
Operating instructions and spare parts list

OptiFlex S

Manual coating equipment



Documentation OptiFlex S manual coating equipment

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Printed in Switzerland

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Table of contents

General safety regulations	3
Safety symbols (pictograms).....	3
Conformity of use.....	3
Product specific security measures	4
About this manual	5
General information	5
Function description	7
Field of application	7
Typical characteristics.....	7
OptiFlex S manual coating equipment.....	8
Structure.....	8
OptiStar control unit	8
OptiFlow injector	8
Stirrer recipient.....	9
Scope of delivery	10
OptiFlex 1-S	10
Additional supply for OptiFlex 2-S	10
Technical Data	11
OptiFlex S manual coating equipment.....	11
Electrical Data	11
Pneumatical Data.....	11
Connectable guns	11
Dimensions	12
Start-up and operation	13
Connecting guide	13
Preparation for start-up	14
Fill the stirrer recipient with powder	14
Switching on the booth.....	14
Start-up	14
Stirrer	14
Switch on the control unit.....	15
Color change	17
General information	17
Maintenance and cleaning	19
Daily maintenance	19
Weekly maintenance.....	19
If in disuse for several days	19
Powder hose rinsing	19
Cleaning.....	20

Cleaning the fluidizing/suction unit	20
Cleaning the OptiSelect manual powder gun	20
Fault elimination	21
General information	21
Schematic diagrams	23
Pneumatical diagram	23
Block diagram	23
Spare parts list	25
Ordering spare parts	25
OptiFlex S manual coating equipment - spare parts list	26
OptiFlex S manual coating equipment - spare parts list	27
OptiFlex S - stirrer recipient	28
OptiFlex S - stirrer recipient	29
OptiFlex S - stirrer drive unit	30
OptiFlex S - stirrer drive unit	31
OptiFlex S - filter unit	32

General safety regulations

This chapter sets out the fundamental safety regulations that must be followed by the user and third parties using the OptiFlex S manual coating equipment.

These safety regulations must be read and understood before the OptiFlex S manual coating equipment is used.

Safety symbols (pictograms)

The following warnings with their meanings can be found in the ITW 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!**

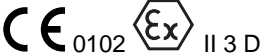
Useful tips and other information

Conformity of use

1. The OptiFlex S manual coating equipment is built to the latest specification and conforms to the recognized technical safety regulations. It is designed for the normal application of powder coating.
2. Any other use is considered as non-conform. The manufacturer is not responsible for damage resulting from improper use of this equipment; the end-user alone is responsible. If the OptiFlex S manual coating equipment is to be used for other purposes or other substances outside of our guidelines then ITW Gema AG should be consulted.
3. Observance of the operating, service and maintenance instructions specified by the manufacturer is also part of

conformity of use. The OptiFlex S manual coating equipment should only be used, maintained and started up by trained personnel, who are informed about and are familiar with the possible hazards involved.

4. Start-up (i.e. the execution of a particular operation) is forbidden until it has been established that the OptiFlex S manual coating equipment has been set up and wired according to the guidelines for machinery (98/37 EG). EN 60204-1 (machine safety) must also be observed.
5. Unauthorized modifications to OptiFlex S manual coating equipment 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 must be observed.

Explosion protection	Protection type	Temperature class
	IP54	T6 (zone 21) T4 (zone 22)

Product specific security measures

- The installation work, to be done by the customer, must be carried out according to local regulations
- Before starting up the plant a check must be made that no foreign objects are in the booth or in the ducting (input and exhaust air)
- It must be observed, that all components are grounded according to the local regulations, before start-up

About this manual

General information

This operating manual contains all important information which you require for the working with the OptiFlex S manual coating equipment. 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 function mode of the individual system components - reciprocators, booths, powder gun controls, powder guns etc. - you will find in the corresponding enclosed documentations.

Function description

Field of application

The OptiFlex S manual coating equipment (with stirrer recipient) is built exclusively for electrostatic coating with organic powders. Any other use of the product will be considered as non intended use. The manufacturer is not responsible for any damage resulting from this; the risk is assumed by the user alone!

The OptiFlex S electrostatic powder manual coating equipment with the OptiSelect manual powder gun is ideally suited for manual coating of objects in small series.

Typical characteristics

- Processing the powder from the stirrer recipient
- Quick and simple color change
- Supplied ready for use
- Available with one or two guns (extensible)

OptiFlex S manual coating equipment

Structure



OptiFlex S manual coating equipment - structure

- | | | | |
|---|------------------------------|----|------------------|
| 1 | OptiStar control unit | 8 | Hose holder |
| 2 | OptiSelect manual powder gun | 9 | Hose connections |
| 3 | OptiFlow injector | 10 | Discharge flap |
| 4 | Mobile frame with hand rail | 11 | Filler flap |
| 5 | Stirrer recipient | 12 | Shelf |
| 6 | Swivel wheel | 13 | Rubber wheel |
| 7 | Filter unit | | |

OptiStar control unit

All information about the OptiStar control unit will be found in the corresponding enclosed documentation!

