WAGNER

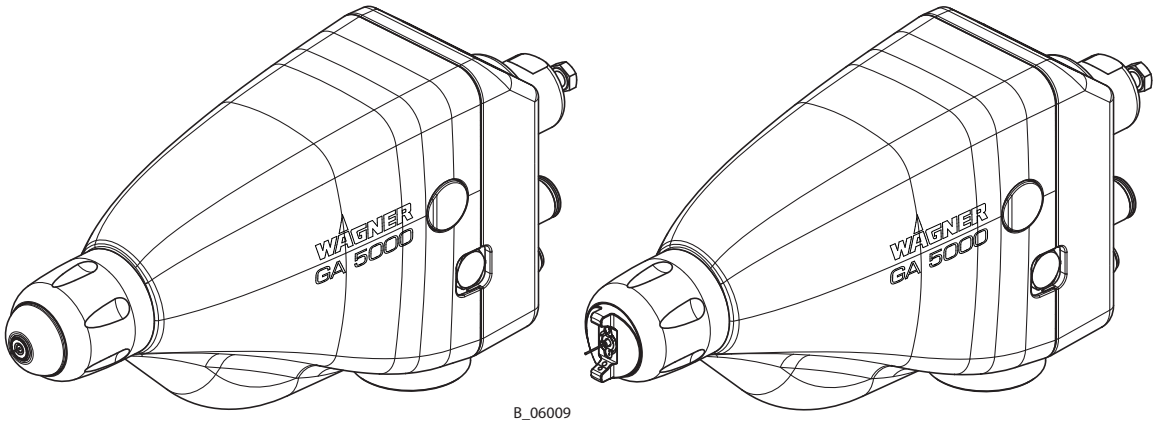
Translation of the Original Operating Manual

GA 5000EAIC
GA 5000EAEC

Version 09/2016

Electrostatic Air Spray Gun

for automatic operation
for flat or round jet nozzles



B_06009

CE 0102 Ex II 2 G 0.24mJ X

Table of Contents

Table of Contents

Table of Contents

Table of Contents

1 ABOUT THESE INSTRUCTIONS

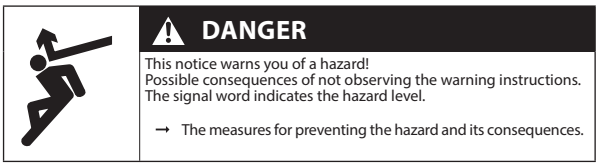
1.1 PREFACE

The operating manual contains information about safely operating, maintaining, cleaning and repairing the device.
The operating manual is part of the device and must be available to the operating and service personnel.
The device may only be operated by trained personnel and in compliance with this operating manual. Operating and service personnel should be instructed according to the safety instructions.
This equipment can be dangerous if it is not operated according to the instructions in this operating manual.

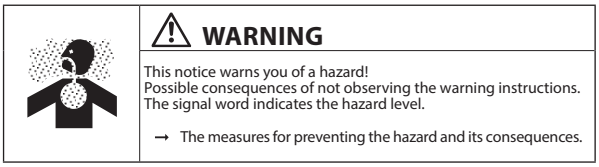
1.2 WARNINGS, NOTICES AND SYMBOLS IN THESE INSTRUCTIONS

Warning instructions in this operating manual highlight particular dangers to users and to the device and state measures for avoiding the hazard. These warning instructions fall into the following categories:

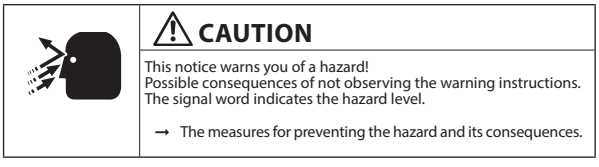
Danger - immediate risk of danger.
Non-observance will result in death or serious injury.



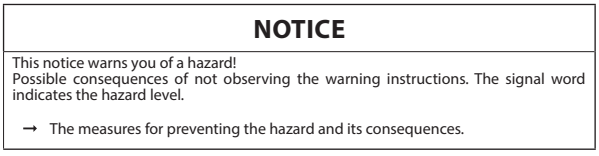
Warning - possible imminent danger.
Non-observance may result in death or serious injury.



Caution - a possibly hazardous situation.
Non-observance may result in minor injury.



Notice - a possibly hazardous situation.
Non-observance may result in damage to property.



Note - provides information about particular characteristics and how to proceed.

1.3 LANGUAGES

The **GA 5000EA** operating manual is available in the following languages:

Language	Order No.
German	2360923
French	2367556
Spanish	2367558

Language	Order No.
English	2360924
Italian	2367557

Additional languages on request or at: **www.wagner-group.com**

1.4 ABBREVIATIONS

Order No.	Order number
ET	Spare part
K	Marking in the spare parts lists
GA	Automatic gun
EA	Electrostatics Airspray
IC	Shaping and atomizing air controlled via valve within gun
EC	Shaping and atomizing air controlled via valve outside of gun
Low R	Low-resistance
PEEK	Polyether ether ketone (high temperature-resistant thermoplastic plastic)
SSt	Stainless steel
Pos	Position
Stk	Number of pieces
SW	Wrench size

1.5 TERMINOLOGY FOR THE PURPOSE OF THIS MANUAL

Cleaning	Manual cleaning of devices and device parts with cleaning agent
Flushing	Internal flushing of paint-wetted parts with flushing agent

Staff qualifications

Trained person	Is instructed in the tasks assigned to him/her, the potential risks associated with improper behavior as well as the necessary protective devices and measures.
Electrically trained person	Is instructed by an electrician about the tasks assigned to him/her, the potential risks associated with improper behavior as well as the necessary protective devices and measures.
Electrician	Can assess the work assigned to him/her and detect possible hazards based on his/her technical training, knowledge and experience in relevant provisions.
Skilled person in the context of DGUV 209-052	A person who, based on his/her technical training, experience and recent vocational experience, has sufficient technical knowledge in the area of electrostatic coating and is familiar with the relevant and generally accepted rules of technology so that he/she can inspect and assess the status of devices and coating systems based on workplace safety. → Additional requirements for skilled persons are given in the TRBS 1203 (2010/Revision 2012): Expert knowledge in the areas of protection against excessive pressure, electrical hazards, and explosion protection (where applicable).

2 CORRECT USE

2.1 DEVICE TYPE

Electrostatic automatic spray gun for coating of grounded work pieces in automatic coating systems.

2.2 TYPE OF USE

The GA 5000EA electrostatic automatic spray gun is suitable for spraying liquid products, particularly coating products. Coating products which contain ingredients of explosion class IIA and IIB substances (maximum ignition energy 0.24 mJ) may be used.
WAGNER forbids any other use!

2.3 USE IN AN EXPLOSION HAZARD AREA

The GA 5000EA electrostatic automatic spray gun is suitable for coating electrically conductive objects with liquid coating products and can be used in potentially explosive areas. Explosion Protection Identification (see Chapter 3)

2.4 SAFETY PARAMETERS

WAGNER accepts no liability for any damage arising from incorrect use.
- → Use the device only to work with the products recommended by WAGNER.
- → Only operate the device as a whole.
- → Do not deactivate safety fixtures.
- → Use only WAGNER original spare parts and accessories.

The device may only be operated under the following conditions:
- → The operating personnel must be trained on the basis of this operating manual.
- → The safety regulations listed in this operating manual must be observed.
- → The operating, maintenance and repair information in this operating manual must be observed.
- → The statutory requirements and accident prevention regulation standards in the country of use must be observed.

The electrostatic automatic spray gun may only be operated if all parameters are set and all measurements/safety checks are carried out correctly.

2.5 PROCESSIBLE WORKING MATERIALS

- → Coating products which contain ingredients of explosion class IIA and IIB substances (maximum ignition energy 0.24 mJ) can be processed with the GA 5000EA spray gun.
- → The spray gun basic version is suitable for processing sprayed substances with an electrical resistance of > 150 kΩ (according to the WAGNER scale).
  Equipped with a special product hose for low-resistance sprayed substances (available as an accessory), you can also successfully process sprayed substances with an electrical resistance > 50 kΩ (according to the WAGNER scale).
- → When processing metallic lacquers, it is advisable to use the spiral hose.
- → The application effectiveness is always dependant on the composition of the product being used, e.g., pigments or resin.

Conversion of Paint Resistance

There are paint resistance measuring devices available on the market that do not directly measure the specific paint resistance.

Multiplying the result of the measurement with the device-specific cell constant (K), we obtain the specific resistance value of the product.

Example:

With WAGNER's paint resistance measuring device the cell constant is K =123.

Measured value according to the WAGNER scale R = 500 kΩ

Specific resistance (RS) RS = R x K = 500 kΩ x 123 = 61.5 MΩ·cm

Note:

Using sprayed substances with too low an electrical resistance, the application of electrostatics does not show any effect, i.e. there is no "paint wrap around" on the object to be sprayed.

The suitability of the spray product with regard to the charging ability can be read from the actual values for high voltage (kV) and for the spray current (µA) shown in the illuminated displays on the EPG 5000 control unit.

High kV value, low µA value = ok

Low kV value, high µA value = excessive conductivity of the paint
→ No wrap-around

- → Please contact your local WAGNER dealer and the lacquer manufacturer if you encounter application problems.

2.6 REASONABLY FORESEEABLE MISUSE

The forms of misuse listed below may result in physical injury or property damage:

- → use with non-authorized control units;
- → coating work pieces which are not grounded;
- → working with an ungrounded lacquer supply system;
- → performing unauthorized conversions or modifications to the device;
- → processing inadmissible coating products;
- → processing dry or similar coating products, e.g., powder;
- → using defective components, spare parts or accessories other than those described in the "Accessories" chapter of this operating manual;
- → continuing work with a defective or kinked product hose;
- → working with incorrectly set values;
- → processing food.

2.7 RESIDUAL RISKS

Residual risks are risks which cannot be ruled out even in the event of correct use.
If necessary, warning and prohibition signs at the relevant points of risk indicate residual risks.

Residual risk	Source	Consequences	Specific measures	Lifecycle phase
Skin contact with lacquers and cleaning agents	Handling of lacquers and cleaning agents	Skin irritations, allergies	Wear protective clothing Observe safety data sheets	Operation, maintenance, disassembly
Lacquer in air outside the defined working area	Lacquering outside the defined working area	Inhalation of substances hazardous to health	Observe work and operation instructions	Operation, maintenance

3 IDENTIFICATION

3.1 CE EXPLOSION PROTECTION IDENTIFICATION

As defined in the Directive 2014/34/EU (ATEX), the device is suitable for use in potentially explosive areas.

Device type:	GA 5000EA electrostatic automatic spray gun
Manufacturer:	Wagner International AG CH-9450 Altstätten, Switzerland

CE 0102 Ex II 2 G 0.24mJ X
SIRA 16 ATEX5290X

CE	European Communities
102	Notified body: PTB
Ex	Explosion-proof equipment
II	Device class II (not mining)
2	Category 2 device (suitable for zone 1)
G	Ex-atmosphere gas
0.24mJ	Maximum ignition energy
X	Special Notes (see Chapter 3.2)
SIRA 16 ATEX5290X	Number of type examination certificate

3.2 SPECIAL NOTICE "X"

Temperature notes

- Maximum surface temperature: 85 °C; 185 °F
- Maximum permissible product temperature: 50 °C; 122 °F
- Permissible ambient temperature: 0 to +40 °C; +32 to +104 °F

Cable connections

Only cable assigned to the device may be used (see Chapter 13).

Permissible Device Combinations

The GA 5000EA automatic spray gun may only be connected to the control units listed below:

- EPG 5000 control unit

	**⚠ WARNING**
	Incorrect use! Risk of injury and damage to the device. → Connect the GA 5000EA automatic spray gun only to original WAGNER control units.

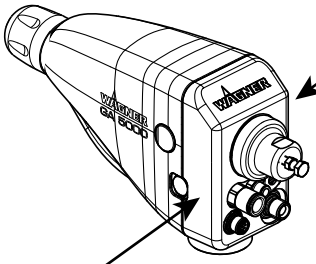
3.3 IDENTIFICATION "X" (TYPE EXAMINATION CERTIFICATE)

Note:

The EC Type Examination Certificate from SIRA covers the following:

- use of the spray gun in Zone 1;
- use of the EPG 5000 control unit as related equipment for the spray gun.

3.4 TYPE PLATE



Wagner International AG
CH-9450 Altstaetten
GA 5000EAIC Art.Nr. 2360884
high voltage: max. 80kV DC
current: max. 100uA DC
max. mat. pressure: 0.8MPa; 8bar; 116psi
max. air pressure: 0.8MPa; 8bar; 116psi

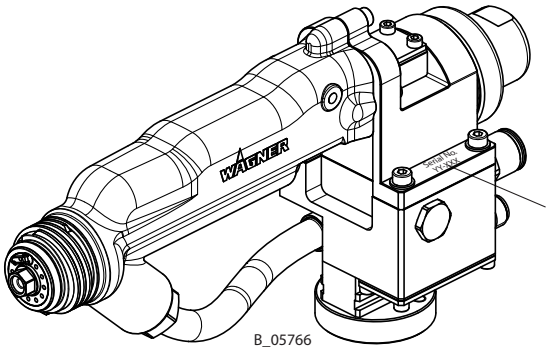
GA 5000EAIC

CE 0102 Ex II 2G 0.24mJ X
SIRA 16 ATEX 5290X
EN 50176:2009
EN 50050-1:2013
Ta = 0°C - 40°C, Temp code = T6

Wagner International AG
CH-9450 Altstaetten
GA 5000EAEC Art.Nr. 2360893
high voltage: max. 80kV DC
current: max. 100uA DC
max. mat. pressure: 0.8MPa; 8bar; 116psi
max. air pressure: 0.8MPa; 8bar; 116psi

GA 5000EAEC

CE 0102 Ex II 2G 0.24mJ X
SIRA 16 ATEX 5290X
EN 50176:2009
EN 50050-1:2013
Ta = 0°C - 40°C, Temp code = T6



4 GENERAL SAFETY INSTRUCTIONS

4.1 SAFETY INSTRUCTIONS FOR THE OPERATOR

→ Keep this operating manual at hand near the device at all times.
→ Always follow local regulations concerning occupational safety and accident prevention.

4.1.1 ELECTRICAL EQUIPMENT

Electrical devices and equipment

→ To be provided in accordance with the local safety requirements with regard to the operating mode and ambient influences.
→ May only be maintained by skilled electricians or under their supervision. With open housings, there is a danger from line voltage.
→ Must be operated in accordance with the safety regulations and electrotechnical regulations.
→ Must be repaired immediately in the event of problems.
→ Must be decommissioned if they pose a hazard or are damaged.
→ Must be de-energized before work is commenced on active parts. Inform staff about planned work. Observe electrical safety regulations.
→ Connect all devices to a common grounding point.
→ Only operate the device with a properly installed socket with a protective ground wire connection.
→ Keep liquids away from electrical devices.

4.1.2 PERSONNEL QUALIFICATIONS

→ Ensure that the device is only operated, maintained and repaired by trained persons.

4.1.3 SAFE WORK ENVIRONMENT

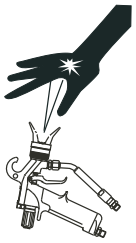
→ Ensure that the floor in the working area is static dissipative in accordance with EN 61340-4-1 (resistance must not exceed 100 megohms).
→ Ensure that all persons within the working area wear static dissipative shoes. Footwear must comply with EN 20344. The measured insulation resistance must not exceed 100 megohms.
→ If protective clothing is worn, including gloves, it has to comply with EN 1149-5. The measured insulation resistance must not exceed 100 megohms.
→ Paint mist extraction systems/ventilation systems must be fitted on site according to local regulations.
→ Ensure that the following components of a safe working environment are available:
- Product/air hoses adapted to the working pressure.
- Personal safety equipment (breathing and skin protection).

→ Ensure that there are no ignition sources such as naked flames, sparks, glowing wires, or hot surfaces in the vicinity. No smoking.
→ Ensure that the pipe joints, hoses, equipment parts and connections are permanently, technically leak-proof:
  - Periodic preventative maintenance and service (replacing hoses, checking tightness strength and connections etc.).
  - Regular monitoring of leaks and defects via visual inspection and odor testing, e.g., daily before commissioning, at the end of work or weekly.
→ In the event of defects, immediately bring the device or system to a stop and arrange to have repairs carried out immediately.

4.2 SAFETY INSTRUCTIONS FOR STAFF

→ Always follow the information in this manual, particularly the general safety instructions and the warning instructions.
→ Always follow local regulations concerning occupational safety and accident prevention.
→ Anyone fitted with a pacemaker must not enter the high-voltage area!

4.2.1 SAFE HANDLING OF WAGNER SPRAY DEVICES



The spray jet is under pressure and can cause dangerous injuries.
Avoid injection of paint or flushing agents:
→ Never point the spray gun at people.
→ Never reach into the spray jet.
→ Before all work on the device, in the event of work interruptions and functional faults:
  - Switch off the energy/compressed air supply.
  - Relieve the pressure from the spray gun and device.
  - Secure the spray gun against actuation.
  - In the event of functional faults, remedy the fault as described in the "Troubleshooting" chapter.
→ If necessary or at least every 12 months, the liquid ejection devices should be checked for safe working conditions by an expert (e.g., WAGNER Service Technician) in accordance with the guidelines for liquid ejection devices (DGUV regulation 100-500 Chapter 2.29 and 2.36).
  - For shut down devices, the examination can be suspended until the next start-up.
→ Carry out the work steps as described in the "Pressure Relief" chapter:
  - If pressure relief is required.
  - If the spraying work is interrupted or stopped.
  - Before the device is cleaned on the outside, checked or serviced.
  - Before the spray nozzle is installed or cleaned.

In the event of skin injuries caused by paint or flushing agents:
→ Note the paint or flushing agent that you have been using.
→ Consult a doctor immediately.

4.2.2 GROUNDING THE DEVICE

Friction, flowing liquids and air or electrostatic coating processes create charges. Flames or sparks can form during discharge. Grounding prevents electrostatic charging.

- → Ensure that the device is grounded. → See Chapter "Grounding".
- → Ground the work pieces to be coated.
- → Ensure that all persons inside the working area are grounded, e.g., that they are wearing static dissipative shoes.
- → The spray substance supply (spray substance tank, pump, etc.) must be grounded.

4.2.3 PRODUCT HOSES

- → Ensure that the hose material is chemically resistant to the sprayed products and the used flushing agents.
- → Ensure that the product hose is suitable for the pressure generated.
- → Ensure that the following information can be seen on the high-pressure hose:
  - Manufacturer
  - Permissible operating pressure
  - Date of manufacture
- → Make sure that the hoses are laid only in suitable places. Hoses should not be laid in the following places under any circumstances:
  - in high-traffic areas,
  - on sharp edges,
  - on moving parts or
  - on hot surfaces.
- → Ensure that the hoses are never run over by vehicles (e.g., fork lifts), or that the hoses are never put under pressure from the outside in any other way.
- → Ensure that the hoses are never kinked. Observe maximum bending radii.
- → Make sure that the hoses are never used to pull or move the equipment.
- → Suction hoses may not be subjected to pressure.

Several liquids have a high expansion coefficient. In some cases their volume can rise with consequent damage to pipes, fittings, etc. and cause fluid leakage.
When the pump sucks liquid from a closed tank, ensure that air or a suitable gas can enter the tank. Thus a negative pressure is avoided. The vacuum could implode the tank (squeeze) and can cause it to break. The tank would leak and the liquid would flow out.
The pressure created by the pump is a multiplication of the inlet air pressure.

