
Operating instructions and spare parts list

OptiFeed B FPS19
Fresh powder system



Translation of the original operating instructions

Documentation OptiFeed B FPS19

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General safety regulations

This chapter sets out the fundamental safety regulations that must be followed by the user and third parties using OptiFeed B FPS19 Fresh powder system.

These safety regulations must be read and understood before the OptiFeed B FPS19 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



General information

The OptiFeed B FPS19 Fresh powder system is state of the art equipment that conforms to the recognized technical safety regulations and is designed for normal powder coating applications.

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. Gema Switzerland GmbH must be consulted before OptiFeed B FPS19 Fresh powder system is used for any other purposes or substances beyond those indicated here.

Observance of the operating, service and maintenance instructions specified by the manufacturer is also part of conformity of use.

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.

Additional safety and operation notices can be found on the accompanying CD or on the homepage www.gemapowdercoating.com.



General dangers

Start-up is forbidden until it has been established that the OptiFeed B FPS19 Fresh powder system has been set up and wired according to the EU guidelines for machinery.

Unauthorized modifications to the OptiFeed B FPS19 Fresh powder system exempt the manufacturer from any liability from resulting damages or accidents.

The operator must ensure that all users have received appropriate training for powder spraying equipment and are aware of the possible sources of danger.

Any operating method, which will negatively influence the technical safety of the powder spraying equipment, is to be avoided.

For your own safety, only use accessories and attachments listed in the operating instructions. The use of other parts can lead to risk of injury. Only original Gema spare parts should be used!

Repairs must only be carried out by specialists or by authorized Gema service centers. Unauthorized conversions and modifications can lead to injuries and damage to the equipment and invalidate the Gema Switzerland GmbH guarantee.



Electrical
danger

The connecting cables between the control unit and the spray gun must be installed so as to eliminate the possibility of damage during the operation. Please observe the local safety regulations!

The plug connections between the powder spraying equipment and the mains should only be removed when the power supply is switched off.

All maintenance activities must take place when the powder spraying equipment is switched off.

The powder coating equipment may not be switched on until the booth is in operation. If the booth stops, the powder coating device must switch off too.



Explosion hazard

The control units for the spray guns must be installed and used in zone 22. Spray guns are allowed in zone 21.

Only original Gema OEM parts are guaranteed to maintain the explosion protection rating. If damages occur related to the use of spare parts from other manufacturers, all relevant warranty or compensation claims are void!

Conditions leading to dangerous levels of dust concentration in the powder spraying booths or in the powder spraying areas must be avoided. There must be sufficient technical ventilation available, to prevent a dust concentration of greater than 50% of the lower explosion limit (UEG = max. permissible powder/air concentration). If the UEG is not known, then a value of 10 g/m³ should be considered (see EN 50177).

All unauthorized conversions and modifications to the electrostatic spraying equipment are forbidden for safety reasons.

The safety devices may not be dismantled or put out of operation.

Mandatory operational and workplace notices from the operating company must be written in a comprehensible manner in the language of equipment operators and posted in a suitable place.



Slip hazard

Powder lying on the floor around the powder spraying equipment is a potentially dangerous source of slipping. Booths may be entered only in the places designed for this purpose.

Static charges

Static charges can have the following consequences: Charges to people, electric shocks, sparking. Proper grounding must be in place to prevent objects from becoming charged.



Observe the
grounding
regulations

Grounding

All electrically conductive parts found within 5 meters around each booth opening, and in particular the objects to be coated, must be grounded. The grounding resistance of each object must amount to maximally 1 MOhm. This resistance must be checked/tested regularly when starting work.

The condition of the work piece attachments, as well as the hangers, must guarantee that the work pieces remain grounded. The appropriate measuring devices must be kept ready in the workplace, in order to check the grounding.

The floor of the coating area must conduct electricity (normal concrete is generally conductive).

The supplied grounding cable (green/yellow) must be connected to the grounding screw of the Fresh powder system. The grounding cable must have a good metallic connection with the coating booth, the recovery unit and the conveyor chain, respectively with the suspension arrangement of the objects.



Fire and smoke
prohibition

Smoking and igniting fire are forbidden in the entire vicinity of the system! No work that could potentially produce sparks is allowed!