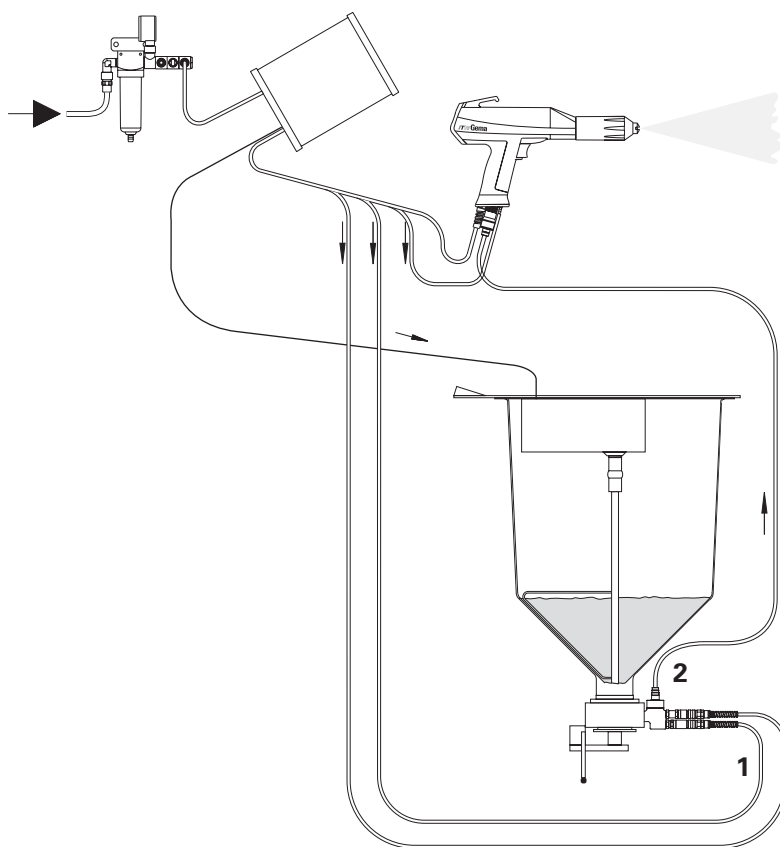
OptiFlow injector

All information about the OptiFlow injector will be found in the corresponding enclosed documentation!

Stirrer recipient

The powder in the stirrer recipient is agitated and kept loose by the stirrer arm. The injector sucks in the powder by means of the conveying air (1). The powder/air mixture attains to the gun through the powder hose (2) and is electrostatically charged in the gun nozzle. In addition, an electrostatic field is created between the gun nozzle and the grounded object. The electrostatically charged powder sprayed onto the workpiece adheres on the surface of the grounded object. Because of the conical shape of the stirrer recipient, the powder can be used completely (optimum powder consumption).

Conveying air, supplementary air and rinsing air are set on the OptiStar control unit (see therefore the corresponding user manual). The function of the used injector is described in the corresponding user manual.



Stirrer recipient - function

Scope of delivery

OptiFlex 1-S

- A OptiStar control unit in a metal case with power supply cable
- A mobile trolley with a gun/hose support
- A powder recipient with stirrer and cover, inclusive mains adaptor for the stirrer
- A plug-in OptiFlow injector
- An OptiSelect manual powder gun with gun cable, powder hose, rinsing air hose and standard nozzle set (see therefore the OptiSelect manual powder gun user manual)
- Pneumatic hoses for conveying air (red), supplementary air (black) and fluidizing air (black)

Additional supply for OptiFlex 2-S

- An additional OptiStar control unit, complete with gun holder, special powder supply cable and connecting material
- An additional OptiSelect manual powder gun with gun cable, powder hose, rinsing air hose and standard nozzle set
- Pneumatic hoses for conveying air (red), supplementary air (black), as well as a pneumatic connection with dual distributor from pressure reducing valve to control unit
- Mains adaptor for twin equipment

Technical Data

OptiFlex S manual coating equipment

Electrical Data

OptiFlex S manual coating equipment	
Nominal input voltage	230-240 VAC (110-120 VAC)
Frequency	50/60 Hz
Input value	150 VA
Nominal output voltage (to the gun)	max. 12 V
Nominal output current (to the gun)	max. 1 A
Protection type	IP 54
Temperature range	0 to 40°C
Approvals	

Pneumatical Data

OptiFlex S manual coating equipment	
Compressed air main connection	G1/4" internal thread
Max. input pressure	10 bar
Min. input pressure	6 bar
Max. water vapor content of compressed air	1,3 g/m ³
Max. oil vapor content of compressed air	0,1 mg/kg
Max. compressed air consumption	8 m ³ /h

Connectable guns

OptiFlex S manual coating equipment	connectable
OptiSelect GM02	yes
OptiGun GA02	yes
PG1/PG2-A	yes (no remote control)
TriboJet	yes, with adapter*

* The gun type must be set on the control unit (see therefore the corresponding user manual)!



