A + B</th>
<th>Threaded sleeve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profiles/flat parts (standard nozzle)</td>
<td><img src="image1.png" alt="Image" /></td>
<td>NF20 1010 090</td>
<td><img src="image2.png" alt="Image" /></td>
<td>NF20 1010160</td>
</tr>
<tr>
<td>Profiles/flat parts</td>
<td><img src="image3.png" alt="Image" /></td>
<td>NF27 1010 752</td>
<td><img src="image4.png" alt="Image" /></td>
<td>NF27 1010754</td>
</tr>
<tr>
<td>Complex profiles and depressions</td>
<td><img src="image5.png" alt="Image" /></td>
<td>NF21 1007 935</td>
<td><img src="image6.png" alt="Image" /></td>
<td>NF21 1007 932</td>
</tr>
<tr>
<td>Complex parts (deep recess); target spraying</td>
<td><img src="image7.png" alt="Image" /></td>
<td>NF22 1008 145</td>
<td><img src="image8.png" alt="Image" /></td>
<td>NF22 1008 140</td>
</tr>
<tr>
<td>Large surfaces</td>
<td><img src="image9.png" alt="Image" /></td>
<td>NF24* 1008 147</td>
<td><img src="image10.png" alt="Image" /></td>
<td>NF24 1008 142</td>
</tr>
</tbody>
</table>

* not suitable for angled nozzles
## Round jet nozzle – Overview (wearing parts)

<table>
<thead>
<tr>
<th>Application</th>
<th>A</th>
<th>B</th>
<th>A + B</th>
<th>Threaded sleeve</th>
<th>Deflectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suitable for large surfaces</td>
<td>NS04 1008 151</td>
<td>1008 152</td>
<td>NS04 1008 150</td>
<td>1007 229</td>
<td>Ø 16 mm 331 341</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ø 24 mm 331 333</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ø 32 mm 331 325</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ø 50 mm 345 822</td>
</tr>
</tbody>
</table>
# Gun extensions

<table>
<thead>
<tr>
<th></th>
<th>L = 150 mm</th>
<th>L = 300 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>without nozzle&lt;sup&gt;1&lt;/sup&gt;</td>
<td><img src="image1" alt="Image" /></td>
<td><img src="image2" alt="Image" /></td>
</tr>
<tr>
<td></td>
<td>1008 616</td>
<td>1008 617</td>
</tr>
<tr>
<td>without nozzle&lt;sup&gt;2&lt;/sup&gt;</td>
<td><img src="image3" alt="Image" /></td>
<td><img src="image4" alt="Image" /></td>
</tr>
<tr>
<td></td>
<td>1007 718</td>
<td>1007 719</td>
</tr>
<tr>
<td>with Flat jet nozzle NF25</td>
<td><img src="image5" alt="Image" /></td>
<td><img src="image6" alt="Image" /></td>
</tr>
<tr>
<td></td>
<td>1007 746</td>
<td>1007 747</td>
</tr>
<tr>
<td>with Round jet nozzle NS09</td>
<td><img src="image7" alt="Image" /></td>
<td><img src="image8" alt="Image" /></td>
</tr>
<tr>
<td></td>
<td>1007 748</td>
<td>1007 749</td>
</tr>
</tbody>
</table>

<sup>1</sup> see NF27, NF20, NF21, NF24, NS04

<sup>2</sup> see NF25, NF26, NS09

---

**ATTENTION**

Connecting more than two extensions

It is not permitted to connect more than two extensions together, in order to prevent the gun from being damaged by arising leverage force.

► The extensions (150 mm/300 mm) may be connected TO ONLY ONE ADDITIONAL extension (150 mm/300 mm), if necessary.
# Spray nozzles for extensions – overview
(wearing parts)

<table>
<thead>
<tr>
<th>Application</th>
<th>A</th>
<th>B</th>
<th>A + B</th>
<th>Threaded sleeve</th>
<th>Deflectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profiles/flat parts</td>
<td><img src="image" alt="NF25" /> 1007 735</td>
<td><img src="image" alt="B" /> 1007 684</td>
<td><strong>NF25</strong> 1007 743</td>
<td></td>
<td>--</td>
</tr>
<tr>
<td>Complex profiles and depressions</td>
<td><img src="image" alt="NF26" /> 1007 742</td>
<td></td>
<td><strong>NF26</strong> 1007 744</td>
<td></td>
<td>--</td>
</tr>
<tr>
<td>Suitable for large surfaces</td>
<td><img src="image" alt="NS09" /> 1008 257</td>
<td><img src="image" alt="B" /> 1008 258</td>
<td><strong>NS09</strong> 1008 259</td>
<td></td>
<td>Ø 16 mm 331 341, Ø 24 mm 331 333, Ø 32 mm 331 325, Ø 50 mm 345 822</td>
</tr>
</tbody>
</table>
## Powder hoses – overview

<table>
<thead>
<tr>
<th>Powder hose (antistatic)</th>
<th>Application</th>
<th>Diameter</th>
<th>Parts No.*</th>
<th>Material</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø 12/18 mm</td>
<td>Fast color changes - high powder flow</td>
<td>Ø 12/18 mm</td>
<td>1001 674</td>
<td>POE</td>
<td>75</td>
</tr>
<tr>
<td>Ø 11/16 mm</td>
<td>Fast color changes</td>
<td>Ø 11/16 mm</td>
<td>105 139</td>
<td>POE</td>
<td>66</td>
</tr>
<tr>
<td>Ø 10/15 mm</td>
<td>Fast color changes - low powder flow</td>
<td>Ø 10/15 mm</td>
<td>1001 673</td>
<td>POE</td>
<td>74</td>
</tr>
</tbody>
</table>

* Please indicate length

## Other accessories

<table>
<thead>
<tr>
<th>Application</th>
<th>Diameter</th>
<th>Parts No.*</th>
<th>Material</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application cup</td>
<td>150 ml</td>
<td>1004 552</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>500 ml</td>
<td>1002 069</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gun extension cables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L=6 m</td>
<td>1002 161</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L=14 m</td>
<td>1002 162</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gloves, anti-static (1 pair)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>800 254</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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