

Operating Manual

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Powder injectors



DANGER



High Voltage!
Turn power off
before servicing!



CAUTION

Read rules for safe
operation and
instructions
carefully!



PI_F1P1_2006

PI-P1 and PI-F1



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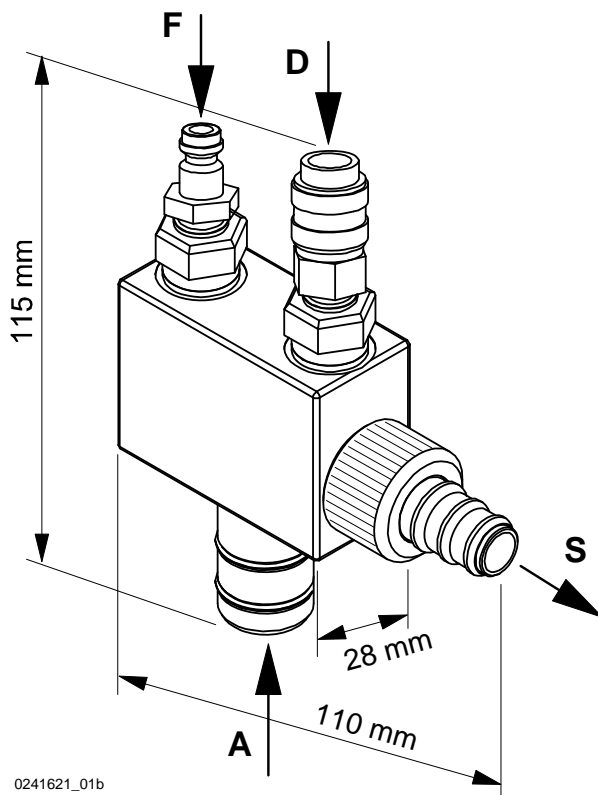
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Powder injector PI - P1

Article No. 0241621

Powder injector PI - F1

Article No. 0241622



0241621_01b

- A** Powder inlet from powder container
- F** Feed air inlet
- D** Dosage air inlet
- S** Powder/air mixture outlet to gun

The switched air mode:

No powder is fed to **A** if the feed air **F** is switched off and, simultaneously, the dosage air quantity **D** is increased to maximum level.

No new powder **A** is fed to the spray gun, while the powder feed hose **S** is regularly purged with dosage air. The powder flow **A** starts immediately as soon as the feed air is switched on again and the dosage air is switched to normal quantity.

The powder injector is used for powder feeding in manual as well as automatic powder coating systems. In addition to this, the powder injector is also ideally suitable for switching mode.

All types of coating powder can be processed with the injector.

A choice of two powder injectors is available:

- powder injector **PI-P1** and
- powder injector **PI-F1**

The **PI-P1** powder injector is connected to control units, which regulate air pressure.

The **PI-F1** powder injector, on the other hand, is connected to control units which control the compressed air flow rate, making this powder injector suitable for applications involving control units with **AFC technology** (flow rate control) and purging air mode for powder flow.

Both powder injectors can be operated with the following control units:

- powder injector **PI-P1** with **EPG 2008/EPG Prima** or **PrimaTech**
- powder injector **PI-F1** with **EPG-D1** or **ProfiTech**



Caution

The maximum temperature **should not exceed 35 °C / 95 °F**. Otherwise it cannot be ensured that the powder output quantity of the HiCoat-ED Pump can be reached.

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This manual contains information and hints for the service, repair and maintenance of the equipment. The user must obey all the rules of operation found in this manual; failure to do so will render the warranty invalid.

Wagner powder systems are designed to meet the most stringent safety requirements. They can be operated in compliance with generally applicable safety codes and applicable national safety regulations.

Please pay particular attention to the parts marked by the following symbols. Follow the instructions exactly, in the interests of both your own safety and the correct functioning of the unit.

**Warning**

This symbol draws attention to the fact that if the operating instructions, working instructions, prescribed working sequences etc. are not followed exactly, this can lead to injury or even fatal accidents.

**Caution**

This symbol indicates that failure to follow the operating instructions, working instructions, prescribed working sequences etc. exactly can lead to material damage.

**Hint**

This symbol draws your attention to useful additional information and tips. Failure to observe these instructions can cause malfunctions.

1. Safety regulations



Warning

This equipment can be dangerous if it is not operated in accordance with this operating manual!

