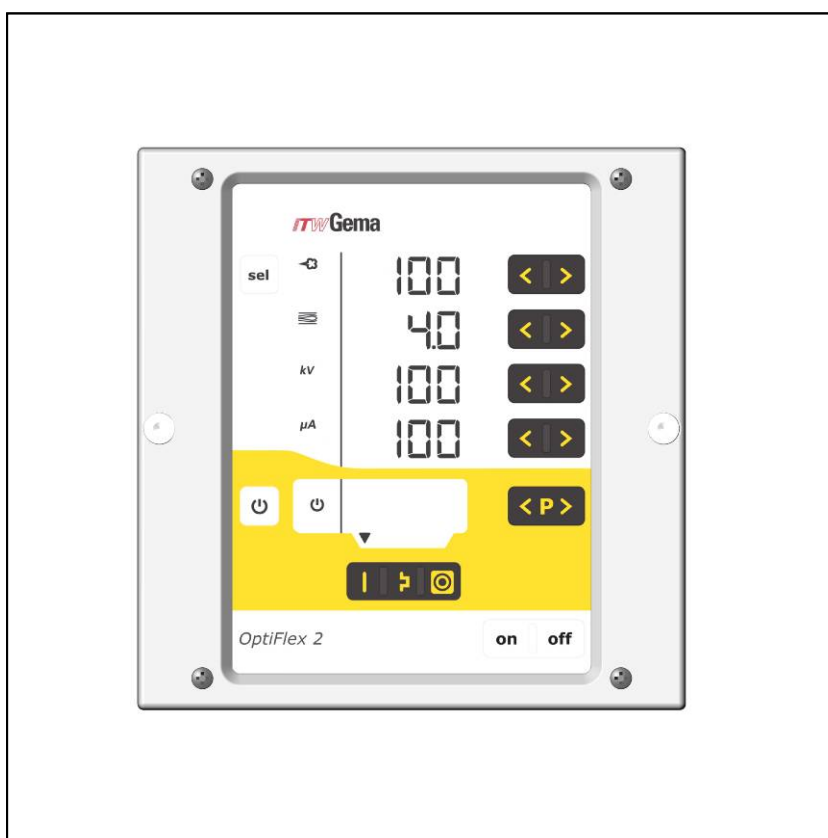


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Operating instructions and spare parts list

# OptiFlex 2 CG09

## Manual gun control unit



Translation of the original operating instructions

## Documentation - OptiFlex 2 CG09

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# Table of contents

<b>General safety regulations</b>	<b>3</b>
Safety symbols (pictograms).....	3
Conformity of use .....	3
Product specific security measures.....	4
OptiFlex 2 CG09 manual gun control unit.....	4
<b>About this manual</b>	<b>5</b>
General information.....	5
Software version.....	5
<b>Product description</b>	<b>7</b>
Field of application .....	7
Technical data .....	8
Connectable guns .....	8
Electrical data.....	8
Pneumatic data .....	9
Powder output (guide values) .....	9
Air flow rates.....	10
Compatibility and interactions .....	10
Structure and function .....	11
General view .....	11
Operating elements.....	12
Input keys and switches .....	14
Connections .....	15
Pin assignment.....	15
Scope of delivery.....	16
Typical properties – Characteristics of the functions .....	16
Operating modes.....	16
PowerClean™ mode .....	18
Remote control by gun .....	18
Monitoring of wearing parts .....	19
Keyboard lock.....	20
Background illumination .....	20
Correction factor for the powder output.....	20
Operation and configuration of the Tribo gun.....	21
<b>Start-up</b>	<b>23</b>
Preparation for start-up .....	23
Basic conditions .....	23
Mounting instructions .....	23
Connecting guide .....	24
<b>Initial start-up</b>	<b>27</b>
Setting the device type .....	27
Operation.....	29
Select predefined operating mode (Preset mode) .....	29

Starting the user-defined operating mode (Program mode).....	29
Setting powder output and powder cloud .....	30
Setting the electrode rinsing air .....	31
Setting the fluidization.....	31
Setting correction factor for powder output.....	32
Entering the correction factor.....	32
Monitoring of wearing parts.....	33
View remaining service life .....	34
Deactivation of wearing part monitoring .....	34
Setting the background illumination.....	35
Activate/deactivate the program change via remote control.....	35
Activate/deactivate the keyboard lock .....	35
Shutdown .....	36
If in disuse for several days .....	36
<b>Troubleshooting</b>	<b>37</b>
Error diagnosis of the software .....	37
General information .....	37
Help codes .....	37
Help codes list.....	39
Appearance of errors .....	39
<b>Spare parts list</b>	<b>41</b>
Ordering spare parts .....	41
OptiFlex 2 CG09 manual gun control unit.....	42

# General safety regulations

This chapter sets out the fundamental safety regulations that must be followed by the user and any third parties using the OptiFlex 2 CG09.

These safety regulations must be read and understood in full before the OptiFlex 2 CG09 is put into operation.

---

## Safety symbols (pictograms)

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

**DANGER!**

danger due to live electricity or moving parts. Possible consequences: Death or serious injury

**WARNING!**

improper use of the equipment could damage the machine or cause it to malfunction. Possible consequences: minor injuries or damage to equipment

**INFORMATION!**

useful tips and other information

---

## Conformity of use

1. The OptiFlex 2 CG09 is built to the latest specification and conforms to the recognized technical safety regulations and is designed for the normal application of powder coating.
2. Any other use is considered as non-conform. The manufacturer is not responsible for any incorrect use, the risk for this is assumed by the user alone. Gema Switzerland GmbH must be consulted prior to any use of the OptiFlex 2 CG09 for any purposes or substances other than those indicated in our guidelines.
3. Observance of the operating, service and maintenance instructions specified by the manufacturer is also part of conformity of use. The OptiFlex 2 CG09 should only be used,

maintained and started up by trained personnel informed about and familiar with the possible hazards involved.

4. Start-up (i.e. the execution of approved operational tasks) is forbidden until it has been established that the OptiFlex 2 CG09 has been set up and wired according to the guidelines for machinery (2006/42 EC). EN 60204-1 (machine safety) must also be observed.
5. Unauthorized modifications to the OptiFlex 2 CG09 exempts the manufacturer from any liability from resulting damage.
6. The relevant accident prevention regulations, as well as other generally recognized safety regulations, occupational health and structural regulations are to be observed.
7. Furthermore, the country-specific safety regulations also must be observed.

