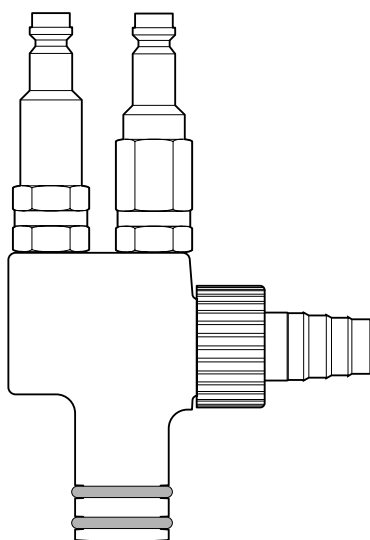


Operating Instructions and Spare Parts List

# OptiFlow Plug-in injector (IG02)





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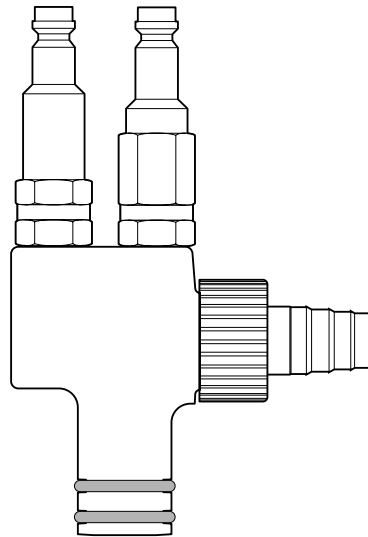


## 1 OptiFlow plug-in injector for organic powders

### 1.1 Field of application

The OptiFlow injector is used to convey normal organic powders between the powder hopper and the powder gun. The injector is supplied with a Teflon insert sleeve as standard.

The OptiFlow "plug-in injector" allows fast cleaning and easy handling because it can be detached from the powder hopper without using any tools. All connections are "plug-in" and not interchangeable (when using in Manual equipment).



OptiFlow Powder injector with removeable, coded Quick-release connections for pneumatic hoses

Fig. 1

**1.2 Principle of the injector and the influence of supplementary air**

When air flows through the nozzle into the cavity, a vacuum is created in the cavity (see figure below). This vacuum causes powder to be drawn up the suction tube and into the cavity. A powder/air mixture is created. The forward air velocity at the nozzle conveys powder through to the powder hose to the gun.

