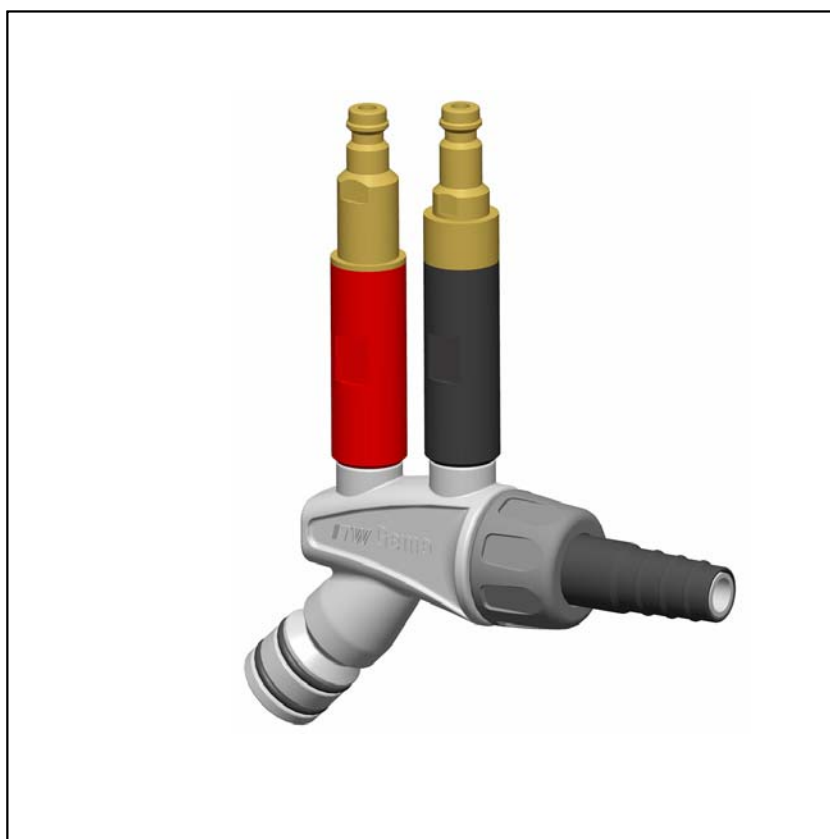


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Operating instructions and spare parts list

# Powder injector OptiFlow (type IG06)



Translation of the original operating instructions

## Documentation OptiFlow (type IG06)

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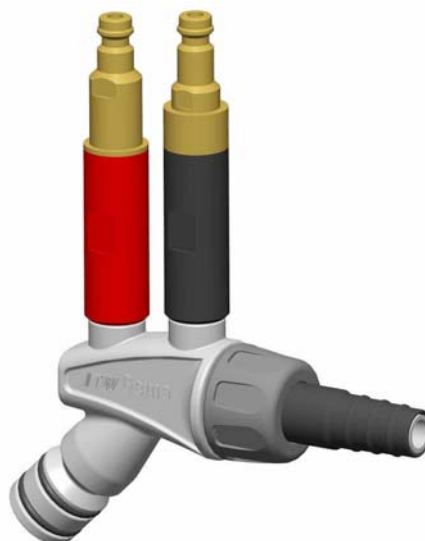


# OptiFlow - plug-in injector for organic powder

## Field of application

The OptiFlow injector is used for conveying normal organic powders between the powder hopper and the powder gun. The injector is supplied with a PTFE insert sleeve as standard.

The OptiFlow Injector is a plug-in type and permits easy handling and quick cleaning. All connections are plug-in types and not interchangeable. The injector can be disassembled without special tools.