---

## Product specific security measures

- The installation work, to be done by the customer, must be carried out according to local regulations
- It must be observed, that all components are grounded according to the local regulations, before start-up

### OptiFlex 2 CG09 manual gun control unit

The OptiFlex 2 CG09 manual gun control unit is a component of the system and is thus integrated into the safety system of the plant.

For the use outside of the safety concept, corresponding measures must be taken.



---

**Note:**

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

---

# About this manual

---

## General information

This operating manual contains all the important information required for the working with the OptiFlex 2 CG09 manual gun control unit. It will safely guide you through the start-up process and give you references and tips for the optimal use of your new powder coating system.

Information about the functional mode of the individual system components - booth, gun and powder injector - should be referenced in the respective enclosed documents.

---

## Software version

This document describes the operation of the OptiFlex 2 CG09 manual gun control unit, with software version starting from 1.0!





# Product description

---

## Field of application

The OptiFlex 2 CG09 manual gun control unit is designed exclusively for controlling the Gema powder coating guns (Please also see chapter "Technical data").

Any other use is considered as non-conform. The manufacturer is not responsible for any incorrect use, and any associated risks 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!



*OptiFlex 2 CG09 manual gun control unit*

### **Reasonably foreseeable misuse**

- Operation without the proper training
- Use with insufficient compressed air quality and grounding
- Use in connection with unauthorized coating devices or components

## Technical data

### Connectable guns

OptiFlex 2 CG09	connectable
OptiFlex 2 GM03	yes



**Attention:**

The OptiFlex 2 CG09 manual gun control unit may only be used with the specified gun type!

### Electrical data

OptiFlex 2 CG09	
Nominal input voltage	100-240 VAC
Frequency	50-60 Hz
Connected load (without vibrator)	40 VA
Nominal output voltage (to the gun)	eff.10 V
Nominal output current (to the gun)	max. 1.2 A
Connection and output for vibrator (on Aux output)	110/230 VAC max. 100 W
Connection for rinsing function (valve)	24 VDC max. 3 W
Protection type	IP54
Temperature range	0°C - +40°C (+32°F - +104°F)
Max. surface temperature	85°C (+185°F)
Approvals	0102  II 3 (2) D PTB11 ATEX 5007

## Pneumatic data

<b>OptiFlex 2 CG09</b>	
Compressed air connection (on control unit)	8 mm
Input pressure (control of unit during operation)	5.5 bar / 80 psi
Max. water vapor content of the compressed air	1.3 g/m <sup>3</sup>
Max. oil vapor content of the compressed air	0.1 mg/m <sup>3</sup>



## Powder output (guide values)

### General conditions for the OptiFlow Injector

Powder type	Epoxy/polyester
Powder hose length (m)	6
Powder hose Ø (mm)	10
Powder hose type	POE with guide strips
Input pressure (bar)	5,5
Conveying air nozzle (mm)	1,6
Correction value C0	Powder output zeroing adjustment

### Guide values for OptiFlex 2 CG09 with the OptiFlow IG06 injector

All values in these tables are guide values. Differing environmental conditions, wear and different powder types can affect the table values.

Total air 	3 Nm <sup>3</sup> /h	4 Nm <sup>3</sup> /h	5 Nm <sup>3</sup> /h	
	Powder output (g/min)			
Powder output  (%)	20	85	100	120
	40	150	185	210
	60	210	255	280
	80	270	320	350
	100	300	360	395

## Air flow rates

The total air consists of conveying air and supplementary air, in relation to the selected powder quantity (in %). Hereby, the total air volume is maintained constant.

OptiFlex 2 CG09	Range	Factory setting
Flow rate - fluidizing air		
- OptiFlex B	0-1.0 Nm <sup>3</sup> /h	0.1 Nm <sup>3</sup> /h
- OptiFlex F (without AirMover air requirements)	0-5.0 Nm <sup>3</sup> /h	1.0 Nm <sup>3</sup> /h
- OptiFlex S (with optional fluid plate)	0-1.0 Nm <sup>3</sup> /h	0.2 Nm <sup>3</sup> /h
Electrode rinsing air flow rate	0-3.0 Nm <sup>3</sup> /h	0.1 Nm <sup>3</sup> /h
Flow rate total air (at 5.5 bar)	1.8-6.5 Nm <sup>3</sup> /h	



**Note:**

The total air consumption for the device is determined for each device type based on the 3 configured air values (without AirMover air value for OptiFlex F).

These values apply for an internal control pressure of 5.5 bar!

## Compatibility and interactions

The OptiFlex 2 CG09 manual gun control unit is used for the following manual equipment from the OptiFlex line:

- OptiFlex B (with powder box)
- OptiFlex F (with fluidized powder hopper)
- OptiFlex S (with stirrer container)
- OptiFlex C (with application cup)
- OptiFlex L (with lab device)
- OptiFlex W, K (Kits)
- OptiFlex Dual Gun Kit B, F
- OptiFlex Dual Gun Wall Kit B, F

