
Operating instructions and spare parts list

EI08

Enamel injector



Translation of the original operating instructions

Documentation EI08 Enamel injector

© Copyright 2002 Gema Switzerland GmbH

All rights reserved.

This publication is protected by copyright. Unauthorized copying is prohibited by law. No part of this publication may be reproduced, photocopied, translated, stored on a retrieval system or transmitted in any form or by any means for any purpose, neither as a whole nor partially, without the express written consent of Gema Switzerland GmbH.

MagicCompact, MagicCylinder, MagicPlus, MagicControl, OptiFlex, OptiControl, OptiGun, OptiSelect, OptiStar and SuperCorona are registered trademarks of Gema Switzerland GmbH.

OptiFlow, OptiCenter, OptiMove, OptiSpeeder, OptiFeed, OptiSpray, OptiSieve, OptiAir, OptiPlus, OptiMaster, MultiTronic, EquiFlow, Precise Charge Control (PCC), Smart Inline Technology (SIT) and Digital Valve Control (DVC) are trademarks of Gema Switzerland GmbH.

All other product names are trademarks or registered trademarks of their respective holders.

Reference is made in this manual to different trademarks or registered trademarks. Such references do not mean that the manufacturers concerned approve of or are bound in any form by this manual. We have endeavored to retain the preferred spelling of the trademarks, and registered trademarks of the copyright holders.

To the best of our knowledge and belief, the information contained in this publication was correct and valid on the date of publication. Gema Switzerland GmbH makes no representations or warranties with respect to the contents or use of this publication, and reserves the right to revise this publication and make changes to its content without prior notice.

For the latest information about Gema products, visit www.gemapowdercoating.com.

For patent information, see www.gemapowdercoating.com/patents or www.gemapowdercoating.us/patents.

Printed in Switzerland

Gema Switzerland GmbH
Mövenstrasse 17
9015 St.Gallen
Switzerland

Phone: +41-71-313 83 00

Fax.: +41-71-313 83 83

E-Mail: info@gema.eu.com

Table of contents

General safety regulations	3
Product-specific safety measures	3
About this manual	5
General information	5
Function description	7
Field of application	7
Principle of the injector and the influence of supplementary air	8
Commissioning	9
Connecting the EI08 enamel injector	9
Powder volume setting table	10
EI08 enamel injector with OptiStar/OptiTronic	10
General conditions for EI08 injectors	10
Guide values for OptiStar/OptiTronic with EI08 enamel injectors	10
Cleaning and maintenance	11
Cleaning the injector	11
Overview	11
Procedure	12
Cleaning of the check valve unit	12
Replacing the insert sleeve	13
Troubleshooting guide	15
Problem fixing	15
Spare parts list	17
Ordering spare parts	17
EI08 enamel injector – spare parts list	18
EI08 enamel injector – spare parts	19

General safety regulations

Product-specific safety measures

- Installation work performed by the customer must be carried out according to local regulations.
- All components must be grounded according to the local regulations before start-up.



NOTE:

For further security information, see the more detailed Gema safety regulations!

About this manual

General information

This operating manual contains all important information which you require for the working with the EI08 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 powder coating system.

Information about the function mode of the individual system components – booth, gun control unit, and gun or powder injector – should be referenced to their corresponding documents.



DANGER:

Working without operating instructions

Working without operating instructions or with individual pages from the operating instructions may result in damage to property and personal injury if relevant safety information is not observed.

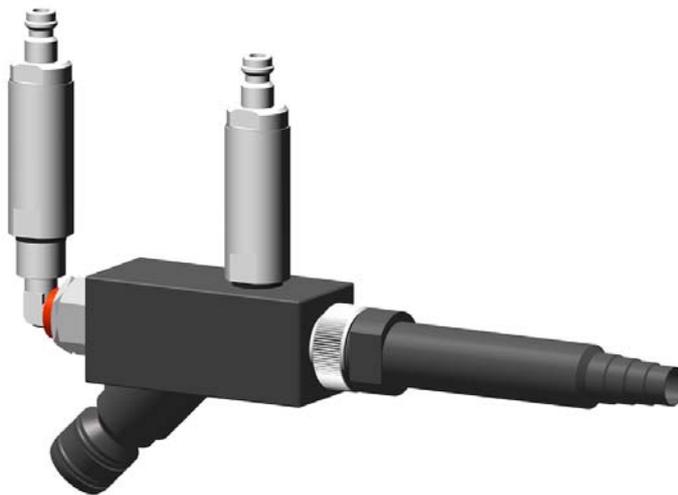
- ▶ Before working with the device, organize the required documents and read the section "Safety regulations".
 - ▶ Work should only be carried out in accordance with the instructions of the relevant documents.
 - ▶ Always work with the complete original document.
-

Function description

Field of application

The EI08 Enamel injector is especially suited for use with normal enamel powders.