4.2.4 CLEANING AND FLUSHING

→ Relieve the pressure from the device.
→ De-energize the device electrically.
→ Preference should be given to non-flammable cleaning and flushing agents.
→ Observe the specifications of the lacquer manufacturer.
→ Ensure that the flash point of the cleaning agent is at least 15 K above the ambient temperature or that cleaning is undertaken at a cleaning station with technical ventilation.
→ Take measures for workplace safety (see Chapter 4.1.3).
→ When commissioning or emptying the device, please note that an explosive mixture may temporarily exist inside the lines and components of equipment:
- depending on the coating product used,
- depending on the flushing agent (solvent) used,
explosive mixture inside the lines and items of equipment.

→ Only electrically conductive tanks may be used for cleaning and flushing agents.
→ The tanks must be grounded.

An explosive gas/air mixture forms in closed tanks.
→ Never spray into a closed tank when using solvents for flushing.

External cleaning
When cleaning the exterior of the device or its parts, also observe the following:
→ Disconnect the pneumatic supply line.
→ Use only moistened cloths and brushes. Never use abrasive agents or hard objects and never spray cleaning agents with a gun. Cleaning the device must not damage it in any way.
→ Ensure that no electrical component is cleaned with nor even immersed into solvent.
→ Which cleaning agent is used to clean the spray gun depends on which parts of the spray gun have to be cleaned and which product has to be removed. When cleaning the spray gun, only use **non-polar cleaning agents** to prevent conductive residues on the surface of the spray gun. Should it however, be necessary to use a polar cleaning agent, all residues of this cleaning agent have to be removed by using a non-conductive and non-polar cleaning agent, once the cleaning is finished.

4.2.5 HANDLING HAZARDOUS LIQUIDS, VARNISHES AND PAINTS

- → When preparing or working with lacquer and when cleaning the device, follow the working instructions of the manufacturer of the lacquers, solvents and cleaning agents being used.
- → Take the specified protective measures, in particular wear safety goggles, protective clothing and gloves, as well as skin protection cream if necessary.
- → Use a mask or breathing apparatus if necessary.
- → For sufficient health and environmental safety: Operate the device in a spray booth or on a spraying wall with the ventilation (extraction) switched on.
- → Wear suitable protective clothing when working with hot products.

4.2.6 TOUCHING HOT SURFACES

- → Only touch hot surfaces if you are wearing protective gloves.
- → When operating the device with a coating product with a temperature of > 43 °C; 109.4 °F:
  - Identify the device with a warning label "Warning - hot surface".

Order No.	
9998910	Instruction label
9998911	Protection label

Note: Order the two stickers together.

4.3 PROTECTIVE AND MONITORING EQUIPMENT

- → Protective and monitoring equipment must not be removed, modified or rendered unusable.
- → Regularly check for perfect functioning.
- → If defects are detected on protective and monitoring equipment, the system must not be operated until these defects are remedied.

4.4 USE IN AREAS SUBJECT TO EXPLOSION HAZARDS

The spray gun may be used in potentially explosive areas. The following safety regulations must be observed and followed.

4.4.1 SAFETY REGULATIONS

→ Observe safety instructions in Chapter 3.2.

Safe handling of WAGNER spray devices
Mechanical sparks can form if the device comes into contact with metal.
In an explosive atmosphere:
→ Do not knock or push the device against steel or rusty iron.
→ Do not drop the spray gun.
→ Use only tools that are made of a permitted material.

Ignition temperature of the coating product
→ Ensure that the ignition temperature of the coating product is above the maximum surface temperature.

Surface spraying, electrostatics
→ Never spray device parts using electrostatic equipment (electrostatic spray gun!).

Medium supporting atomizing
→ To atomize the product, use only weakly oxidizing gases, e.g., air.

Cleaning
If there are deposits on the surfaces, the device may form electrostatic charges. Flames or sparks can form during discharge.
→ Remove deposits from the surfaces to maintain conductivity.
→ Use only a damp cloth to clean the device.

4.5 SETTING UP STATIONARY ELECTROSTATIC SYSTEMS

The spray gun is a component of a stationary coating system. When setting up stationary coating systems, comply strictly with EN 50176. One of the requirements is that activation of the high voltage is only possible by using a key. But it must be possible to switch off the high voltage without a key.

4.6 SAFETY-RELEVANT INFORMATION ABOUT DISCHARGES

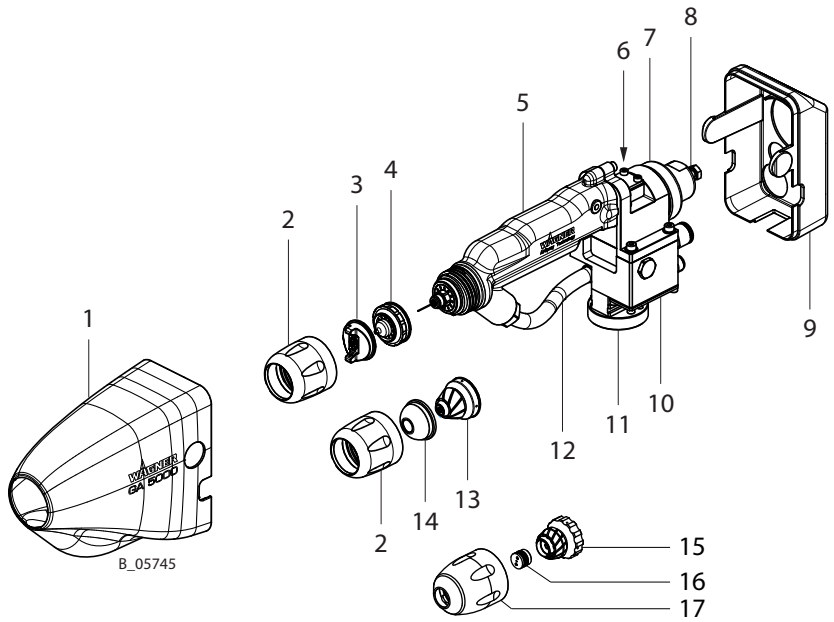
The plastic parts of the spray gun are charged electrostatically by the high-voltage field of the spray gun. Contact with plastic parts harmless discharges (brush discharges) may occur. They are completely non-hazardous for human health.

When keeping a distance of 4 to 10 mm; 0.15 to 0.4 inches between spray gun and object to be sprayed, the corona discharge at the end of the electrode is visible in the dark.

5 DESCRIPTION

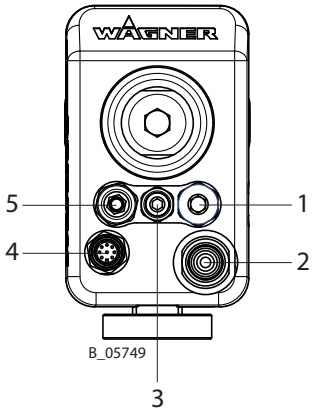
5.1 STRUCTURE (STANDARD VARIANT)

5.1.1 GA 5000EAIC DESIGN



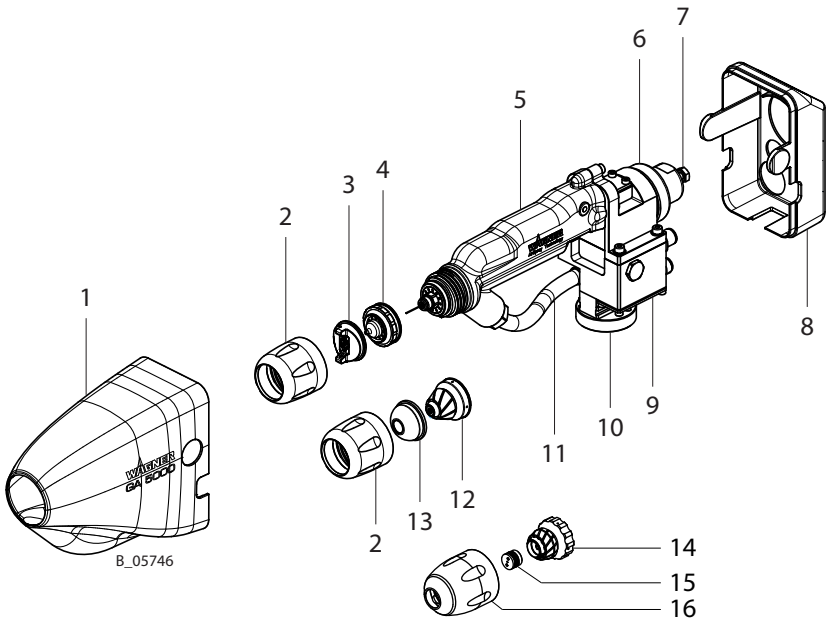
1	Front cover	10	Air diffuser housing
2	Union nut	11	Gun holder
3	Air cap	12	Product hose
4	Flat jet nozzle	13	Nozzle, AR 5000
5	Gun adapter	14	Air cap, AR 5000
6	Shaping air setting	15	Nozzle insert, EARV — Accessories Chapter 13.3.2
7	Piston housing	16	Nozzle, EARV — Accessories Chapter 13.3.2
8	Valve rod regulating screw	17	Union nut, EARV — Accessories Chapter 13.3.2
9	Rear cover		

Connections on the rear side:



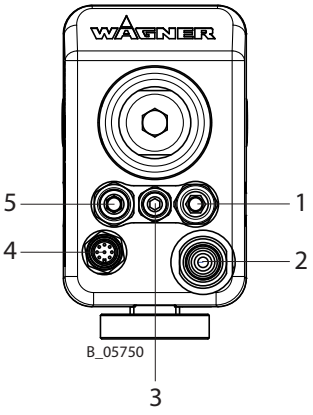
1	Connection closed with dummy plug
2	Fluid inlet
3	Control air connection (D6/red)
4	Gun cable connection
5	Shaping air or atomizing air connection (D10/blue)

5.1.2 GA 5000EAEC DESIGN



1	Front cover	9	Air diffuser housing	
2	Union nut	10	Gun holder	
3	Air cap	11	Product hose	
4	Flat jet nozzle	12	Nozzle, AR 5000	
5	Gun adapter	13	Air cap, AR 5000	
6	Piston housing	14	Nozzle insert, EARV	Accessories Chapter 13.3.2
7	Valve rod regulating screw	15	Nozzle, EARV	
8	Rear cover	16	Union nut, EARV	

Connections on the rear side:



1	Shaping air connection (D8/green)
2	Fluid inlet
3	Control air connection (D6/red)
4	Gun cable connection
5	Atomizing air connection (D10/blue)

5.2 MODE OF OPERATION

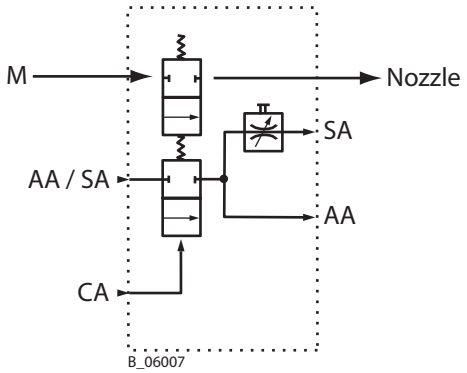
Note:
Operation of the spray gun in conjunction with the EPG 5000 control unit is described in this operating manual.

→ The high voltage for the GA 5000EA spray gun is activated directly on the EPG 5000 ontrol unit or by a signal from the superordinate controller.
→ The high voltage for the spray gun can be adapted via the voltage regulator on the EPG 5000 control unit and can be adjusted to the paint or to the spraying object.
→ **Secure gun:**
1. Switch off the mains at the EPG 5000
2. Switch off the air supply at the EPG 5000
3. Relieve the pressure of the spray gun and system

5.2.1 GA 5000EAIC MODE OF OPERATION

Pneumatic diagram:

SA = Shaping air
AA = Atomizing air
CA = Control air
M = Product



Open:
The piston in the drive is charged with control air and moves toward the rear. This ensures that the air valve which releases the shaping and atomizing air is opened first. The product valve is then opened with a mechanical delay. In this position, the pressurized coating product is applied to the work piece.

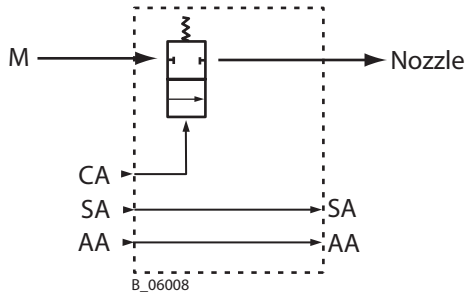
Close:
The piston is relieved, and the product valve closes due to the pressure spring which presses against the product valve tappet. The air valve is then closed, again with a spring force and mechanical delay.

Additional functions:
The shaping air throttle is used to regulate the shaping air volume, while the atomizing air is adjusted via an external pressure regulator. The two air streams do not flow separately until downstream of the air valve, so that the pressure of the shaping air corresponds roughly to that of the atomizing air and so that they influence each other during adjustment.

5.2.2 GA 5000EAEC MODE OF OPERATION

Pneumatic diagram:

SA = Shaping air
AA = Atomizing air
CA = Control air
M = Product



Open:
First, the external air valve, which enables the shaping and atomizing air, is opened. The diaphragm in the drive is then charged with control air and moves toward the rear, opening the product valve. In this position, the pressurized coating product is applied to the work piece.

Close:
If the control air is deactivated, the product valve closes due to the pressure spring.
The air valve is then closed externally.

Additional functions:
The shaping air pressure and the atomizing air pressure are set externally via separate pressure regulators. Both air flows are supplied separately, which allows them to be set separately.

5.3 PROTECTIVE AND MONITORING EQUIPMENT

The following functions are provided for safety:

- Electrical monitoring of high voltage and spray current (maximum ignition energy 0.24 mJ)
  → No ignition danger and personnel danger
- Electrical monitoring of the spray gun

⚠ WARNING

Protective and monitoring equipment!
Risk of injury and damage to the device.

→ Protective and monitoring equipment must not be removed, modified or rendered unusable.
→ Regularly check for perfect functioning.
→ If defects are detected on protective and monitoring equipment, the system must not be operated until these defects are remedied.

5.4 SCOPE OF DELIVERY

Order No.	Description
2360900	Spray gun, GA 5000EAIC
2360901	Spray gun, GA 5000EAEC
	The spray guns are delivered without control unit, product and air hose, electric cable, air cap and nozzle.

Each spray gun includes the following as standard equipment:

Order No.	Description
2309368	Valve needle assembly tool
2325263	Clamping screw assembly tool
2360925	Declaration of Conformity for ES 5000 Automatic
2360923	Operating manual German
see Chapter 1.3	Operating manual in local language

The spray gun basic version can be adapted optimally to any application depending upon the requirements and the desired accessories with the help of spray gun configuration.

The delivery note shows the exact scope of delivery.

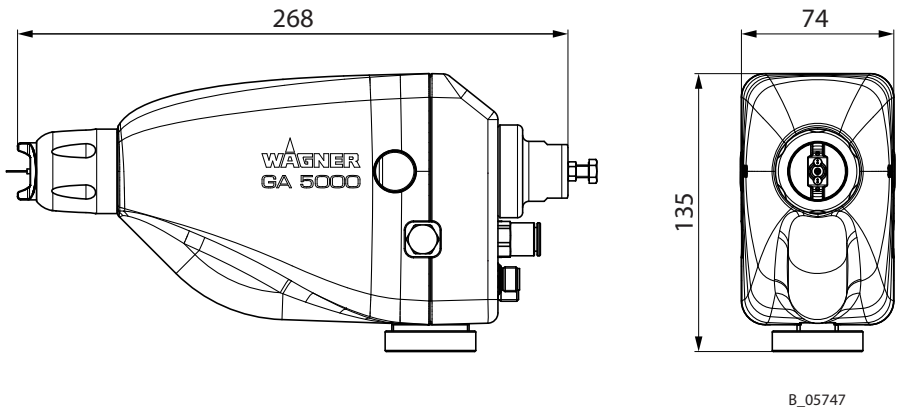
5.5 TECHNICAL DATA

Control air pressure (open product valve)	0.4–0.8 MPa; 4–8 bar; 58–116 psi
Maximum atomizing air pressure	8 bar; 0.8 MPa; 116 psi
Maximum shaping air pressure	0.8 MPa; 8 bar; 116 psi
Maximum product pressure	8 bar; 0.8 MPa; 116 psi
Input voltage	maximum 20 Vpp
Input current	maximum 1.0 A AC
Maximum output voltage	80 kV
Maximum output current	100 µA
Polarity	Negative
Maximum discharge energy	0.24 mJ
Fluid inlet	G1/4"
Atomizer air connection	D10
Shaping air connection (only for GA 5000EAEC)	D8
Control air connection	D6
Weight (without houses)	1.0 kg; 2.2 lb
Flow rate	according to nozzle size (see nozzle table in "Accessories" chapter)
Ambient temperature	0 °C - 40 °C; 32 °F - 104 °F
Maximum product temperature	50 °C; 122 °F
Maximum surface temperature	85 °C; 185 °F
Compressed air quality: free from oil and water	Quality standard 6.5.2 according to ISO 8573.1, 2010 6: Particle density ≤ 5 mg/m³ 5: Humidity: pressure dew point ≤ +7 °C 2: Oil content ≤ 0.1 mg/m³
Sound level at 0.3 MPa; 3 bar; 43.5 psi air pressure and 0.3 MPa; 3 bar; 43.5 psi product pressure *	73 dB(A)

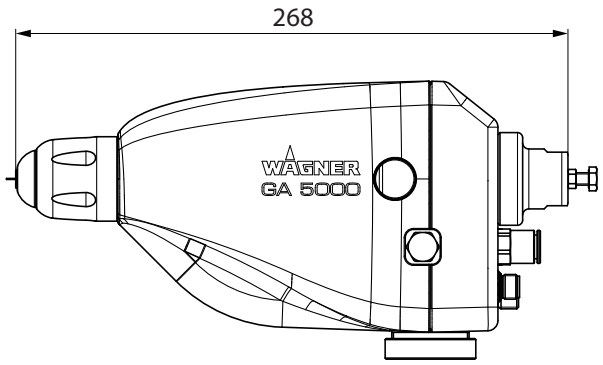
* A-rated sound pressure level measured at 1 m distance, LpA1m, in accordance with DIN EN 14462: 2005.