Attention:

The OptiFlex S manual coating equipment may be used only with the specified gun types!

Dimensions

OptiFlex S manual coating equipment	
Width	691 mm
Depth	764 mm
Height	1135 mm
Weight	58 kg

Start-up and operation

Connecting guide

1. Check the compressed air connection from the filter unit to the control unit. Connect the compressed air supply hose from the compressed air circuit directly to the filter unit main connection on the rear side of the equipment (connecting thread G 1/4").



Note:

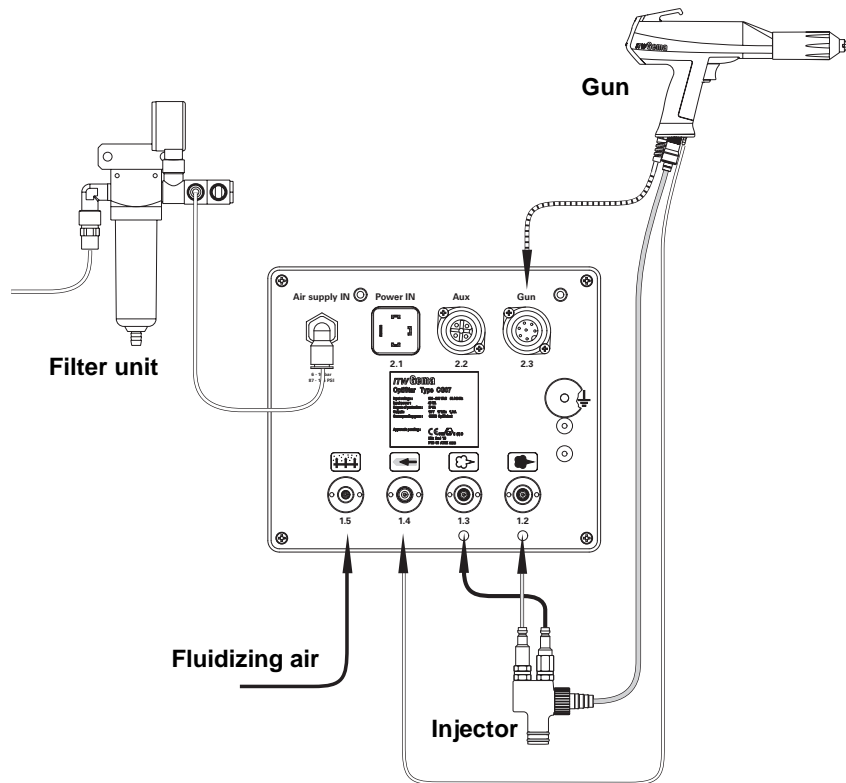
The compressed air must be free from oil and water!

2. Connect the black hose for fluidizing (electrically conductive) air to the output **1.5** on the rear side of the control unit
3. Connect the grounding connection cable to the control unit with the grounding screw, and the 5 m long grounding cable with the clamping clip to the booth or the suspension device
4. Connect the gun cable plug to the socket **2.3** on the rear side of the control unit
5. Connect the rinsing air hose to the electrode rinsing air output **1.4** and to the powder gun
6. Attach the injector, connect the powder hose to the injector and to the powder gun
7. Connect the red hose for conveying air to the corresponding output **1.2** on the rear side of the control unit and to the injector
8. Connect the black hose for supplementary air to the corresponding output **1.3** on the rear side of the control unit and to the injector (this hose is electrically conducting)
9. Connect the mains cable to the **2.1 Power IN** plug and bolt it on



Note:

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



Connecting guide - overview

Preparation for start-up

Fill the stirrer recipient with powder

1. Open the hinged flap of the stirrer recipient cover
2. Fill in the coating powder in the stirrer recipient. Maximum filling level of the powder is marked on the inside of the recipient (useful capacity approx. 18,5 dm³)
3. Close the hinged flap of the stirrer recipient cover
4. The stirrer can be put into operation by pressing manually the button on the cover when filling/emptying

Switching on the booth

The coating booth is switched on according to the corresponding user manual.

