En

Operating instructions and spare parts list

OptiFeed CA11
Fresh powder control unit

Translation of the original operating instructions

Gema

Documentation OptiFeed CA11

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About this instructions

General information

This operating manual contains all important information you will need to work with the OptiFeed CA11. 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 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 operating instructions. The general safety precautions must also be followed as well as the regulations in the relevant operating instructions.

DANGER

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

WARNING

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

CAUTION

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

ATTENTION

Indicates a potentially harmful situation which,
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.

NOTE

Useful information, tips, etc.

Presentation of the contents

Figure references in the text

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

Example:

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

Safety

Basic safety instructions

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

Product specific security regulations

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

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

⚠ WARNING

Working without operating instructions

Working without operating instructions or with individual pages from the operating instructions may result in damage to property and personal injury if relevant safety information is not observed.

- Before working with the device, organize the required documents and read the section "Safety regulations".
- Work should only be carried out in accordance with the instructions of the relevant documents.
- Always work with the complete original document.

Product description

Intended use

The OptiFeed CA11 Fresh powder control unit is designed exclusively for the control of the PP01 or PP02 Powder pumps, as well as the two vibrator motors on the powder transport.

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!

For a better understanding of the interrelationships in powder transport and coating, it is recommended to read completely the operating instructions of the other components, so as to be familiar with their functions too.

Reasonably foreseeable misuse

– Operation without the proper training
– Use with insufficient compressed air quality
– Input pressure too low
– Use in connection with unauthorized coating devices or components

Technical Data

Electrical data

OptiFeed CA11	
Nominal input voltage	200-240 VAC
Frequency	50/60 Hz
Input power value	200 VA
Temperature range (operation)	0 - 40°C
Vibrator connection and performance	
- Type A: output 3 and 4	2 x 230 VAC, 50 VA
- Type B: output 3	1 x 230 VAC, 160 VA
output 4	1 x 230 VAC, 50 VA
Protection type (control units)	IP54
Approval	ATEX zone 22 CE Ex II 3 D

Pneumatic data

OptiFeed CA11	
Compressed air connection (input, output)	3/8"
Inlet pressure	6-10 bar (87-145 psi)
Output pressure	0-4 bar (0-58 psi)
Max. water vapor content of the compressed air	1.3 g/m³
Max. oil vapor content of the compressed air	0.1 mg/m³
Total air consumption	21 Nm³/h (with 6 bar with PP01)

Dimensions

OptiFeed CA11	
Width	173 mm
Depth	320 mm
Height	177 mm
Weight	5.2 kg

Design and function

Typical characteristics

– The OptiFeed CA11 Fresh powder control unit transports the coating powder from a container to the powder hopper

– The control unit is a part of the powder transport, consisting of the OptiControl (CM03, CM30, CM22) control unit, the PP01 or PP02 Powder pump, as well as the FPS Fresh powder system

– The OptiFeed CA11 Fresh powder control unit is integrated into the Gema OptiFlex A2 control cabinet, and is supplied there with compressed air and mains voltage

Basic functions

– Controlling of the powder pump transport air by a regulator on the front side of the device

– Monitoring of the air pressure and therefore of the powder quantity on the manometer

– Controlling of the vibrator motors by the OptiControl control unit in dependence of the powder level in the powder hopper. On the rear wall, a connection is located each for a vibration motor at the powder container and on the powder sieve

Device types

The OptiFeed CA11 Fresh powder control unit is delivered in two types, depending on the installed fresh powder system and its vibration motor. The two device types differ only in the capacity of the inserted condensers.

For the FPS11 Fresh powder system, a vibrator of 160 VA e.g. is used. In this case, a condenser adapted for the higher performance will be installed in the equipment.

OptiFeed CA11	Type A	Type B
Serial number	25201.xxxxx	25202.xxxxx
Connection and performance of the vibrators		
- output 3	230 VAC, 50 VA	230 VAC, 160 VA
- output 4	230 VAC, 50 VA	230 VAC, 50 VA
Vibrator order number		
- output 3	237 582	258 628
- output 4	237 582	237 582

Displays and operating elements

fig. 1: Displays and operating elements

1	Power switch	3	Pressure display
2	Transport air regulator		

Assembly / Connection

Assembly guide

The Fresh powder control unit is installed in an AS-control cabinet as standard. Please contact Gema for other installation possibilities.

