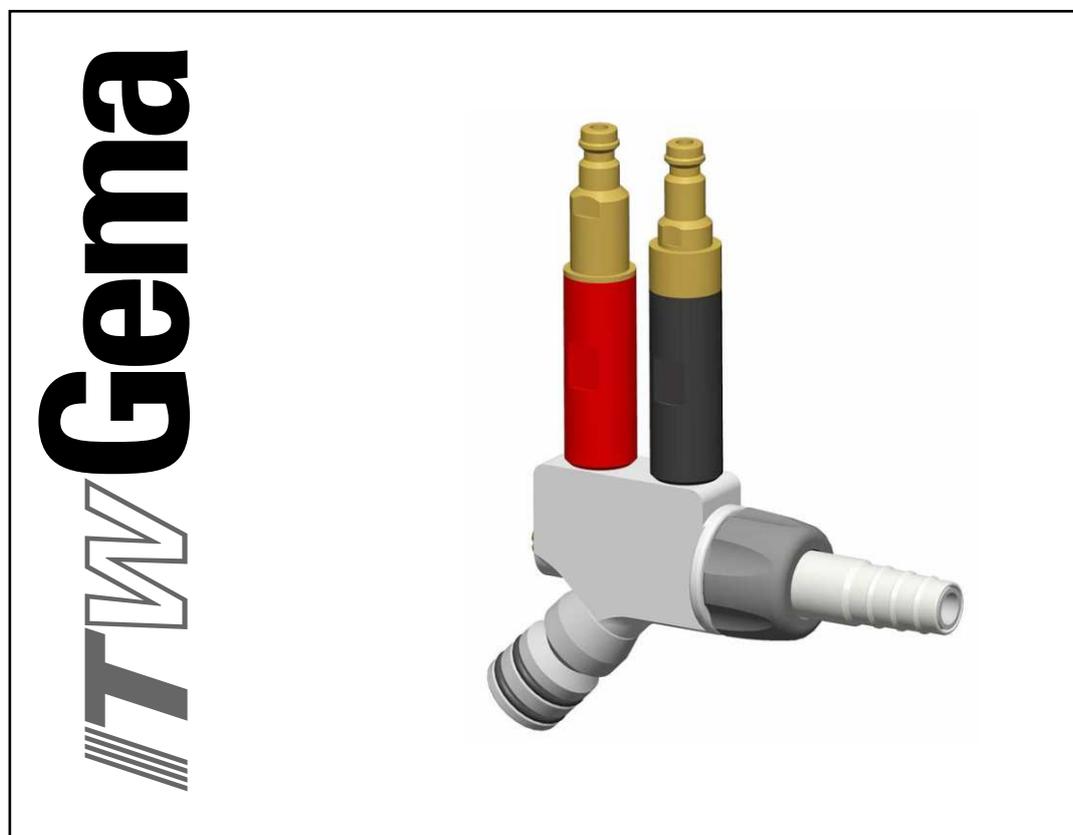


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Operating instructions and spare parts list

# OptiFlow powder injector for MagicCenter (IG05 type)



Translation of the original operating instructions

**Documentation OptiFlow (IG05 type)**

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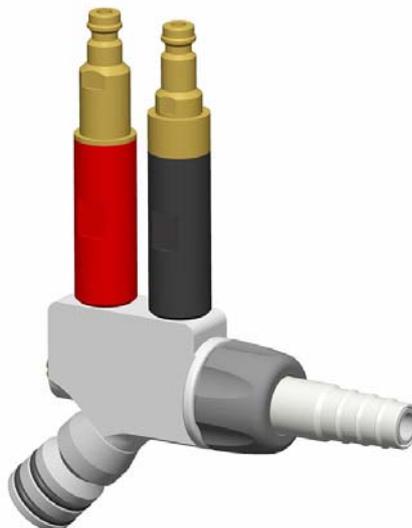


# OptiFlow - plug-in injector for organic powder

## Field of application

The OptiFlow injector is used for conveying normal organic powders between the powder management system 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 (IG05 type) with coded quick release connections*



