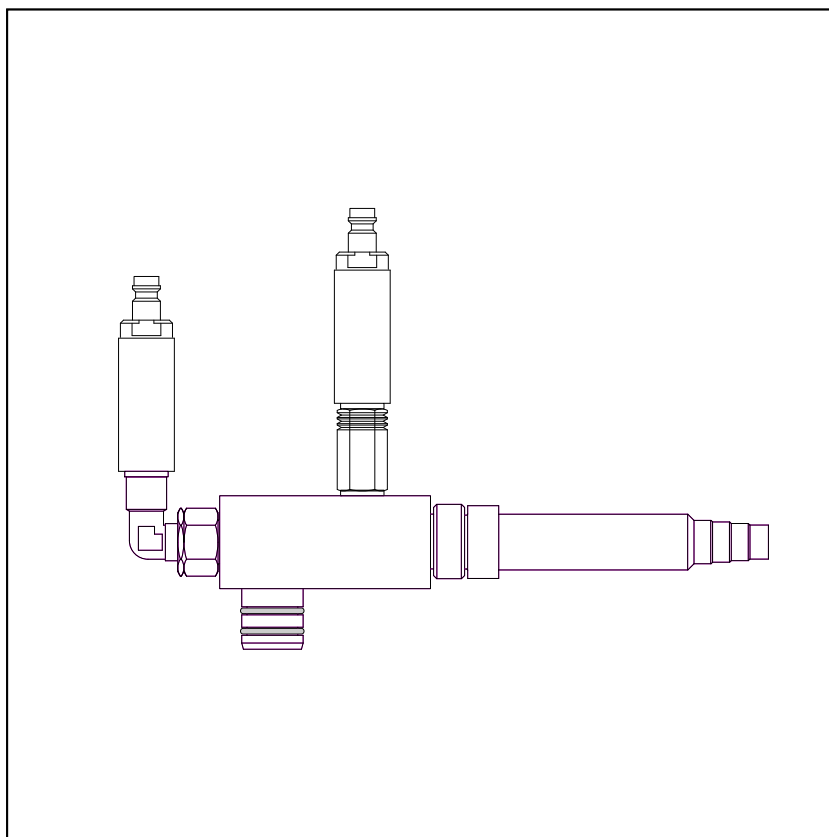


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Operating Instructions and Spare Parts List

# EI06-V

## Enamel injector



Translation of the original operating instructions

## Documentation EI06-V Enamel injector

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# Special security measures

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## Security

- 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 of the plant are grounded according to the local regulations



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**NOTE!**

For further information see the more detailed Gema Safety regulations.

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# About this manual

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## General information

This operating manual contains all important information which you require for the working with the EI06-V Enamel injector. It will safely guide you through the start-up process and give you references and tips for the optimal use of your new enamel injector.

Information about the function mode of the individual system components - booth, powder gun control or powder gun - you will find in the corresponding enclosed documentations.





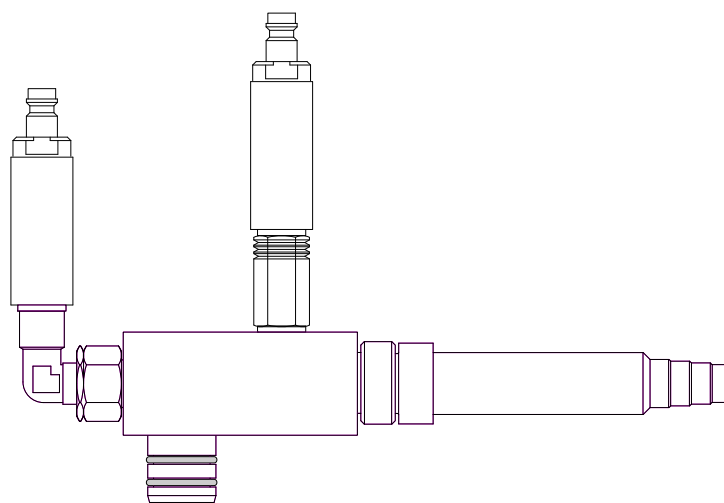
# Function description

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## Fields of application

The EI06-V Enamel injector is especially suited for use with normal enamel powders.