5.5.1 GA 5000EA DIMENSIONS

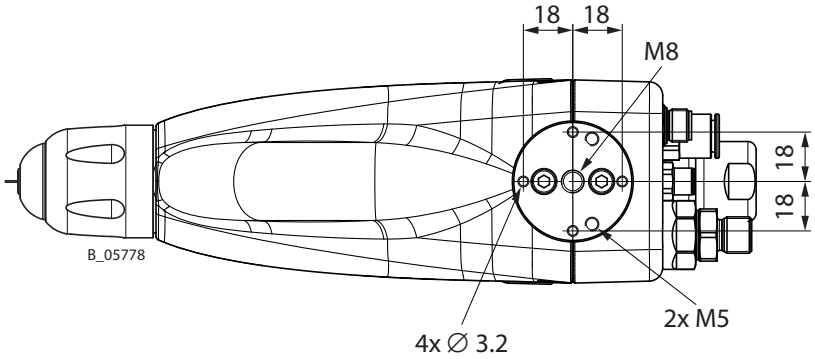
GA 5000EA with flat jet nozzle



GA 5000EA with round jet nozzle



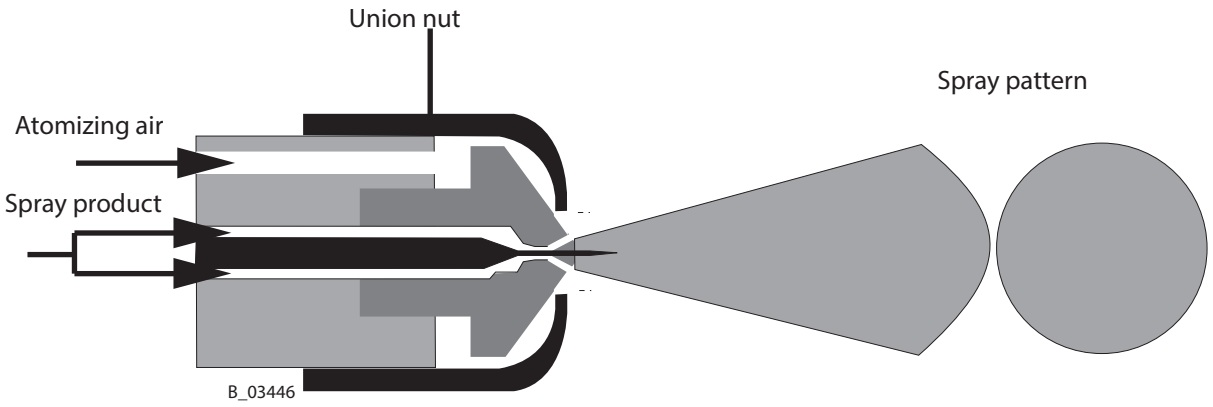
Connecting dimensions of the connection plate:



5.6 SPRAYING PROCEDURE

5.6.1 SPRAYING PROCEDURE FOR ROUND JET AIR ATOMIZING

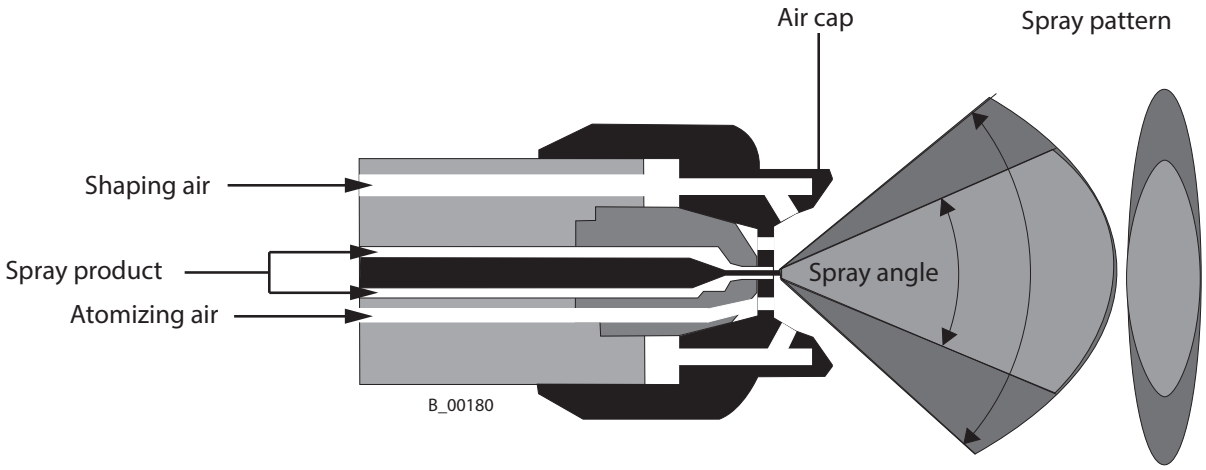
In this process, the spray product is fed to the nozzle with a pressure of approx. 0.05–0.2 MPa; 0.5–2 bar; 7–29 psi. The atomizing air at approx. 0.25 - 0.4 MPa; 2.5 - 4 bar; 36 - 58 psi produces a soft round jet, which largely eliminates the problem of overlapping boundaries. There are various nozzles and air caps available as accessories for the respective spray product and the discharge quantities.



Advantages
- Thin layers
- Uniform coating thickness
- Perfect finish

5.6.2 SPRAYING PROCEDURE FOR FLAT JET AIR ATOMIZING

In this process, the spray product is fed to the nozzle at a pressure of 0.05–0.2 MPa; 0.5–2 bar; 7–29 psi. The atomizing air at approx. 0.25 - 0.4 MPa; 2.5 - 4 bar; 36 - 58 psi produces a soft round jet, which largely eliminates the problem of overlapping boundaries. The shaping air allows modification of the spray jet. There are various nozzles and air caps available as accessories for the respective spray product and the discharge quantities.

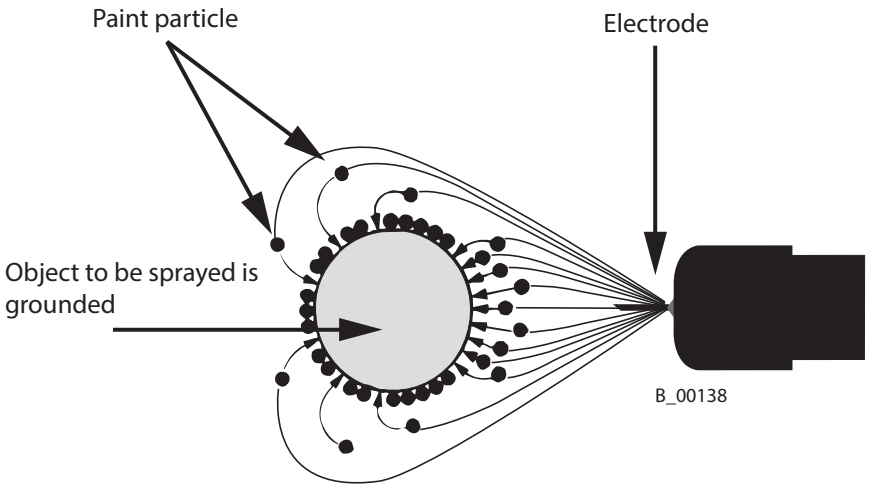


Advantages

- Large range of adjustment of the spray jet
- Thin layers
- Uniform coating thickness
- Perfect finish

5.6.3 ELECTROSTATIC EFFECT

The spray gun produces an electrostatic field by means of the high-voltage electrode. As a result, the paint particles atomized by the spray gun are carried to the grounded work piece by kinetic and electrostatic energy, where they adhere finely dispersed to the object to be sprayed.



Advantages

- Very high application effectiveness
- Low over spray
- Coating of entire circumferences due to the electrostatic effect
- Savings in working time

5.7 THE WAGNER ELECTROSTATIC AIR SPRAYING SYSTEM

The nozzle range (chapter 13) provided by WAGNER allows optimum coating results for any application.

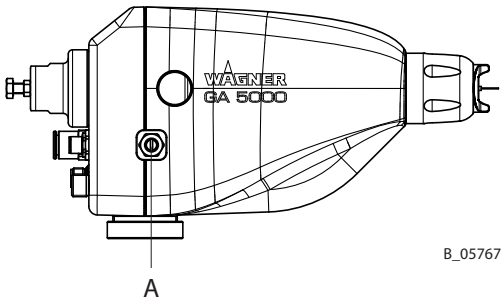
General criteria for selection of nozzles
Flat jet → for large-surface parts
Round jet → for smaller delicate parts

Options for influencing the jet spray / spray pattern:

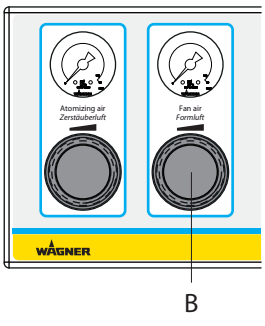
Description		Modification
Product pressure	P_{Mat}	+ or -
Atomizing air pressure	P_{ZL}	+ or -
Shaping air regulation	L_{FL}	from open to closed
Stop screw product valve	A_{MV}	from open to closed
Nozzle sizes	DS	Flow rate
Electrostatics	ES	+ or - or off

The spray jet width by GA 5000EAIC spray gun is adjusted via the shaping air regulation (A) on the gun and on the GA 5000EAEC spray gun via the air control knob (B) on the EPG 5000 control unit in the case of flat jet spraying.

GA 5000EAIC



GA 5000EAEC



5.7.1 PRESSURE SETTINGS FOR ROUND JET NOZZLES

There are 4 nozzle sizes, D8, D12, EARV LV and EARV HV available. The air cap and nozzle are adjusted according to size to each other and may not be exchanged.

Pressure setting	Nozzle D8 (small)	Nozzle D12 (large)
Product pressure (P_{MAT})	0.8 bar to 1.2 bar	0.8 bar to 1.6 bar
Atomizing air pressure (P_{ZL})	2.0 bar to 3.0 bar	2.3 bar to 4.0 bar

Pressure setting	EARV LV	EARV HV
Product pressure (P_{MAT})	0.8 bar to 1.6 bar	0.8 bar to 1.6 bar
Atomizing air pressure (P_{ZL})	2.3 bar to 4.0 bar	2.3 bar to 4.0 bar

→ The table contains default values. Depending on the product, conditions and the desired result different values are possible or necessary.

5.7.2 PRESSURE SETTINGS FOR FLAT JET NOZZLES

There are 8 flat jet nozzle sizes from 0.6 up to 2.0 available. There are 2 air cap types (s = small, w = wide) with 3 different nozzle sizes each. Each air cap can be used in combination with 2 to 3 nozzles sizes. Only matching nozzle components may be used.

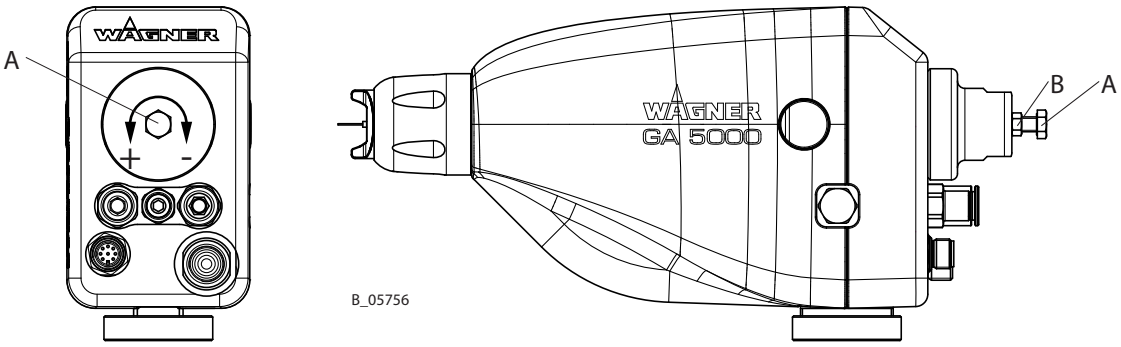
Pressure settings	Air cap 0.6-0.8	Air cap 1.0-1.4	Air cap 1.6-2.0
Product pressure (P_{MAT})	0.5 bar to 1.0 bar	1.0 bar to 2.0 bar	1.0 bar to 3.0 bar
Atomizing air pressure (P_{ZL})	1.0 bar to 3.0 bar	1.5 bar to 4.0 bar	1.5 bar to 5.0 bar

→ The table contains default values. Depending on the product, conditions and the desired result different values are possible or necessary.

Air cap type	Suitable nozzle sizes
0.4 - 0.8S / 0.4 - 0.8W	0.6 / 0.8
1.0 - 1.4S / 1.0 - 1.4W	1.0 / 1.2 / 1.4
1.6 - 2.0S / 1.6 - 2.0W	1.6 / 1.8 / 2.0

5.7.3 ADJUSTING SCREW

By turning the rear adjusting screw of the gun, the outlet cross-section can be adjusted on the product valve. This cross-section is maximized by turning the screw leftwards, by turning the screw rightwards the cross-section is minimized. With the same pressure settings, turning to the right results in a reduction of the flow rate and finer atomization.
Note: The spray pattern is changed with this setting.
After adjusting fix the screw (A) by tightening the nut (B) again.



Turn to the left:
→ Stop to back
→ Larger cross-section

Turn to the right:
→ Stop to front
→ Smaller cross-section

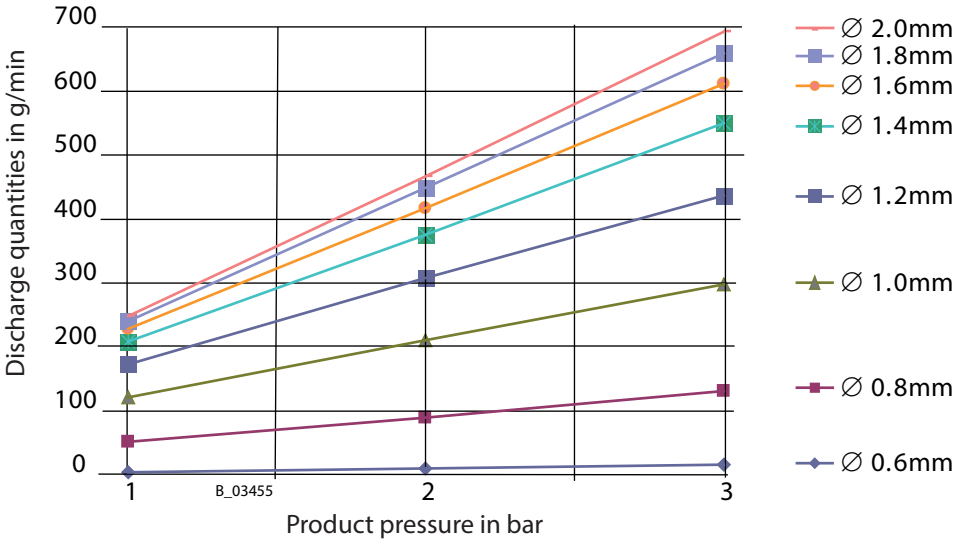
5.7.4 ELECTROSTATIC AND ATOMIZATION

The electrostatic charging of the spray cloud produces a more homogeneous distribution of paint particles on the object. - See also Chapter 5.6.3.

5.7.5 DISCHARGE QUANTITY MEASUREMENTS

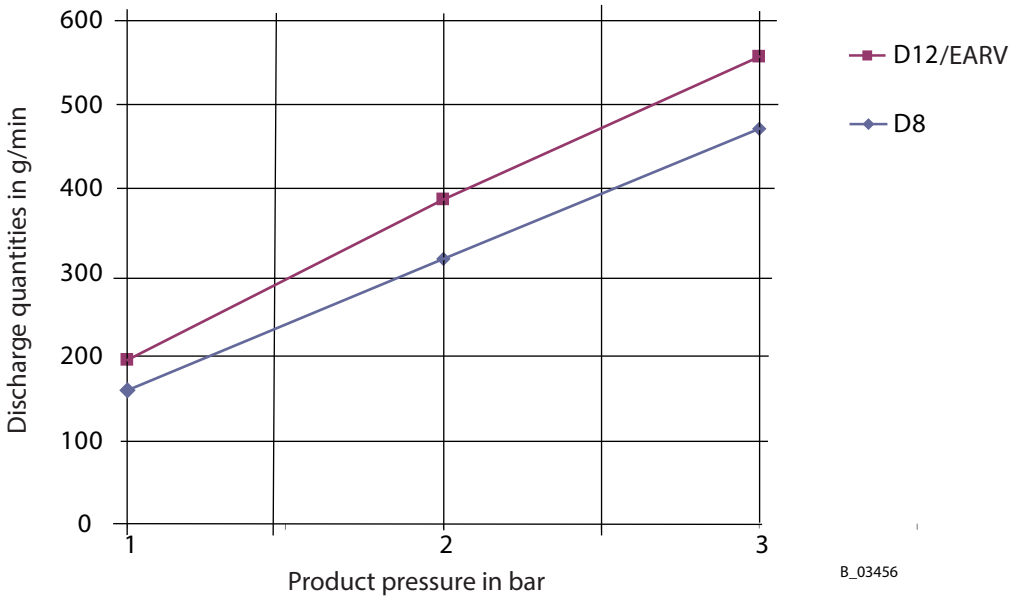
Flat jet nozzles

Device: GA 5000EA / flat jet nozzle
Viscosity: 22 DIN/4 seconds
Product hose: Length 7.5 m; 24.6 ft
Inside diameter 6 mm; 0.24 inches



Round spray nozzles

Device: GA 5000EA / round jet nozzle
Viscosity: 22 DIN/4 seconds
Product hose: Length 7.5 m; 24.6 ft
Inside diameter 6 mm; 0.24 inches



6 ASSEMBLY AND COMMISSIONING

6.1 TRAINING ASSEMBLY/COMMISSIONING STAFF

⚠ WARNING

Incorrect installation/operation!
Risk of injury and damage to the device.

→ The assembly and commissioning staff must have the technical skills to safely commission the device.
→ When assembling, commissioning and carrying out all work, read and follow the operating manuals and safety regulations for the additionally required system components.

A skilled person must check to ensure that the device is in a reliable state after it is installed and commissioned.

6.2 STORAGE CONDITIONS

Until the point of assembly, the device must be stored in a dry location, free from vibrations and with a minimum of dust. The device must be stored in closed rooms.

The air temperature at the storage location must be between -20 °C and +60 °C (-4 °F and +140 °F).

The relative air humidity at the storage location must be between 10 and 95% (without condensation).

6.3 INSTALLATION CONDITIONS

The air temperature at the installation site must be in a range between 0 °C and 40 °C; 32 °F and 132 °F.

The relative air humidity at the installation site must be between 10 and 95% (without condensation).

6.4 TRANSPORTATION

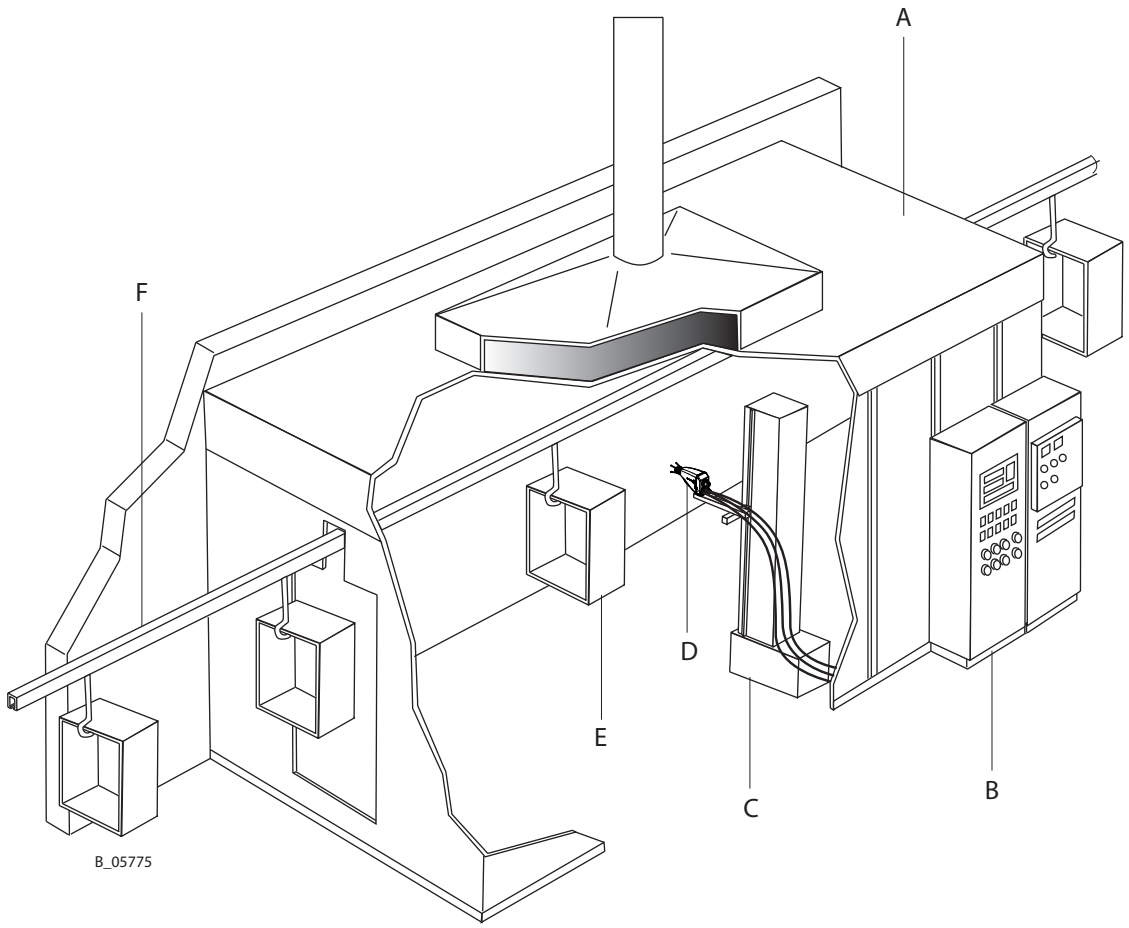
Protect valve needle with protection cap (Order No. 2315709).