The stay for persons with cardiac pacemakers is forbidden

As a general rule for all powder spraying installations, persons with pacemakers should never enter high voltage areas or areas with electromagnetic fields. Persons with pacemakers should not enter areas with powder spraying installations!



Photographing with flashlight is forbidden

Photographing with flashlight can lead to unnecessary releases and/or disconnections by safety devices.



Disconnect from mains before maintenance works take place

Disconnect the plugs before the machines are opened for maintenance or repair.

The plug connections between the powder spraying equipment and the mains should only be removed when the power supply is switched off.



As far as it is necessary, the operating firm must ensure that the operating personnel wear protective clothing (e.g. facemasks).

A dust mask corresponding to filter class FFP2 at minimum must be worn during any cleaning work.

The operating personnel must wear electrically conductive, steel-toe footwear (e.g. leather soles).





The operating personnel should hold the gun with bare hands. If gloves are worn, these must also conduct electricity.



These general safety regulations must be read and understood in all cases prior to start-up!

Conformity of use

1. The OptiFeed B FPS19 Fresh powder system is state of the art equipment that conforms to the recognized technical safety regulations and is designed for normal powder coating applications.
2. 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. Gema Switzerland GmbH must be consulted before OptiFeed B FPS19 Fresh powder system is used for any other purposes or substances beyond those indicated here.
3. Observance of the operating, service and maintenance instructions specified by the manufacturer is also part of conformity of use. The OptiFeed B FPS19 Fresh powder system should only be used, maintained and started up by trained personnel informed and familiar with the possible hazards involved.
4. Start-up (i.e. operation of its intended use) is not allowed until it has been established that the OptiFeed B FPS19 Fresh powder system has been installed and wired according to the EU Machinery Directive (2006/42/EC). EN 60204-1 (machine safety) must also be observed.
5. Unauthorized modifications to the OptiFeed B FPS19 Fresh powder system exempt 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.

Explosion protection	Protection type
 	IP54

Product-specific safety measures

- Installation work performed by the customer must be carried out according to local regulations.
- All components must be grounded according to the local regulations before start-up.

OptiFeed B FPS19 Fresh powder system

The OptiFeed B FPS19 is a constituent part of the system and is thus integrated into the safety system of the plant.

If it is to be used in a manner outside the scope of the safety concept, then 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 important information required to work with the OptiFeed B FPS19 Fresh powder system. 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 functionality of the individual system components - booth, gun control unit, manual gun or powder injector - should be referenced to their enclosed corresponding documents.

Product description

Field of application

The OptiFeed B FPS19 Fresh powder system (with powder box) is exclusively intended for electrostatic coating using organic powders (For more on this please also review chapter "Technical Data").

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 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!



OptiFeed B FPS19 Fresh powder system

Utilization

The OptiFeed B FPS19 Fresh powder system conveys fluidized coating powder dust free from a powder container to the place of destination.



Note:



The use of the OptiFeed B FPS19 Fresh powder system must take place in the area defined for it!

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

Electrical data

OptiFeed B FPS19	
Nominal input voltage	100-240 VAC
Frequency	50 -60 Hz
Connected load	120 VA
Vibrator connection and performance	110-230 VAC max. 100 VA
Temperature range	0 °C - +40 °C (+32 °F - +104 °F)
Max. surface temperature	120 °C (+248 °F)
Approvals	  II 3 D IP54 120 °C

Pneumatic data

OptiFeed B FPS19	
Max. input pressure	8 bar
Min. input pressure	6 bar
Max. water vapor content of the compressed air	1.3 g/m ³
Max. oil vapor content of the compressed air	0.1 mg/m ³
Air consumption (complete system)	8-11 Nm ³ /h
Air consumption (transport)	2-5 Nm ³ /h

Conveying performance/powder output

OptiFeed B FPS19	
Powder hose length 0-8 m	5000 g/min
Powder hose length 8-16 m	4000 g/min
Powder hose length 16-25 m	3500 g/min
Powder pump	OptiFeed PP06 type

Dimensions

OptiFeed B FPS19	
Width	460 mm
Depth	710 mm
Height	1700 mm
Weight	54 kg

Processible powders

OptiFeed B FPS19	
Plastic powder	yes
Metallic powder	yes
Enamel powder	yes (with OptiFeed PP06-E only)