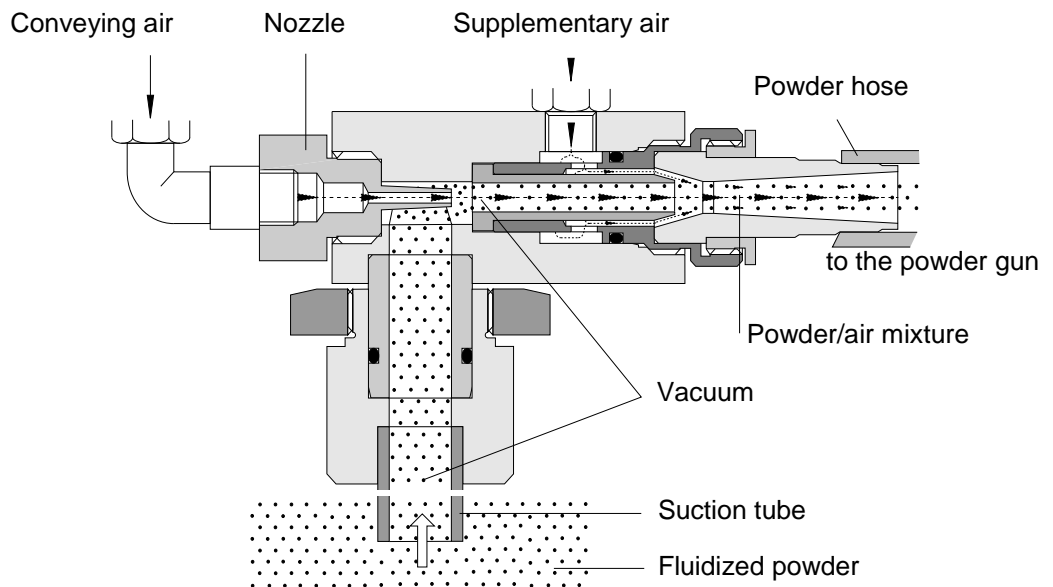
The EI06-V Enamel injector allows fast cleaning and easy handling because it can be detached from the powder hopper without using any tools. All pneumatic connections are also easily detachable (quick-release connections).



*EI06-V Enamel injector*

## 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 to the powder hose to the gun.



*Principle of the injector*

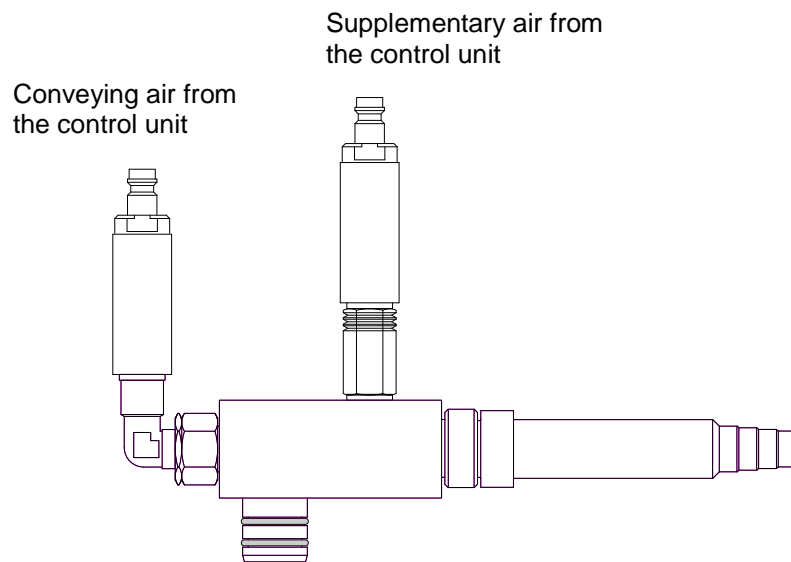
The concentration of the powder/air mixture, and with it, the powder output depends on the conveying air pressure and supplementary air pressure, the quality of the powder, the length of the powder hose, the diameter of the powder hose, the number of coils in the hose, the difference in the height between 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 by a pneumatic transport of fine solid matter (powder) in a hose, the transporting medium requires a certain volume of air per unit of time. If a  $\varnothing$  11 mm hose is used, 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.