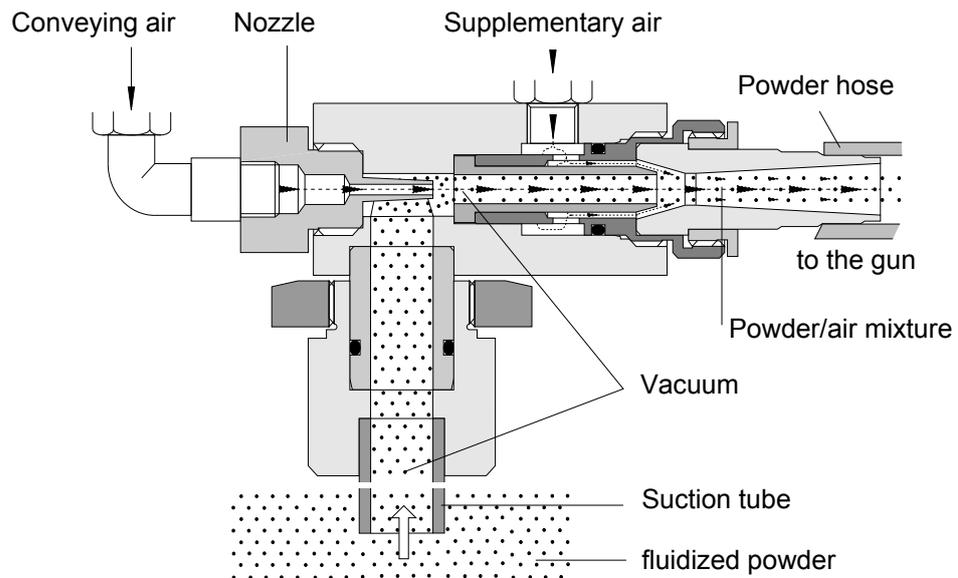
The EI08 Enamel injector is a plug-in type and permits easy handling and quick cleaning. All connections are plug-in types, and the injector can be disassembled without using any special tools. The EI08 Enamel injector can be equipped with an additional connection for the powder hose rinsing.



EI08 Enamel injector

Principle of the injector and the 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.



Principle of the EI08 injector

This powder/air mixture is fed through to the powder hose to the gun. The concentration of the powder/air mixture, and with it, the powder out-put 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.

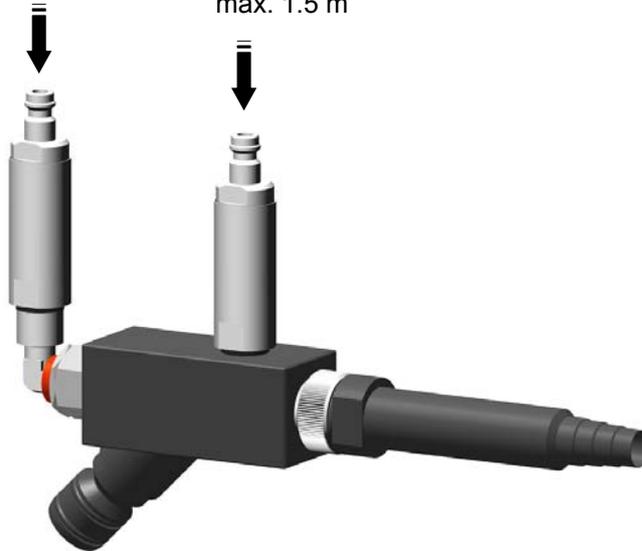
Experience with pneumatic material handling technology shows that pneumatic transport of fine solid matter (powder) in the form of tubing (hose), the transporting medium requires a certain volume of air per unit of time. If a hose diameter of 11 mm is used, the value is approx. 4 m³/h. In order to reduce 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 m³/h, the powder transport becomes irregular and the 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.

Commissioning

Connecting the EI08 enamel injector

Conveying air hose
from the control unit

Air hose from the CA07 powder hose rinsing
unit for the supplementary or rinsing air
max. 1.5 m



EI08 Enamel injector – connections

Powder volume setting table

EI08 enamel injector with OptiStar/OptiTronic

In order to set the ideal powder volume on the gun control unit, it is recommended to select the **total air** first. The following can be assumed as a guide value:



Powder 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.