6.5 ASSEMBLY AND INSTALLATION

6.5.1 TYPICAL ELECTROSTATIC SPRAYING SYSTEM

The GA 5000EA spray gun must be combined with various components to make up a spraying system. The system shown in the figure is only one example of an electrostatic air spraying system. Your WAGNER distributor would be happy to assist you in creating a spraying system solution that meets your individual needs. You must familiarize yourself with the operating manuals and the safety regulations of all additional system components before starting commissioning.

	**⚠ WARNING** **Incorrect installation/operation!** Risk of injury and damage to the device. → When commissioning and for all work, read and follow the operating manual and safety regulations for the additionally required system components.



A	Spray booth
B	Controller
C	Reciprocator
D	Electrostatic spray gun
E	Work piece
f	Conveyor

6.5.2 CONNECTING GA 5000EAIC

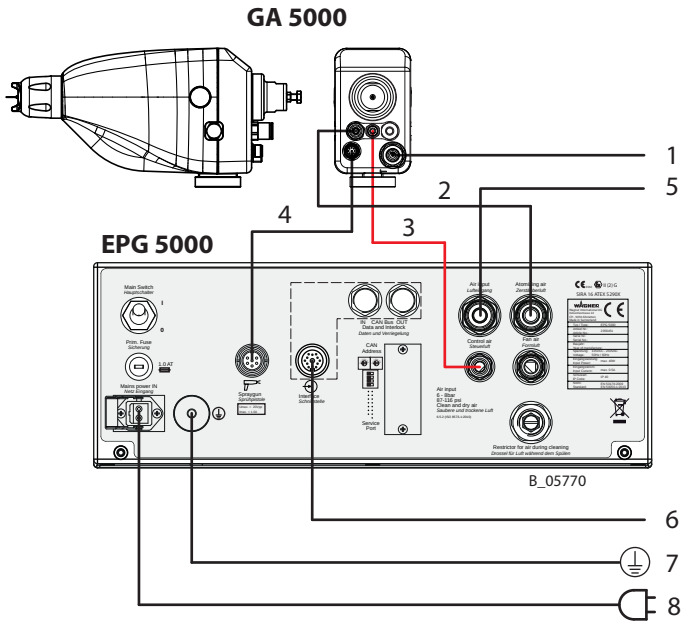
WARNING

Incorrect installation/operation!
Risk of injury and damage to the device.

→ When commissioning and for all work, read and follow the operating manual and safety regulations for the additionally required system components.

Procedure:

1. Place the control unit outside the explosion zone.
2. Mount spray gun to an grounded gun mounting.
3. Connect the grounding cable to the control unit and the signal ground.
4. Connect the gun connection cable to the control unit.
5. Connect the control unit to the higher-level controller (if available).
6. Connect the air hoses to the control unit and the spray gun in accordance with the figure below.
7. Set all airs to "0" using the regulator on the front side of the control unit!
8. Connect the control unit to the compressed air supply.
9. Connect the spray gun to the product supply system.
10. Connect the control unit to the power supply.



1	for the product supply system	4	Gun cable	7	Grounding cable
2	Shaping air and atomizing air hose	5	for the compressed air supply	8	Mains cable
3	Control air hose	6	Control cable		

6.5.3 CONNECTING GA 5000EAEC

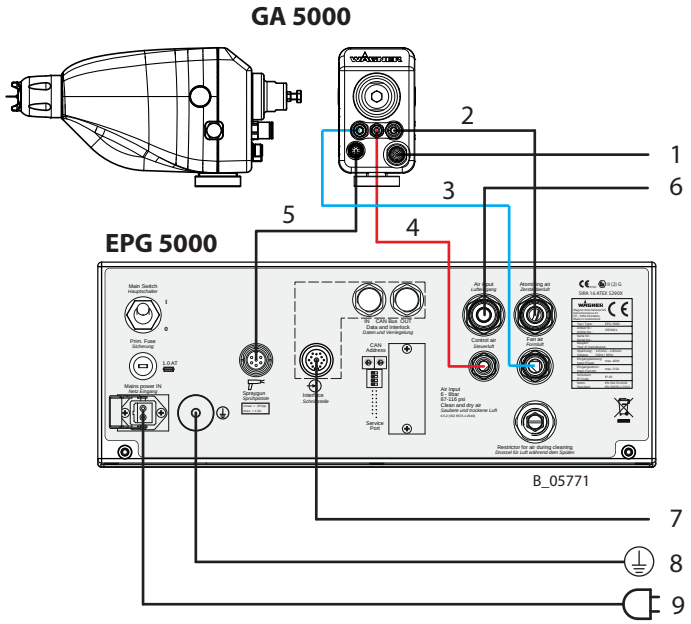
WARNING

Incorrect installation/operation!
Risk of injury and damage to the device.

→ When commissioning and for all work, read and follow the operating manual and safety regulations for the additionally required system components.

Procedure:

1. Place the control unit outside the explosion zone.
2. Mount spray gun to an grounded gun mounting.
3. Connect the grounding cable to the control unit and the signal ground.
4. Connect the gun connection cable to the control unit.
5. Connect the control unit to the higher-level controller (if available).
6. Connect the air hoses to the control unit and the spray gun in accordance with the figure below.
7. Set all airs to "0" using the regulator on the front side of the control unit!
8. Connect the control unit to the compressed air supply.
9. Connect the spray gun to the product supply system.
10. Connect the control unit to the power supply.



1	for the product supply system	4	Control air hose	7	Control cable
2	Atomizing air hose	5	Gun cable	8	Grounding cable
3	Shaping air hose	6	for the compressed air supply	9	Mains cable

6.5.4 VENTILATION OF THE SPRAY BOOTH

The electrostatic spraying equipment may only be operated in defined spraying areas and in accordance with the EN 12215 standard or under comparable ventilation conditions.
The electrostatic spraying equipment must be locked to the technical ventilation so that the coating product supply and the high voltage are not effective as long as the technical ventilation is not operated with the minimum exhaust air volume flow or a larger exhaust air volume flow.
Ensure that the excess coating product (overspray) will be collected up safely.

⚠ WARNING

Toxic and/or flammable vapor mixtures!
Risk of poisoning and burns.

→ Operate the device in a spray booth approved for the working materials.
-or-
→ Operate the device on an appropriate spraying wall with the ventilation (extraction) switched on.
→ Observe national and local regulations for the exhaust air speed.

6.5.5 AIR SUPPLY

The use of an air filter with air regulator ensures that only dry, clean atomizing air gets into the spray gun. Dirt and moisture in the atomizing air worsens the spraying quality and spraying pattern.

⚠ WARNING

Hose connections!
Risk of injury and damage to the device.

→ Do not exchange hose connections of product hose and air hose.

6.5.6 PRODUCT SUPPLY

NOTICE

Impurities in the spraying system!
Spray gun blockage, products harden in the spraying system.

→ Flush the spray gun and paint supply with a suitable flushing agent.

⚠ DANGER

Bursting hose, bursting threaded joints!
Danger to life from injection of product.

→ Ensure that the hose material is chemically resistant to the sprayed products.
→ Ensure that the spray gun, threaded joints and product hose between the device and the spray gun are suitable for the pressure generated in the device.
→ Ensure that the following information can be seen on the high-pressure hose:
- Manufacturer
- Permissible operating pressure
- Date of manufacture.

6.5.7 GROUNDING

Perfect grounding of all conductive parts such as floors, walls, roofs, barriers, work pieces, transport devices, coating product tank, coating product supply or construction parts in the spray area with exception of the high-voltage parts during normal operation is important for optimum coating and safety.
Parts of the booth must be grounded in accordance with EN 12215.

⚠ WARNING

Discharge of electrostatically charged components in atmospheres containing solvents!
Explosion hazard from electrostatic sparks or flames.

→ Ground all device components.
→ Ground the work pieces to be coated.

⚠ WARNING

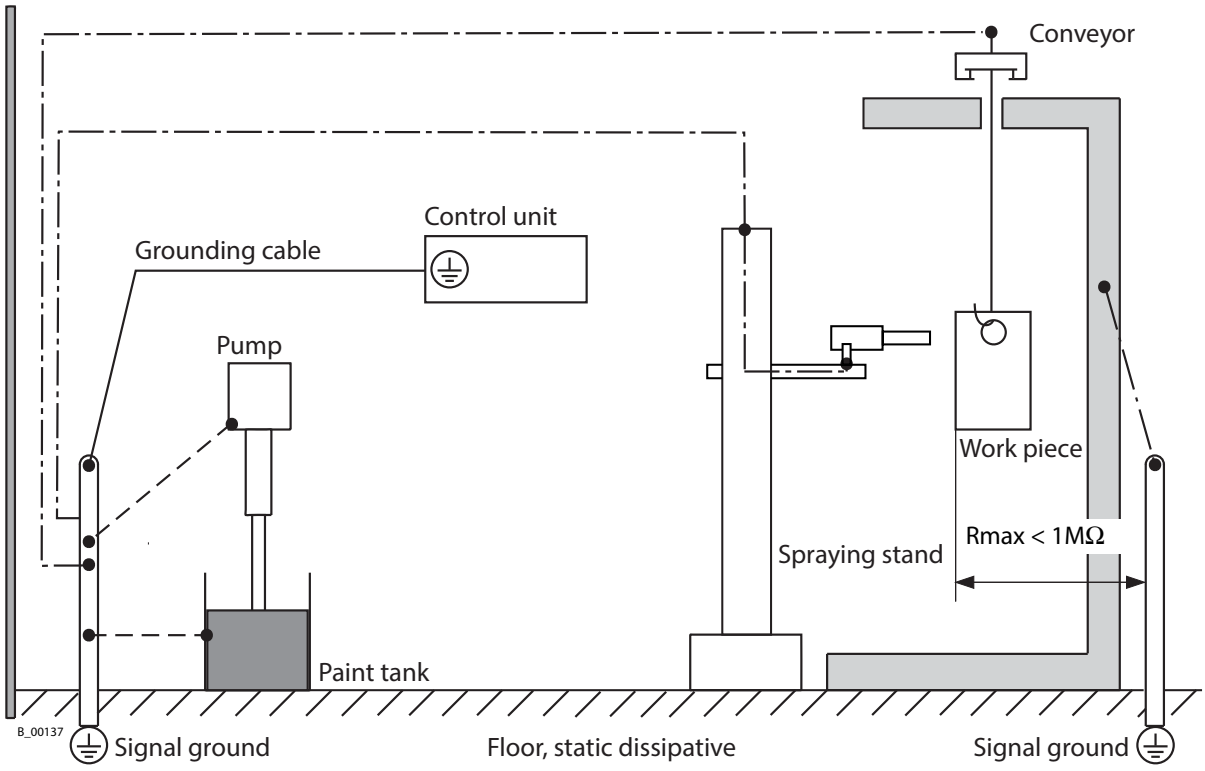
Heavy paint mist if grounding is insufficient!
Danger of poisoning.
Insufficient paint application quality.

→ Ground all device components.
→ Ground the work pieces to be coated.

A poorly grounded work piece causes:
- very bad wrap around,
- uneven coating,
- back spraying to the spray gun (contamination) and coater.

Prerequisites for perfect grounding and coating are:
- Clean work piece suspension.
- Grounding of spray booth, conveyor system and suspension on the building side in accordance with the operating manuals or the manufacturer's information.
- Grounding of all conductive parts within the working area.
- The grounding resistance of the work piece must not exceed 1 MΩ (megohm). (Resistance to ground measured at 500 V or 1000 V).
- Connect the control unit to the signal ground.
- Mount spray gun to an grounded gun mounting.
- Connect all ground cables using a short and direct route.
- Safety shoes must be static dissipative.

Grounding scheme (example)



Minimum cable cross-section

Control unit	4 mm² (AWG 12)
Pump	4 mm² (AWG 12)
Paint tank	4 mm² (AWG 12)
Reciprocator	16 mm² (AWG 6)
Conveyor	16 mm² (AWG 6)
Booth	16 mm² (AWG 6)
Spraying stand	16 mm² (AWG 6)

6.6 PREPARATION OF LACQUER

The viscosity of the lacquer is of great importance. The best spraying results are obtained with values between 15 and 30 DIN/4 seconds (measured in immersion flow cup DIN 4 mm; 0.16 inches).

In the case of application problems contact the lacquer manufacturer.

6.6.1 VISCOSITY CONVERSION TABLE

mPa s	Centipoise	Poise	DIN Cup 4 mm 0.16 inch	Ford Cup 4	Zahn 2
10	10	0.1		5	16
15	15	0.15		8	17
20	20	0.2		10	18
25	25	0.25	14	12	19
30	30	0.3	15	14	20
40	40	0.4	17	18	22
50	50	0.5	19	22	24
60	60	0.6	21	26	27
70	70	0.7	23	28	30
80	80	0.8	25	31	34
90	90	0.9	28	32	37
100	100	1	30	34	41
120	120	1.2	33	41	49
140	140	1.4	37	45	58
160	160	1.6	43	50	66
180	180	1.8	46	54	74
200	200	2	49	58	82
220	220	2.2	52	62	
240	240	2.4	56	65	
260	260	2.6	62	68	
280	280	2.8	65	70	
300	300	3	70	74	
320	320	3.2			
340	340	3.4			
360	360	3.6	80		
380	380	3.8			
400	400	4	90		

6.7 COMMISSIONING

6.7.1 SAFETY INSTRUCTIONS

→ Observe the safety instructions in Chapter 4 and Chapter 7.2.
→ Observe the general rules for making adjustments to the spray gun → Chapter 7.2.2.

6.7.2 PREPARATION FOR COMMISSIONING

NOTICE

Impurities in the spraying system!
Spray gun blockage.

→ Flush the spray gun and paint supply with a suitable flushing agent before commissioning.

6.7.3 COMMISSIONING

The following points should be noted before commissioning:

→ Make sure that all other conductive parts within the work area are grounded.
→ Lock the external release with the exhaust air unit.
→ Lock the external release with an appropriate tool (e.g., key switch) (the high-voltage supply must be secured to prevent unauthorized persons from switching it on).
→ Check that all product-conveying connections are correctly connected.
→ Check that all air-conveying connections are correctly connected.
→ Visually check the permissible pressures for all the system components.
→ Check the level of the separating agent in the pump and fill up if necessary.
→ Provide product tank, tanks for flushing agent and an empty tank for return flow.
→ The interface on the rear of the control unit must be protected with a cover.
→ Connect the system to the air supply.
→ When first commissioning the unit → Flush the system in accordance with the operating manuals for the other components.

6.8 VERIFYING A SAFE OPERATIONAL CONDITION

A skilled person must check to ensure that the device and the spraying system are in a safe state after they are installed and commissioned.

This includes:
– Carry out a safety checks in accordance with Chapter 8.2.3.
– Function test in accordance with Chapter 11.

7 OPERATION

7.1 TRAINING THE OPERATING STAFF

⚠ WARNING

Incorrect operation!
Risk of injury and damage to the device.

→ The operating staff must be qualified to operate the entire system.
→ The operating staff must be familiar with the potential risks associated with improper behavior as well as the necessary protective devices and measures.
→ Before work commences, the operating staff must receive appropriate system training.

7.2 SAFETY INSTRUCTIONS

→ Observe safety instructions in Chapter 4.

⚠ WARNING

Incorrect operation!
Risk of injury and damage to the device.

→ If contact with lacquers or cleaning agents causes skin irritation, appropriate precautionary measures must be taken, e.g., wearing protective clothing.
→ The footwear worn by operating staff must comply with EN ISO 20344. The measured insulation resistance must not exceed 100 megohms.
→ The protective clothing, including gloves, must comply with EN ISO 1149-5. The measured insulation resistance must not exceed 100 megohms.

⚠ WARNING

Unintentional putting into operation!
Risk of injury.

Before any work on the device, in the event of work interruptions and malfunctions:
→ Switch off the energy/compressed air supply.
→ Relieve the pressure from the spray gun and unit.
→ Secure the spray gun against actuation.
→ In the event of functional faults: remedy the fault as described in the "Troubleshooting" chapter.

⚠ WARNING

Discharge of electrostatically charged components in atmospheres containing solvents!
Explosion hazard from electrostatic spark-over.

→ Use gun only with fitted nozzle, air cap and union nut.

7.2.1 EMERGENCY DEACTIVATION

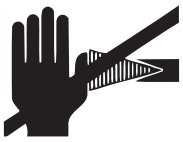
In the case of unforeseen occurrences, proceed as follows:
1. Switch off control unit.
2. Close the compressed air supply.
3. Relieve pressure according to the operating manual of the product pressure generator.

7.2.2 GENERAL RULES FOR MAKING ADJUSTMENTS TO THE SPRAY GUN

⚠ DANGER

High-voltage field!
Danger to life from malfunction of heart pacemakers.

Make sure that persons with pacemakers:
→ Do not work with the electrostatic spray gun.
→ Do not enter the high-voltage area.



⚠ WARNING

High-pressure spray jet!
Danger to life from injecting paint or solvent.

→ Never reach into the spray jet.
→ Never point the spray gun at people.
→ Consult a doctor immediately in the event of skin injuries caused by paint or solvent. Inform the doctor about the paint or solvent used.
→ Never seal defective high-pressure parts; instead relieve the pressure from them and replace them immediately.
→ Wear the appropriate protective clothing, gloves, eyewear and respiratory protection.