## Structure and function

### General view



- 1 Front plate with control and display elements
- 2 Enclosure

- 3 Back panel with interfaces

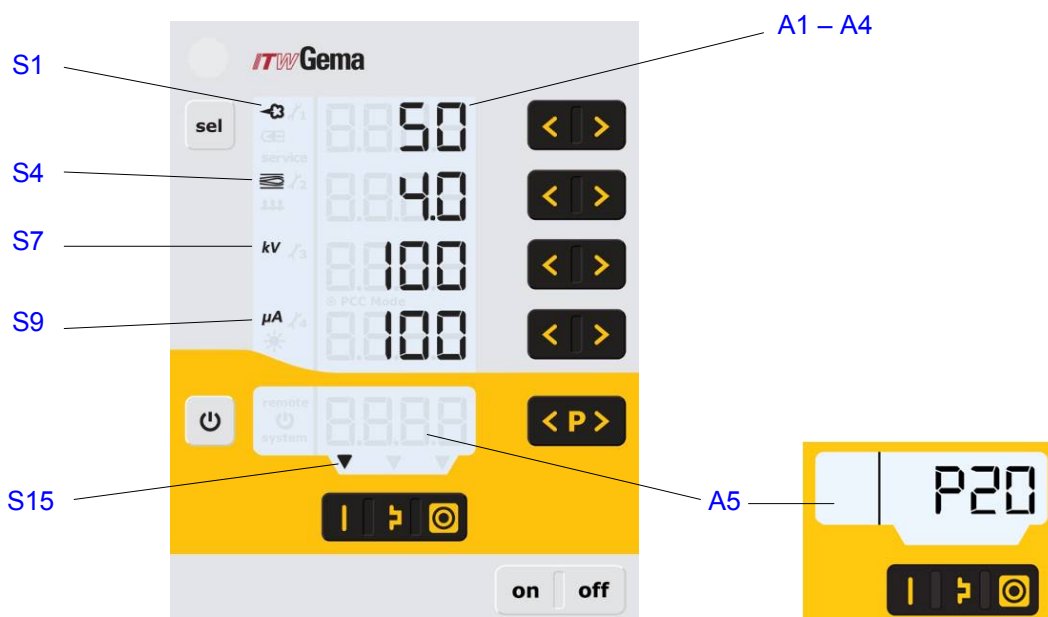
## Operating elements

### Display and input buttons



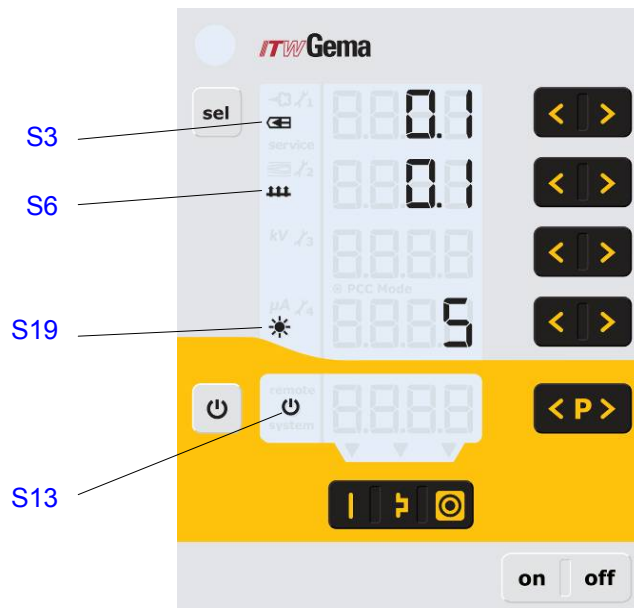
**Note:**

For easier operation of the control unit, the preset and actual values are distributed across several levels. The "sel" key is used to switch between the levels. If no controls are used within 6 s, the device automatically returns to level 1.



Displays, Level 1

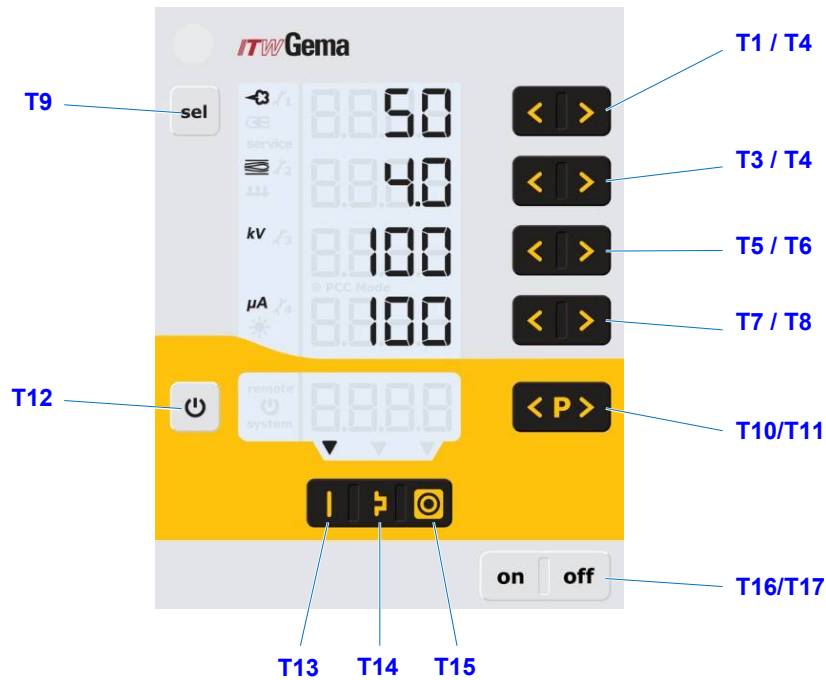
Designation	Function
<b>A1-A4</b>	Display of actual values, preset values and system parameters
<b>A5</b>	Display of program numbers, error diagnosis codes and status information
<b>S1</b>	Powder output (display in %)
<b>S4</b>	Total air volume (display in Nm <sup>3</sup> /h)
<b>S7</b>	High voltage (display in kV)
<b>S9</b>	Spraying current (display in μA)
<b>S4</b>	Fluidizing (display in Nm <sup>3</sup> /h)
<b>S6</b>	Electrode rinsing air (display in Nm <sup>3</sup> /h)
<b>S7</b>	Activation of vibration/fluidization
<b>S15</b>	Application mode for flat parts is activated
<b>S16</b>	Application mode for complicated parts is activated
<b>S17</b>	Application mode for recoating parts already coated is activated



*Displays and LEDs, Level 2*

Designation	Function
<b>S3</b>	Electrode rinsing air display (in Nm <sup>3</sup> /h)
<b>S6</b>	Fluidizing air display (in Nm <sup>3</sup> /h)
<b>S13</b>	Activation of vibration/fluidization
<b>S19</b>	Display illumination (0-8)

### Input keys and switches



Input keys and switches

Designation	Function
T1-T8	Input keys for preset values and system parameters
T9 (Select)	Switch between display levels
T10-T11	Program change
T12	Switching on and off the fluidization (OptiFlex F) Switch on/off for vibration and fluidization (OptiFlex B) Switching on and off the stirrer (OptiFlex S) Switchover to system parameter mode (Press for at least 5 secs.)
T13	Preset mode for flat parts (fixed values)
T14	Preset mode for complex parts with depressions (fixed values)
T15	Preset mode for overcoating parts already coated (fixed values)
T16/T17	Power switch On/Off