Start-up

Stirrer

The stirrer starts by pressing the gun trigger. By letting loose the gun trigger, the stirrer runs after for approx. 15-20 seconds. So open the cover only after the stirrer has stopped! By raising the stirrer cover, the engine switches off.

Switch on the control unit

1. Press the **ON** power switch.
The displays illuminate and the control unit is ready for operation



Note:

The further start-up procedure for the OptiFlex S manual coating equipment gun is explicitly described in the OptiStar CG07 control unit operating instructions (chapter "Initial start-up" and "Daily start up")!

Color change

General information

When a color change takes place, the individual components of the manual coating equipment must be cleaned carefully. Thereby, all powder particles of the former color must be removed!

Procedure:

1. Empty the stirrer recipient and clean thoroughly
2. Clean the powder hose:
 - Strip the powder hose from the hose connection on the injector
 - Point the gun into the booth
 - Blow through the hose manually with a compressed air gun
 - Fit the powder hose again to the hose connection on the injector
3. Dismantle and clean the powder gun (see therefore the user manual of the OptiSelect manual powder gun)
4. Clean the injector (see therefore the user manual of the OptiFlow injector)
5. Prepare the manual coating equipment with new powder for start-up

Maintenance and cleaning



Note:

Regular and conscientious maintenance increases the life span of the manual coating equipment and provides for a longer continuous coating quality!

Daily maintenance

1. Clean the injector (see therefore the user manual of the OptiFlow injector)
2. Clean the powder gun (see therefore the user manual of the OptiSelect manual powder gun)
3. Clean the powder hose, see therefore in chapter "Color change"

Weekly maintenance

1. Clean fluidizing/suction unit, injector and powder gun. Just place the fluidizing/suction unit in the powder shortly before restarting operation
2. Check the control unit grounding connections to the coating booth, the suspension devices of the work pieces, or the conveyor chain

If in disuse for several days

1. Disconnect the mains plug
2. Clean the coating equipment
3. Turn off the compressed air main supply

Powder hose rinsing

If lengthy downtimes take place, the powder hose must be cleaned.
Procedure:

1. Strip the powder hose from the hose connection on the injector
2. Point the gun into the booth
3. Blow through the hose manually with a compressed air gun
4. Fit the powder hose again to the hose connection on the injector

Cleaning

Cleaning the fluidizing/suction unit

1. Remove the injector
2. Remove the fluidizing/suction unit
3. Clean the fluidizing/suction unit with compressed air Also blow off the suction tube with compressed air
4. Clean the injector (see therefore the injector user manual)
5. Reassemble the individual parts

Cleaning the OptiSelect manual powder gun

Frequent cleaning of the gun helps to guarantee the coating quality.



Note:

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

Daily:

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

Weekly:

2. Remove the powder hose from the connection
3. Remove the spray nozzle from the gun and clean it
4. Blow out the gun from the connection in flow direction with compressed air
5. Clean the gun tube with the provided gun brush
6. Blow through the gun with compressed air again
7. Clean the powder hose
8. Reassemble the gun and connect it



Note:

See therefore the user manual of the OptiSelect manual powder gun!

Fault elimination

General information

Fault	Causes	Fault elimination
---	Power pack defective	Replace the power pack
---	Main valve defective	Replace main valve coil
---	Gun not connected Gun plug, gun cable or gun cable connection defective Remote control on powder gun defective	Connect the gun Replace corresponding part or send in for repair Replace remote control (gun cap)
---	Rinsing air solenoid valve of flat jet nozzle defective	Replace valve coil
---	Rinsing air solenoid valve of round jet nozzle defective	Replace valve coil
---	Gun plug, gun cable or gun cable connection defective	Replace corresponding part or send in for repair
Gun LED remains dark, although the gun trigger is operated	Gun plug, gun cable or gun cable connection defective Remote control on powder gun defective	Replace corresponding part or send in for repair Replace remote control (gun cap)
Powder does not adhere to object, although the gun trigger is operated and the gun sprays powder	High-voltage and current deactivated High voltage cascade defective Objects are not properly grounded	Press the selection key (application key) Send in the gun for repair Check the grounding

Fault	Causes	Fault elimination
Control unit displays remain dark, although the control unit is switched on	Control unit is not connected to the mains Power pack fuse defective Power pack defective	Connect the equipment with the mains cable Replace the fuse Replace the power pack
The powder is not fluidized	Compressed air not present Fluidizing air is set too low on the control unit Motor throttle defective	Connect the equipment to the compressed air Set the fluidizing air correctly Replace the motor throttle
The gun does not spray powder, although the control unit is switched on and the gun trigger is operated	Compressed air not present Injector, motor throttle or nozzle on injector, powder hose or powder gun are clogged Nozzle in the injector is clogged Nozzle is not inserted Fluidizing not running No conveying air: Motor throttle defective Solenoid valve defective Front plate defective	Connect the equipment to the compressed air Clean corresponding part Replace Insert the insert sleeve (see above) Replace the motor throttle Replace the solenoid valve Send in for repair

Schematic diagrams

Pneumatical diagram

Block diagram

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** OptiFlex S manual coating equipment
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 wear 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 ITW-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 ITW Gema guarantee conditions!