There might be additional regulations to be observed, put into effect by governmental, state or other official agencies or local security (fire) departments!

The following rules must be observed in order to ensure a safe and efficient use of the equipment:

- The user has to make sure, that the average powder/air concentration does not exceed 50% of the LEL (maximum allowed concentration of powder in air). If a reliable LEL value is not available, the average powder/air concentration may not exceed 10 g/m³.
- Over sprayed powder must be reliably collected.
- Adhere to the instructions given by the manufacturers and to the prevalent local laws on the environment when disposing of waste coating powder.
- Specially trained personnel may only carry out repairs. Repairs must never be performed in an explosion-hazard area.
- **Guideline 94/9/EG:** The device is suited for the applications it was designed for, even in explosion-hazard areas.

General safety rules

- Wear suitable work clothing
- Use breathing protection or a vizard for work which produces powder and when developing solvent steams:
Avoid health dangers by inhalation and skin contacts of solvent steams and lacquer aerosols; Cornea injuries by splashes in the eye.



Warning

For your own safety, use only accessories and equipment listed in the operating manual. The use of individual parts other than those recommended in the operating manual may create a hazard to personal safety.

Use only original Wagner replacement parts!

Alteration or repair of Wagner original spare parts may cause fatal accidents or explosions in the coating system!

2. Start up

2.1 Preparing the powder injector



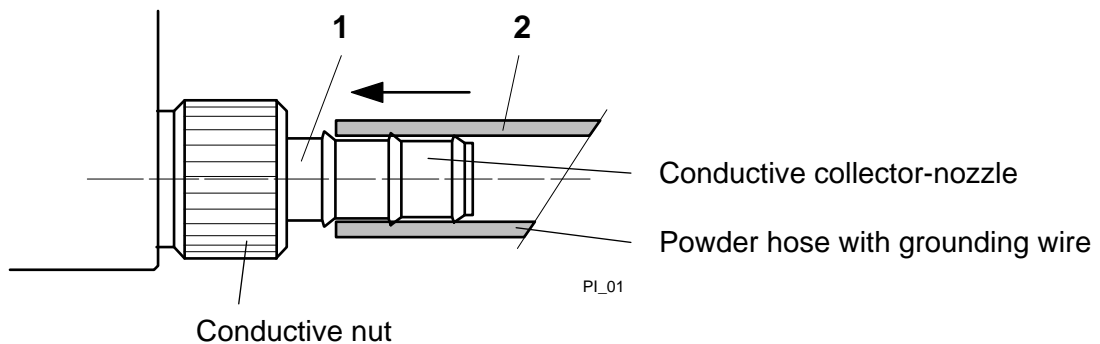
Caution

The powder injector **must** be grounded to prevent static charging!
In this case, you must use the Wagner Special hose!

2.1.1 Connecting the powder hose

Push the powder hose **2** onto the collector-nozzle **1** until it is firmly fixed.

It is **recommended** that **special hose** is used with an inner diameter of 11 or 12 mm, as illustrated in Chapter [5.4 "Special accessories"](#). This hose is equipped with an integrated grounding wire, which contributes greatly to preventing powder charging.



2.1.2 Grounding

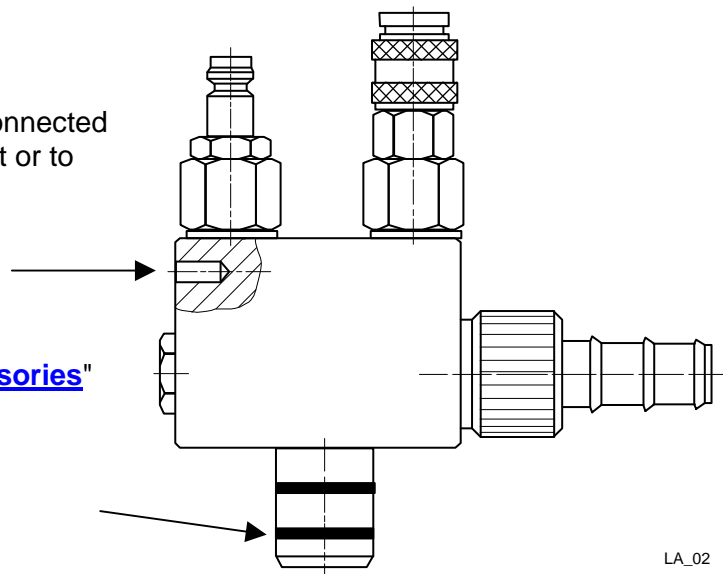
The powder injector **must** be fitted with a grounding cable in application modes.