## Connections

### Compressed air hoses / cables

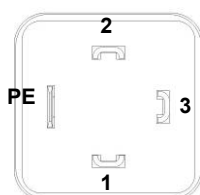


Connections – Compressed air hoses / cables

Connection	Description
1.1 Main air IN	Connection compressed air (5.5 bar / 80 PSI)
2.1 Power IN	Mains cable connection (100-240 VAC)
2.2 Aux	Vibration motor connection for OptiFlex B
2.3 Gun	Gun cable connection
2.4 Purge	Connection to rinsing module
1.5	Fluidizing air connection 
1.4	Electrode rinsing air connection 
1.3	Supplementary air connection 
1.2	Conveying air connection 
	Grounding connection 

## Pin assignment

### Power IN



### Power IN connection

- 1 Neutral conductor (power supply)
- 2 Phase (100-240 VAC)
- 3 Output vibrator or stirrer
- PE Grounding PE

---

## Scope of delivery

- Power cable (country-specific)
- Quick start instructions and operating manual

---

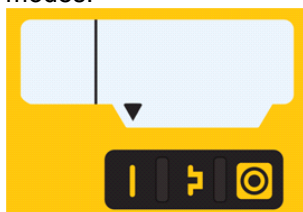
## Typical properties – Characteristics of the functions




### Operating modes

The OptiFlex 2 CG09 manual gun control unit has two operating modes.

#### ***Predefined operating mode (Preset mode)***

The OptiFlex 2 CG09 manual gun control unit has three preset application modes:

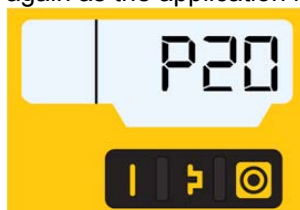


- **Application mode for flat parts**   
This application mode is suitable for the coating of simple, flat workpieces without larger cavities.
- **Application mode for complex parts**   
This application mode is suitable for the coating of three-dimensional workpieces with complex shapes (e.g. profiles).
- **Application mode for recoating parts already coated**   
This application mode is suitable for the overcoating of workpieces which are already coated.

In this operating modes, current ( $\mu\text{A}$ ) and high voltage ( $\text{kV}$ ) are preset, while powder and air volumes can be set and stored for each application mode.

### **Adjustable operating mode (Program mode)**

In this operating mode, 20 individually definable programs (P01-P20) are available. These programs are automatically saved and can be recalled again as the application requires.



The values for current, high voltage, powder output, total air, electrode rinsing air and fluidizing air (if available) can be set as needed for a given application.




---

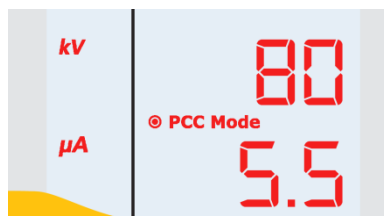
#### **Note:**

**The settings defined in the 20 programs and 3 application modes are automatically stored, without confirmation!**

---

### **Precise Control of spraying Current (PCC Mode)**

For coating components with both complex and simple geometries, a spraying current of below 10  $\mu\text{A}$  can be selected to prevent unintended overcoating on the simpler surfaces. This is especially important in combination with high loading powders (such as metallic). The controller automatically switches into "PCC mode". This allows for very fast yet highly precise control. The high voltage and spray current values and their symbols are depicted in red:



## PowerClean™ mode

The PowerClean mode is used to blow powder accumulations and moisture out of the powder hose, injector, and gun using compressed air.




---

### Note:

**For the manual powder coating devices in the OptiFlex 2 generation, the corresponding rinsing module must be installed and connected! The rinsing mode can only be activated from standby mode, namely by pressing the corresponding button on the gun remote control.**

---

The rinsing mode is signaled by a circling LCD segment on the display:



The actual rinsing procedure is started and stopped by pressing the gun trigger.

Once the rinsing mode is quit, the unit automatically returns to the last program.

## Remote control by gun

Various functions can be remotely controlled using the buttons on the rear side of the powder gun (OptiFlex 2 GM03 gun type):

- Modify the powder output (press the **Λ** or **V** key on the gun) The powder output will be increased or decreased accordingly
- Change programs (press the **Λ** or **V** key on the gun) It is switching between programs P01-P20. This function must be activated first, in order to use it - see "Activate/deactivate the program change via remote control".)




---

### Note:

**Pressing one of the keys calls up the preset values instead of the actual values!**

---

- Switch to PowerClean mode (Press **P** button and **Λ** or **V** button on the gun simultaneously).




---

### Note:

**The remote control is blocked as long as the keyboard lock is activated or while in system parameterization mode.**

---

## Monitoring of wearing parts

Wearing parts have a limited service life. The OptiFlex 2 CG09 gun controller offers functionality to monitor the service life of up to four wearing parts using a reverse counter:



### Note:

The order of wearing parts to be monitored as well as the service life can be set as needed by the operator.

Example table:

No.	Wearing part
1	Insert sleeve
2	Powder hose
3	Electrode holder
4	Pulverizing element

To better explain this function, a few terms relevant to this process must first be explained:

<b>Service life</b>	Operating time after which wearing parts should be replaced (defined by the operator).
<b>Minus hours</b>	Number of hours past the selected service life that the wearing part has continued to be used.
<b>Operating life</b>	Effective time during which the wearing part was in operation = service life plus minus hours, if any
<b>Remaining service life</b>	displayed value (where not in the minus range)

- The service life monitoring can be activated/deactivated for each wearing part (see also "Initial start-up - Monitoring of wearing parts")
- By default all monitoring is deactivated and must be activated by the operator
- Query the remaining service life
- Reset the operating time
- Unit used for display of service life / operating time: 1 h

## Keyboard lock

The OptiFlex 2 CG09 manual gun control unit has a keyboard lock to prevent modification of individual parameter values (kV,  $\mu$ A etc.) within the operating modes (Program and Preset). Following is not affected by the keyboard lock:

- Program selection
- Display of preset values of the current program
- Displaying the actual values
- Error acknowledgement

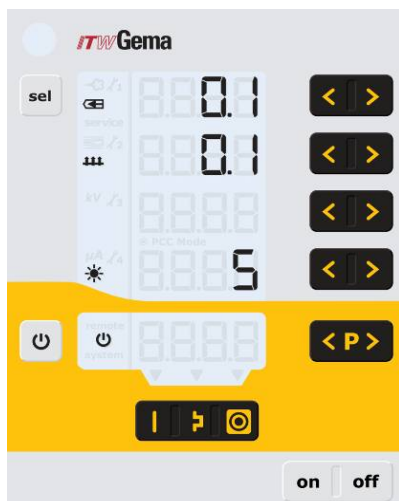
An active keyboard lock is indicated by a blinking of the **remote** display. (see also "Initial start-up - Activate/deactivate the keyboard lock")

The keyboard lock status remains stored, when switching the equipment off and on.

## Background illumination

### Brightness

8 different brightness settings are available for the display. The setting remains in place when the machine is switched on/off.



### Auto Power Save mode

If no powder is being applied, then the background lighting turns off automatically 5 minutes after a button has been pressed last time.

## Correction factor for the powder output

The OptiFlex 2 CG09 manual gun control unit enables a zeroing out of the powder output. This allows for compensation to different powder hose lengths connecting to the pistol.

The correction factor C0 can be selected such that no powder is output when the powder share is reduced to 0%. (see also "Initial start-up - Setting correction factor for powder output")

## Operation and configuration of the Tribo gun

The Tribo gun can be connected to the OptiFlex 2 CG09 manual gun control unit. The Tribo gun can be configured by holding the keys **T5** and **T6** when switching on. The selected adjustment remains stored, when the device is switched off. The settings are also retained if the device type is changed. The Tribo pistol mode can also be deactivated using the procedure mentioned above.





# Start-up

---

## Preparation for start-up

### Basic conditions

When starting up the OptiFlex 2 CG09 manual gun control unit, the following general conditions impacting the coating results must be taken into consideration:

- Gun control unit correctly connected
- Gun correctly connected
- Corresponding power and compressed air supply available
- Powder preparation and powder quality

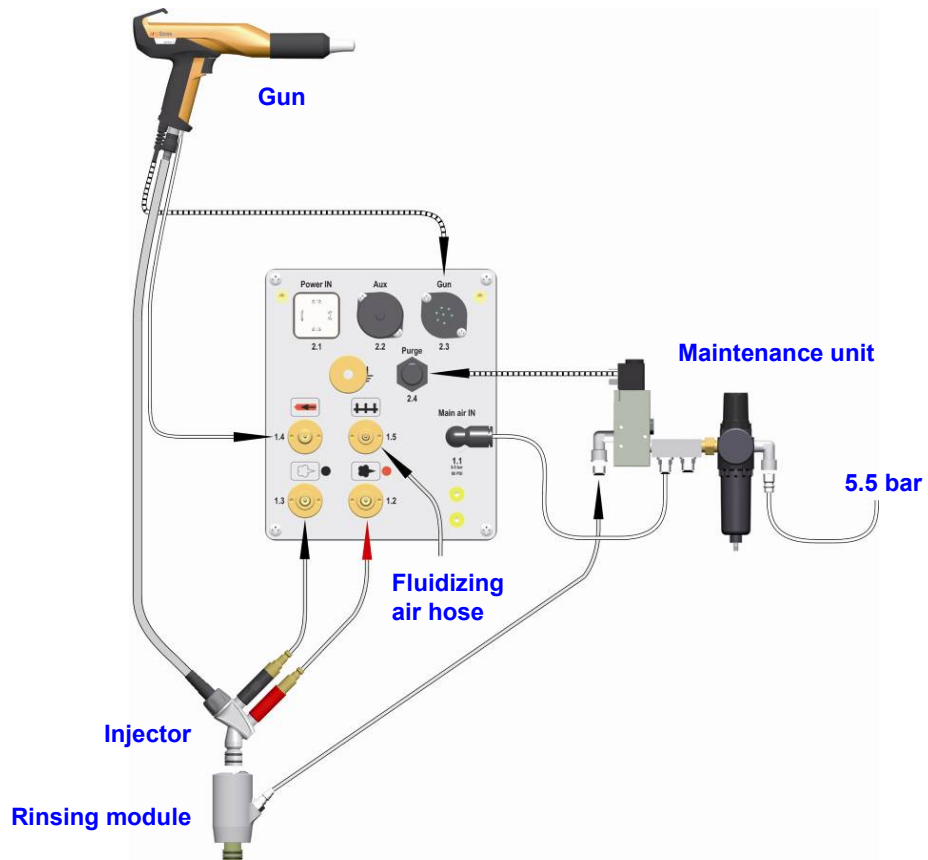
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## Mounting instructions

The OptiFlex 2 CG09 manual gun controller is mounted into place using 2xM6 screws on the front side.



## Connecting guide



Connecting guide - overview



1.



2.