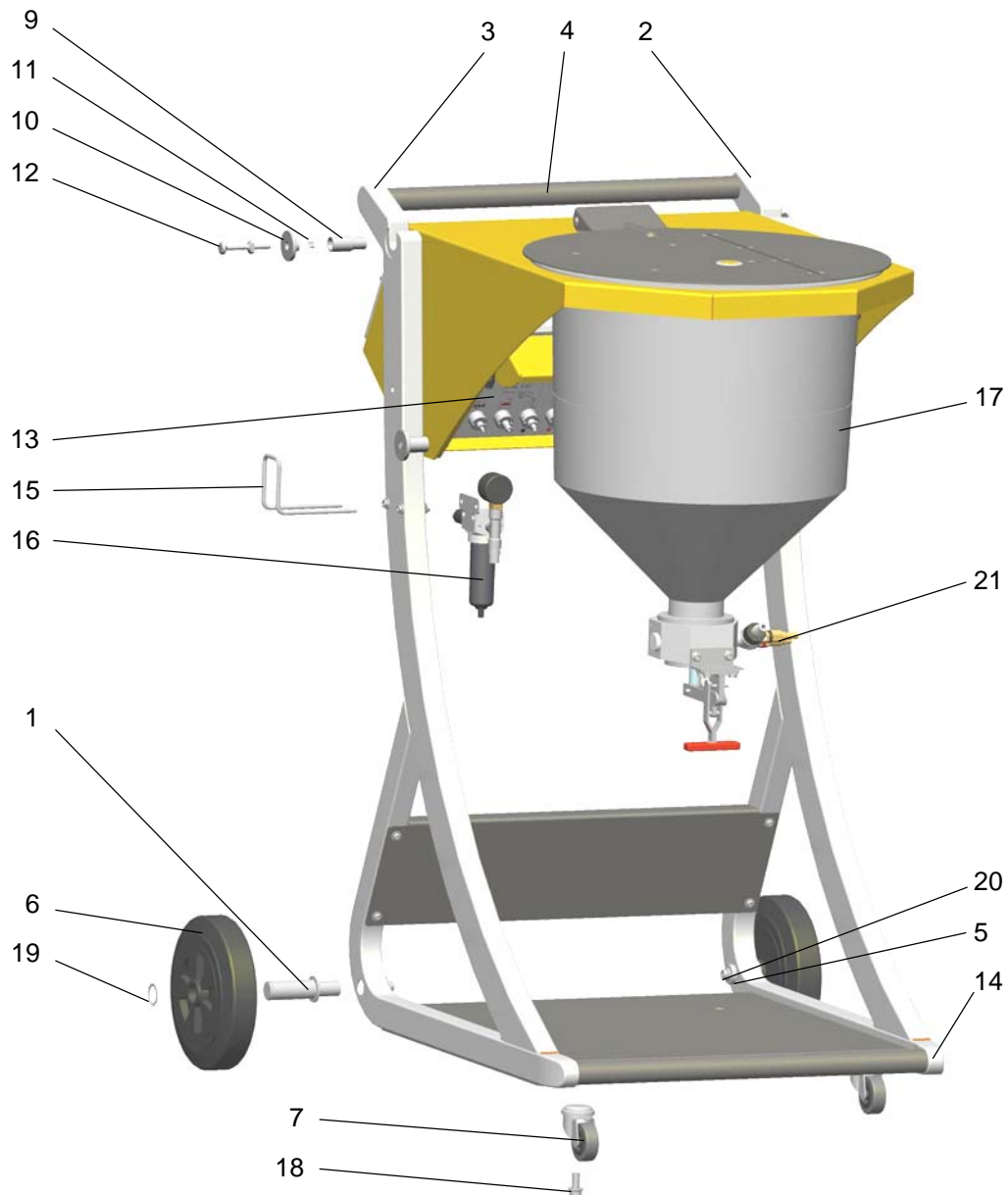
OptiFlex S manual coating equipment - spare parts list