The grounding cable **must** be connected to the rear side of the control unit or to the system ground:

M5 threaded hole with 4 mm core hole diameter for grounding cable

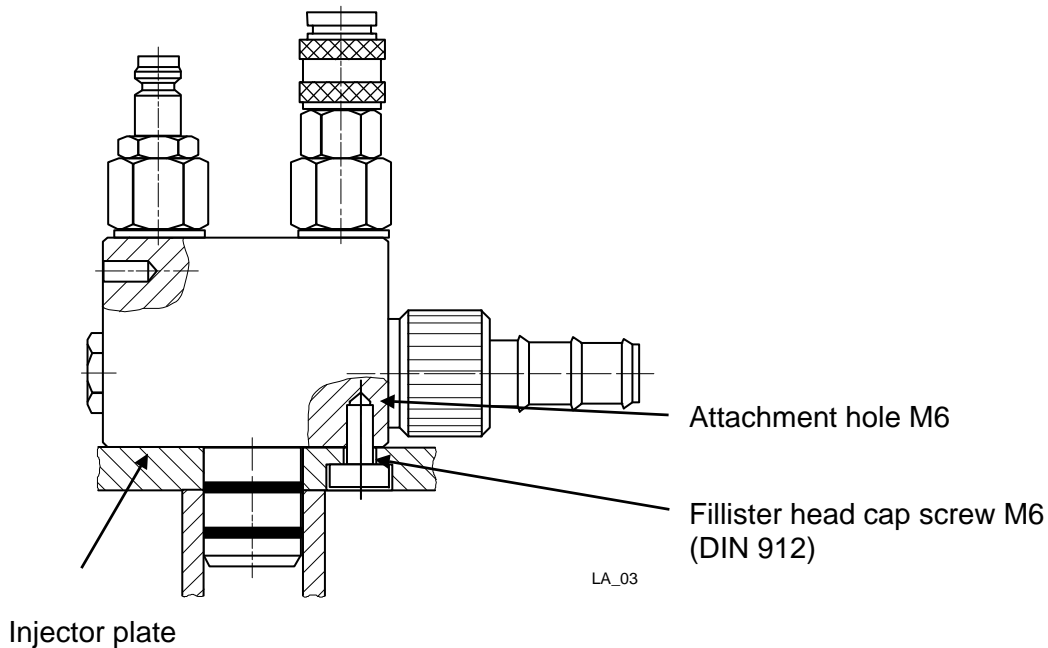
See chapter [5.4 "Special accessories"](#) for article numbers.

Use only conductive O-ring.



2.1.3 Mounting the powder injector to the injector plate

The powder injector can be fitted to an injector plate.



Caution

The injector plate **must** be grounded!

2.2 Adjusting the powder injector to the desired powder output quantity

Rule of thumb for setting the powder injector:

- **Feed air quantity:** The greater the feed air quantity, the larger the powder output quantity.
- **Dosage air quantity:** The greater the dosage air quantity, the smaller the powder output quantity.

This means: The **ratio of the feed air quantity to the dosage air quantity** is determined by the powder output quantity.



Hint

The achievable powder output depends on a number of factors:

- The length and diameter of the hose
- The suction system
- The manner in which the hose is laid
- The type of powder
- Wear on the powder injector

The powder injector powder output quantity values in the following tables have been determined under the following conditions:

- Test structure:**
- **EPG -D1** control unit
 - **PEA-C4-HiCoat** spray gun with fan spray nozzle
 - Powder container fluidized and shaken

Powder density: 1.6 kg/dm³



Hint

The feed air quantity **must** be reduced for pulsing powder feed. However, the overall air quantity **must** remain the same.

1. Powder injector **Powder hose inner diameter 10 mm**

Total air quantity **3.5 Nm³/h**

This setting is recommended for **increased coating quality**.

Feed air (Nm ³ /h)	Powder hose length 6 m Powder output quantity (g/min)
2.0	100
2.5	180
3.5	300

2. Powder injector **Powder hose inner diameter 11 mm**

Total air quantity **4.5 Nm³/h**

This setting is recommended for **standard coating quality**.