*OptiFlow Powder injector (IG06 type) with coded quick release connections*



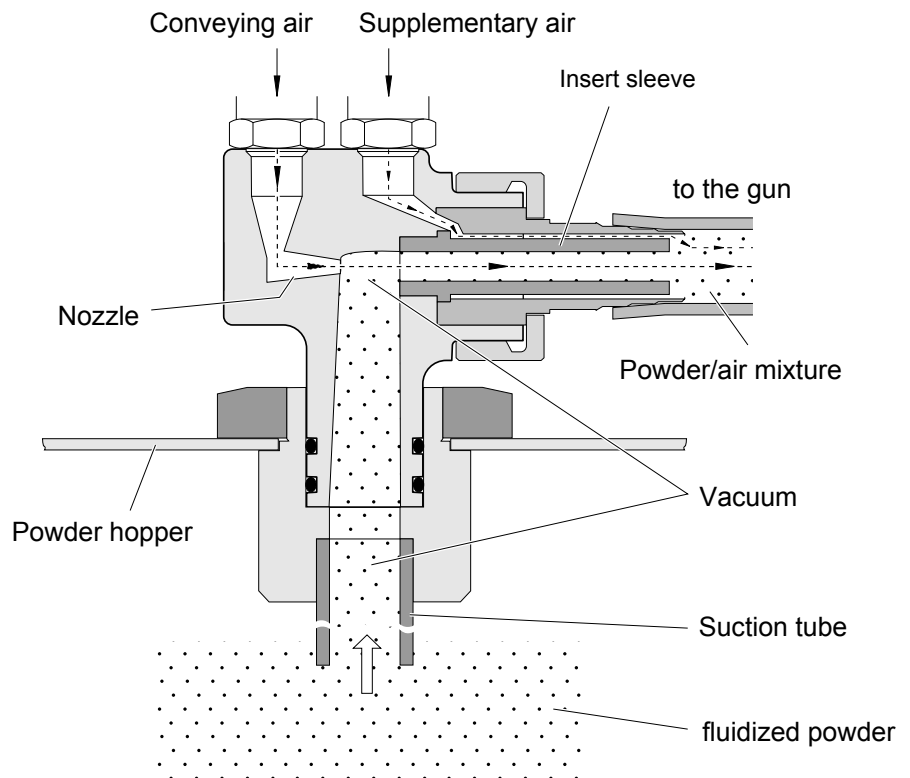
### Note:

The injector is certified for using in the following zone, if powder hoses with conductive strips are used, and the earthing resistance is less than 1 MOhm!

Explosion protection	Zone
 	22

## Principle of the injector and influence of supplementary air

When air flows through a nozzle into a cavity with an attached outlet in the continuation of the airflow, a vacuum will be created in the cavity (see figure below). This effect is used now for aspirating powder through a suction opening - a powder/air mixture will be created.



This powder/air mixture is fed through to the powder hose to the gun. The concentration of the powder/air mixture and therefore the powder output amount, depends on the conveying and supplementary air volume, the powder quality, the powder hose length, the powder hose diameter, the number of coils in the hose, the height difference between the powder gun and the injector and the nozzle type. Place great importance on the insert sleeve condition, because wear causes the powder output to reduce drastically.

Experience with pneumatic material handling technology shows that pneumatic transport of fine solid matter (powder) in the form of tubing (hose), the transporting medium requires a certain volume of air per unit of time. If a hose diameter of 11 mm is used, the value is approx. 4 m<sup>3</sup>/h. In order to reduce the powder output, the vacuum in the cavity of the injector must be lowered by reducing the conveying air pressure. By reducing the conveying air pressure, the air volume in the powder hose sinks to below the optimum value of 4 m<sup>3</sup>/h, the powder transport becomes irregular and the so-called "pumping" takes place. To prevent this from happening, the supplementary air is added, until the total air volume in the powder hose amounts again to 4-5 m<sup>3</sup>/h. This takes place fully automatically by the OptiStar Control unit.

## Powder volume setting table for OptiFlow Injector



In order to set the ideal powder volume on the OptiStar, it is recommended to select first the powder cloud firmness, respectively the total air. As guide values for different powder hoses, the following can be assumed:

- Powder hose 74 type, Ø 10 mm, **3-5 m<sup>3</sup>/h**
- Powder hose 66 type, Ø 11 mm, **4-5 m<sup>3</sup>/h**

According to the prevailing conditions (powder, powder hose layout, the parts to be coated) a low to lowest total air can also be set with the standard hose 74 type, Ø 10 mm.

If a very large powder output is required, it is recommended to select a larger powder hose internal diameter (Ø 12 mm).



### Note:

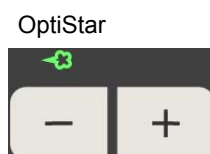
**It should be noted, that if irregular or pumping conveying occurs, as a rule, the total air is set too low!**



## General conditions for the OptiFlow Injector

Powder type	Epoxy/polyester
Powder hose length (m)	12
Powder hose Ø (mm)	11
Input pressure (bar)	5,0
Conveying air nozzle (mm)	1,6
Supplementary air nozzle Ø (mm)	1,4

## Guide values for OptiStar with OptiFlow 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  (%)	<b>20</b>	60	70	80
	<b>40</b>	115	140	160
	<b>60</b>	175	210	220
	<b>80</b>	220	260	270
	<b>100</b>	250	300	310