1	Bearing bolt	1000 453
2	Handle piece, right	1000 811
3	Handle piece, left	1000 812
4	Handle bar	1000 460
5	Counter washer	1000 454
6	Rubber wheel - Ø 200 mm	260 592
7	Swivel wheel - Ø 50 mm	260 606
8	Rubber damper - Ø 35x40 mm, M8/a (not shown)	211 664
9	Bearing bolt - L=33 mm	1000 953
10	Conical spring washer	1000 943
11	Compression spring - 0,63x8x16 mm, RF	1000 565
12	Gun retainer	1001 140
13	CG07 gun control unit - complete (see corresponding user manual)	1001 060
14	Bumper	1000 779
15	Bracket	1000 699
16	Filter unit - complete (see corresponding spare parts list)	1001 147
17	Stirrer recipient, without injector (see corresponding spare parts list)	1001 655
18	Ribbed cylinder screw - M10x20 mm	260 584
19	Snap ring - A	237 094
20	Hexagon ribbed cylinder screw - M8x16 mm, galv.	261 793
21	OptiFlow IG02-V injector - complete (see corresponding user manual)	391 530

Wearing part

* Please indicate length

OptiFlex S manual coating equipment - spare parts list

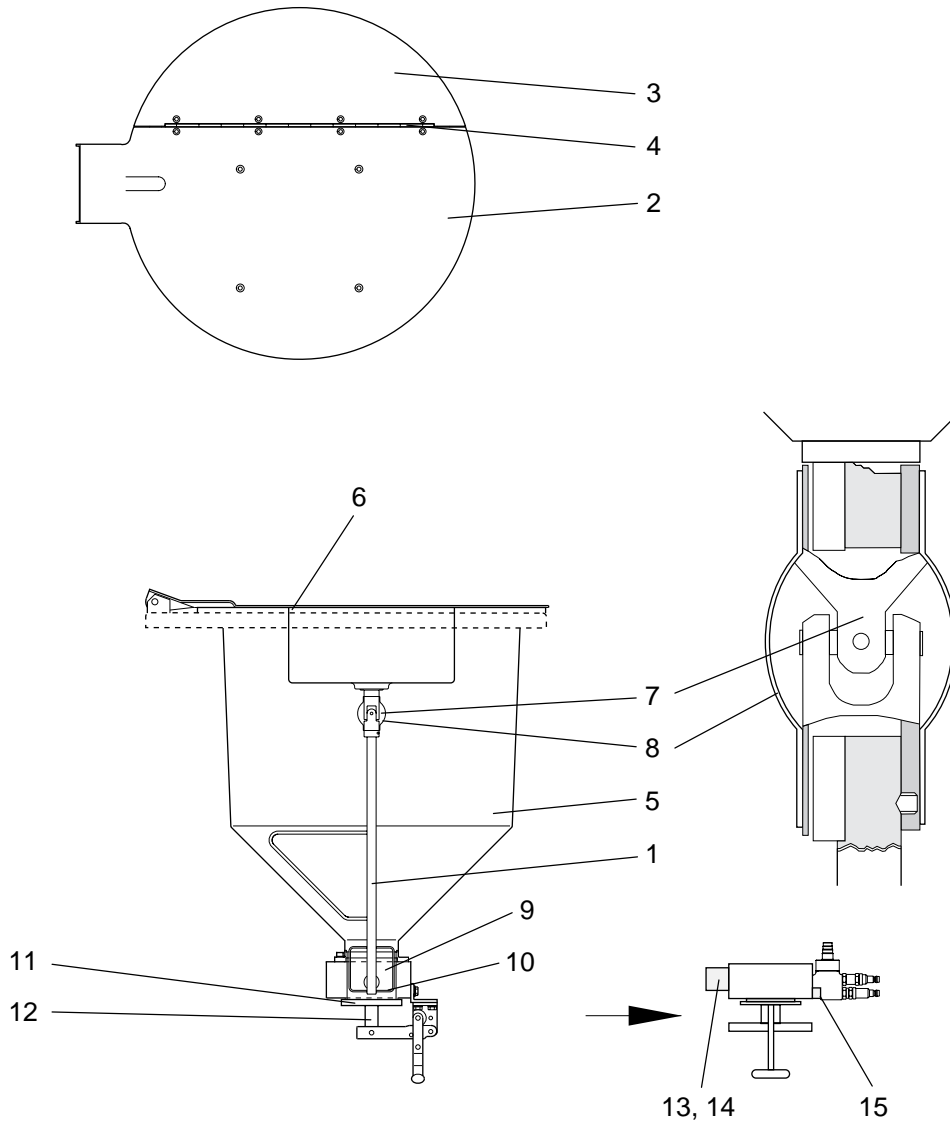


OptiFlex S manual coating equipment - spare parts

OptiFlex S - stirrer recipient

1	Mini stirrer brush (not shown)	366 862
2	Main filler cover	393 916
3	Filler flap	380 636
4	Hinge	305 472
5	Powder container	366 854
6	Gasket for powder container	101 630
7	Cardan joint - Ø 12 mm, H8	206 369
	Wedge for cardan joint - 4x4x16 mm, round	206 075
	Grub screw for cardan joint - hexagon, spiky, M4x5 mm	214 728
8	Protective cover for cardan joint	206 350
9	Manifold	379 395
10	O-ring - Ø 67,2 mm	236 403
11	Gasket for discharge flap	303 240
12	Discharge flap with toggle clamp	303 194
13	Blind grommet	380 296
14	O-ring for blind grommet	231 517
15	Injector retainer	380 288