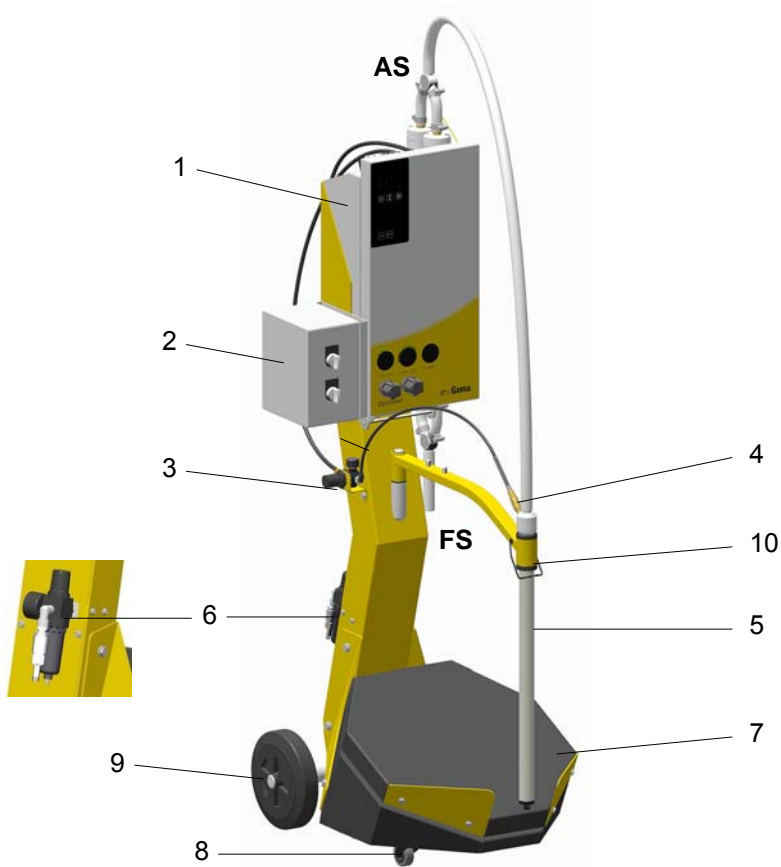


Note:

For further information, see the OptiFeed PP06 Powder pump operating manual!

Design and function

General view



OptiFeed B FPS19 Fresh powder system - Structure

AS	Suction side	5	Fluidizing/suction unit
FS	Transport side	6	Filter unit
1	OptiFeed PP06 Powder pump	7	Vibrating table
2	Power pack	8	Swivel wheel
3	Pressure regulator for fluidizing air	9	Rubber wheel
4	Fluidizing air connection	10	Swivel arm with guide sleeve

OptiFeed PP06 Powder pump

All information about the OptiFeed PP06 Powder pump will be found in the corresponding enclosed documentation!

Power pack



Switch position

- | | |
|----|------------------------------------------------|
| I | Switch on the vibrator manually |
| 0 | Vibrator OFF |
| II | Vibrator is switched on via an external signal |
-
- | | |
|---|----------------------|
| 0 | PP06 Powder pump OFF |
| I | PP06 Powder pump ON |

Scope of delivery

OptiFeed B FPS19

- mobile trolley
- vibrating table with a fluidizing/suction unit
- OptiFeed PP06 Powder pump
- Pneumatic hoses and connection cable
- Special cable jack for the connection of an external control signal
- Power pack with power supply cable
- Operating manual
- Short instructions

Accessories (Option)

- LM02 Level sensor

Typical properties - Characteristics of the functions

Processing the powder directly from the original powder manufacturer's container

The OptiFeed B FPS19 Fresh powder system allows for powder to be processed directly out of the original powder manufacturer's container. A tilted vibrating floor has been included to ensure that the powder container empties itself completely.

Start-up

Preparation for start-up

Basic conditions

When starting up the OptiFeed B FPS19 Fresh powder system, the following general conditions impacting the coating results must be taken into consideration:

- Fresh powder system is set up properly
- Powder pump correctly connected
- Corresponding power and compressed air supply available
- Powder preparation and powder quality

Set-up

The OptiFeed B FPS19 Fresh powder system should always be set up vertically on a flat surface.