WARNING:

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

General conditions for EI08 injectors

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 OptiStar/OptiTronic with EI08 enamel injectors

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



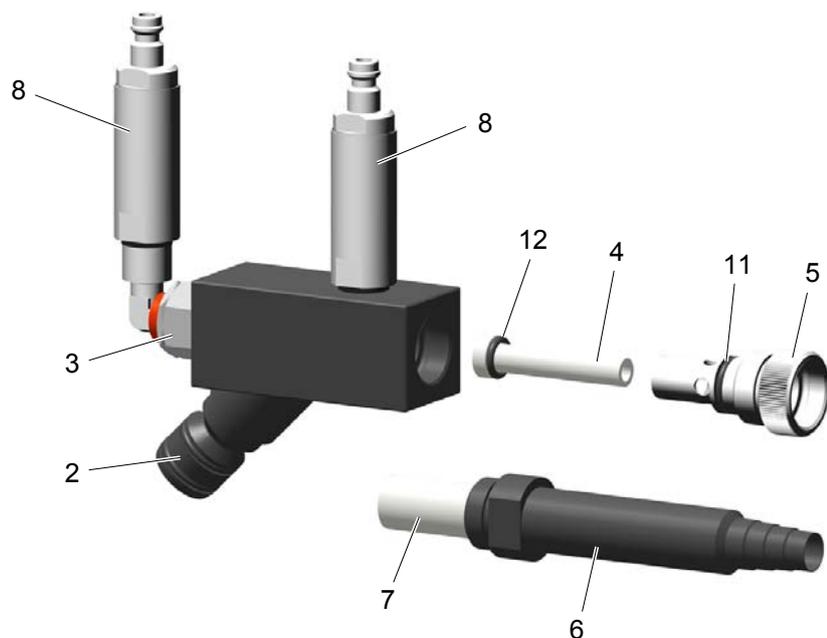
Total air 		4 Nm ³ /h	5 Nm ³ /h	6 Nm ³ /h
		Powder output (g/min)		
Powder output  (%)	10	30	35	45
	20	60	75	90
	30	85	100	120
	40	110	130	150
	50	130	160	175
	60	150	180	210
	70	175	200	235
	80	200	240	270
	90	215	260	
	100	235	290	

Cleaning and maintenance

Cleaning the injector

Overview

The EI08 enamel injector must be cleaned before starting work or at a color change.



EI08 Enamel injector – cleaning

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

Procedure

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

WARNING:



If the injector is severely fouled, it must be dismantled!

- ▶ 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-thinner!
 - ▶ Do not use acetone, do not scrape!
-

The EI08 enamel injector should be cleaned once daily as a minimum! Normally, dismantling, as described above, is sufficient.

The injector should be dismantled completely once a week or in the case of heavy contamination (see also the spare parts list)!

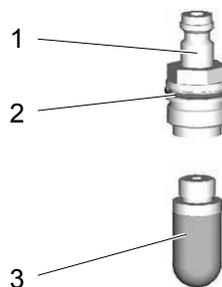
Cleaning of the check valve unit



WARNING:

Take care when dismantling the check valve units!

- ▶ Blow out the filter from the inside outwards and do not immerse in solvent
-



1 Filter holder

2 O-ring

3 Filter

Replacing the insert sleeve

1. Unscrew the 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

Problem fixing

Fault	Fault remedying
The gun does not spray powder although the control unit is switched on. Injector nozzle, check valve unit, powder hose or powder gun are clogged.	Clean the corresponding parts and if necessary, replace them
The insert sleeve in the injector is worn	Replace the insert sleeve

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** EI08
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 bulk stock is always marked with an *.

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)



WARNING!

The use of spare parts from other manufacturers will invalidate the Gema guarantee conditions!

