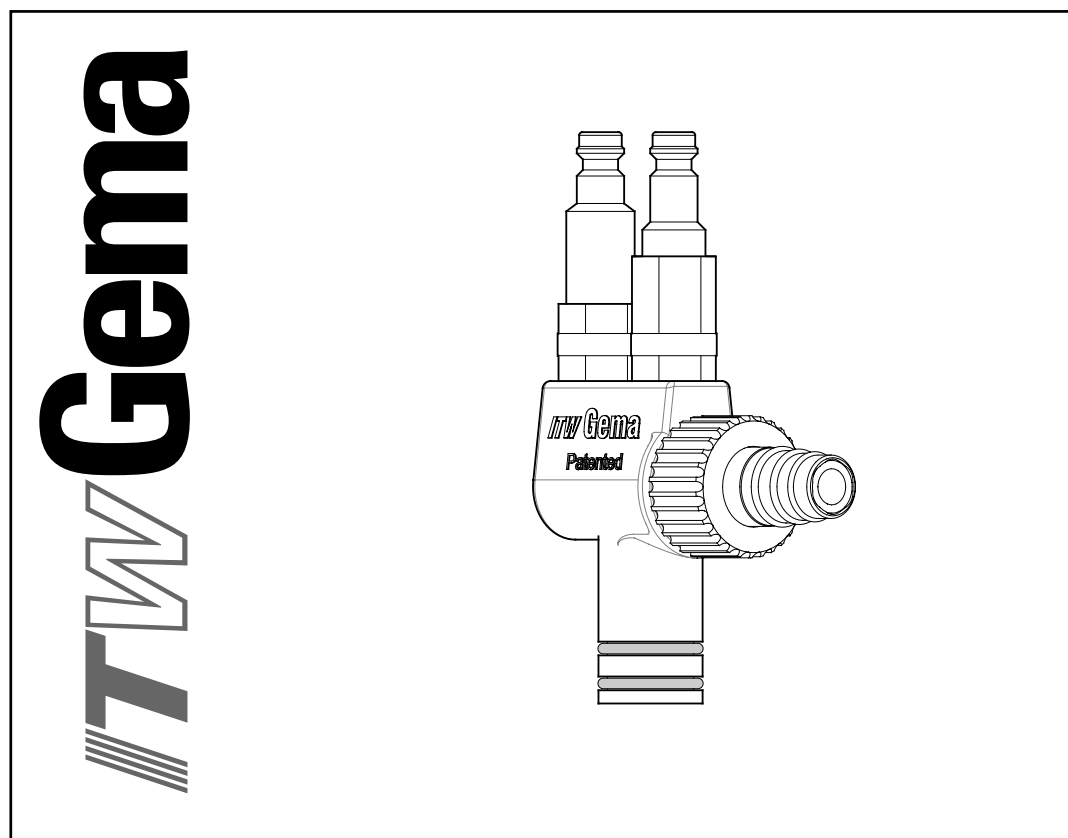

Operating instructions and spare parts list

OptiFlow powder injector (IG02 type)



Documentation OptiFlow powder injector (IG02 type)

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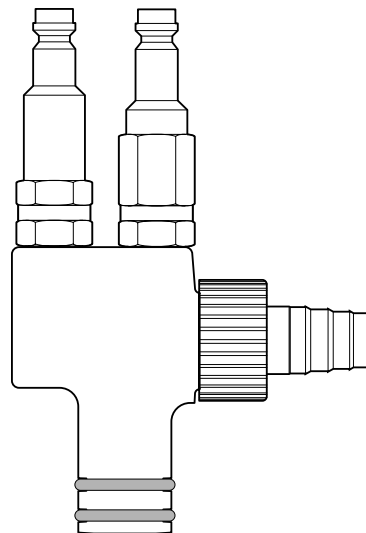
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OptiFlow plug-in injector for organic powders

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.