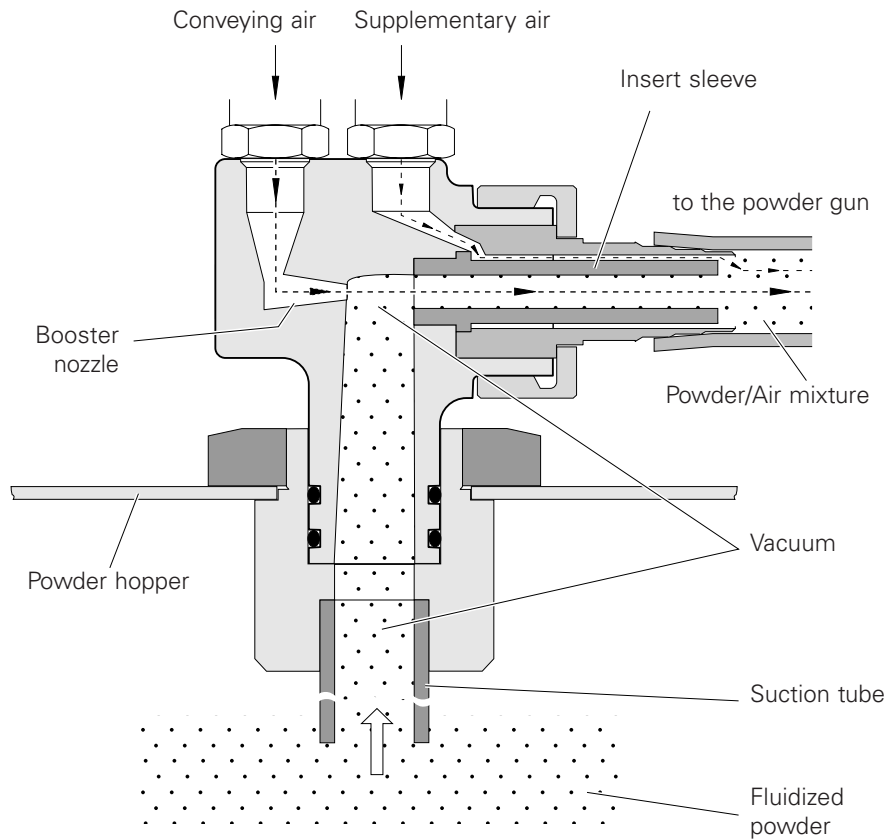


Fig. 2

The concentration of the powder/air mixture, and with it, the powder output depends on the conveying air pressure and supplementary air pressure, the quality of the powder, the length of the powder hose, the diameter of the powder hose, the number of coils in the hose, the difference in the height between the gun and injector, and the type of nozzle. The condition of the insert sleeve is of great importance, because wear causes the powder output to sink 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. With an  $\varnothing$  11 mm hose this value is approximately 4 m<sup>3</sup>/h. To decrease the powder output, the vacuum in the cavity has to be reduced. For that purpose the pressure of the conveying air is also reduced. With the reduction of the conveying air the volume of air in the powder hose sinks to below the optimum value of 4 m<sup>3</sup>/h. The powder transport becomes irregular, so-called "pumping" takes place. In order to prevent this from happening supplementary air is added until the volume of the air in the powder hose is 4-5 m<sup>3</sup>/h once more. This takes place fully automatically with the OptiTronic Control unit.

### 1.3 Powder volume setting table for the OptiFlow Injector

In order to set the ideal powder volume on the OptiTronic, it is recommended to select the 'firmness' the powder cloud or the **Total air** first. As a guide value for different Powder hoses the following can be assumed:

#### OptiTronic



#### EasyTronic



- Powder hose 1004 ID 11 mm **4 - 5 m<sup>3</sup>/h**  
(Order No. 103 128)
- Powder hose 1005 ID 12 mm **5 - 6 m<sup>3</sup>/h**  
(Order No. 100 080)

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 1004 ID 11 mm.

If a very large powder output is required, it is recommended to select a larger powder hose inside diameter (12 mm i/d). Also shortening the hose from 6 m to 3 m achieves the desired effect (see the table below)



It should be noted, that with irregular or pumping conveying, as a rule, the Total air is set too low.

#### 1.3.1 General conditions for the OptiFlow Injector

Powder type		Epoxy/Polyester
Powder hose length	[m]	10
Powder hose	[mm]	11
Input pressure	[bar]	5.0
Conveying air nozzle	[mm]	1.6
Supplementary air nozzle	[mm]	1.4

#### 1.3.2 Guide values for the OptiTronic with the OptiFlow Injector

All values in these tables are guide values. Differing environmental conditions, wear, and different powder types can change the table values.

#### OptiTronic



#### EasyTronic



Total air		4 Nm <sup>3</sup> /h	5 Nm <sup>3</sup> /h	6 Nm <sup>3</sup> /h	
		Powder output [g/min]			
Powder output	[%]	10	30	35	45
		20	60	75	90
		30	85	100	120
		40	110	130	150
		50	130	160	175
		60	150	180	210
		70	175	200	235
		80	200	240	270
		90	215	260	
		100	235	290	

Fig. 3

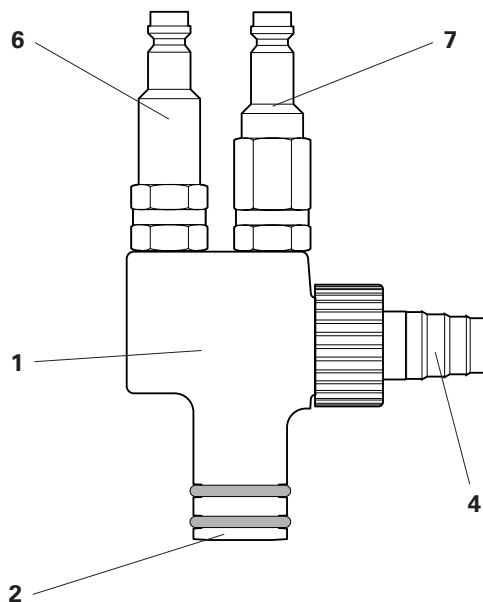
## 2 Injector - Cleaning and Maintenance