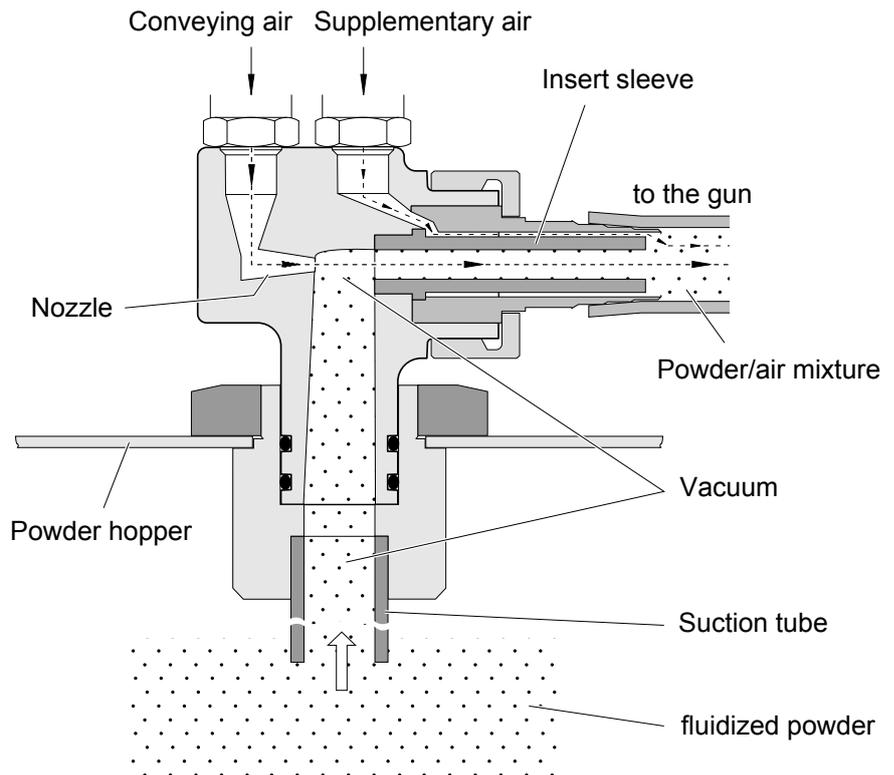
### Note:

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
CE  II 3 D	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:

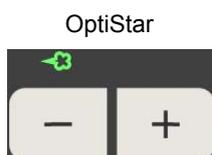
**It should be noted, that if irregular or pumping conveying occurs, as a rule, the total air is set too low!**

## General conditions for the OptiFlow Injector

Powder type	Epoxy/polyester
Powder hose length (m)	10
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  (%)		25	30	35
	10	50	60	75
	20	70	85	100
	30	90	110	130
	40	100	130	160
	50	130	150	180
	60	150	175	200
	70	165	200	240
	80	185	215	260
	90	195	235	290
	100			



# Cleaning and maintenance

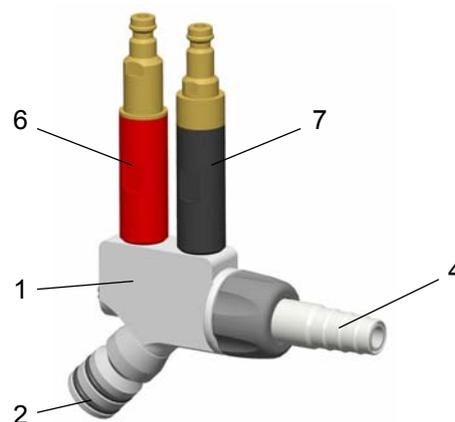
## Cleaning the injector

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 contamination is visible through the opening of the powder hopper connection (2)
5. Reinsert the injector and fix it



### WARNING!

If the injector is severely contaminated, it must be dismantled. Remove the non-return 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!

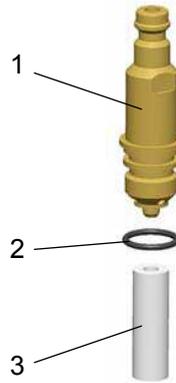


- |   |                          |   |   |
|---|--------------------------|---|---|
| 1 | Injector housing         | 6 | Non-return valve unit (conveying air)     |
| 2 | Powder hopper connection | 7 | Non-return valve unit (supplementary air) |
| 4 | Powder hose connection   |   |   |

## Cleaning the non-return valve units



**Note:**  
**Take care when dismantling the non-return valve units!**  
**Blow off the filter elements from the inside to the outside!**



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



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

# Troubleshooting guide

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## Problem fixing

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

<b>Error/cause</b>	<b>Troubleshooting</b>
Injector nozzle, non-return 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 or not inserted	Replace or install the insert sleeve
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 (IG05 type)  
**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)



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**WARNING!**

**Only original ITW Gema spare parts should be used, because the hazardous location approval will be preserved that way! The use of spare parts from other manufacturers will invalidate the ITW Gema guarantee conditions!**