# Start-up

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## Connecting the EI06-V Enamel injector



*EI06-V Enamel injector - connections*

# Powder volume setting table

## EI06-V Enamel injector with OptiTronic

To set the ideal powder volume on the OptiTronic, it is recommended, to first select the hardness of the powder cloud or, respectively, the **total air**. The following can be assumed as a guide value for the various powder hoses:



Power hose 1001 - ID 11 mm **4-5 m³/h**

Depending on the conditions (powder, powder hose layout, for the parts to be coated) a lower to the lowest total air value can also be set with the standard powder hose 1001 (ID 11 mm).



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

## General conditions for the EI06-V Enamel injector

Powder type	Enamel
Powder hose length (m)	10
Powder hose Ø (mm)	11
Input pressure (bar)	5.0
Conveying air nozzle Ø (mm)	1.8

## Guide values for OptiTronic with EI06-V Enamel injector

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



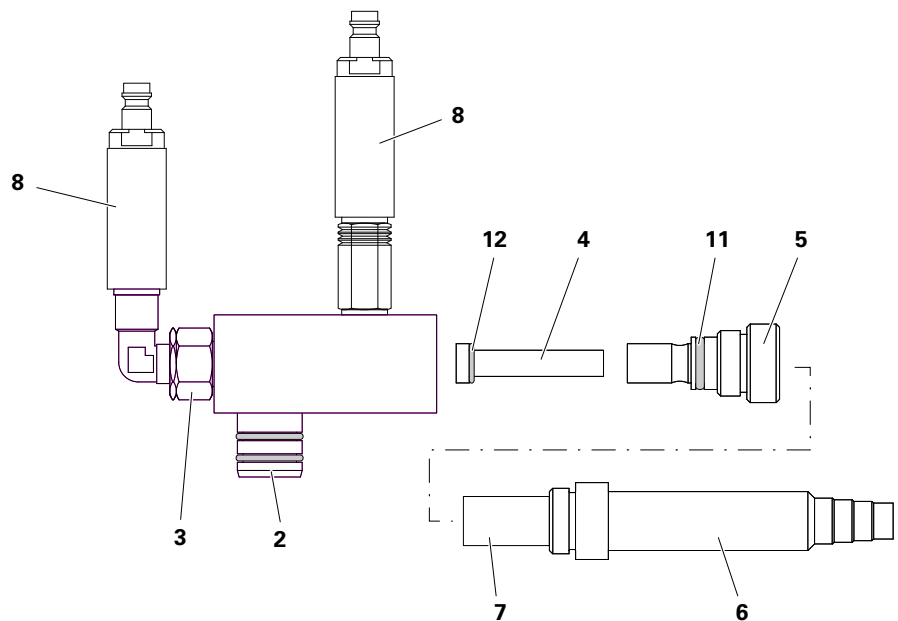
Total air		4 Nm³/h	5 Nm³/h	6 Nm³/h
		Powder output (g/min)		
Powder output  (%)	10	30	35	45
	20	60	75	90
	30	85	100	120
	40	110	130	150
	50	130	160	175
	60	150	180	210
	70	175	200	235
	80	200	240	270
	90	215	260	
	100	235	290	

# Cleaning and maintenance

## EI06-V Enamel injector - cleaning

### Overview

Cleaning should be done daily before starting work, or when a color change takes place.