Feed air (Nm ³ /h)	Powder hose length 6 m Powder output quantity (g/min)	Powder hose length 12 m Powder output quantity (g/min)
2.0	110	60
3.0	250	190
4.5	410	330

2. Powder injector

Powder hose inner diameter 12 mm

Total air quantity

5.5 Nm³/h

This setting is recommended for **high powder output** and **reduced coating quality**.

Feed air (Nm ³ /h)	Powder hose length 6 m	Powder hose length 12 m
	Powder output quantity (g/min)	Powder output quantity (g/min)
2.5	160	90
4.0	310	260
5.5	430	370

2.3 Performing a color change



Hint

When changing colors, all powder transporting components **must** be cleaned thoroughly.

2.3.1 Powder injector PI-F1

The control unit (with AFC technology) for the powder injector **PI-F1** is switched to automatic purging. The powder injector is completely cleared of residual powder during this procedure.

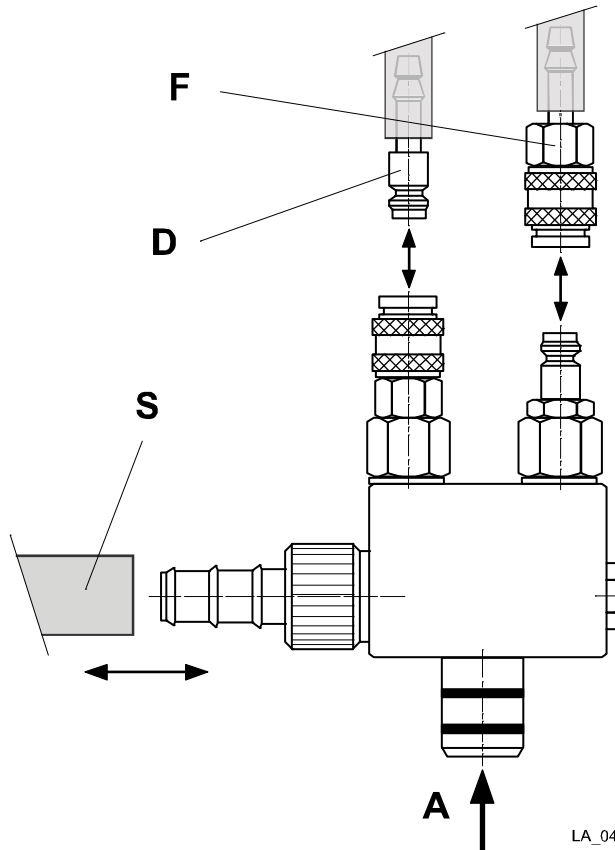
Please consult Wagner Service if the control unit is not yet equipped with this purging procedure function, or proceed as in the following description for the powder injector **PI-P1**.

2.3.2 Powder injector PI-P1



Caution

Deactivate the high voltage!



Proceed as follows:

1. Check that the high voltage has been deactivated.
2. Connect the feed air and dosage air.
3. Disconnect powder feed hose **S**, plug-in nipple **F** for the feed air and coupling **D** for the dosage air from the powder injector.
4. Pull the powder injector out of the injector connection.
5. Blow through the powder injector from the powder intake **A** with spurts of compressed air and clear of all powder residue or deposits.
6. Connect the powder feed hose **S**, plug-in nipple **F** for the feed air and coupling **D** for the dosage air to the powder injector again.
7. Check the grounding before re-starting.