# Cleaning and maintenance

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## Cleaning the injector

1. Remove the injector
2. Remove the powder hose from hose connection (4)
3. Clean the hose connection (4) with compressed air which is free of oil and water, and check for wear
4. Clean the injector body (1) with compressed air which is free of oil and water. Possible contaminations are visible through the opening of the powder hopper connection (2)
5. Reinsert the injector and fix it

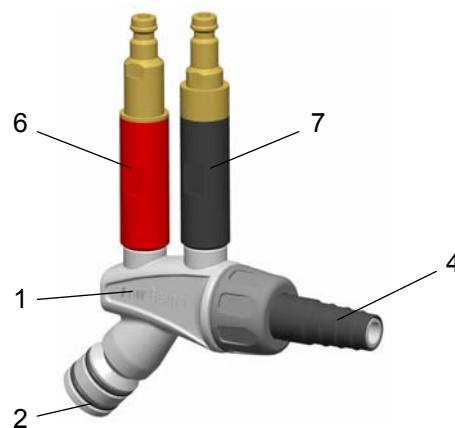



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### WARNING!

If the injector is severely contaminated, it must be dismantled. Remove the check valve units (6 and 7) with the correct sized spanner. Clean the component parts with compressed air and, if necessary, dissolve sintered deposits with nitro-thinner. Do not use acetone, do not scrape!

---



- |   |                          |   |                                      |
|---|--------------------------|---|--------------------------------------|
| 1 | Injector housing         | 6 | Check valve unit (conveying air)     |
| 2 | Powder hopper connection | 7 | Check valve unit (supplementary air) |
| 4 | Powder hose connection   |   |                                      |

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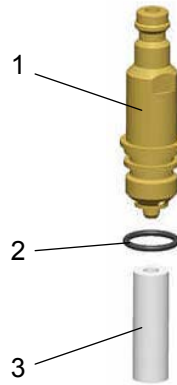
## Cleaning the check valve units

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**Note:**

**Take care when dismantling the check valve units!  
Blow off the filter elements from the inside to the outside!**

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- 1 Connection/plug
- 2 O-ring
- 3 Filter element

**Note:**

**Do not immerse the filter elements in fluidities or solvents!!!**

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# Troubleshooting guide

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## Problem fixing

If the powder gun does not spray powder although the control unit is switched on, then the injector can be dirty or clogged.

Error/cause	Troubleshooting
Injector nozzle, check valve unit, powder hose or powder gun are clogged	Clean the corresponding parts and if necessary, replace them
Conveying vacuum too low	Increase the powder quantity and/or total air volume on the control unit
Insert sleeve worn, not or incorrect inserted	Replace or insert it, observe the indexing cam
Insert sleeve is worn after a short operating duration	Clean the nozzle, if damaged, replace it