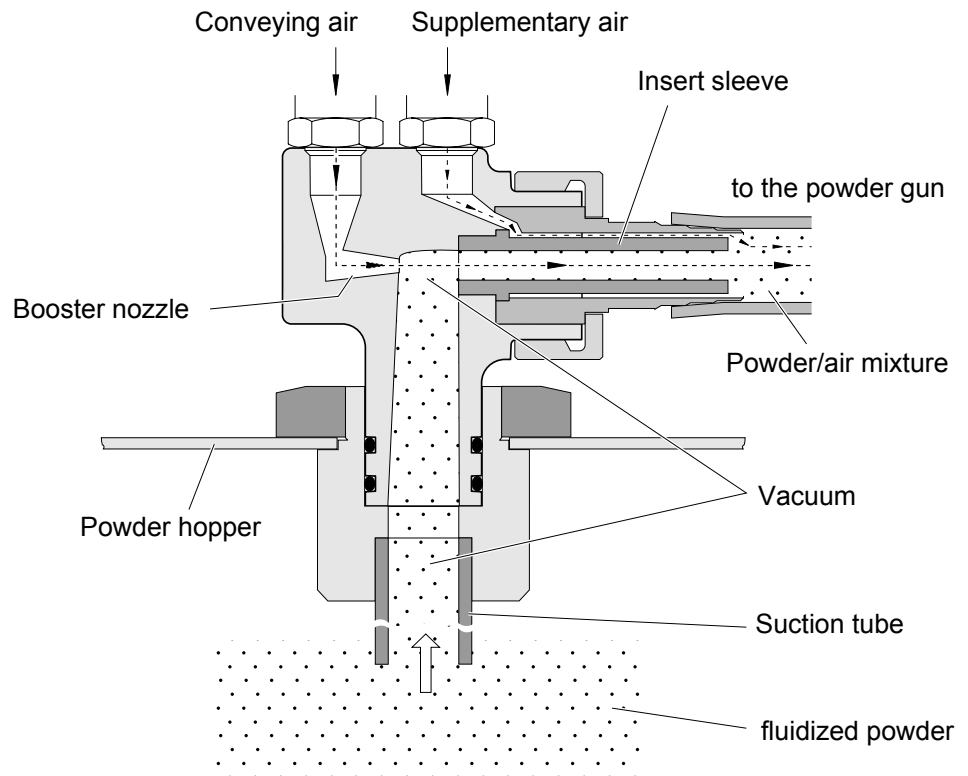
The OptiFlow plug-in injector allows fast cleaning and easy handling because it can be detached from the powder hopper without using any tools. All connections are plug-in and not interchangeable (when using in manual equipment).



OptiFlow powder injector (IG02 type) with coded quick-release connections

Principle of the injector and influence of supplementary air

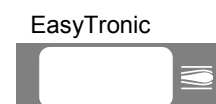
If air flows through the nozzle into the cavity, a vacuum is created in the cavity (see figure below). This vacuum causes powder to be drawn up the suction tube and into the cavity. A powder/air mixture is created. The forward air velocity at the nozzle conveys the powder/air mixture through the powder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



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. By a \varnothing 11 mm hose, this value is approximately 4 m³/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 m³/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 m³/h once more. This takes place fully automatically with the OptiTronic control unit.

Powder volume setting table for OptiFlow injector



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

- Powder hose 1004 ID 11 mm, **4-5 m³/h** (order no. 103 128)
- Powder hose 1005 ID 12 mm, **5-6 m³/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).

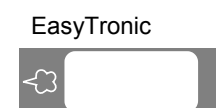
It should be noted, that with irregular or pumping conveying, as a rule, the total air is set too low!