7.3 WORKING

7.3.1 CHECKING THE GA 5000EA SPRAY PATTERN (WITHOUT ELECTROSTATICS)

Start air-spraying (without electrostatics)

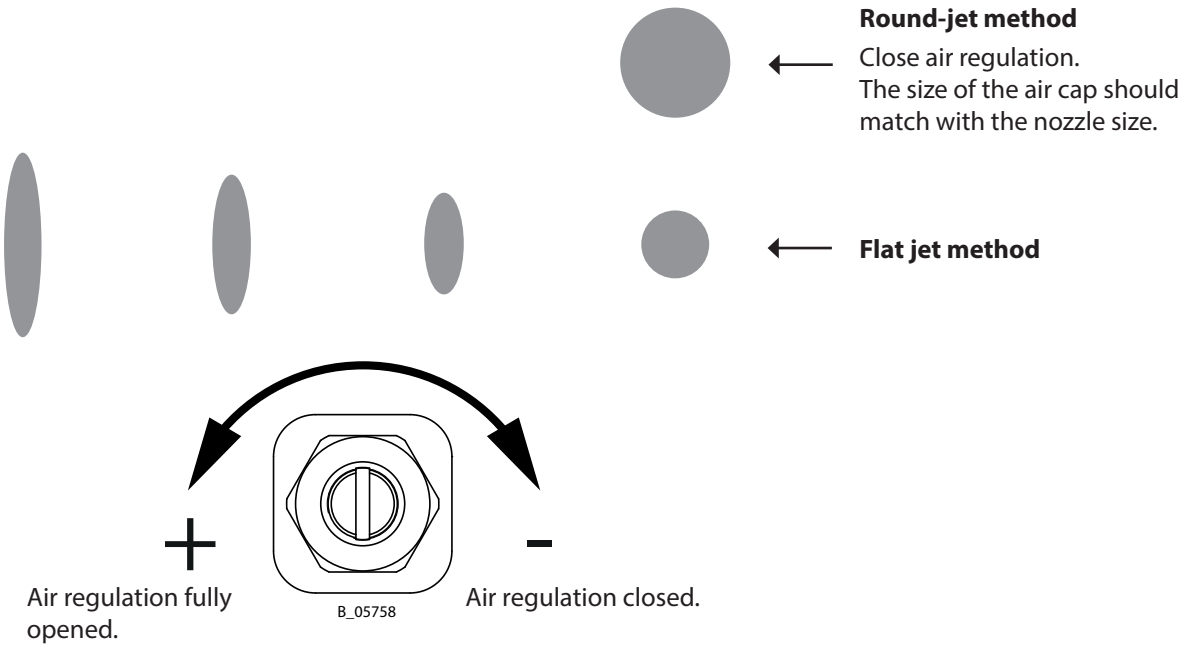
1. Switch off high voltage at the control unit. (The grounding of the spray gun via the gun cable is maintained.)
2. Start up with product supply generator set to approx. 0.05 to 0.15 MPa; 0.5 to 1.5 bar; 7 to 22 psi operating pressure. → See corresponding operating manual.
3. Set atomizing air regulator to approx. 2 - 4 bar.
4. Open air regulation on the gun.
5. Set the union nut as far as the stop.
6. Spray (switch on controller) and check the atomization.
7. Adjust the fluid pressure on the product pressure generator until correct discharge quantity is achieved.
8. Adjust the atomizing air regulator until optimal atomization is achieved.
9. Flat jet process: with the air adjustment on the gun, set the ratio of shaping air/ atomizing air so as to achieve an optimum spray pattern.

Changing the Flow Rate

→ Adapt product pressure.
→ Use a different nozzle (see Chapter 13).
→ Limit the valve needle stroke with the adjustment screw on the rear of the gun.

Spray pattern and air regulation

The spray pattern can be optimally adjusted to suit the object being sprayed using the air regulator. The illustration shows the influence of the regulator on the spraying pattern. Other nozzle sizes can be used to obtain larger or smaller spraying patterns.

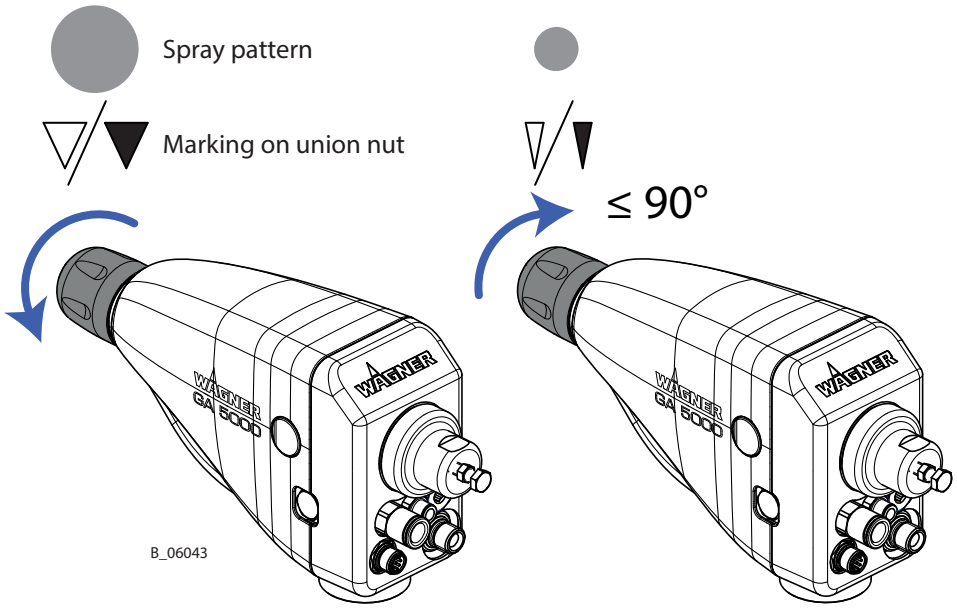


Adjustable EARV 5000 round jet nozzle

By turning the union nut the spray pattern can be adjusted to suit the object being sprayed. The illustration shows the influence of the turning on the spraying pattern.

1. Set the union nut as far as the stop.
2. Open maximum 1/4 turn. The atomizing is good in this area.
   → The union nut should not protrude beyond the nozzle body.

→ Always fully open the air regulation.



Low viscosity, large diameter

Low viscosity, small diameter

High viscosity, large diameter

High viscosity, small diameter

7.3.2 SPRAYING GA 5000EA

1. Insert the desired nozzle into the spray gun.
2. Turn on the control unit. → See corresponding operating manual.
3. Start up with product supply generator set to approx. 0.05 to 0.15 MPa; 0.5 to 1.5 bar; 7 to 22 psi operating pressure. → See corresponding operating manual.
4. Set atomizing air regulator to approx. 2 - 4 bar.
5. Open air regulation of the gun.
6. Spray on a test object (switch gun on).
   → Activation of the spray gun takes place via the controller.
7. Adjust the product pressure and atomizing air in accordance with the nozzle and object.
   Rule of thumb: Set atomizing air pressure approx. three times higher than the product pressure.

Round-jet method

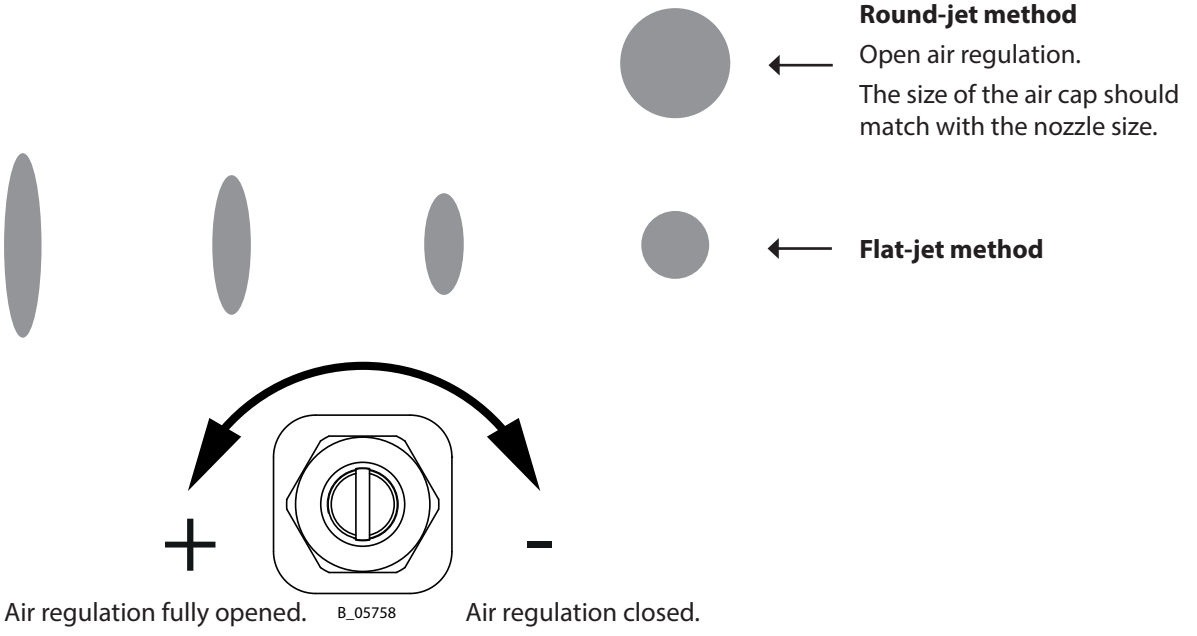
8. Open air regulation.
9. Changing the EARV 5000 spray jet width: Switch off high voltage. Turning the union nut in accordance with Chapter 7.3.1.

Flat-jet method: Changing the spray jet width

8. Change the width of the spray jet by turning the air regulator (on the side of the spray gun, see photo) or by appropriate selection of the air caps and nozzles combination.

Flow rate

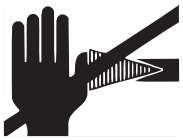
9. The product quantity can be reduced by:
   - Minimizing the product pressure.
   - Use a different nozzle size. → See Chapter 13.
   - Limit the valve needle stroke with the adjustment screw on the rear of the gun.



7.3.3 PRESSURE RELIEF/WORK INTERRUPTION

The pressure must always be relieved when:
- The spraying tasks are finished.
- The spraying system is maintained.
- Cleaning tasks are carried out on the spraying system.
- The spraying system is moved to another location.
- Something must be checked on the spraying system.
- The valve seat is replaced on the gun.

→ Observe general safety instructions in Chapter 4.



⚠ WARNING

High-pressure spray jet!
Danger to life from injecting paint or solvent.

→ Never reach into the spray jet.
→ Never point the spray gun at people.
→ Consult a doctor immediately in the event of skin injuries caused by paint or solvent. Inform the doctor about the paint or solvent used.
→ Never seal defective high-pressure parts; instead relieve the pressure from them and replace them.
→ Wear the appropriate protective clothing, gloves, eyewear and respiratory protection.

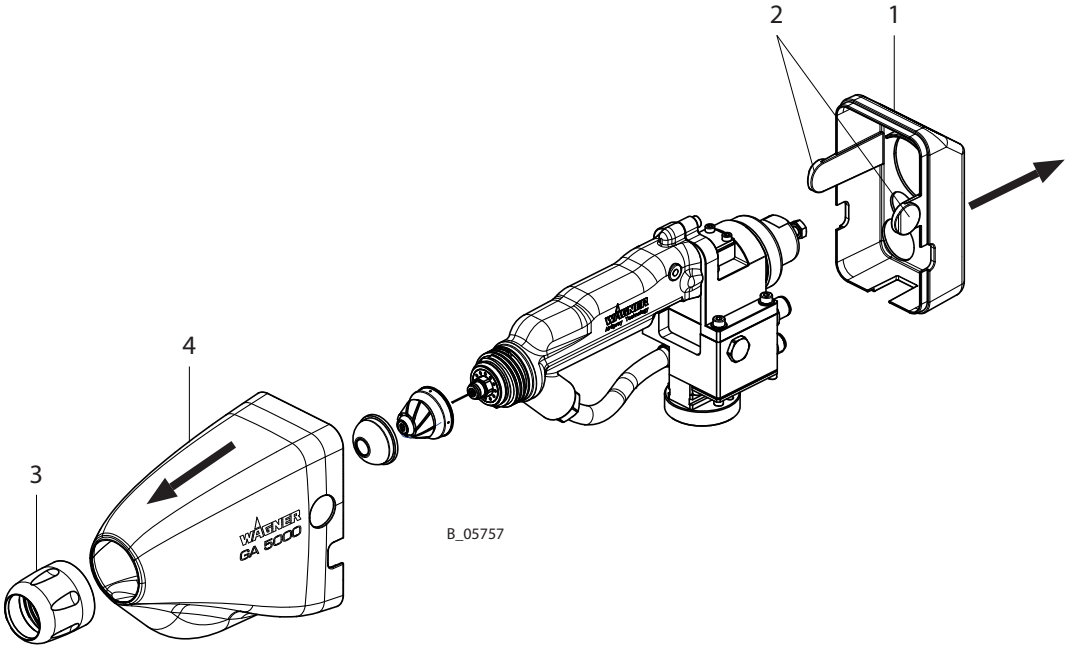
Process for relieving pressure

1. Switch off high voltage at the control unit.
2. Turn compressed air regulator for shaping and atomizing air on the EPG 5000 to "0".
3. Close the compressed air supply on the material side upon the product pressure generator.
4. Relieve the pressure of gun and system, e.g., by switching on gun without high voltage.
5. Fill flushing agent and adjust pressure.
6. Thoroughly flush out the spray gun.
7. Relieve the pressure on the gun and the system.
8. Clean gun and dry it with a cloth or a blow gun.

7.3.4 DISMANTLING THE GUN COVER

Note:
For changing nozzles, the cover does not have to be removed!

1. Press the snap fit (2) together and pull off the rear cover (1) to the back.
2. Unscrew union nut (3) and pull off front cover (4) to the front.



7.3.5 CHANGING FROM AIR ROUND JET TO AIR FLAT JET

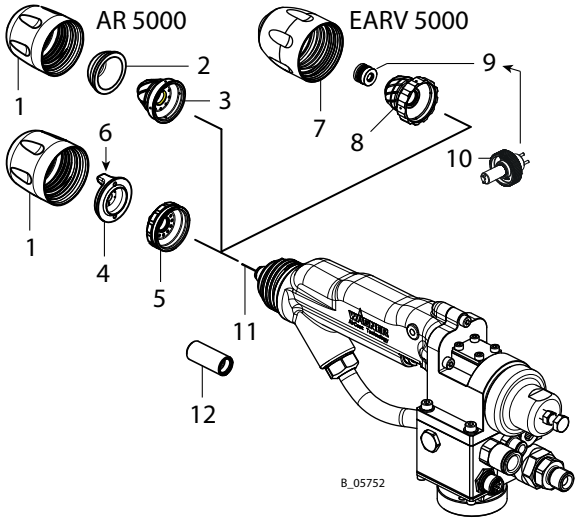
NOTICE

Defective electrode!
Material damage due to functional faults.

→ Do not damage the electrode.

Flush spray gun:

1. Switch off high voltage at the control unit.
2. Turn compressed air regulator for shaping and atomizing air on the EPG 5000 to "0".
3. Close the compressed air supply on the material side upon the product pressure generator.
4. Relieve the pressure of gun and system, e.g., by switching on gun without high voltage.
5. Fill flushing agent and adjust pressure.
6. Thoroughly flush out the spray gun.
7. Relieve the pressure on the gun and the system.



Dismount the nozzle

Flat jet

1. Unscrew the union nut (1) by hand.
2. Remove AF 5000 air cap (4).
3. Unscrew and remove AF 5000 flat jet nozzle (5) by hand.
4. Clean the spray gun front carefully with damp cloth. Pay attention to the electrode (11). Use protective cap (12).

AR 5000 – round jet

1. Unscrew the union nut (1) by hand.
2. Remove AR 5000 air cap (2). Unscrew AR 5000 nozzle (3) by hand and remove it.
3. Clean the spray gun front carefully with damp cloth. Pay attention to the electrode (11). Use protective cap (12).

EARV 5000 – round jet

1. Unscrew the EARV union nut (7) by hand.
2. Unscrew and remove EARV nozzle (8) by hand.
3. Unscrew nozzle insert (9) from nozzle (8) using air nozzle spanner (10).
4. Clean the spray gun front carefully with damp cloth. Pay attention to the electrode (11). Use protective cap (12).

Mount nozzle

Flat jet

1. Screw in and tighten AF 5000 flat jet nozzle (5) by hand.
2. Put the AF 5000 air cap (4) in place. Screw the union nut (1) onto the spray gun body.
3. Set the desired flat jet level with the air cap horns (6) and then tighten the union nut by hand.

AR 5000 – round jet

1. Screw on and tighten AR 5000 nozzle (3) by hand.
2. Position AR 5000 air cap (2). Screw the union nut (1) onto the spray gun body and tighten by hand.

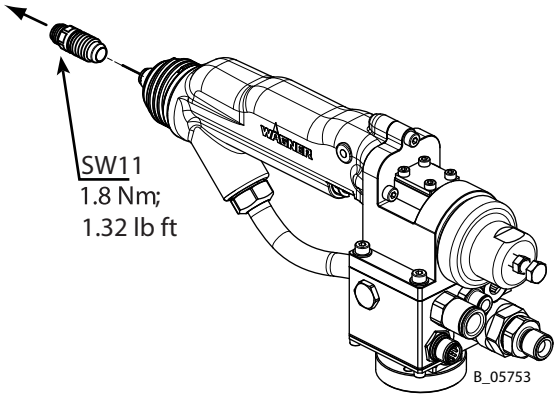
EARV 5000 – round jet

1. Screw on EARV nozzle insert (9) into nozzle (8) using air nozzle spanner (10). Nozzle insert and nozzle body must be flush, subsequently do not continue turning and slightly tighten.
2. Screw on and tighten EARV nozzle (8) by hand.
3. Select EARV union nut (7) depending on the viscosity: HV or LV. Screw the union nut onto the spray gun body and turn fully backwards by hand in order to reach a large spray jet diameter. Unscrew the nozzle nut no more than 90° in order to reach a small spray jet diameter.

7.3.6 CHANGING THE VALVE HOUSING

Relieve pressure prior changing the valve housing. → Chapter 7.3.3

Use a socket or ring spanner (not an open-end wrench) to tighten the valve housing.



Valve housing and valve tip are available in various materials:

	Valve housing	**Valve tip**
	Material of the valve seat	Product
Standard version	Steel	PEEK
Special accessories	PEEK	Steel

When wear-related problems occur, the valve housing and/or valve tip can be exchanged → Order No., see Chapter 13.

7.3.7 CLEANING OF THE NOZZLE PARTS

The nozzle parts may only be immersed into a cleaning solvent recommended by the manufacturer and must be removed again immediately. They may only remain in a cleaning solvent for a short time.
Clean these parts with a brush and dry them with a cloth or a blow gun.

8 CLEANING AND MAINTENANCE

8.1 CLEANING

8.1.1 CLEANING STAFF

Cleaning work should be undertaken regularly and carefully by qualified and trained staff. They should be informed of specific hazards during their training.

The following hazards may arise during cleaning work:

- Health hazard from inhaling solvent vapors
- Use of unsuitable cleaning tools and aids

8.1.2 SAFETY INSTRUCTIONS

→ Observe safety instructions in Chapter 4.

DANGER

Incorrect maintenance/repair!
Danger to life and equipment damage.

→ Only a WAGNER service center or a suitably trained person may carry out repairs and replace parts.
→ Only repair and replace parts that are listed in the "Spare parts" chapter and that are assigned to the unit.
→ Before all work on the device and in the event of work interruptions:
- Switch off the energy supply and the compressed air supply.
- Relieve the pressure from the spray gun and device.
- Secure the spray gun against actuation.
→ Observe the operating and service manual for all work.

DANGER

Explosive powder/air mixes!
Danger to life and equipment damage.

- → Before starting cleaning, rinsing, or other manual work, the high voltage must be shut down and locked to prevent it from being switched back on!
- → The spray gun must be separated from the high-voltage supply before any cleaning work is started!
- → Only electrically conductive tanks may be used for cleaning and flushing agents. Ground the tank.
- → Which cleaning agent is used to clean the spray gun depends on which parts of the spray gun have to be cleaned and which product has to be removed. When cleaning the spray gun, only use **non-polar cleaning agents** to prevent conductive residues on the surface of the spray gun. Should it however, be necessary to use a polar cleaning agent, all residues of this cleaning agent have to be removed by using a non-conductive and non-polar cleaning agent, once the cleaning is finished.
- → Preference should be given to non-flammable cleaning and flushing agents.
- → Only cleaning and flushing agents which contain ingredients of explosion classes IIA and IIB may be used (maximum ignition energy 0.24 mJ).
- → The cleaning and flushing agent's flash point must be at least 15 K above the ambient temperature.
- → Ensure that no electric component is cleaned with or immersed into solvent.

8.1.3 CLEANING AND FLUSHING THE DEVICE

The spraying system and the spray gun must be cleaned and flushed daily. The cleaning and flushing agents used must be compatible with the working material.