# 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** OptiFlow (type IG06)  
**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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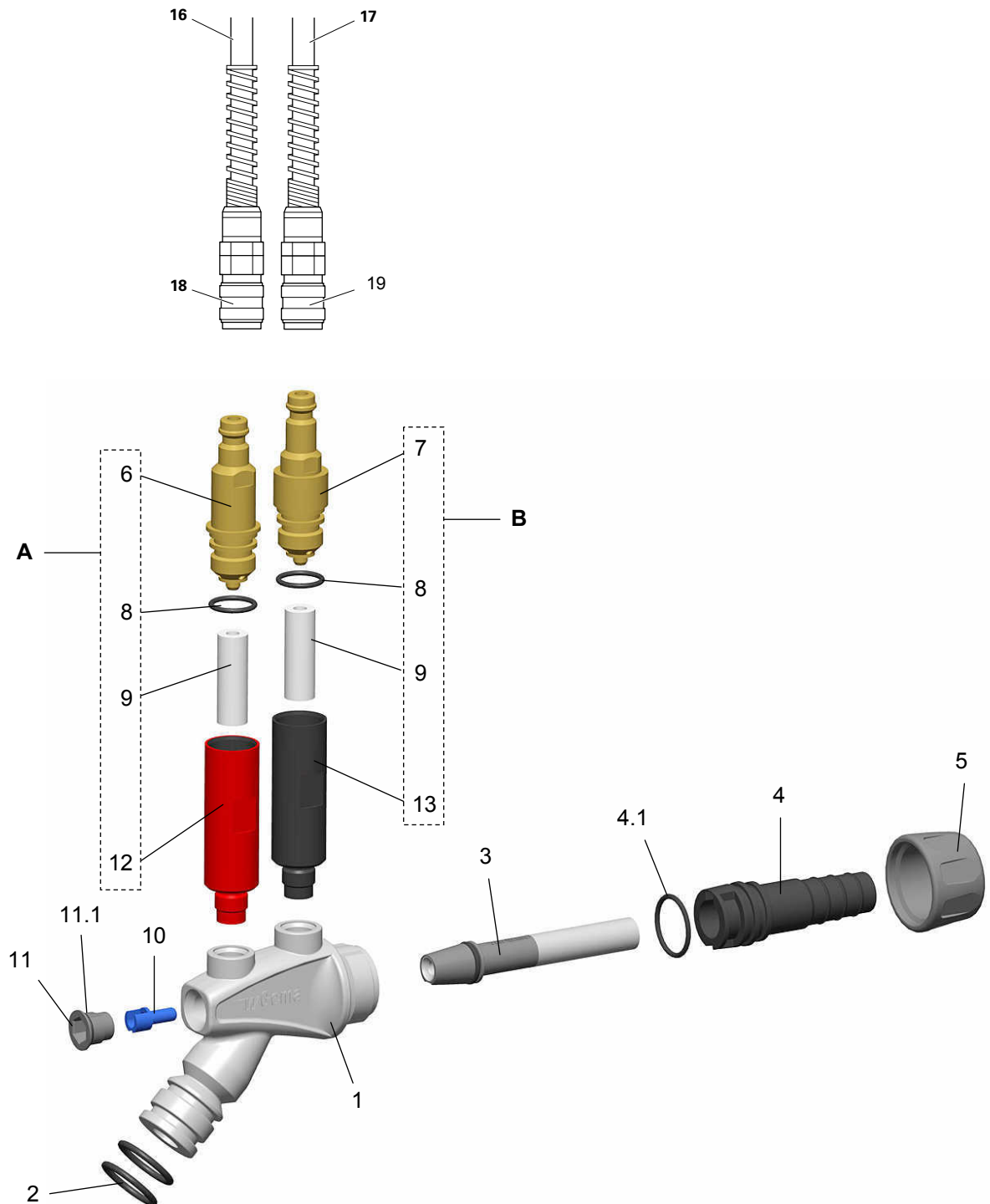
## OptiFlow Powder injector (type IG06)

<b>OptiFlow IG06 Powder injector - complete (pos. 1-13)</b>		1007 780
<b>A</b>	Conveying air check valve unit (red marking) - complete (incl. pos. 6, 8, 9 and 12)	1005 589
<b>B</b>	Supplementary air check valve unit (black marking) - complete (incl. pos. 7, 8, 9 and 13)	1005 590
<b>C</b>	Injector body - complete (incl. pos. 1, 2, 10 and 11)	1006 530
1	Injector body (without pos. 2)	1006 484
2	O-ring - Ø 16x2 mm	1007 794#
3	Insert sleeve - PTFE, complete	1006 485#
4	Hose connection - Ø 10-12 mm, complete (incl. pos 4.1)	1006 531
4.1	O-ring - Ø 16x1.5 mm	205 141#
5	Threaded sleeve	1006 483
6	Connector (conveying air) - NW 5.5	1004 366
7	Connector (supplementary air) - NW 5.5	1004 367
8	O-ring - Ø 11x1.5 mm	1000 532#
9	Filter element - Ø 9/4x27 mm	1003 698#
10	Nozzle	1006 488
11	Nozzle fixation - complete (incl. pos. 11.1)	1007 792
11.1	O-ring - Ø 8x1 mm	1007 793#
12	Body (red)	1004 369
13	Body (black)	1004 370
16	Conveying air hose - Ø 8/6 mm (red)	103 500*
17	Supplementary air hose - Ø 8/6 mm (black)	103 756*
18	Quick release coupling for conveying air hose - NW5-Ø 8 mm	261 645
19	Quick release coupling for supplementary air hose - NW5-Ø 8 mm	261 637
	Powder hose - 66 type, POE, Ø 16/11 mm, with conductive strip (standard)	105 139*#
	Powder hose - 74 type, POE, Ø 15/10 mm, with conductive strip	1001 673*#
	Powder hose - 75 type, POE, Ø 18/12 mm, with conductive strip	1001 674*#

\* Please indicate length

# Wearing part

# OptiFlow Powder injector (type IG06)



OptiFlow Powder injector (type IG06)