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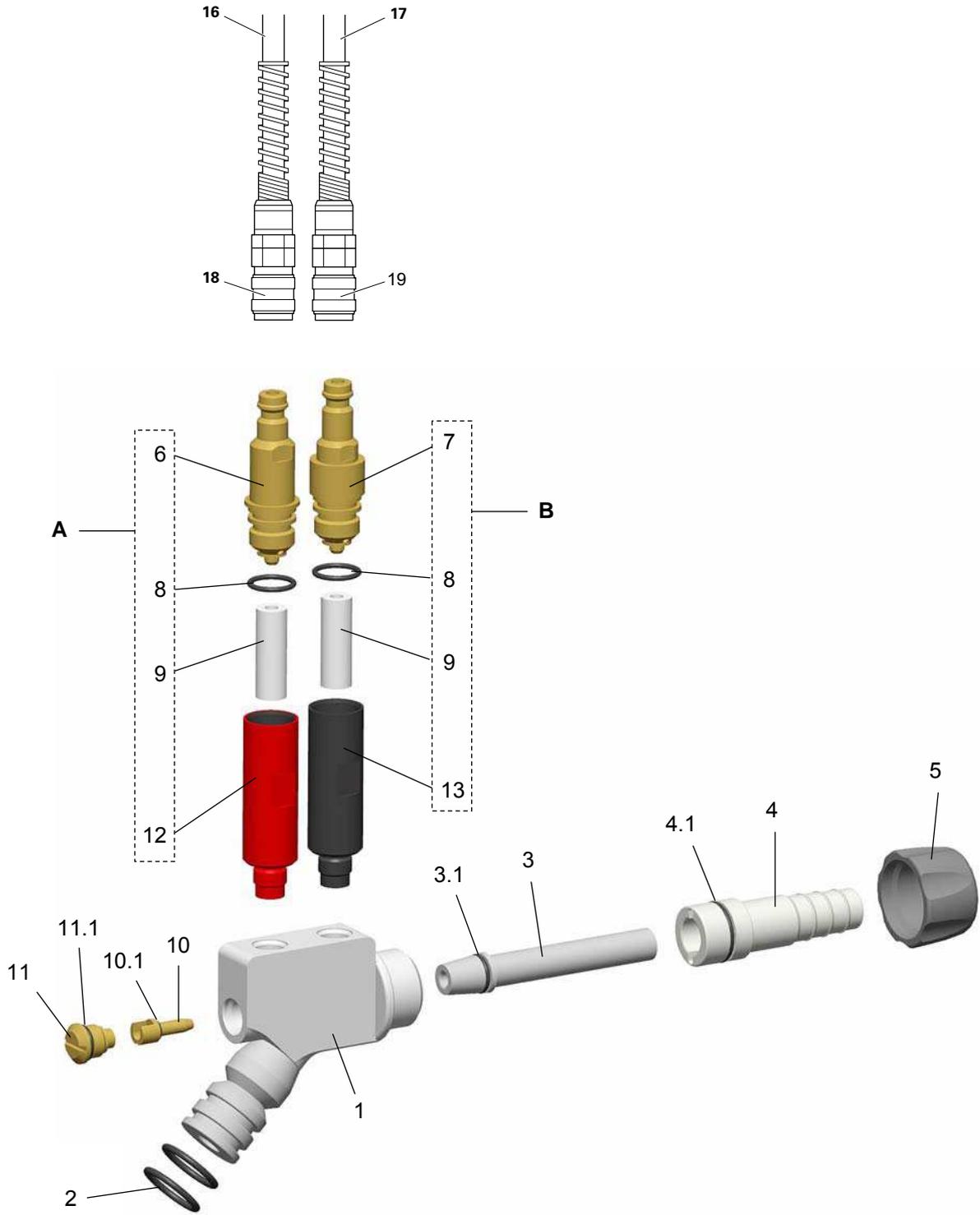
## OptiFlow Powder injector (IG05 type)

	OptiFlow IG05 Powder injector - complete (pos. 1-13)	1005 471
<b>A</b>	Conveying air non-return valve unit (red marking) - complete (incl. pos. 6, 8, 9 and 12)	1005 589
<b>B</b>	Supplementary air non-return valve unit (black marking) - complete (incl. pos. 7, 8, 9 and 13)	1005 590
1	Injector body (without pos. 2)	1005 584
2	O-ring - Ø 16x2 mm	231 517#
3	Insert sleeve - PTFE, complete (incl. pos. 3.1)	1005 587#
3.1	O-ring - Ø 8.1x1.6 mm	263 818#
4	Hose connection - Ø 10-12 mm, complete (incl. pos 4.1)	1005 588
4.1	O-ring - Ø 14x1.5 mm	263 486#
5	Threaded sleeve	1005 413
6	Conveying air connection - NW 5.5	1004 366
7	Supplementary air connection - 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 - complete (incl. pos. 10.1)	1005 586
10.1	O-ring - Ø 4x1 mm	1005 591#
11	Nozzle fixation - complete (incl. pos. 11.1)	1005 585
11.1	O-ring - Ø 8x1.5 mm	248 878#
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 (IG05 type)



OptiFlow Powder injector (IG05 type)