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 Ø (mm) | 1,6 |
| Supplementary air nozzle Ø (mm) | 1,4 |

Guide values for OptiTronic/EasyTronic with OptiFlow injector

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



| Total air | Powder output (g/min) | | | |
|--------------------|-----------------------|----------------------|----------------------|-----|
| | 4 Nm ³ /h | 5 Nm ³ /h | 6 Nm ³ /h | |
| 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 | |

Cleaning and Maintenance

Injector cleaning

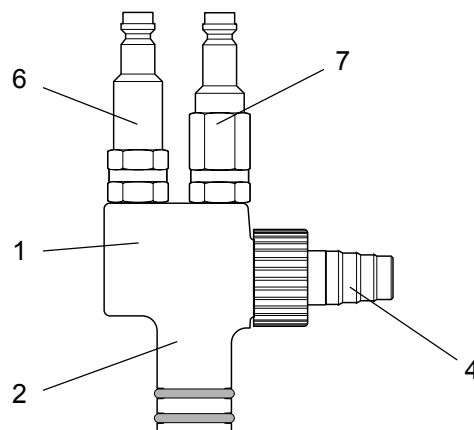
Cleaning should be done daily before starting work or at color change:

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



ATTENTION!

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

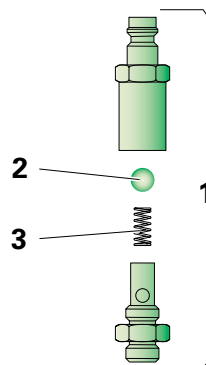


- | | | | |
|---|--------------------------|---|--------------------------------------|
| 1 | Injector body | 6 | Non-return valve (conveying air) |
| 2 | Powder hopper connection | 7 | Non-return valve (supplementary air) |
| 4 | Powder hose connection | | |

Cleaning the non-return valves



Care should be taken when dismantling the non-return valve, because the ball/spring can easily be lost!



- 1 Non return valve
- 2 Ball
- 3 Spring



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 the figure in the spare parts list).

Troubleshooting guide

Problem fixing

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

| Error / cause | Repair |
|--|--|
| 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 on the control unit |
| Insert sleeve worn or not inserted | Replace or fit the insert nozzle |

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** OptiFlow powder injector (IG02 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)



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!

OptiFlow powder injector (IG02 type)

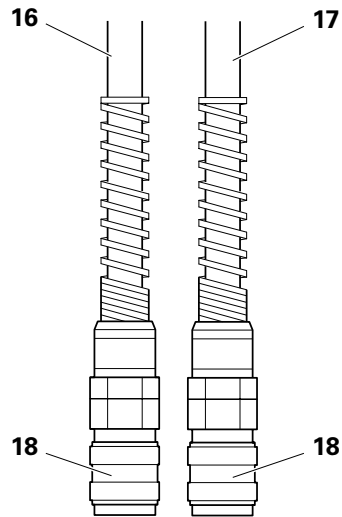
| | | |
|--|--|----------------|
| OptiFlow powder injector (complete, pos. 1-9) | | 391 530 |
| 1 | Injector body (without pos. 2) | 1000 132 |
| 2 | O-ring - Ø 16x2 mm | 231 517# |
| 3 | Insert sleeve - Teflon | 377 724# |
| 4 | Hose connection (complete, incl. pos. 4.1) | 387 827 |
| 4.1 | O-ring - Ø 15x1 mm | 266 930# |
| 5 | Threaded sleeve | 387 819 |
| 6 | Non-return valve conveying air (red marking) - complete (incl. pos. 8 and 9) | 261 211 |
| 7 | Non-return valve supplementary air (black marking) - complete (incl. pos. 8 and 9) | 261 203 |
| 8 | Ball | 240 168 |
| 9 | Spring | 240 176 |
| 14 | Quick release coupling red for conveying air hose - Ø 8/6 mm | 261 645 |
| 15 | Quick release coupling for supplementary air hose - Ø 8/6 mm | 261 637 |
| 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 hose - Ø 8/6 mm | 203 181 |
| | Powder hose 1004 - Ø 16/11 mm (standard) | 103 128*# |
| | Powder hose 1005 - Ø 20/12 mm | 100 080*# |

Wearing part

* Please indicate length

OptiFlow powder injector (IG02 type)

Automatic equipment



Manual equipment