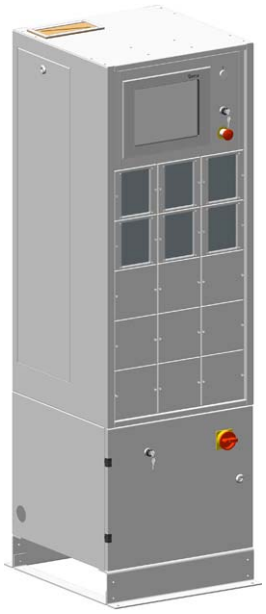


fig. 2: AS control cabinet

Connecting the Fresh powder control unit

The compressed air must be free of oil and water!

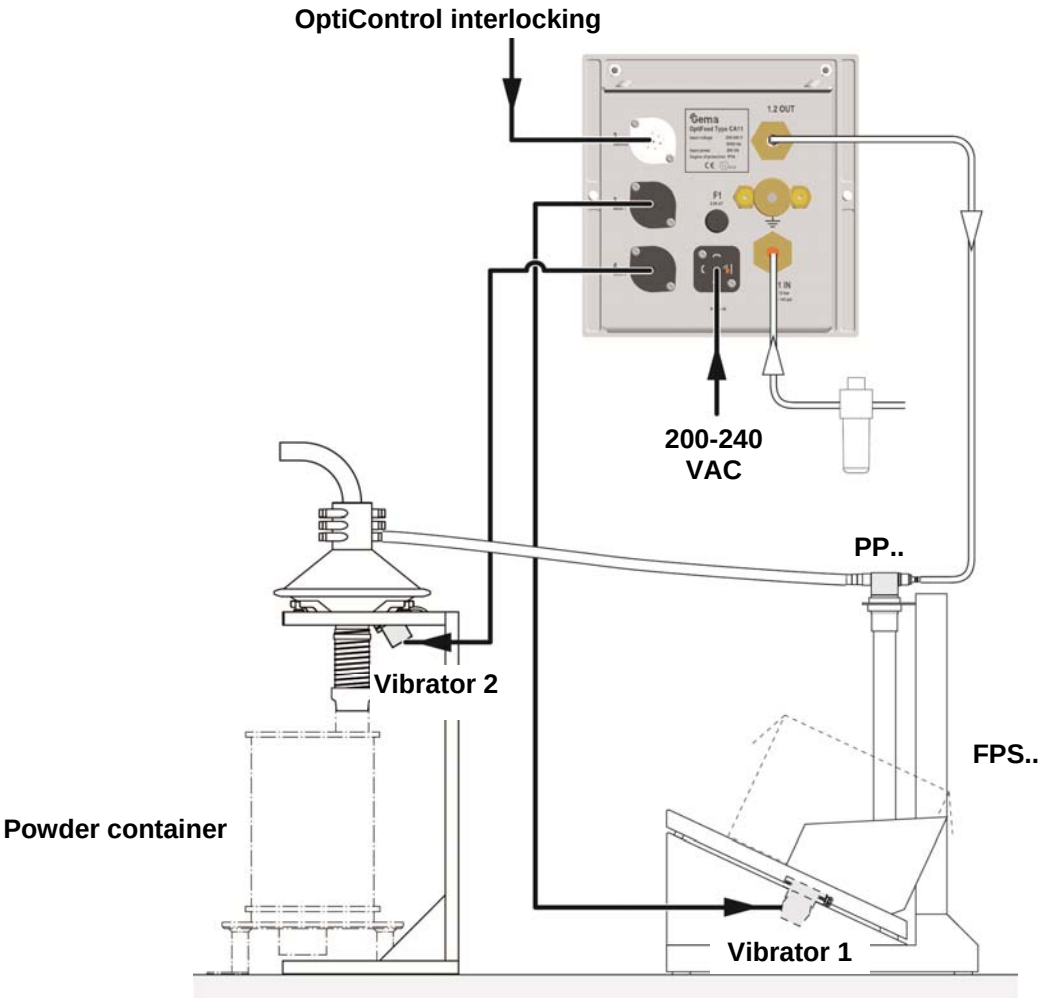


fig. 3: Connection instructions – overview

Connection		Description
1	**Power IN**	Mains cable connection (200-240 VAC)
1.1	**IN**	Compressed air input connection (7-10 bar / 101-145 PSI)
1.2	**OUT**	Compressed air output connection
2	**Interlock**	Interlocking connection
3	**Motor 1**	Vibration motor connection 1
4	**Motor 2**	Vibration motor connection 2
F1		Mains fuse

Close the unused connections with the provided dust protection caps!