OptiFlex S - stirrer recipient

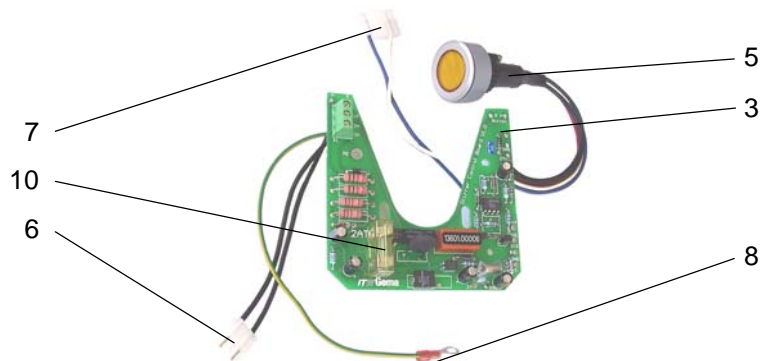
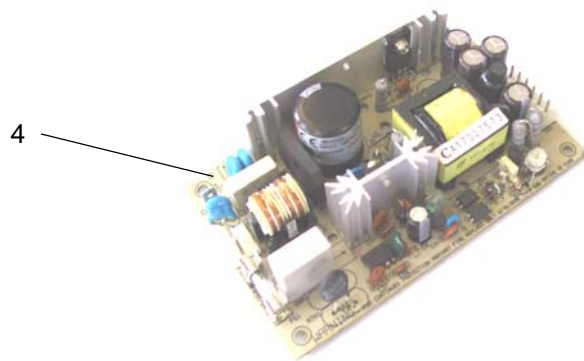
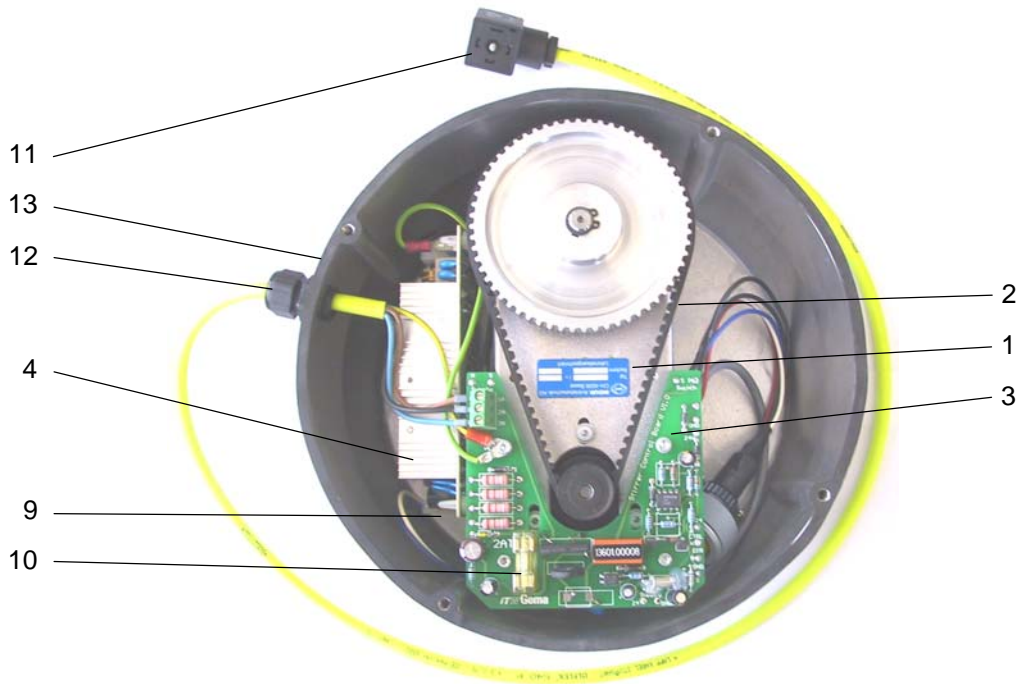