WARNING:

The Fresh powder system must not under any circumstances be set up near a heat source (such as an enameling furnace) or an electromagnetic source (such as a control cabinet).



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!



Note:

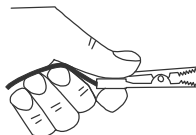




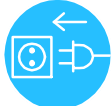


The compressed air must be free of oil and water!

Initial start-up



Note:

If a malfunction occurs, see the troubleshooting guide, as well as the Powder pump operating manual!

1			
2		6 bar	
3		 110 V/230 V	



Note:

The remainder of the start-up procedure for the OptiFeed PP06 Powder pump is explicitly described in the corresponding operating instructions (chapter "Initial start-up" and "Daily start-up")!

Operation



WARNING

If the Fresh powder system is not being used in conjunction with a sufficiently powerful suction unit, then the stirred-up dust from the coating powder can cause respiratory issues or cause a slippage/falling hazard.

- The manual equipment may only be operated in conjunction with a sufficiently powerful suction unit (such as Gema Classic Open booth).



1. Switch on the Fresh powder system
The switch lamp illuminates and the unit is ready for operation
2. Swivel aside the fluidizing/suction unit
3. Place the open powder container on the vibrating table



WARNING

If a container is placed on the vibrating plate, then fingers caught in the gap between the two plates can be crushed.

- The container may weight a max. of 30 kg.

4. Place the fluidizing/suction unit onto the powder



5. Switch on the vibrator manually (position I)
6. Adjust the fluidization with the pressure regulator on the Fresh

powder system



Check the powder fluidization in the powder container.
The powder fluidization in the powder containers depends on the powder characteristic, the humidity and the ambient air temperature. Fluidizing starts by switching on the Fresh powder system.



WARNING

If the ventilation has been incorrectly adjusted, then the coating powder can create a dust cloud capable of causing respiratory problems.

- Adjust the fluidization correctly

7. The fluidizing/suction unit digs itself into the powder
8. Switch on the OptiFeed PP06 Powder pump
9. The powder pump conveys powder to the powder hose



Note:

For further information, see the OptiFeed PP06 Powder pump operating manual!

Powder hose rinsing

In order to prevent hose cloggings, the powder hose must be cleaned by powder residues, if a longer standstill takes place.

The powder hose rinsing function of the OptiFeed PP06 Powder pump allows the cleaning of the powder hoses and the filter elements.



Note:

For further information, see the OptiFeed PP06 Powder pump operating manual!

Color change

General information

When a color change takes place, the individual components of the Fresh powder system must be cleaned carefully. All powder particles of the former color must be removed during this process!

The following describes an 'extreme' color change (light to dark).



Clean the OptiFeed PP06 Powder pump (see the corresponding operating manual)





Shutdown

1. Switch off the vibration
2. Switch off the Fresh powder system

If in disuse for several days

1. Separate from power mains
2. Clean the Fresh powder system
3. Turn off the compressed air main supply

Cleaning and maintenance



Note:

Regular and conscientious maintenance increases the service life of the OptiFeed B FPS19 Fresh powder system and provides for a longer continuous coating quality!

The parts, which are to be replaced during maintenance work, are available as spare parts. These parts will be found in the corresponding spare parts list!

Daily maintenance

1. Empty the powder hose by removing the fluidizing/suction unit from the powder container when the conveying is activated
2. Clean the powder hose; Please also review the section "Color change"

Weekly maintenance

1. Visual check of the pinch valves in the OptiFeed PP06 Powder pump for possible damages



Note:

For further information, see the OptiFeed PP06 Powder pump operating manual!