⚠ WARNING

Incompatibility of cleaning/flushing agent and working medium!
Risk of explosion and danger of poisoning by toxic gases.

→ Examine the compatibility of the cleaning and flushing agents and working media on the basis of the safety data sheets.

NOTICE

Damage to electrical devices!

→ Never immerse the spray gun in cleaning agent.

NOTICE

Liquid in air tube!
Functional faults caused by swollen seals.
Discharge current to ground → No high voltage.

→ Always point the spray gun down when cleaning.
→ Ensure that neither lacquers nor cleaning or flushing agent enters the air duct.
→ When taking a break from work or when stored for a longer period, the spray gun should be positioned with the adapter pointing downwards.

DANGER

Exploding gas / air mixture!
Danger to life from flying parts and burns.

→ Never spray into a closed tank.
→ Ground the tank.

Clean nozzle

1. Switch off control unit.
2. Dismount nozzle and clean separately → Chapter 7.3.7.

Flush spraying system and spray gun

3. Connect spraying system to flushing agent supply in accordance with operating manual for the product pressure generator.
4. Point the spray gun toward the collection tray and switch it on. Switch off gun as soon as clean flushing agent emerges.
5. Remove flushing agent supply.

Blowing out the air passages of the spray gun

6. Close pump pressure regulator. Switch on compressed air supply on the control unit, open air pressure regulator for shaping and atomizing air.
7. Actuate the spray gun without activated high voltage and thoroughly blow out the air passages.
8. For switching off the shaping and atomizing air press the "Standby" button on the control unit.
9. Close the compressed air supply.

Clean the outside of the spray gun

10. Clean the spray gun body and other components of the spraying system with a cleaning agent recommended by the lacquer manufacturer and dry with a cloth or blow gun.

Cleaning the nozzle parts → see Chapter 7.3.9

8.2 MAINTENANCE

8.2.1 MAINTENANCE STAFF

Maintenance work should be undertaken regularly and carefully by qualified and trained staff. They should be informed of specific hazards during their training.

The following hazards may arise during maintenance work:

- Health hazard from inhaling solvent vapors
- Use of unsuitable tools and aids

An authorized person must ensure that the device is checked for being in a reliable state after maintenance work is completed.

8.2.2 SAFETY INSTRUCTIONS

→ Observe the safety instructions in Chapter 4 and Chapter 8.1.2.

Prior to maintenance

- Flush and clean the system → Chapter 8.1.3.

After maintenance

- Carry out a safety checks in accordance with Chapter 8.2.3.
- Put the system into operation (Chapter 6.7) and check for leaks.
- Carry out a function test, if required, in accordance with Chapter 11.

→ In accordance with the guideline for liquid ejection devices (DGUV regulation 100-500 Chapter 2.29 and 2.36):

- The liquid ejection devices should be checked by an expert (e.g., WAGNER service technician) for their safe working conditions as required and at least every 12 months.
- For shut down devices, the examination can be suspended until the next start-up.

DANGER

Incorrect maintenance/repair!
Danger to life and equipment damage.

→ Repair or replacement of devices or parts of devices are only allowed to be performed outside the hazard area by qualified personnel.

DANGER

Incorrect maintenance/repair!
Danger to life and equipment damage.

- → Only a WAGNER service center or a suitably trained person may carry out repairs and replace parts.
- → Only repair and replace parts that are listed in the "Spare parts" chapter and that are assigned to the unit.
- → Before all work on the device and in the event of work interruptions:
  - Switch off the energy supply and the compressed air supply.
  - Relieve the pressure from the spray gun and device.
  - Secure the spray gun against actuation.
- → Observe the operating and service manual for all work.

8.2.3 SAFETY CHECKS

For the safe operation of stationary electrostatic spraying equipment for flammable liquid coating products, intervals for periodical inspections are defined as follows:

Inspection point	Inspection interval	Remarks
Gun cleaning, gun flushing	daily	Chapter 4.2.4, Chapter 8.1
Hoses, tubes, couplings	daily	Chapter 8.2.4
Grounding	weekly	Chapter 4.2.2, Chapter 6.5.7
Inspection for damage	weekly	Chapter 8.1.3, 8.2, 10
Locking of the technical ventilation with the electrostatic spraying equipment	annually	Chapter 6.5.4

The above recommended intervals are maximum values and may be modified by the operator depending on the local and operational conditions and the contamination.

Damaged devices must be decommissioned and repaired immediately.

8.2.4 PRODUCT HOSES, TUBES AND COUPLINGS

DANGER

Bursting hose, bursting threaded joints!
Danger to life from injection of product and from flying parts.

→ Ensure that the hose material is chemically resistant to the sprayed products and the used flushing agents.
→ Ensure that the spray gun, threaded joints, and product hose between the device and the spray gun are suitable for the generated pressure.
→ Ensure that the following information can be seen on the hose:
- Manufacturer
- Permissible operating pressure
- Date of manufacture

The service life of the complete hoses between product pressure generator and application device is reduced due to environmental influences even when handled correctly.

→ Check hoses, pipes, and couplings every day and replace if necessary.
→ Before every commissioning, check all connections for leaks.
→ Additionally, the operator must regularly check the complete hoses for wear and tear as well as for damage at intervals that he/she has set. Records of these checks must be kept.
→ Undamaged complete hoses are to be replaced when one of the two following intervals has been exceeded:
  – 6 years from the date of the hose crimping (see fitting embossing).
  – 10 years from the date of the hose imprinting.

Fitting embossing (if present)	**Meaning**
xxx bar	Pressure
yymm	Crimping date (year/month)
XX	Internal code

Hose imprinting	**Meaning**
WAGNER	Name/Manufacturer
yymm	Date of manufacture (year/month)
xxx bar (xx MPa) e.g., 270 bar (27 MPa)	Pressure
XX	Internal code
DNxx (e.g., DN10)	Nominal diameter

9 TROUBLE SHOOTING AND RECTIFICATION

Functional fault	Cause	Remedy
Insufficient product output	Nozzle too small	Select larger nozzle (see "Accessories" chapter).
	Product pressure too low	Increase product pressure.
	Product pressure generator blocked	Clean or replace filter.
	Nozzle is clogged	Clean or replace nozzle.
	Product valve travel set too small	Increase product valve travel by turning the adjusting screw.
Poor spray pattern	Wrongly adjusted atomizing air	Readjust the atomizing air.
	Unfavorable nozzle size	Select a different nozzle (see "Accessories" chapter).
	Product pressure too high/too low	Adapt product pressure.
	Spray product viscosity too high	Thin product in accordance with the manufacturer's instructions.
	Damaged nozzle	Attach new nozzle.
Poor wrap-around	Poor grounding at object	Check grounding of object or hanger with ohmmeter.
	Air pressure too high	Reduce air pressure
	Lacquer resistance too high/too low	Check lacquer resistance (see Chapter 2.5).
	Spraying pressure too high	Readjust spraying pressure.
No wrap-around	No high voltage	Switch on high voltage at the control unit. / Repair malfunction as explained in the control unit operating manuals.
		Connect gun and gun cable/check for defect.
		Check lacquer resistance (see Chapter 2.5).
	Seal in end piece defective	Repair by WAGNER Service Department.
	Air-passages damp	Clean and dry air passages.
Back-spray	Poor grounding at object	Check grounding.
	Distance between spray gun and object too large	Reduce distance between spray gun and work piece.
	High voltage set wrongly (too high)	Adapt high voltage to product.
	Loosen the nozzle union nut for round jet method	Tighten union nut by hand.
Valve seat leaks	Valve seat or valve tip worn	Replace valve seat or valve tip.

10 REPAIR WORK

10.1 REPAIR STAFF

Repair work should be undertaken carefully by qualified and trained personnel.
They should be informed of specific hazards during their training.

The following hazards may arise during repair work:

- Health hazard from inhaling solvent vapors
- Use of unsuitable tools and aids

A skilled person must check to ensure that the device is in a reliable state after it is repaired.
Carry out function test in accordance with Chapter 11.

10.2 SAFETY INSTRUCTIONS

→ Observe the safety instructions in Chapter 4 and Chapter 8.1.2.

Before a Repair

- Flush and clean the system → Chapter 8.1.3.

After a Repair

- Carry out a safety checks in accordance with Chapter 8.2.3.
- Put the system into operation (Chapter 6.7) and check for leaks.
- Function test in accordance with Chapter 11.

→ In accordance with the guideline for liquid ejection devices (DGUV regulation 100-500 Chapter 2.29 and 2.36):
  - The liquid ejection devices should be checked by an expert (e.g., WAGNER service technician) for their safe working conditions as required and at least every 12 months.
  - For shut down devices, the examination can be suspended until the next start-up.

DANGER

Incorrect maintenance/repair!
Danger to life and equipment damage.

→ Only a WAGNER service center or a suitably trained person may carry out repairs and replace parts.
→ Only repair and replace parts that are listed in the "Spare parts" chapter and that are assigned to the unit.
→ Before all work on the device and in the event of work interruptions:
  - Switch off the energy supply and the compressed air supply.
  - Relieve the pressure from the spray gun and device.
  - Secure the spray gun against actuation.
→ Observe the operating and service manual for all work.

10.3 DISMANTLING OF THE GUN

Plastic parts
Gently handle all plastic parts.

10.3.1 TOOLS

For disassembling and assembling the spray gun, the following tools are required:

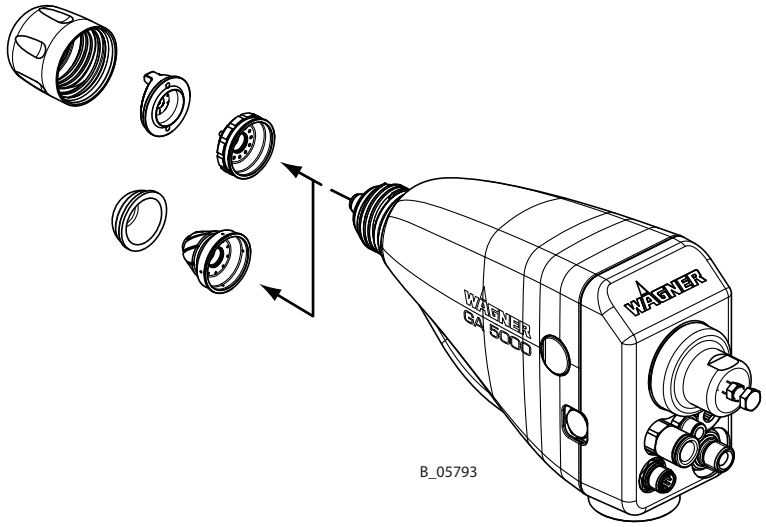
- Allen wrench, SW 2.5
- Allen wrench, SW 3
- Allen wrench, SW 5
- Open-end wrench, SW 5
- Open-end wrench, SW 7
- Open-end wrench, SW 8
- Open-end wrench, SW 11
- Open-end wrench, SW 19
- Ring spanner, SW11
- Slide gauge
- Valve needle assembly tool, Order No. 2309368
- Clamping screw assembly tool, Order No. 2325263

Brand notice:

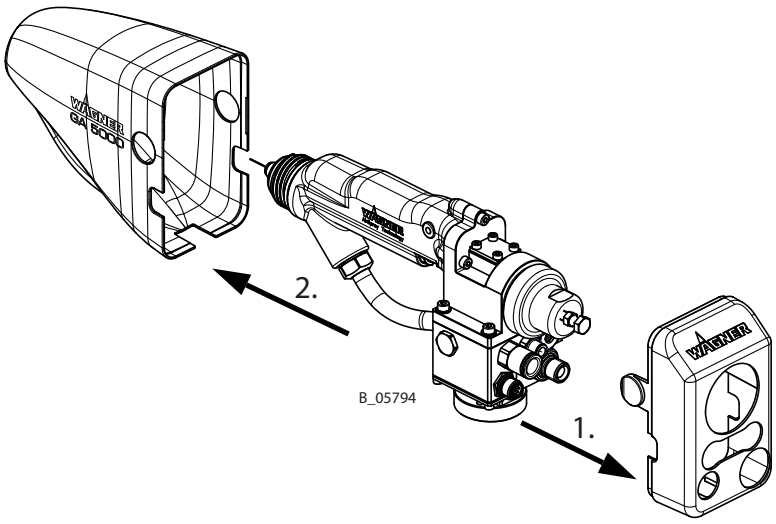
The brands specified in this document are property of the respective owners. Loctite®, for example, is a registered brand of Henkel.

10.3.2 DISMANTLING OF THE SPRAY GUN

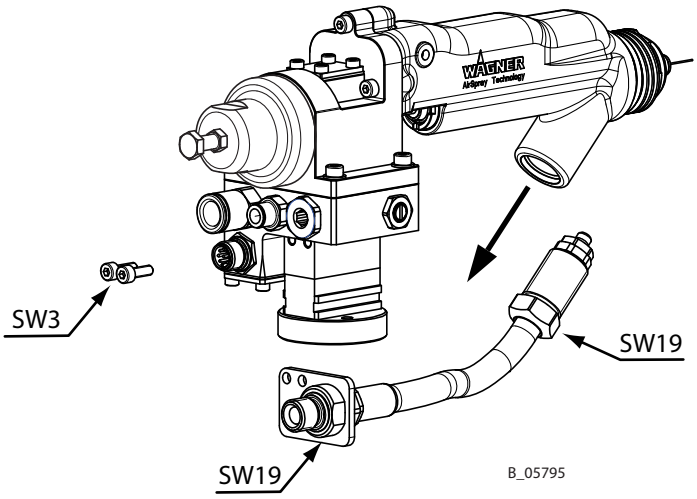
1



2

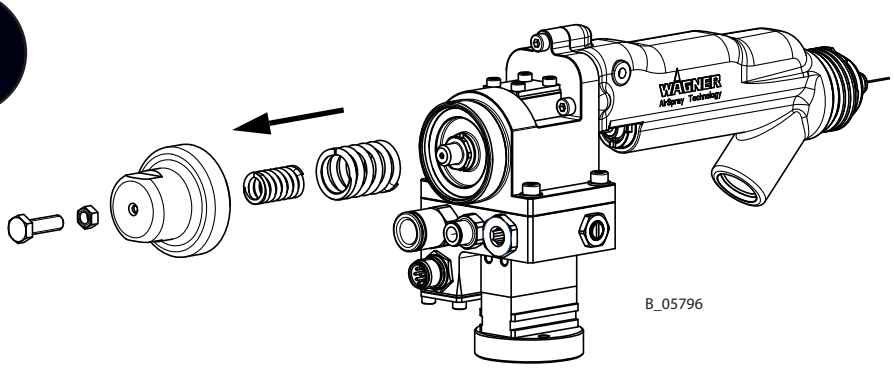


3

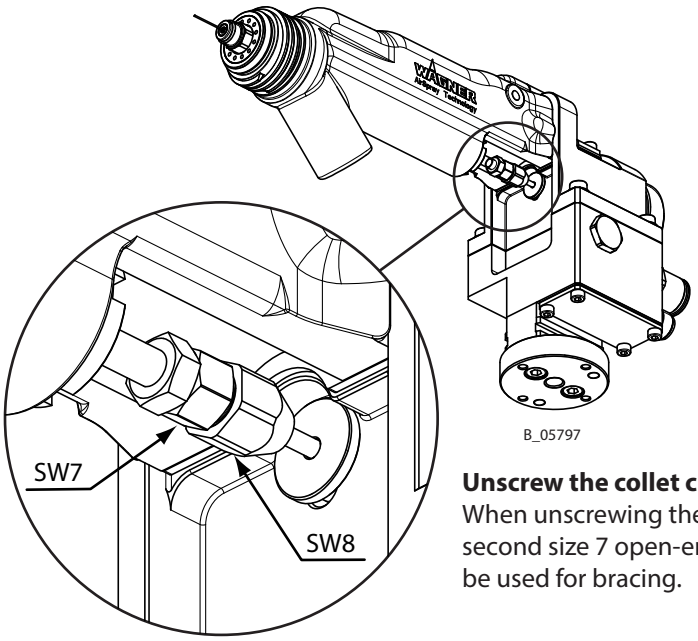


Product hose:
Do not tilt, but pull it straight out in direction indicated by arrow. At the same time, execute slight rotational movements.

4

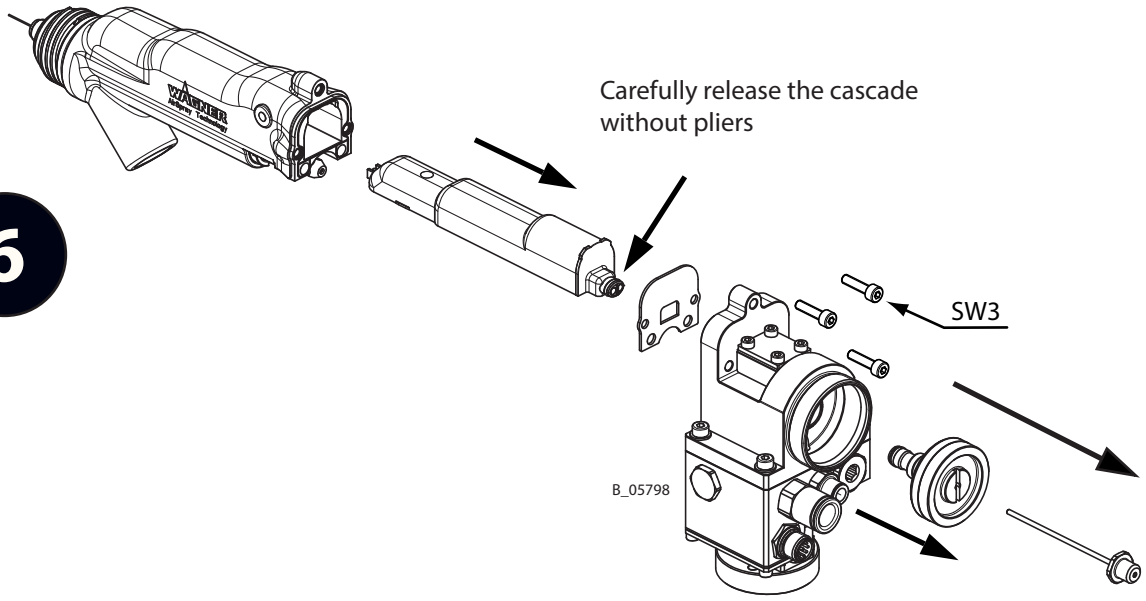


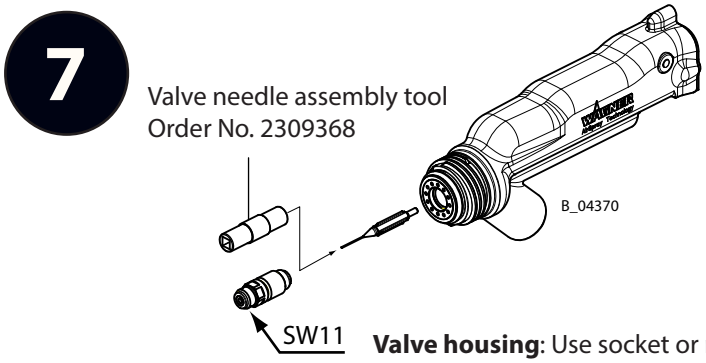
5



Unscrew the collet chuck:
When unscrewing the collet chuck, a second size 7 open-ended wrench must be used for bracing.