### 2.1 Cleaning should be done daily before starting work or at a colour change

1. Remove the injector from the hopper.
2. Pull hose off the hose fitting (4).
3. Clean the hose fitting (4) with compressed air that is free of water and oil and check for wear.
4. Clean injector body (1) with compressed air that is free of water and oil. Any contamination can be seen through the opening of the hopper fitting (2).
5. Reassemble the injector and fit on the hopper cover.



When the injector is severely contaminated, it must be dismantled. Remove the non-return valves (6 and 7) with the correct sized spanner. Clean the component parts with compressed air and, if necessary, dissolve sintered deposits with nitro-thinners. *Do not use acetone! Do not scrape.*



- |   |                          |   |                                      |
|---|--------------------------|---|--------------------------------------|
| 1 | Injector body            | 6 | Non-return valve (Conveying air)     |
| 2 | Powder hopper connection | 7 | Non-return valve (Supplementary air) |
| 4 | Powder hose connection   |   |                                      |

Fig. 4



## 2.2 Cleaning the non-return valve



Care should be taken when dismantling the non-return valve, because the Ball/Spring can easily be lost.

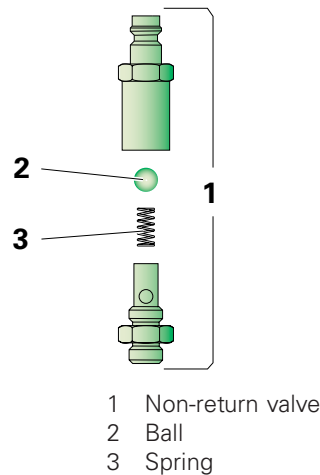


Fig. 5

Do not immerse the ball in solvent.

**The OptiFlow injector should be cleaned once daily as a minimum!** Normally, it is sufficient to clean as described on the previous page.

The injector should be dismantled completely **once a week or in the case of heavy contamination**. See also Figure 6 in the Spare Parts List.

## 3 Troubleshooting guide

The injector could be dirty or clogged if the powder gun does not spray powder in spite of the control unit being switched on.

– Injector nozzle, non-return valve, powder hose or powder gun are clogged.	Clean corresponding part, if necessary replace
– too little conveying vacuum	Increase the powder volume and/or Total air volume in the control unit .
– Insert sleeve worn or not inserted	Replace the insert nozzle or fit one

## 4 Spare Parts Liste OptiFlow Injector

OptiFlow Injector (complete, Items <b>1 - 9</b> )	391530	
1 Injector body (without Item <b>2</b> )	1000132	
2 O-Ring - ø 16 x 2 mm	231517#	
3 Insert sleeve - Teflon	377724#	
4 Hose connection (complete - incl. item 4.1)	387827#	
4.1 O-Ring - ø 15 x 1 mm	266930#	
5 Locking ring	387819	
6 Non-return valve - Conveying air (Red marking) (complete - incl. Items <b>8</b> and <b>9</b> )	261211	
7 Non-return valve - Supplementary air (Black marking) (complete - incl. Items <b>8</b> and <b>9</b> )	261203	
8 Ball	240168	
9 Spring	240176	
14 Quick release coupling - red for Conveying air hose - ø 8 / 6 mm	261645	
15 Quick release coupling - black for Supplementary air hose - ø 8 / 6 mm	261637	
16 Conveying air plastic hose - ø 8 / 6 mm (red)	103500*	
17 Supplementary air plastic hose - ø 8 / 6 mm (black)	103756*	
18 Quick release coupling - for hose ø 8 / 6 mm	203181	
Powder hose 1004 - ø 16 / 11 mm (Standard)	103128**	
Powder hose 1005 - ø 20 / 12 mm	100080**	