2. Clean the fluidizing/suction unit The fluidizing/suction unit is placed back into the powder shortly before restarting operation
3. Check the Fresh powder system grounding connections to the coating booth, the suspension devices of the work pieces, or the conveyor chain

If in disuse for several days

1. Interrupt the power supply/remove the mains plug
2. Clean the Fresh powder system thoroughly
3. Turn off the compressed air main supply

Cleaning



WARNING

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

- The ventilation system must be turned on for all cleaning work.
 - A dust mask corresponding to filter class FFP2 at minimum must be worn during any cleaning work.
-

Cleaning the fluidizing/suction unit

- Remove the powder pump from the fluidizing/suction unit
- Remove the fluidizing/suction unit
- Clean the fluidizing/suction unit with compressed air. Blow off the suction tube also with compressed air
- Visual check of the fluidizing/suction unit for possible damages
- Reassemble the individual parts and reinsert the fresh powder pump

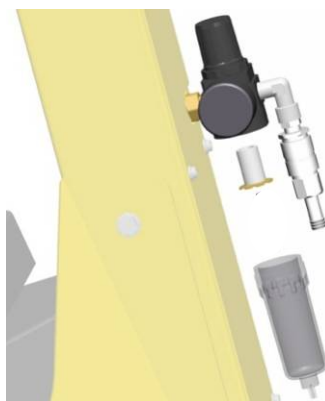
Maintenance and cleaning of the filter unit

The filter unit on the OptiFeed 2 S Fresh powder system measures and cleans the compressed air. This is where the equipment's main compressed air connection is located.

Replacing the filter element

Procedure:

1. Unscrew the filter glass on the filter unit
2. Remove the complete filter element



3. Replace the filter element
4. Clean the filter glass on the inside and install it again

Troubleshooting

General information

Fault	Causes	Troubleshooting
The powder is not fluidized	Compressed air not present	Connect the equipment to the compressed air
	Fluidizing air adjustment is set too low	Set the fluidizing air correctly
Vibrator not functioning	Vibrator not plugged in	plug in
	Vibrator switch in position 0	switch on (position I)
	Vibrator/condenser broken	Contact local Gema representative
Pump does not convey or conveys insufficient		See therefore the OptiFeed PP06 Powder pump operating manual
Level control with level sensor (option) not running	Level control defective	Send in the level control unit for repair
	Level sensor defective	Send in the level sensor for repair



Note:

For further information, see the OptiFeed PP06 Powder pump operating manual!

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** OptiFeed B FPS19
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)



WARNING!

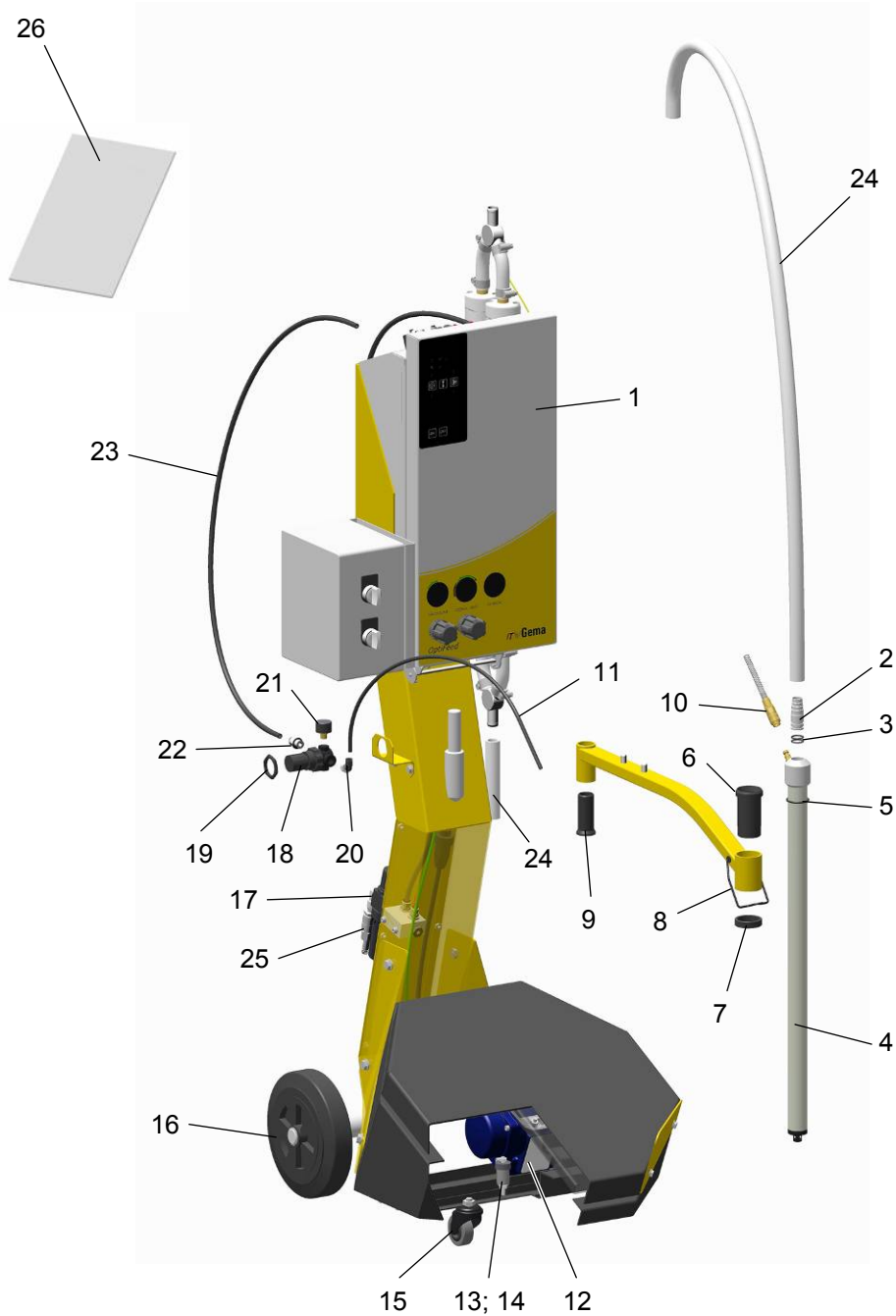
Only original Gema spare parts should be used, because the explosion protection will also be preserved that way. The use of spare parts from other manufacturers will invalidate the Gema guarantee conditions!