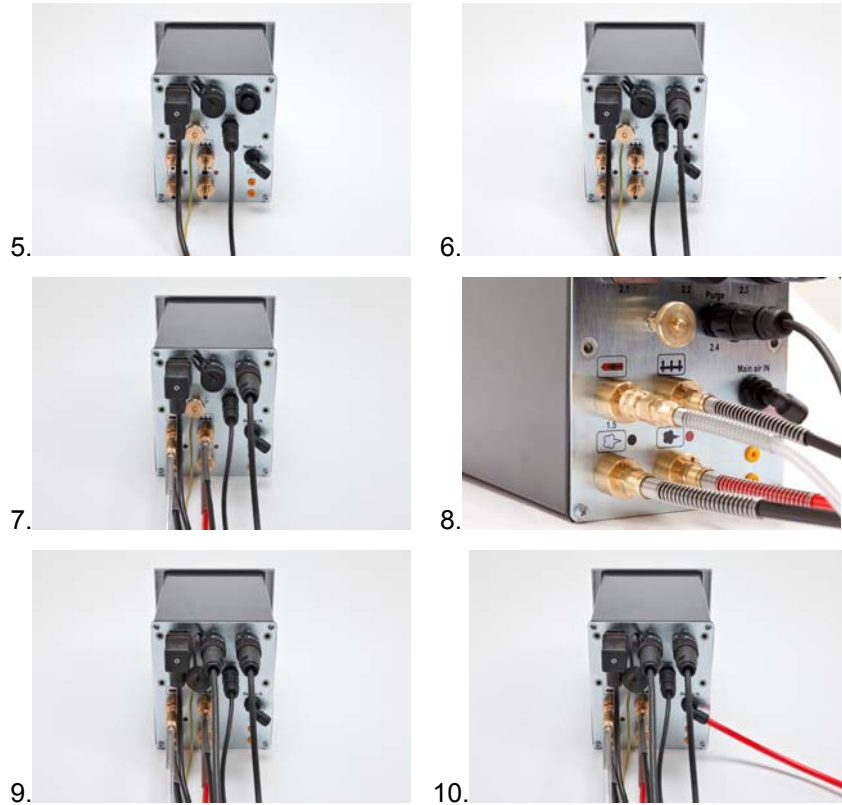
**Note:**  
Use clamp to connect grounding cable to the cabin or the suspension arrangement. Check ground connections with Ohm meter and ensure 1 MOhm or less!



3.



4.




---

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

---




---

**Note:**  
If no vibration motor (OptiFlex B) is connected, close the 2.2 Aux output with the provided dust protection cap!

---



# Initial start-up



**Note:**


The manual gun control unit always starts up to the last configured settings.

## Setting the device type



**Note:**

If the control unit is supplied as a component of an OptiFlex 2 complete unit, then the corresponding system parameter is set correctly by the factory!

1. Turn on the gun control unit with the **ON** key
2. Hold  key down for 5 seconds  
The display switches to the following level:



3. Adjust the corresponding system parameter value (device type) with the **<** or **>** keys.  
The value of the adjusted system parameter appears on corresponding display **A3**




**Note:**

The system parameter **P0** of the manual unit may not be set to **3** (automatic device)!  
**A wrong parameterization leads to various malfunctions!**

Name	Description	Values	Display
P0	Device type	0 - Fluidizing device (type F) 1 - Box device (vibrator) (type B) 2 - Agitator device (type S) (3 - Automatic device)* 4 - Manual device w. fluidization . .	F B S A S Fd . .

\* Not available for manual units

4. Press  key to quit the system parameter mode.  
The display switches to the standard level

**Remark:**

Manual devices are subdivided into fluidizing, box or stirrer types. These sub-types differ in the control of the vibrator output and the behavior of the fluidizing air.

Device type	Function AUX Output	Fluidizing air function
Fluidizing device (type F)	Always <b>Off</b>	The gun trigger switches the fluidization on  Switching on the fluidizing air using the <b>T12</b> key channels fluidizing air into the powder container until the key is pressed a second time
Box device (type B)	Vibration <b>On</b> during triggering, wake for 30 seconds  The <b>T12</b> key turns the vibration <b>On</b> and <b>Off</b>	Fluidizing air switches on parallel to the main solenoid valve (trigger),  The <b>T12</b> key turns on the fluidization <b>On</b> and <b>Off</b>
Agitator device (type S)	Agitator <b>On</b> during triggering	
Manual device with fluidization (OptiFlex S Fd)	Agitator <b>On</b> during triggering	Fluidizing air switched <b>On</b> and <b>Off</b> with trigger  The <b>T12</b> key activates or deactivates the fluidization

## Operation



### Note:




During the initial commissioning of the device, it is recommended that the functional check be performed without powder!

### Select predefined operating mode (Preset mode)

1. Turn on the gun control unit with the **ON** key
2. Press the corresponding application key the arrow above the pressed key is switched on




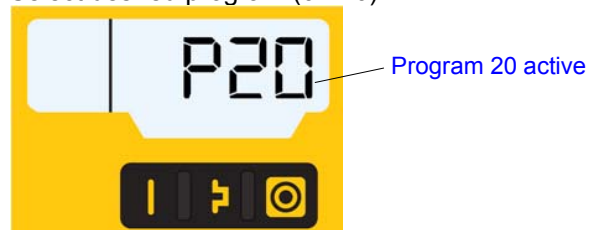
The pre-defined application modes have preset values for high voltage and spray current:

Application mode	Preset $\mu\text{A}$	Preset kV
 (flat parts)	100	100
 (complex parts)	22	100
 (overcoated)	10	100

3. The air values for total air, powder output, electrode rinsing air and fluidizing air can be individually defined and are saved in the programs.

### Starting the user-defined operating mode (Program mode)

1. Turn on the gun control unit with the **ON** key
2. Press  program key
3. Select desired program (01-20)









4. Change coating parameters as required



### Note:


Programs 01-20 are preset at the factory but can be modified at any time, after which they are automatically stored.

Description	Presetting
Powder output 	50%
Total air 	4.0 Nm <sup>3</sup> /h
High voltage 	80 kV
Spray current 	80 µA
Electrode rinsing air 	0.1 Nm <sup>3</sup> /h
Fluidizing air 	1.0 Nm <sup>3</sup> /h (for OptiFlex-F) 0.1 Nm <sup>3</sup> /h (for OptiFlex-B and S)

## Setting powder output and powder cloud

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


### Setting the total air volume

- 

Adjust the total air volume with the **T3/T4** keys (see also the manual gun / injector operating manual)

  - Adjust the total air volume according to the corresponding coating requests

### Setting the powder output

- 

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



#### Note:



**As a factory default value, a powder rate of 50% and a total air volume of 4 Nm<sup>3</sup>/h are recommended.**

**By inserting values, which the equipment cannot execute, the operator is made aware by flashing of the appropriate display and a temporary out of range message!**

- Check fluidization of the powder in the powder container
- Point the gun into the booth, press the gun trigger and visually check the powder output



## Setting the electrode rinsing air

1.  Press the key **T9 (SELECT)**  
The second display level will be shown
2.  Adjust the correct electrode rinsing air according to the applied nozzles (deflector plate, flat jet nozzle)




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### Note:

**By using flat jet nozzles, the factory default value is approx. 0.3 Nm<sup>3</sup>/h, by using round jet nozzles with air-rinsed deflector plates, the factory default value is approx. 0.5 Nm<sup>3</sup>/h!**

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

## Setting the fluidization

The fluidizing can be adjusted on the OptiFlex 2 B, OptiFlex 2 F and OptiFlex 2 S manual device.