*EI06-V Enamel injector - cleaning*

- |   |                   |    |                  |
|---|-------------------|----|------------------|
| 2 | Hopper fitting    | 7  | Tube             |
| 3 | Injector nozzle   | 8  | Check valve unit |
| 4 | Insert sleeve     | 11 | O-ring           |
| 5 | Insert sleeve nut | 12 | O-ring           |
| 6 | Hose connection   |    |                  |

1. Remove the injector from the powder hopper
2. Remove the hose from the hose connection (6)
3. Remove the insert sleeve nut (5) with the hose connection (6) from the injector
4. Remove the hose connection (6) from the insert sleeve nut (5) and remove the tube (7)
5. Clean the insert sleeve nut (5), the hose fitting (6) and the tube (7) with the gun brush and with compressed air that is free of water and oil, and check for wear
6. Remove the insert sleeve (4), clean it, and check for wear
7. Clean the injector body with compressed air that is free of water and oil. Any contamination can be seen through the opening of the hopper fitting (2)
8. Reassemble the injector and insert it on the powder hopper



**Attention:**

**If the injector is severely fouled, it must be disassembled! Remove the check valve unit and injector nozzle with the correct sized spanner. Clean the component parts with compressed air and, if necessary, dissolve sintered deposits with nitro-thinners! Do not scrape, do never use acetone!**

The EI06-V Enamel injector should be cleaned a minimum of once per day! Normally, dismantling, as described above, is sufficient.

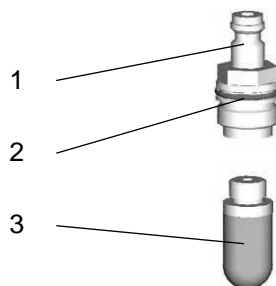
The EI06-V Enamel injector should be cleaned once weekly, or in case of heavier contamination, dismantled completely (see also the spare parts list)!

## Cleaning the check valve unit



**Attention:**

**Take care when dismantling the check valve unit! Blow out the silencer from the inside to the outside and do not immerse it in solvent!**



- 1 Filter holder
- 2 O-ring

- 3 Silencer

---

## **EI06-V Enamel injector - replacing the insert sleeve**

1. Unscrew the insert sleeve nut (5)
2. Remove the insert sleeve (4) and replace it
3. Place the insert sleeve (4) in the insert sleeve nut (5) and fasten it





# Troubleshooting guide

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## EI06 Enamel injector - problem fixing

Error	Troubleshooting
The powder gun does not spray powder, in spite of the control unit being switched on	The injector can be dirty or clogged - clean it!
Injector, injector nozzle, check valve, powder hose or gun are clogged	Clean the corresponding parts, replace, if necessary
The insert sleeve in the injector is worn	Replace the insert sleeve



# 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** EI06-V Enamel injector  
**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 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 Gema guarantee conditions!**