OptiFlex S - stirrer recipient

OptiFlex S - stirrer drive unit

1	Motor with drive belt - complete	268 950
2	Drive belt	268 941
3	Electronic board for stirrer control	388 173
4	Electronic board for power pack	389 277
5	Mains push button - complete, with cable	390 542
	Cable set, consisting of:	
6	Power pack connecting cable	390 550
7	Connecting cable 24 VDC	390 569
8	Grounding wire	391 867
9	Fixture set for power pack board, consisting of two pieces each:	
	Spacer	267 775
	Cylinder screw	245 321
	Shake proof washer	205 885
10	Fuse - 2 AT	221 872
11	Adaptor cable for stirrer connection	391 905
12	Gland	265 780
13	Gasket for stirrer motor	393 924

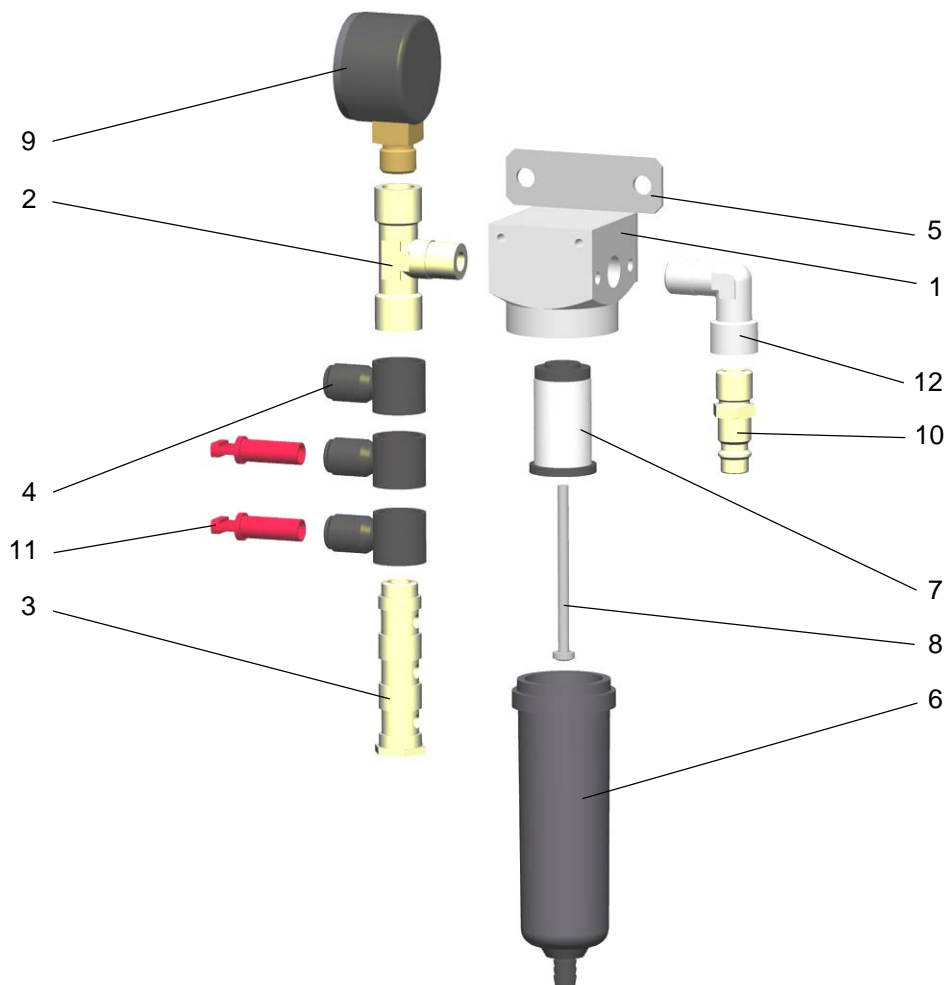
OptiFlex S - stirrer drive unit



OptiFlex S - stirrer drive unit

OptiFlex S - filter unit

	Filter unit - complete, without pos. 5	1001 147
1	Filter separator body - F14MD	1001 759
2	T-piece - 1/4"i-1/4"a-1/4"i	262 064
3	Hollow screw - 1/4"a, triple	222 623
4	Swivel ring - Ø 8mm, 1/4", 1-fach, A type	225 762
5	Carrier plate	1001 758
6	Condensate container with drain valve	1001 761
7	Filter cartridge - 20 µm	1001 762
8	Cap screw - M4x60 mm	258 946
9	Manometer - G1/4", 0-10 bar	1001 764
10	Rectus nipple - NW 7,4-1/4"a	256 730
11	Grommet - Ø 8 mm	238 023
12	Elbow joint - 1/4"i-1/4"a	222 674
13	Rectus quick release connection (for pos. 10, not shown)	239 267



OptiFlex S - filter unit