The powder fluidization depends on the powder type, the air humidity and the ambient temperature. Fluidizing and vibration start by switching on the control unit.

### Procedure:


1. Configure AirMover by opening the ball valve complete and adjusting with the flow control valve (OptiFlex 2 F only)
2. Open the powder container cover
3.  Press the key **T9 (SELECT)**  
The second display level will be shown
4.  Adjust the fluidizing air with the keys **T5/T6**
  - If in this display level is no operation for 3 seconds, the device switches back to the first display level
  - The powder should only be touched gently, but should be "cooked" regularly and is also to be stirred using a rod
5. Close again the cover

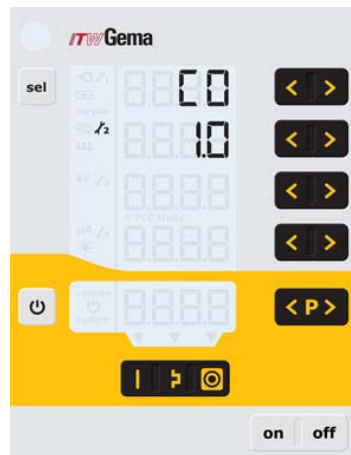
# Setting correction factor for powder output

## Entering the correction factor

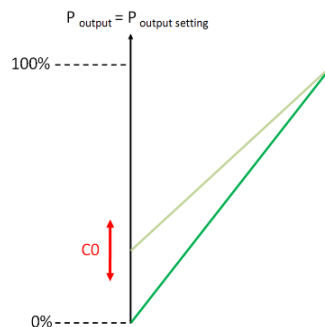
1. Hold  key down for 5 seconds  
The display switches to the following level:




2. Press  key  
The display switches to the following level:




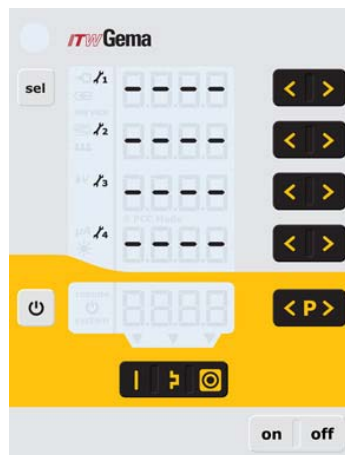
3. The value of the correction factor C0 is displayed
4. Set corresponding correction factor using the **T7/T8** keys (Selection range 0.5-3.0). The default value for the manual gun is 1.0 (6 m powder hose).







- Press  key  
Display returns to the first level display.

## Monitoring of wearing parts

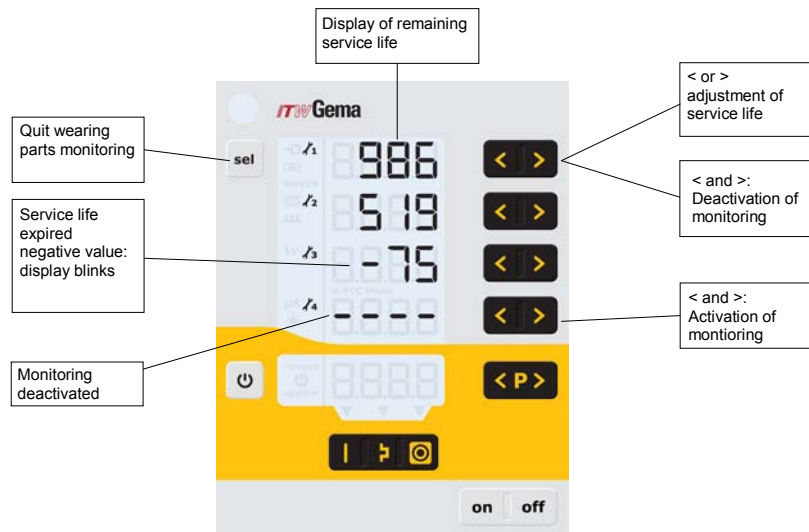
- Press  key 2x  
The display switches to the following level:



- Press  and  at same time  
Monitoring is activated  
During the first activation a value of 1 is shown as the start value. If monitoring has already been activated at some earlier point, then the last stored value is displayed.
- Set the desired service life for each wearing part using the  or 
- The reverse counter is then activated and runs only during active coating
- If the selected service life is exceeded, the **service** symbol appears on the display. The coating procedure is not affected by this.

## View remaining service life

1. Press **sel** key 2x  
The display switches to the wearing part monitoring level

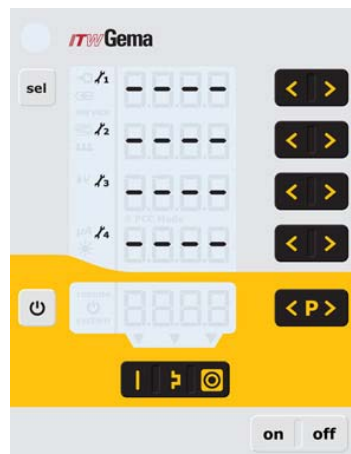


Display example


<b>Read minus hours</b>	-75 h
<b>Selected service life</b>	100 h
<b>Operating life</b>	175 h

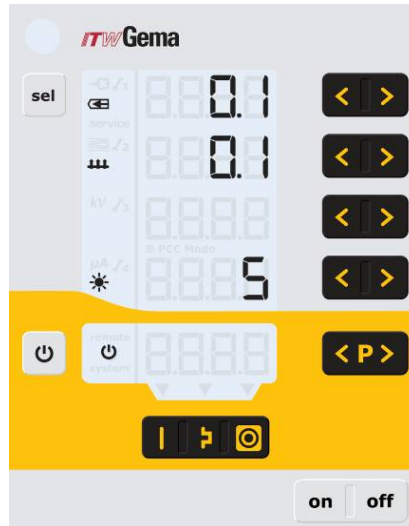
## Deactivation of wearing part monitoring

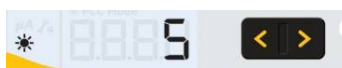
1. Press **<** and **>** key simultaneously  
Monitoring is deactivated.