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3. Maintenance and cleaning

3.1 Dismantling the collector-nozzle

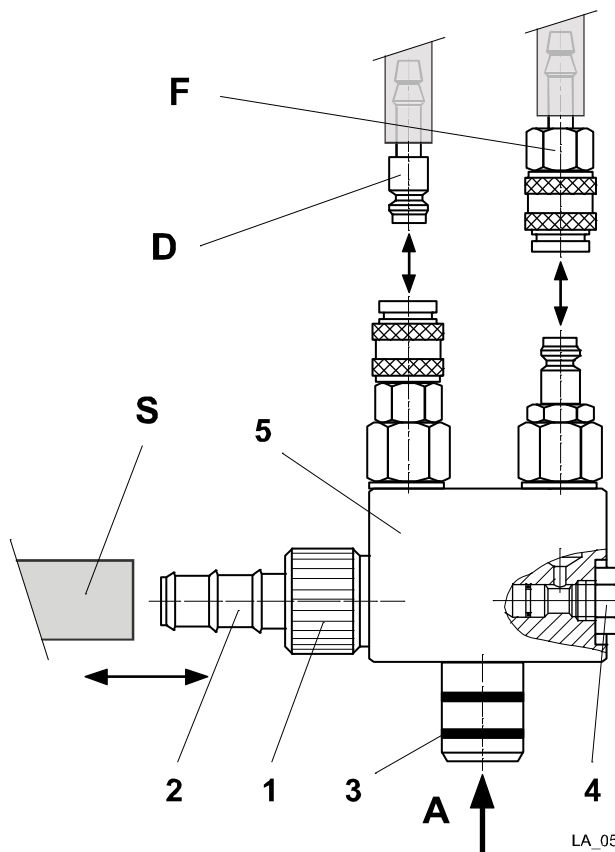


Caution

Always deactivate the high voltage before starting any maintenance work and ensure that it cannot be reactivated again!

The collector-nozzle **2** and O-ring **3** are parts subject to wear and **must** be checked regularly (weekly) and replaced if the powder feed is inadequate.

The injector nozzle **4** should be checked at longer intervals and examined for wear.



Proceed as follows:

1. Disconnect all air connections and powder hoses **F/D/S** from the powder injector and remove from the injector holder on the powder container.
2. Loosen the outer nut **1** and remove the collector-nozzle **2** from the injector housing **5**.
3. Clean the injector housing (blow out with compressed air).
4. Loosen the collector-nozzle, check it for wear and replace if necessary.

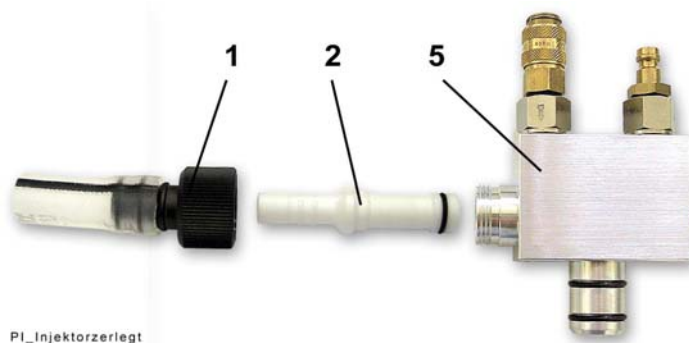
Parts subject to wear and spare parts are listed in chapter [5](#).

The condition of the collector-nozzle can be checked by using the testing gauge.



Hint

The powder output can sink by 30% or more in relation to the set value due to collector-nozzle wear.



PI_Injektorzerlegt

3.2 Checking the collector-nozzle for wear

Penetration depths:

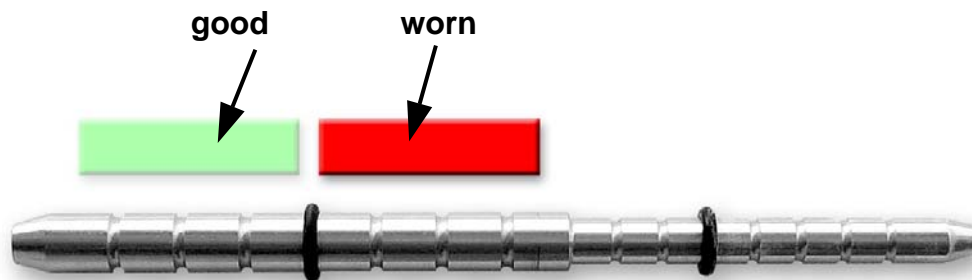


Hint

Green: the collector-nozzle does not have to be exchanged.

Red: the collector-nozzle **must** be exchanged.

The O-rings are located according to the specific quality demands.

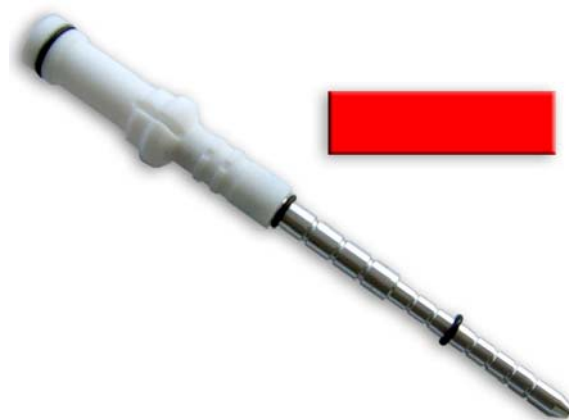


Collector-nozzle 0241225

Testing gauge 0241929



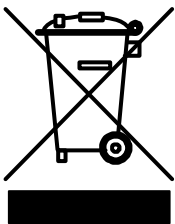
- Push the testing gauge into the collector-nozzle right **up to the limit stop**.
- This collector-nozzle is **not** worn (new collector-nozzle).