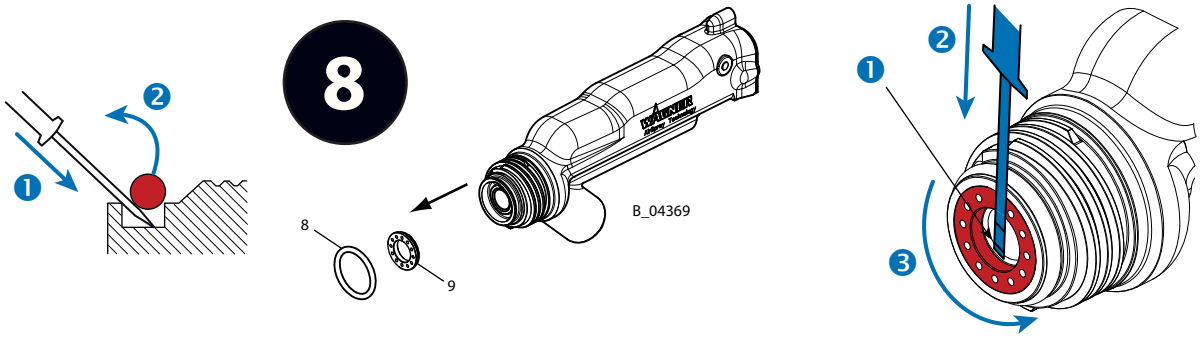
6





Valve housing: Use socket or ring spanner (not an open-end wrench).

Valve needle Air
Loosen valve tip by hand using the valve needle assembly tool (Order No. 2309368).

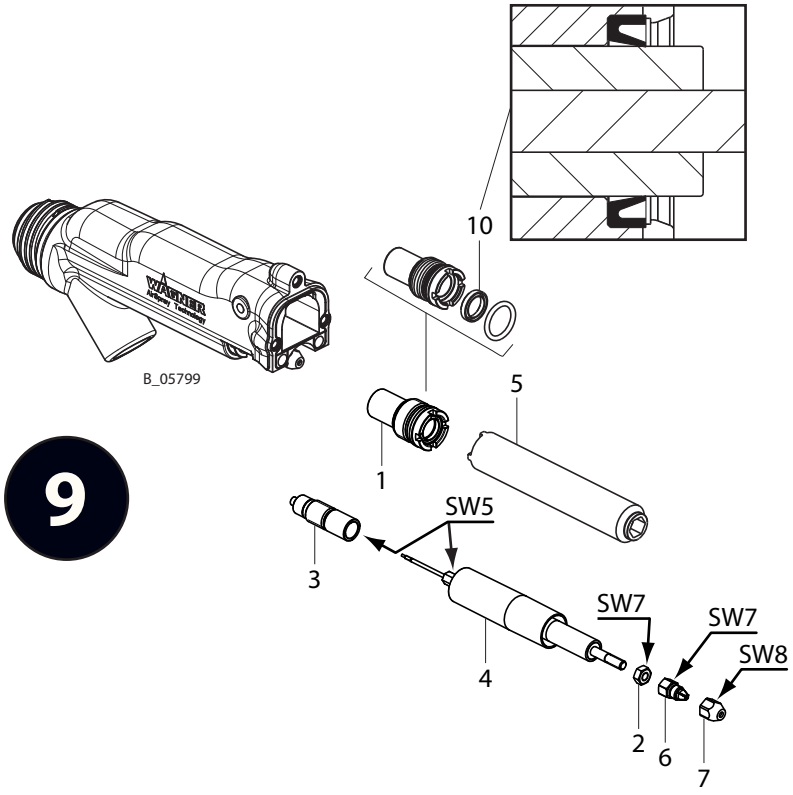


O-ring (8):

1. Use screwdriver no. 1 to press under the O-ring.
2. Lever up the O-ring and remove it.

Air manifold ring (9):

1. Locate the start of the thread for recessed internal threading.
2. Lever under the air distribution ring directly in front of the start of the thread using screwdriver no. 1.
3. As soon as the ring disengages, carefully undo it on all sides.



9

1. Loosen clamping screw (1) with assembly tool (5).
2. Remove valve rod unit (2, 3, 4, 6).
3. **Only as required:**
   Remove rod seal (10). Do not damage the housing in the process.

10.3.3 CLEANING THE PARTS AFTER DISASSEMBLY

ATTENTION

Please note:

- → All reusable parts (except for the parts conducting high-voltage such as cascade, adapter, plug compl. etc.) should be cleaned thoroughly using a suitable cleaning agent.
- → The adapter, plug and all dismantled parts must be clean and dry after cleaning. Care should be taken that these parts remain free of solvents, grease or sweat from the hands (salt water). Clean and mount wearing gloves.
- → Spare parts may have safety-relevant properties.
  Only repair and replace parts that are listed in the "Spare parts" chapter and that are assigned to the unit.
- → Defective parts, O-rings and seal sets must always be re-placed.

⚠ WARNING

Incompatibility of cleaning agent and working medium!
Risk of explosion and danger of poisoning by toxic gases.

→ Examine the compatibility of the cleaning agents and working media on the basis of the safety data sheets.

In Chapter 14 the part numbers for gun spare parts can be found as well as for wearing parts such as seals.

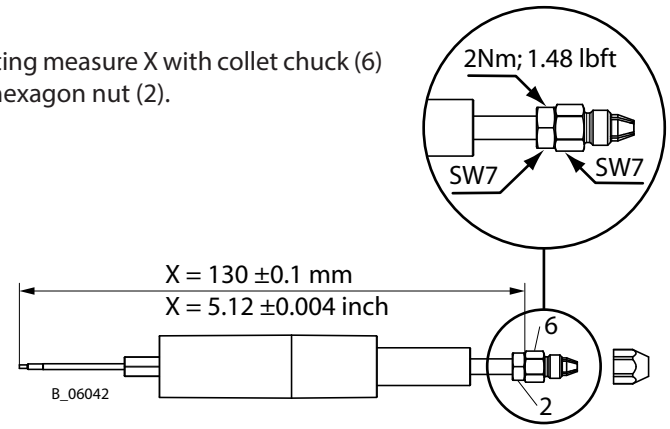
10.3.4 ASSEMBLING THE SPRAY GUN

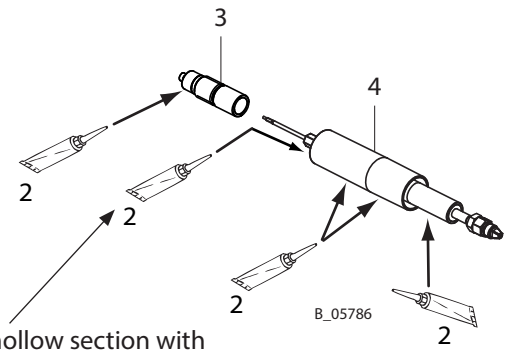
Assembly aids:		
Pos	**Order No.**	**Description**
2 *	9992698	Vaseline white, PHHV II
4	9992511	Loctite® 243

* Use Vaseline sparingly

1

Valve rod unit:
Set length adjusting measure X with collet chuck (6) and lock with a hexagon nut (2).





Coat the hollow section with a brush. Note: avoid the pin and hexagon.

(sparingly)

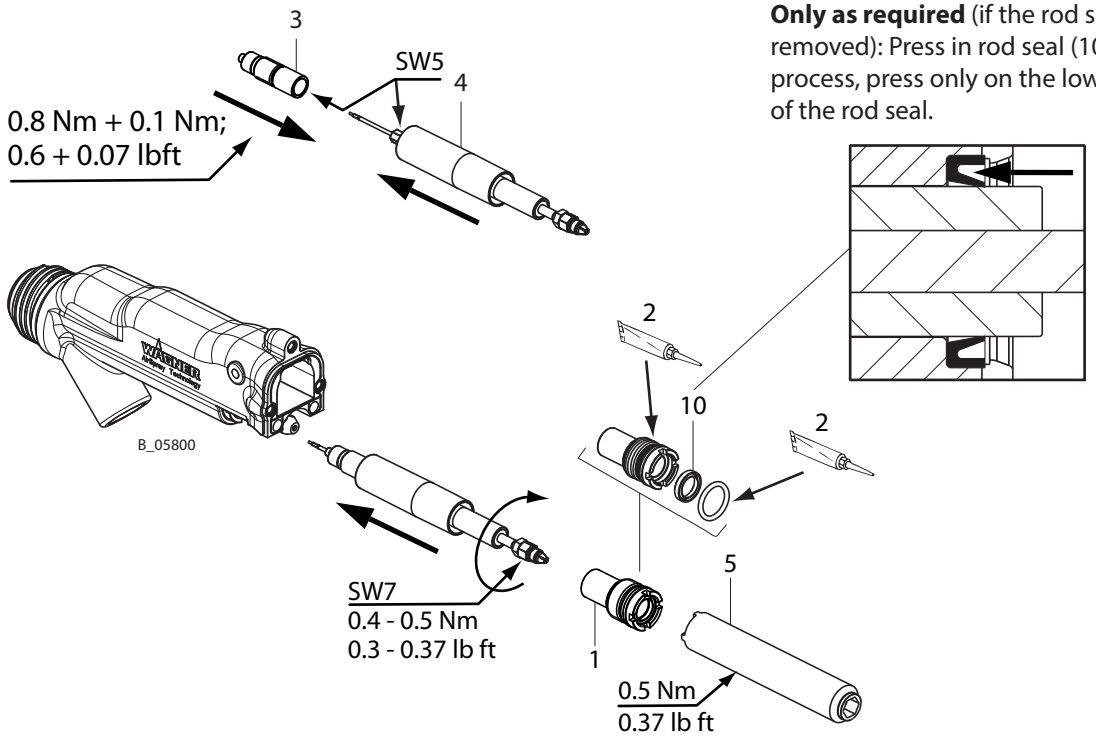
2

Wear gloves!

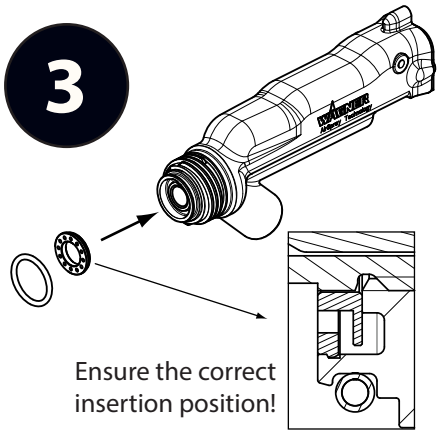
The outside thread of the packing (3) must be free of lacquer.

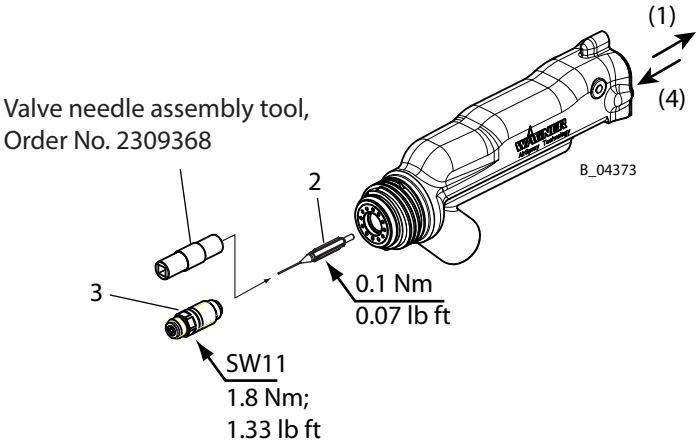
Valve rod unit (4) and packing (3):
- grease,
- slide together,
- screw together

Grease clamping screw (1) and mount using assembly tool (5).



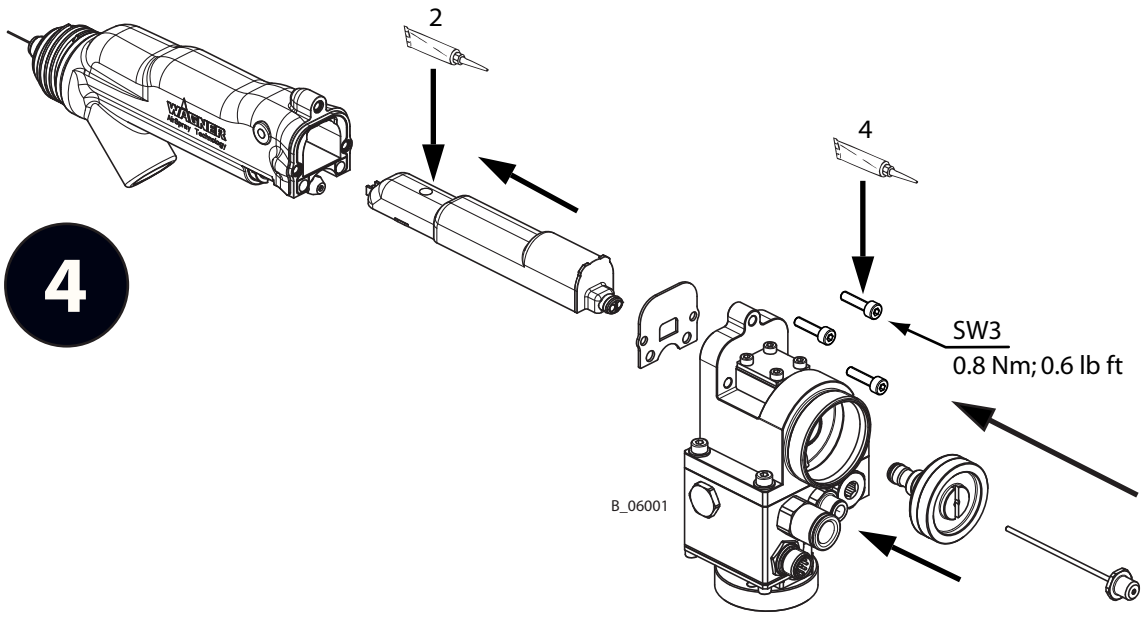
Only as required (if the rod seal was removed): Press in rod seal (10). In the process, press only on the lowest area of the rod seal.

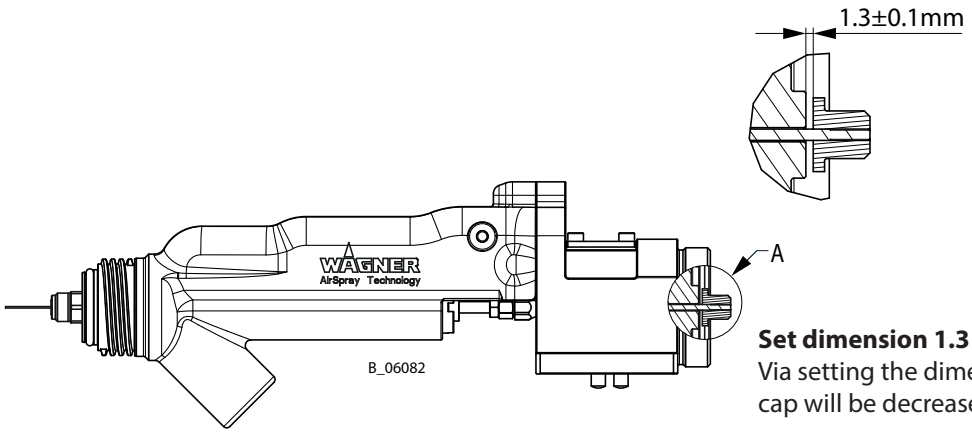




1. Move the valve rod to the rear position so that the sealing area does not become scratched (1).
2. Very slightly tighten valve tip (2) using an assembly tool with three fingers.
3. Use socket or ring spanner (no open-end wrench) to tighten the valve housing (3).
4. Slide the valve rod to the forward position (at the valve seat) (4).

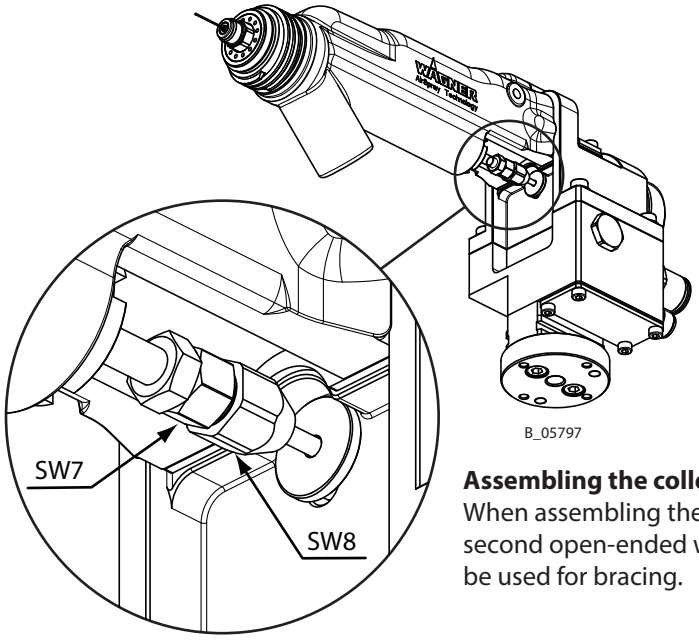
Clean and degrease the inside of the adapter and the outside of the cascade, then grease the cascade surface with Vaseline.





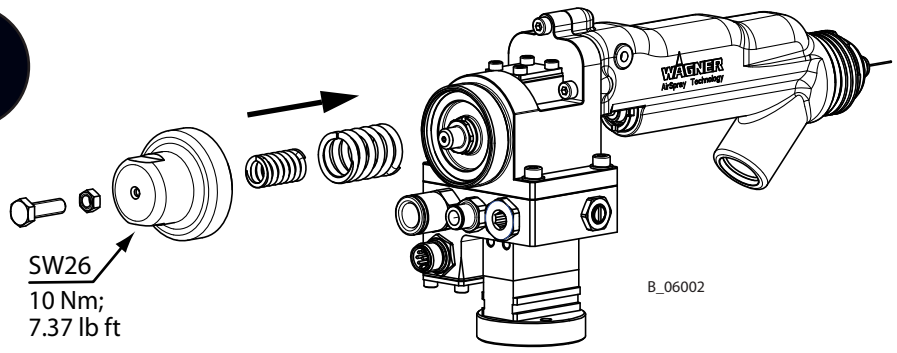
Set dimension 1.3 mm:
Via setting the dimension, soiling of air cap will be decreased.

5

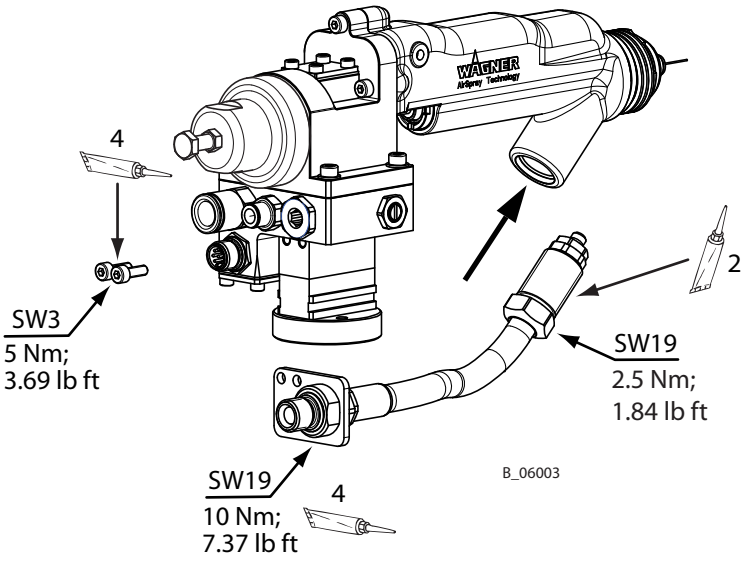


Assembling the collet chuck:
When assembling the collet chuck, a second open-ended wrench SW7 must be used for bracing.