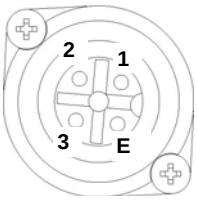
Pin assignment

Connection 1 – Power IN

1	Neutral conductor (power supply)
2	Phase (200-240 VAC)
PE	PE grounding

Connection 2 – Interlock

1	L	OUT
2	L	IN



Connection 3 – Motor 1 / Connection 4 – Motor 2

1	Motor connection U
2	Motor connection V
3	Motor connection W
E	PE grounding

Start-up

1. Switch on the OptiFeed CA11 Fresh powder control unit with the power switch 1

   The powder level is monitored by a level sensor in the powder hopper. If a powder shortage occurs, the OptiControl control unit switches a contact, which turns on the solenoid valve for transport air, as well as the vibrator motors at the powder container and the powder sieve. The fresh powder now will be transported to the powder hopper

2. Adjust the air pressure to the powder pump with the regulator and check it on the pressure gauge

   The powder volume depends on the powder condition, as well as the hose length between the container and the powder hopper. If the hopper is full, the powder supply, as well as both vibrator motors are switched off by the OptiControl control unit. If no fresh powder is present, the control unit releases an alarm after a preselected time

For detailed information about the OptiControl control unit function, please see the corresponding user manual!

Fault clearance

General information

Fault	Causes	Troubleshooting
No fresh powder available		Put a new powder container on the FPS
Vibrator motor not running	Vibration control switch not switched on	Switching on
	Vibration control fuse defective	Replace
	Motor cable is not connected to vibration control	Connect
Fresh powder is not extracted	Transport air is not set correctly	Check and adjust
	Nozzle, check valve or powder pump (injector) clogged	Clean, replace if necessary
	Fluidizing/suction unit clogged	Cleaning
	Fluidizing air restrictor clogged	Clean, replace if necessary
	Transport hose clogged	Cleaning

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!

OptiFeed CA11 – spare parts list

	OptiFeed CA11-A Fresh powder control unit – complete	1010 998
	OptiFeed CA11-B Fresh powder control unit – complete	1010 999
3	Screw-in nipple – 3/8"-Ø 10 mm	242 268
4	Compressed air hose – Ø 10/8 mm, black	103 250*
5	Elbow plug-in connection – Ø 10-Ø 10 mm	1001 972
6	Solenoid valve – 1/2" NW 13.5 mm, 230 VAC, incl. pos 6.1	259 500
6.1	Valve coil – 230 VAC, for pos. 6	1001 158
7	Connection fitting – 1/2"-3/8"	223 794
8	Valve cable – complete, 0.3 m, incl. pos. 8.1	393 061
8.1	Cap screw – M3x35 mm	219 932
9	Elbow joint – 1/8", Ø 6 mm	254 061
10	Pressure regulator – 3/8"	1009 518
11	Elbow joint – 1/4", Ø 6 mm	265 691
12	T-piece – 3/8"-3/8"-3/8"	223 310
13	Elbow joint – 3/8", Ø 6 mm	267 120
14	Connection fitting – 3/8"-3/8"	202 975
15	Hexagon nut – 1/8"-SW 14	1003 953
16	Fluidizing pad – 1/8"	237 264
17	Condenser – MFD2, 400 V (device type B)	237 540
18	Condenser – MFD8, 400 V (device type B)	1003 941