OptiFeed B FPS19 Fresh powder system – Spare parts

	OptiFeed B FPS19 Fresh powder system - complete, 230 V-50 Hz	1008 752
	OptiFeed B FPS19 Fresh powder system - complete, 115 V-60 Hz	1008 754
	OptiFeed B FPS19 Fresh powder system - complete, 105 V-50/60 Hz	1008 753
1	OptiFeed PP06 Powder pump (see the corresponding operating manual)	
2	Hose connection - complete, incl. pos. 3	1007 658
3	O-ring - Ø 16x2 mm	1007 794
4	Fluidizing/suction unit - complete (incl. pos. 5)	1007 509
5	O-ring – Ø 20x3 mm	1007 121
6	Guide sleeve	1007 094
7	Lock nut M36x1.5 mm	1007 095
8	Retaining bracket	1008 083
9	Bearing bush	1002 046
10	Quick release connection - NW5, Ø 6 mm	200 840
11	Plastic tube - Ø 6/4 mm, black	1001 973
12	Vibrator - 220-240 V, 50 Hz	1001 227
13	Rubber damper - Ø 20x25-M6/2a	246 000
14	Spacing ring	375 624
15	Swivel wheel - Ø 50 mm	260 606
16	Rubber wheel - Ø 200 mm	201 316
17	Pneumatic group - complete (see corresponding spare parts list)	
18	Pressure regulator - 0-4 bar	242 225
19	Nut - M30x1.5 mm	1003 772
20	Elbow joint - 1/4a-Ø 6 mm	265 691
21	Pressure gauge - 0-4 bar, Ø 25-1/8a	1003 775
22	Screw-in nipple - 1/4"a, Ø 8 mm	265 136
23	Plastic tube - Ø 8/6 mm, black	103 152*
24	Powder hose - Ø 16/23 mm	1003 307*
25	Quick release connection - NW7.8 - Ø 10 mm	239 267
26	Operating manual	1008 762