- ▶ Only original Gema spare parts should be used, because the explosion protection will also be preserved that way.
-

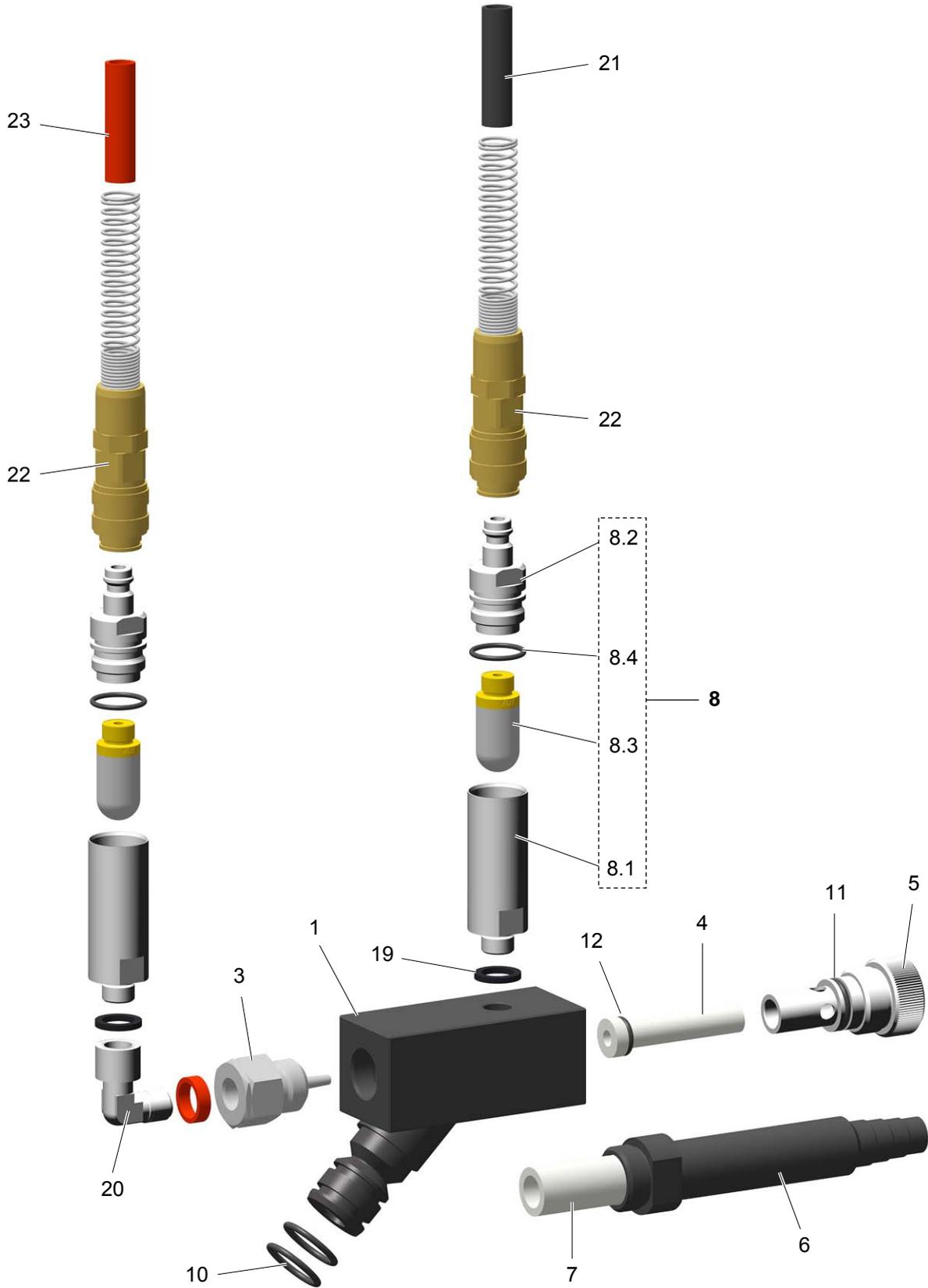
EI08 enamel injector – spare parts list

EI08 enamel injector – complete (without pos. 21-24)		1012 617
1	Injector housing	1012 608#
3	Nozzle – 1.8 mm	404 136#
4	Sleeve	405 248#
5	Sleeve nut	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	Filter	237 264
8.4	O-ring – Ø 14x1.5 mm	263 486#
10	O-ring – Ø 16x2 mm	231 517#
11	O-ring – Ø 12x2 mm	235 725#
12	O-ring – Ø 8x2 mm	242 470#
19	Sealing ring – Ø 9.8/14x1.8 mm	241 911
20	Elbow joint – 1/8"-1/8"	237 604
21	Plastic tube – Ø 8/6 mm (black)	103 756*
22	Quick release coupling for hose – Ø 8/6 mm	203 181
23	Plastic tube – Ø 8/6 mm (red)	103 500*
24	Powder hose – Ø 16/11 mm (not shown)	103 012*

Wearing part

* Please indicate length

EI08 enamel injector – spare parts



EI08 enamel injector – spare parts