***** Please indicate length

OptiFeed CA11 – spare parts

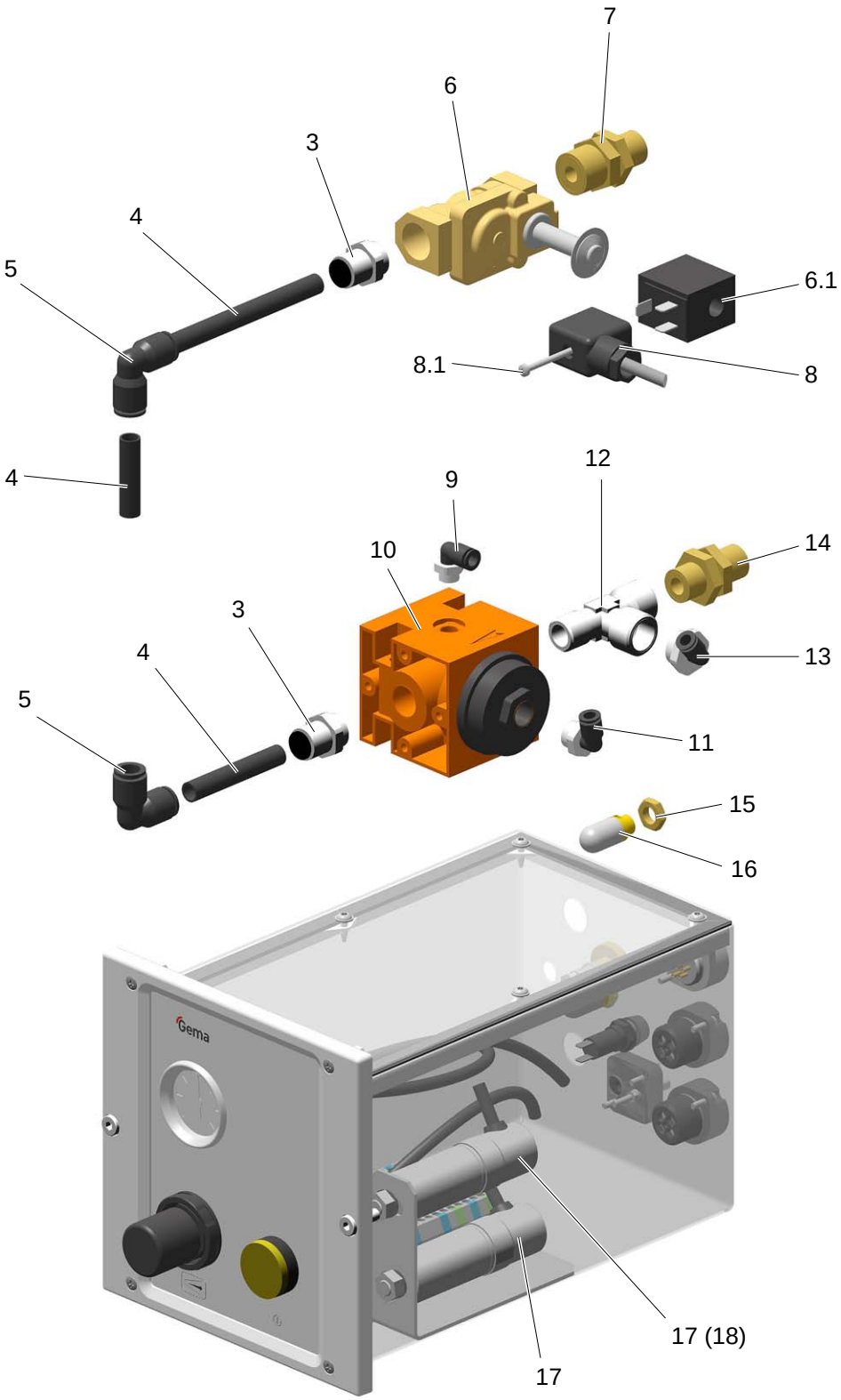


fig. 4: Spare parts

Front plate

1	Front frame – complete	1007 048
2	Screw – M4x18 mm	1000 192
3	Pressure regulator – 0.1-4 bar, 1/4"	1009 101
3	Elbow joint – 1/8"-dia. 6 mm	203 041
5	Sealing plug – 1/8"	263 826
6	Pressure gauge – 0-6 bar, 1/8"	1003 300
7	Elbow joint – 1/8", Ø 6 mm	251 380
8	Illuminated push button with lock, yellow	262 820
9	Fixing flange	262 838
10	LED module – 230 V, yellow	262 846
11	Standard auxiliary switch, 1s	262 854
12	Adhesive seal strip – 9x2 mm	100 250*
13	Cap screw – 35x12 mm	1003 955