* Please indicate length

OptiFeed B FPS19 Fresh powder system – Spare parts

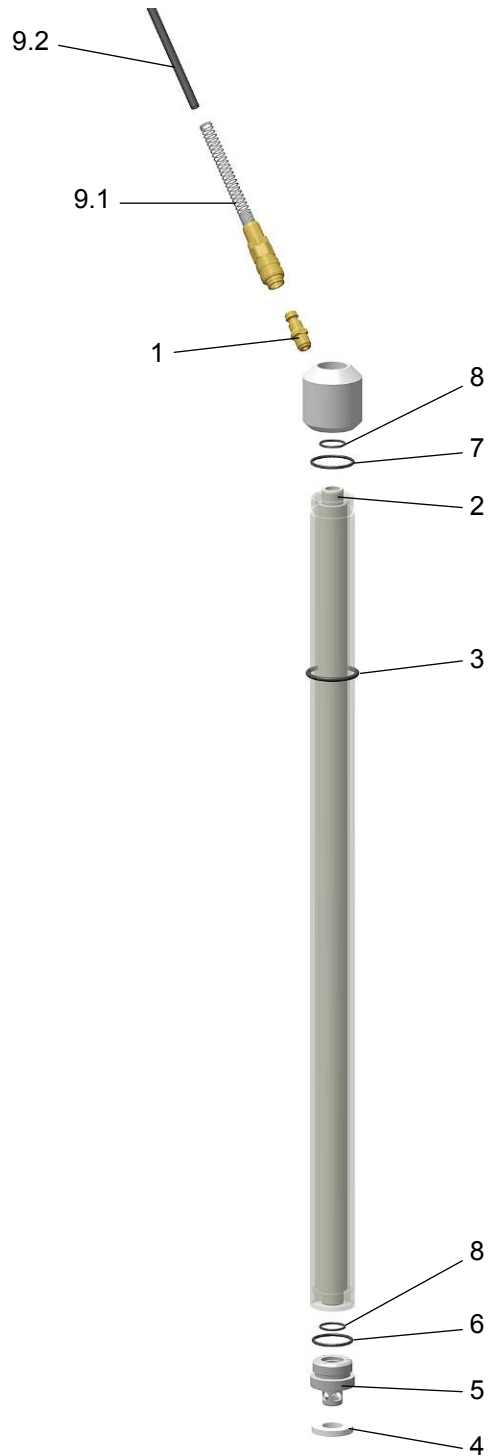


OptiFeed B FPS19 Fresh powder system – Spare parts

Fluidizing/suction unit

	Fluidizing/suction unit - complete (pos. 1 - 8)	1007 509
1	Connector / Flow restrictor 0,3 mm	1006 556
2	Internal tube	1007 516
3	O-ring	1007 121
4	Fluidizing ring	1007 514
5	Foot piece	1007 511
6	O-ring - Ø 24x2 mm	230 480
7	O-ring - Ø 26x2 mm	246 549
8	O-ring - Ø 15x1.5 mm	261 564
9	Pneumatic connection for Fluidizing air - complete (incl. pos. 9.1 and 9.2)	
9.1	Quick release connection - NW5, Ø 6 mm	200 840
9.2	Plastic tube - Ø 6/4 mm, black	1001 973

Fluidizing/suction unit - spare parts



Fluidizing/suction unit - spare parts

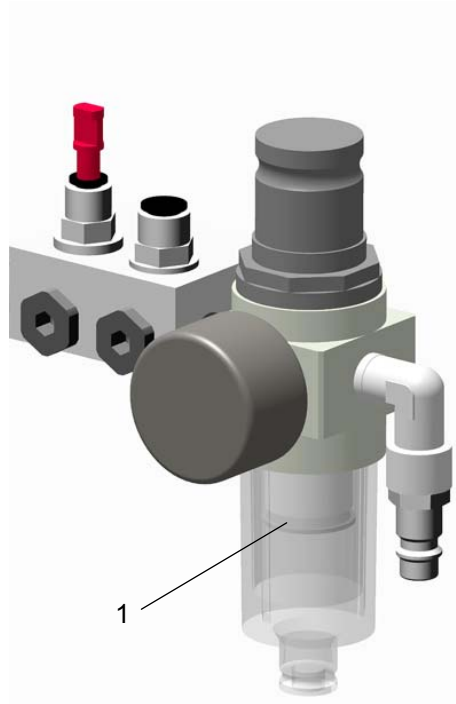
OptiFeed B FPS19 – Pneumatic group

Pneumatic group - complete

1008 235

1 Filter cartridge - 20 µm

1008 239



OptiFeed B FPS19 – Pneumatic group