- This collector-nozzle is worn and **must** be exchanged.
- Push the cleaned or new collector-nozzle into the housing right **up to the limit stop**.
- Push the outer nut over the collector-nozzle and tighten it **securely** again.

3.3 Disposal

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Only for EU countries

Do not dispose of electric tools together with household waste material!

In observance of the European Directive 2002/96/EC on waste electrical and electronic equipment and implementation in accordance with national law, this product is not to be disposed of together with household waste material but must be recycled in an environmentally friendly way!

Wagner or one of our dealers will take back your used Wagner waste electrical or electronic equipment and will dispose of it for you in an environmentally friendly way. Please ask your local Wagner service center or dealer for details or contact us direct.

4. Rectification of malfunctions

Malfunction	Cause	Remedy
Insufficient powder delivery	<ul style="list-style-type: none"> - Collector-nozzle clogged - Collector-nozzle worn - Leak between container and powder injector 	<ul style="list-style-type: none"> - Replace and clean collector-nozzle. - Replace collector-nozzle. - Replace O-ring.
Pulsed powder delivery	<ul style="list-style-type: none"> - Insufficient dosage air. - Collector-nozzle not mounted correctly. 	<ul style="list-style-type: none"> - Increase dosage air quantity. - Clean thread of the outer nut and tighten nut securely.

5. Spare parts lists and accessories

5.1 How to order spare parts

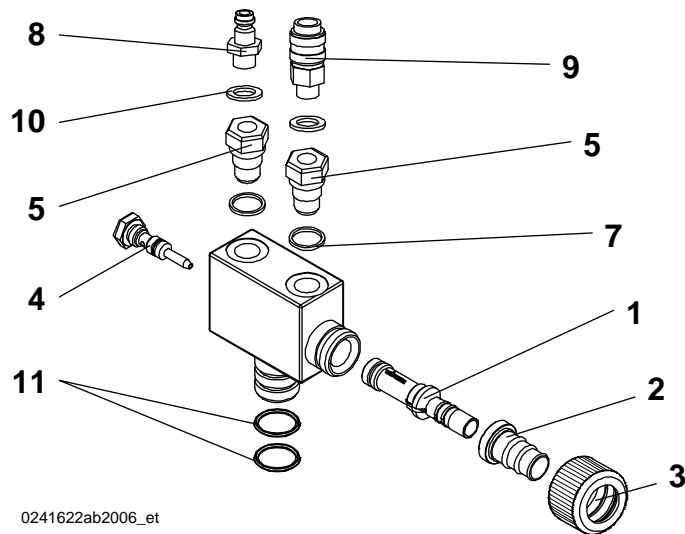
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Faulty and unserviceable parts are replaced in accordance with our General Terms and Conditions of Delivery.

In order to be able to guarantee safe and smooth spare parts delivery, the following information is necessary:

- **Invoicing address**
- **Delivery address**
- **Name of contact persons for check back**
- **Type of delivery**
- **Quantity ordered, article number and designation**

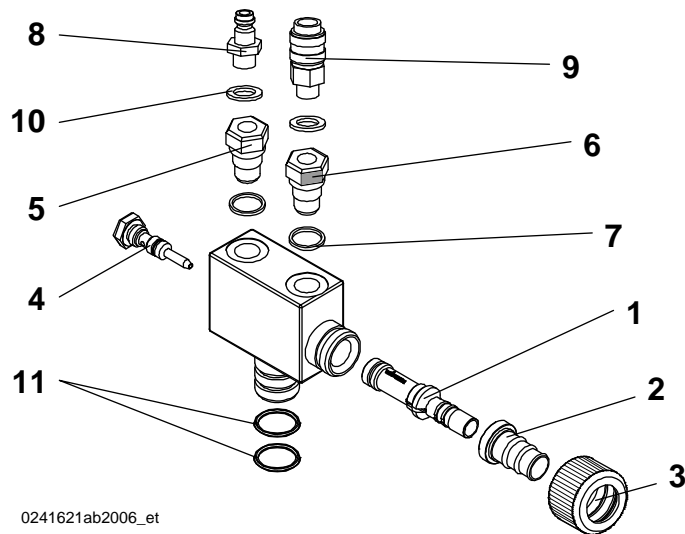
5.2 Spare parts list powder injector PI-F1