***** Please indicate length

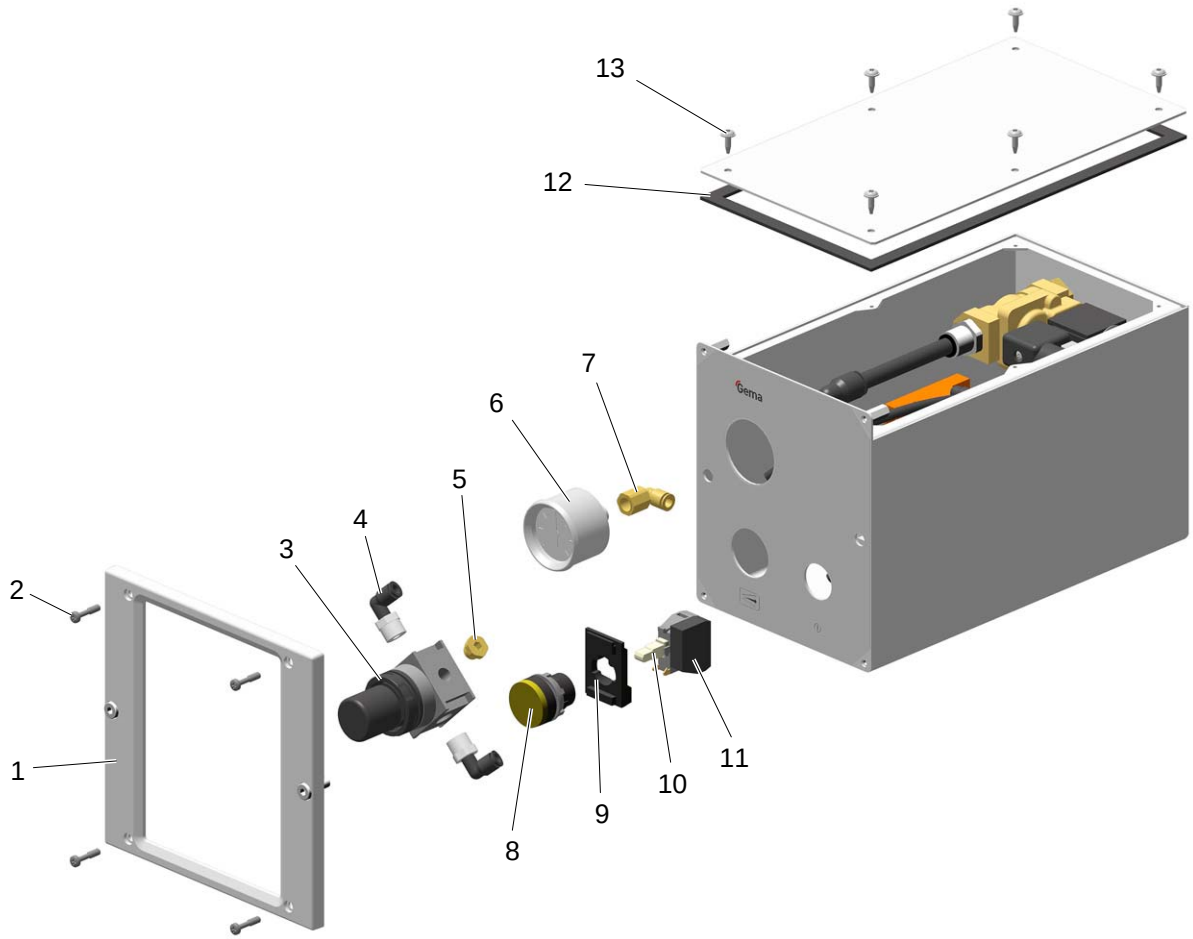


fig. 5: Front plate

Rear wall

1	Interlocking connection – complete	1003 939
2	Vibrator connection – complete	1003 940
3	Fuse holder, long	200 131
4	Fuse – F 2,5 AT (not shown)	206 571
5	Power supply connection – complete	1003 938

fig. 6: Rear wall