# Wear part

\* Please indicate length

**Spare Parts Liste OptiFlow Injector**

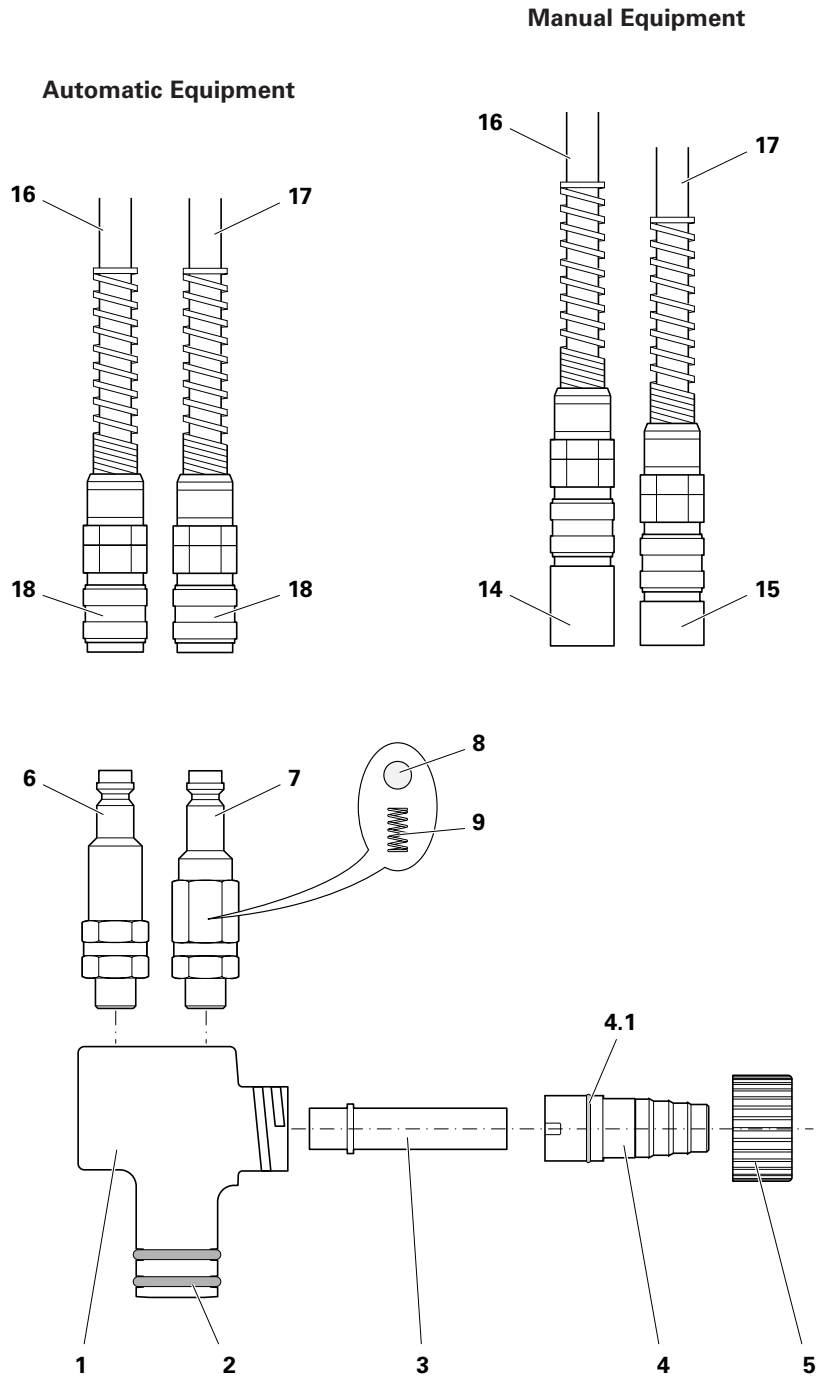


Fig. 6

## **DOKUMENTATION**

## **OPTIFLOW**

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