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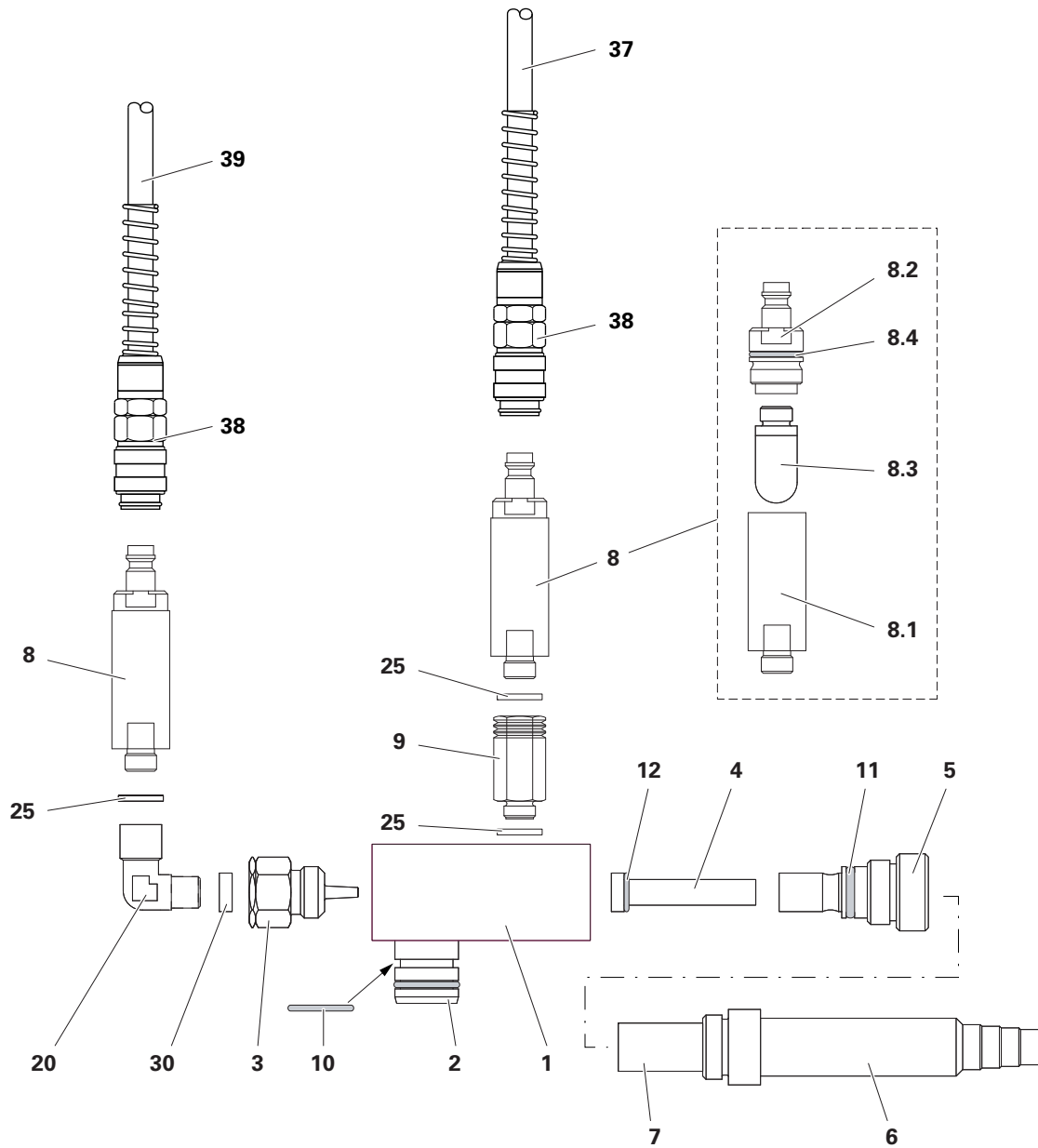
## EI06-V Enamel injector - spare parts list

EI06-V Enamel injector - complete (without pos. 37-39)		406 341
3	Nozzle - 1.8 mm	404 136#
4	Insert sleeve	405 248#
5	Holder	406 368#
6	Hose connection	405 990#
7	Ceramic tube - Ø 10 mm	405 981#
8	Check valve unit - complete	406 333
8.1	Filter housing	406 309
8.2	Filter holder	406 325
8.3	Silencer	237 264
8.4	O-ring - Ø 14x1.5 mm	263 486#
9	Nozzle - 1.4 mm	405 264
10	O-ring - Ø 16x2 mm	231 517#
11	O-ring - Ø 12x2 mm	235 725#
12	O-ring - Ø 8x2 mm	242 470#
20	Elbow joint - 1/8"a-1/8"i	237 604
25	Sealing ring - Ø 9.8/14x1.8 mm	241 911
30	Plastic hose - Ø 14/11 mm, red	103 845
37	Plastic hose - Ø 8/6 mm, black	103 756*
38	Quick-release coupling for hose - Ø 8/6 mm	203 181
39	Plastic hose - Ø 8/6 mm, red	103 500*
	Powder hose - Ø 16/11 mm	103 012*

# Wearing part

\* Please indicate length

# EI06-V Enamel injector - spare parts



EI06-V Enamel injector - spare parts