Item	Art. No.	Designation
	0241622	Powder injector PI-F1
1	0241225 *	Clearance collector nozzle
2	0241476	Conductive sleeve
3	0241466	Outer nut
4	0241923 *	Injector nozzle ET
5	0241460	Spring check valve
7	9970149	Sealing ring
8	9992709	Quick-release plug
9	9992710	Quick-release socket
10	9970150	Sealing ring
11	9974023 *	Conductive O-ring

* Wearing part

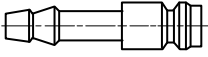
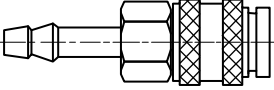

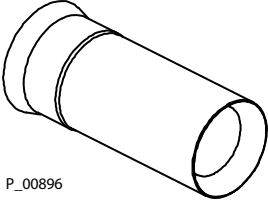
5.3 Spare parts list powder injector PI-P1



Item	Art. No.	Designation
	0241621	Powder injector PI-P1
1	0241225 *	Clearance collector nozzle
2	0241476	Conductive sleeve
3	0241466	Outer nut
4	0241923 *	Injector nozzle ET
5	0241460	Spring check valve
6	0241461	Spring check valve with choke (marked in black)
7	9970149	Sealing ring
8	9992709	Quick-release plug
9	9992710	Quick-release socket
10	9970150	Sealing ring
11	9974023 *	Conductive O-ring

* Wearing part

5.4 Special accessories

Article No.	Designation	
9992200 	Plug-in nipple joint for connecting the dosage air line for connecting the automatic gun	
9992711 	Coupling joint for connecting the feed air line for connecting the automatic gun	
9987080	Special hose	Inner diameter 10 mm available by the meter
9987081	Special hose	Inner diameter 11 mm available by the meter
9987082	Special hose	Inner diameter 12 mm available by the meter
0264245	Grounding cable with $\varnothing 4$ mm bunch plug 0.5 m long (second cable end with M6 wire lug)	
0241929 	Testing gauge: Application: used for checking collector- nozzle for wear See chapter: "Maintenance and cleaning"	
0241580  <small>P_00896</small>	Inside diameter reduction 10 mm for use at the suction side	

6. Warranty

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What is covered by this warranty?

Faulty or defective parts are replaced according to our general delivery conditions.

Within the applicable warrant period, Wagner will repair or replace, at our option, defective parts without charge if such parts are returned with transportation charges prepaid to the nearest authorized service center. If Wagner is unable to repair this product so as to conform to this Limited Warranty after a reasonable number of attempts, Wagner will provide, at our option, either a replacement for this product or a full refund of the purchase price of this product.

These remedies are the sole and exclusive remedies available for breach of express and implied warranties.

What is not covered by this warranty?

This warranty does not cover any of the following damages or defects:

1. Damages or defects caused by use or installation of repair or replacement parts or accessories not manufactured by Wagner,
2. Damages or defects caused by repair performed by anyone other than a Wagner authorized service center, or
3. Damages or defects caused by or related to abrasion, corrosion, abuse, misuse, negligence, accident, normal wear, faulty installation or tampering in a manner which impairs normal operation.

Limitation of remedies:

IN NO CASE SHALL WAGNER BE LIABLE FOR ANY INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES OR LOSS, INCLUDING TRANSPORTATION COSTS, WHETHER SUCH DAMAGES ARE BASED UPON A BREACH OF EXPRESS OR IMPLIED WARRANTIES, BREACH OF CONTRACT, NEGLIGENCE, STRICT TORT, OR ANY OTHER LEGAL THEORY.

Disclaimer of implied warranties:

THE FOREGOING WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

No ability to transfer:

This warranty is extended to the original purchaser only and is not transferable.

Your rights under state law:

Some states do not allow limitations on how long an implied warranty lasts or the exclusion of incidental or consequential damages, so the above limitation and exclusion may not apply to you. This warranty gives you specific legal rights; you may also be entitled to other rights, which vary from state to state.

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