## Setting the background illumination



1. Press  key  
The display switches to the following level:





2.    
Select the desired brightness

## Activate/deactivate the program change 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 P01-P20, this function is to be activated/deactivated on the control unit as follows:

1. Hold  key pressed
2. Press  key  
The program change function is activated/deactivated

## Activate/deactivate the keyboard lock

1. Hold  key pressed
2. Press  key  
The keyboard lock is activated. The **remote** display blinks.
3. The keyboard lock is cancelled by pressing the same key combination

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## Shutdown

1. Release gun trigger
2. Switch off the control unit
3. Switch of AirMover (OptiFlex F)



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**Note:**

**The adjustments for high voltage, powder output, electrode rinsing air and fluidizing remain stored!**

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### If in disuse for several days

1. Separate from power mains
2. Clean the coating equipment (see the corresponding operating manual)
3. Turn off the compressed air main supply

# Troubleshooting

## Error diagnosis of the software

### General information

The OptiFlex 2 CG09 manual gun control unit is constantly monitored for correct functionality. If the equipment software determines a fault, an error message is indicated with a help code. Following is monitored:

- High voltage technology
- Pneumatic system
- Power supply

### Help codes

The error diagnosis codes (help codes) are shown in red on the **A5** display.



The help codes are stored in an error list in the order of their appearance. Each error in the list must be individually acknowledged with the keys **T10** or **T11**.

The errors are displayed in the order of their appearance. The **T10** and **T11** keys cannot be used for other functions, as long as an error code is still shown.

Here is a list of all possible error functions for the OptiFlex 2 CG09 manual gun control unit:

Code	Description	Criteria	Remedy
<b>Pneumatics:</b>			
<b>H05</b>	Purge valve	Rinsing flow lower than threshold value or current flow if the coil is not receiving power. Reasons: Valve defective, hardware defective	contact Gema Service

<b>H06</b>	Trigger valve	Solenoid coil current lower than preset limiting value Valve defective, main board or cable defective	contact Gema Service
<b>H07</b>	Supplementary air flow too high (Setting of supplementary air on the display)	The preset value for supplementary air is too high compared to the conveying air setting	Lower supplementary air value or increase value for conveying air to equalize air volumes to the injector, delete error code
<b>H08</b>	Conveying air volume too high (setting of powder share on the display)	The preset value for conveying air is too high compared to the supplementary air setting	Lower conveying air value or increase value for supplementary air to equalize air volumes to the injector, delete error code
<b>H09</b>	Powder output higher than 100%	The powder output multiplied by the powder hose length factor and daily correction value is greater than 100% Daily correction value too large	Reduce powder output  Reduce daily correction value
<b>H10</b>	Conveying air range lower deviation	The theoretical value for conveying air falls below minimum Total air is smaller than minimum	Limit conveying air to their minimum value
<b>High voltage:</b>			
<b>H11</b>	Gun error	No vibrations in the oscillator, cable break, oscillator or gun is defective	contact Gema Service
<b>H14</b>	Offset spray current measurement	Grounded current measurement	contact Gema Service
<b>Power supply:</b>			
<b>H20</b>	Overvoltage +15V supply	Power pack defective or overloaded	contact Gema Service
<b>H21</b>	Undervoltage +15V supply	Power pack defective or overloaded	contact Gema Service
<b>EEPROM (equipment memory):</b>			
<b>H24</b>	EEPROM content invalid	EEPROM error	contact Gema Service
<b>H25</b>	Timeout during EEPROM writing	EEPROM error	contact Gema Service
<b>H26</b>	Values not correctly stored in EEPROM during switching off	EEPROM error	contact Gema Service
<b>H27</b>	EEPROM verification erroneous	EEPROM error	contact Gema Service
<b>Throttle motors:</b>			
<b>H60</b>	Conveying air reference position not found	Throttle motor or needle jammed, limit switch defective, error in motor throttle	contact Gema Service
<b>H61</b>	Supplementary air reference position not found	Throttle motor or needle jammed, limit switch defective, error in motor throttle	contact Gema Service
<b>H62</b>	Electrode rinsing air reference position not found	Throttle motor or needle jammed, limit switch defective, error in motor throttle	contact Gema Service
<b>H63</b>	Shaping air/fluidizing air reference position not found	Throttle motor or needle jammed, limit switch defective, error in motor throttle	contact Gema Service
<b>H64</b>	Conveying air throttle does not move	Short circuit in limit switch, motor throttle defective	contact Gema Service



<b>H65</b>	Supplementary air throttle does not move	Short circuit in limit switch, motor throttle defective	contact Gema Service
<b>H66</b>	Electrode rinsing air throttle does not move	Short circuit in limit switch, motor throttle defective	contact Gema Service
<b>H67</b>	Shaping air/fluidizing air throttle does not move	Short circuit in limit switch, motor throttle defective	contact Gema Service
<b>H68</b>	Conveying air position lost	Lost steps, limit switch defective, throttle motor defective	contact Gema Service
<b>H69</b>	Supplementary air position lost	Lost steps, limit switch defective, throttle motor defective	contact Gema Service
<b>H70</b>	Electrode rinsing air position lost	Lost steps, limit switch defective, throttle motor defective	contact Gema Service
<b>H71</b>	Shaping air/fluidizing air throttle loss of position	Lost steps, limit switch defective, throttle motor defective	contact Gema Service

## Help codes list

The last appeared four errors are stored in a list by the software. If an error appears, which is already in the list, he will not be listed again.

## Appearance of errors

It is possible that an error is only displayed for a short time, but after the acknowledgement it will disappear. In this case, it's recommended to switch off the control unit and switch it on again (reset by restarting).



# Spare parts list

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## 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** OptiFlex 2 CG09  
**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 yard/meter ware is always marked with an \*.

The 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)



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**WARNING!**

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

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## OptiFlex 2 CG09 manual gun control unit

1	OptiFlex 2 CG09 manual gun control unit - complete	1007 018
2	Cover	1008 301



*OptiFlex 2 CG09 manual gun control unit*