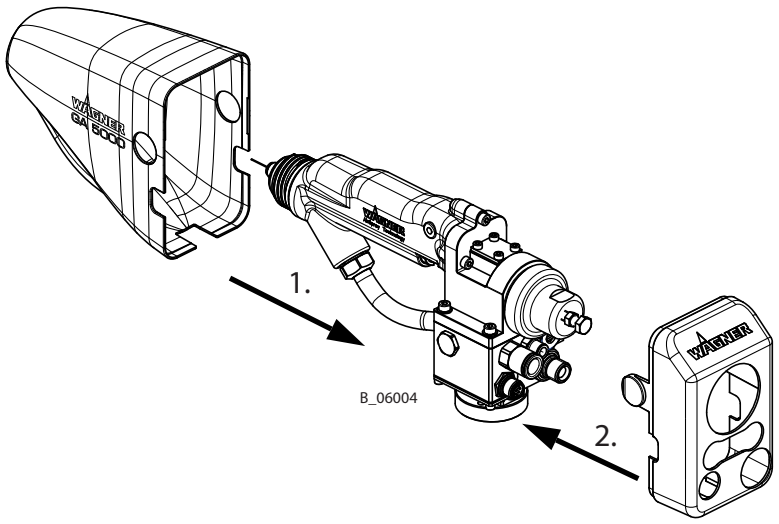
6



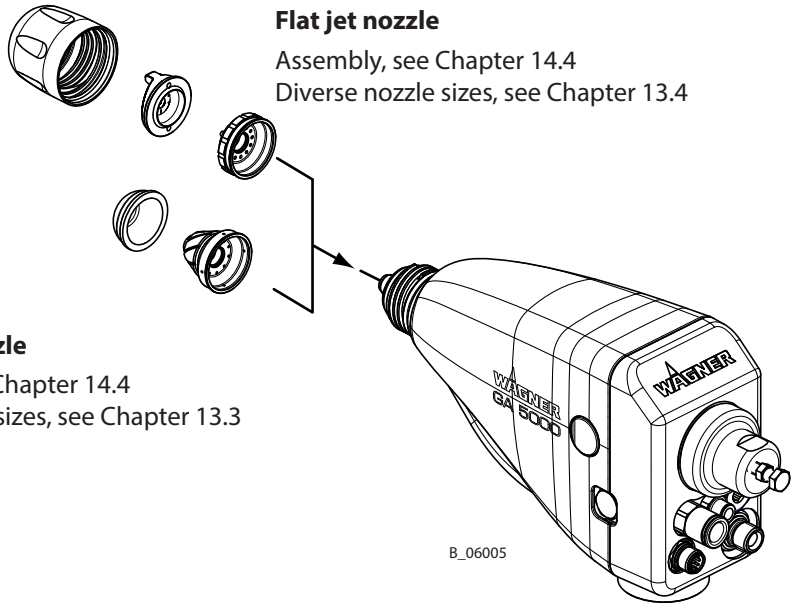
7


4
SW3
5 Nm;
3.69 lb ft
2
SW19
2.5 Nm;
1.84 lb ft
B_06003
SW19
10 Nm;
7.37 lb ft
4

8


1.
B_06004
2.

9



Flat jet nozzle

Assembly, see Chapter 14.4
Diverse nozzle sizes, see Chapter 13.4

Round jet nozzle

Assembly, see Chapter 14.4
Diverse nozzle sizes, see Chapter 13.3

11 FUNCTION TEST AFTER THE REPAIR

After all repairs, the device must be checked for safe condition before recommissioning. The necessary scope of inspection and testing depends on the repair carried out and must be documented by the repair staff.

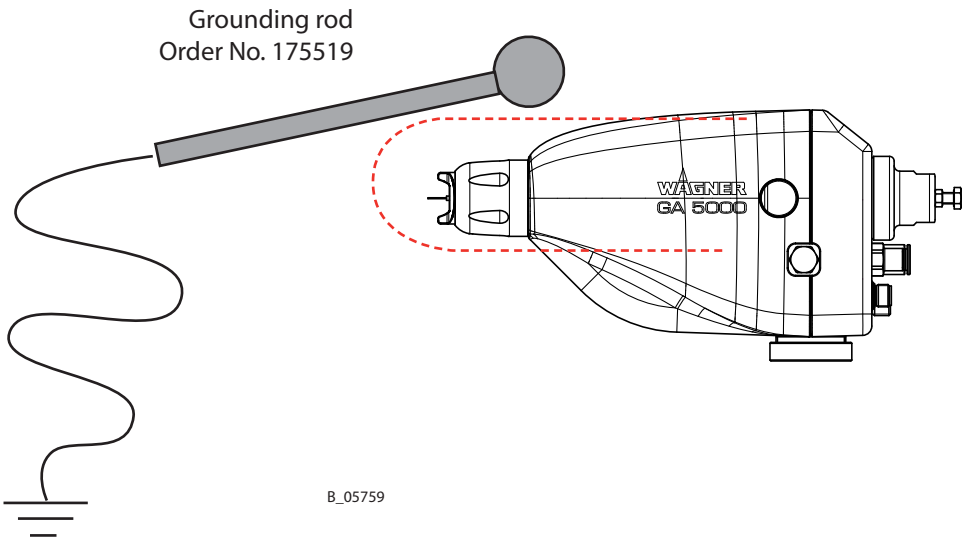
11.1 CHECKING THE HIGH VOLTAGE

Necessary test equipment:
EPG 5000 control unit and HV 200 high-voltage tester.

High-voltage measurement on spraying gun.
Connect gun cable to control unit. Mount spray gun to grounded gun mounting. Switch on the control unit.
The high voltage should be 60 to 65 kV in dry ambient air. The value can be checked with the display on the control unit (EPG 5000).
Note:
The gun must be clean and dry and must not have any paint or cleaning agent residues.
In the case of ambient air with a high air humidity, the measured value can reduce to 50 to 55 kV.

High-voltage measurement with high-voltage tester
Place the ball of the high-voltage tester on the gun electrode and turn on the high voltage.
The measured value should be 70 to 80 kV.
Notes:
- When measuring the high voltage the measuring device should be held at arms length as far from the body as possible.
- There should be no chargeable objects within a radius of 1 m; 3.28 ft of the place where the measurements are taken.
- The placing of the measuring ball of the high-voltage measuring device reduces the spraying of the high-voltage electrode. As a result the high-voltage value increases compared to the spraying in the free space.

Disruptive discharge test
Check the gun against ground with the grounding rod. No sparks should be formed.
Note: in the vicinity of the electrode harmless corona discharges can occur.



11.2 AIR TEST

GA 5000EA
Switch off the atomizing and shaping air, switch on control air.

1. 0.4 MPa; 4 bar; 58 psi: The air valve must switch on correctly.
2. 0.8 MPa; 8 bar; 116 psi: Test for air seal.
3. Switch off control air: The air valve must switch off correctly.

11.3 PRODUCT PRESSURE TEST

Connect the product hose to the spray gun.
Test the seal of the spray gun with suitable medium (e.g., flushing agent or Marcol 52) and a maximum pressure of 0.8 MPa; 8 bar; 116 psi. Increase the pressure gradually while doing so.
Observe the following gun components:
Product connection, nozzle body, product valve (no post-spraying).

DANGER

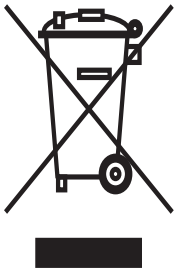
Exploding gas / air mixture!
Danger to life from flying parts and burns.

→ Never spray into a closed tank.
→ Ground the tank.

11.4 TEST OF SPRAY PATTERN

Check spray pattern in accordance with Chapter 7.3.1

12 DISPOSAL



NOTICE

Do not dispose of used electrical equipment with household refuse!
In accordance with European Directive 2002/96/EC on the disposal of used electrical equipment and its implementation in national law, this product may not be disposed of with the household refuse, but must be recycled in an environmentally correct manner.
WAGNER or one of our dealers will take back your used WAGNER electric or electronic equipment and will dispose of it for you in an environmentally-friendly way. Please contact one of our service points, one of our representatives or us directly to arrange this.

Consumable products
Consumable products (lacquers, adhesives, flushing and cleaning agents) must be disposed of in accordance with all applicable legal requirements.

13 ACCESSORIES

13.1 VALVE HOUSING

Order No.	Designation
2312179	Valve housing Air, complete (steel) (Standard version)
2312176	Valve housing Air, complete (PEEK)


B_03697


B_03697

13.2 VALVE TIPS

Order No.	Designation
2312184	Valve tip Air, complete (PEEK) (Standard version)
2312185	Valve tip Air, complete (steel)


B_03698


B_03698

13.3 ROUND SPRAY NOZZLES

13.3.1 AR 5000 AIR CAPS

Order No.	Designation
2310557	Air cap, AR 5000 (D8)
2315049	Air cap, AR 5000 (D12)


B_03239


B_03239

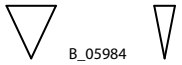
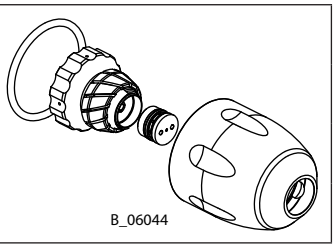
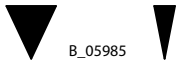
13.3.2 AR 5000 NOZZLES

Order No.	Designation
2310558	Nozzle, AR 5000 (D8)
2315050	Nozzle, AR 5000 (D12)


B_03238


B_03238

13.3.3 EARV NOZZLE SET

Order No.	Designation	Markings on union nut	
2361290	Nozzle set, EARV 5000 LV suitable for low viscosity products	 B_05984	 B_06044
2365979	Nozzle set, EARV 5000 HV suitable for high viscosity products	 B_05985	

Mounting tool

353210	Air nozzle spanner	 B_00117

Spare parts, see Chapter 14.4.3.

13.4 FLAT JET NOZZLES

13.4.1 AF 5000 AIR CAPS

Order No.	Designation	
2310506	Air cap, AF 5000 - 0.4-0.8S	 B_03240
2310507	Air cap, AF 5000 – 1.0–1.4S	 B_03240
2310508	Air cap, AF 5000 - 1.6-2.0S	 B_03240
2314255	Air cap, AF 5000 – 0.4–0.8W (wide)	 B_03240
2314256	Air cap, AF 5000 – 1.0–1.4W (wide)	 B_03240
2314258	Air cap, AF 5000 - 1.6-2.0W (wide)	 B_03240

13.4.2 AF 5000 NOZZLES

Order No.	Designation	
2310539	AF 5000 nozzle – 0.6 mm (black)	 B_03241
2310540	AF 5000 nozzle – 0.8 mm (yellow)	 B_03241
2310541	AF 5000 nozzle – 1.0 mm (red)	 B_03241
2310542	AF 5000 nozzle – 1.2 mm (green)	 B_03241
2310543	AF 5000 nozzle – 1.4 mm (brown)	 B_03241
2310544	AF 5000 nozzle – 1.6 mm (white)	 B_03241
2310545	AF 5000 nozzle – 1.8 mm (blue)	 B_03241
2310546	AF 5000 nozzle – 2.0 mm (black)	 B_03241

13.5 ELECTRIC CABLES AND HOSES

13.5.1 GUN CABLE

Order No.	Designation
2339157	Gun cable, 10 m; 32.8 ft
2339158	Gun cable, 15 m; 49.2 ft
2339159	Gun cable, 20 m; 65.6 ft
2339160	Gun cable, 25 m; 82.0 ft


B_03218

13.5.2 EXTENSION CABLE FOR GUN CABLE

Order No.	Designation
2339161	Extension cable, 10 m; 32.8 ft
2339162	Extension cable, 20 m; 65.6 ft


B_03218

13.5.3 PRODUCT HOSES STANDARD

Order No.	Designation
2339130	Low pressure hose, DN6-PN20-G¼"-7.5 m-PA
2339131	Low pressure hose, DN6-PN20-G¼"-10 m-PA
2339132	Low pressure hose, DN8-PN17-G¼"-15 m-PA
2339133	Low pressure hose, DN8-PN17-G¼"-20 m-PA


B_06421

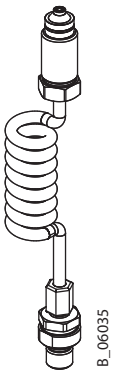
13.5.4 PRODUCT HOSES FOR LOW-RESISTANCE PRODUCTS

Order No.	Designation
2367203	Product hose, GA EA LowR 7.5 m
2367204	Product hose, GA EA LowR 10 m
2367205	Product hose, GA EA LowR 15 m
2367206	Product hose, GA EA LowR 20 m


B_06031

13.5.5 SPIRAL HOSE

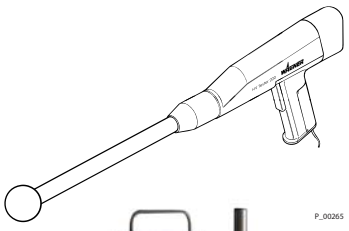
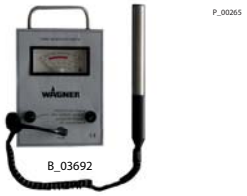
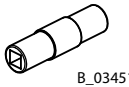
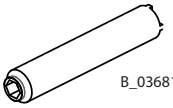
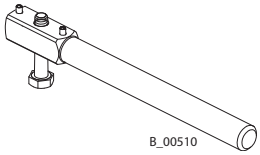
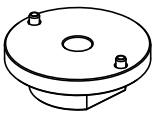
Order No.	Designation
2367216	Spiral hose, complete


B_06035

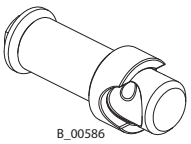
13.5.6 AIR HOSES

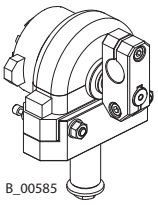
Order No.	Designation
9982035	Air hose, red ∅ 6 mm, per meter
9982077	Air hose, green ∅ 8 mm, per meter
9987095	Air hose, blue ∅ 10 mm, per meter

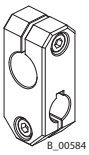
13.6 MISCELLANEOUS

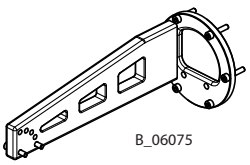
Order No.	Designation	
259010	High-voltage tester, HV 200 N	
2326041	Paint resistance meter	 P_00265 B_03692
999080	Wet film thickness gauge	 B_03225
50342	Viscosity cup, DIN 4 mm; 0.16 inches	 B_03224
2309368	Valve needle assembly tool	 B_03451
2325263	Clamping screw assembly tool	 B_03681
380941	Standard gun holder, 180 mm; Ø 16 mm, 7.1 inches; Ø 0.63 inches	 B_00510
2314079	Cefla adapter plate	 B_03099

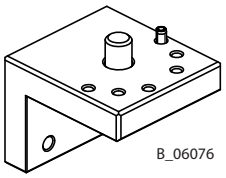
Order No.	Designation
380942	Rotary gun holder (standard)
380945	Rotary holder, 40/40/5
380943	Complete swivel drive
380944	Cross clamp for swivel drive
2370869	Robot connection, GA 5000


B_00586


B_00585


B_00584


B_06075


B_06076

14 SPARE PARTS

14.1 HOW CAN SPARE PARTS BE ORDERED?

Always supply the following information to ensure delivery of the right spare part:

Order number, designation and quantity
The quantity need not be the same as the number given in the quantity column "**Stk**" on the list. This number merely indicates how many of the respective parts are used in each component.

The following information is also required to ensure smooth processing of your order:
- Address for the invoice
- Address for delivery
- Name of the person to be contacted in the event of any queries
- Type of delivery (normal mail, express delivery, air freight, courier, etc.)

Identification in spare parts lists.

Explanation of column "**K**" (labeling) in the following spare parts lists:

◆ Wearing parts
Note: These parts are not covered by warranty terms.

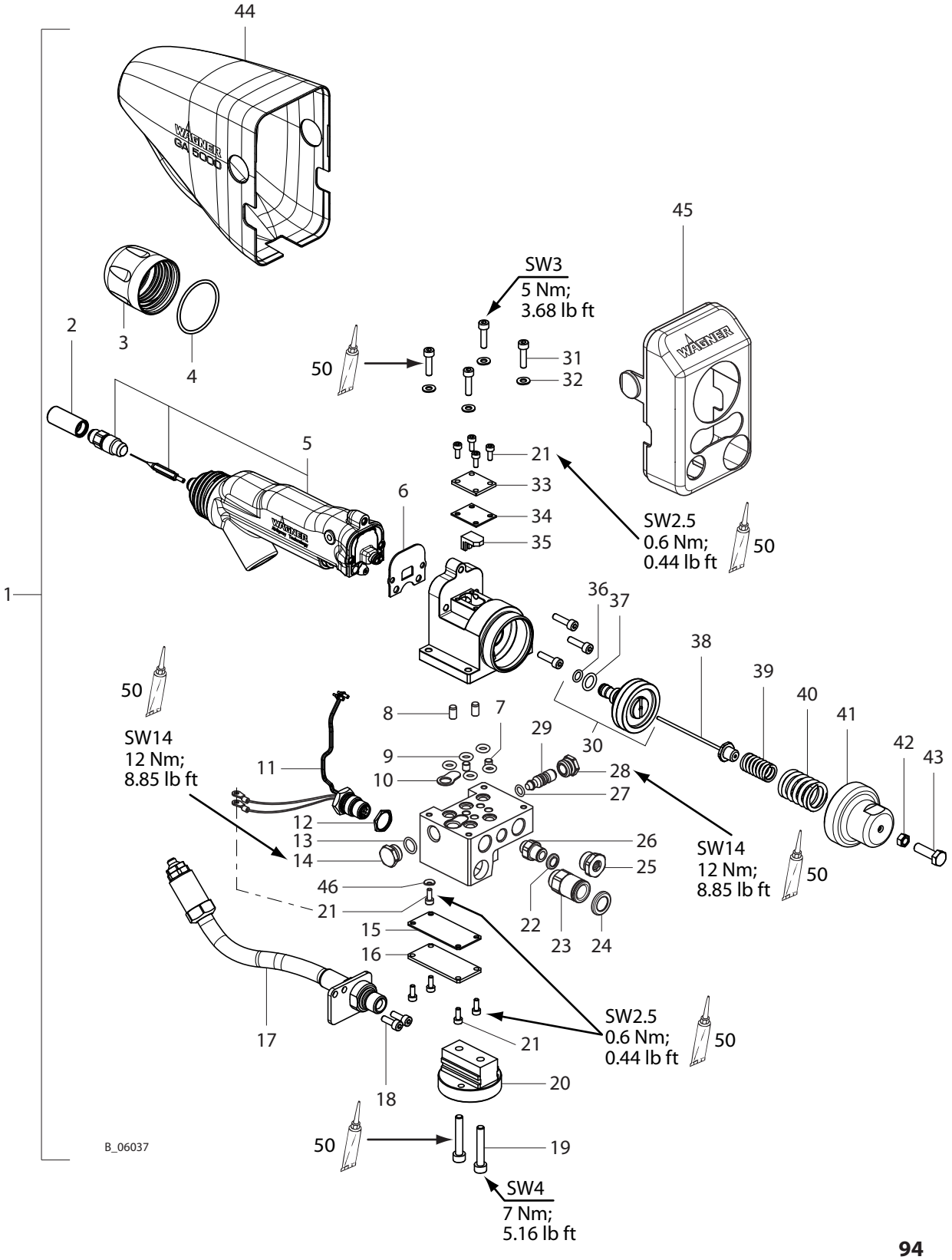
● Not part of standard equipment, available, however, as additional extra.

DANGER

Incorrect maintenance/repair!
Danger to life and equipment damage.

→ Only a WAGNER service center or a suitably trained person may carry out repairs and replace parts.
→ Only repair and replace parts that are listed in the "Spare parts" chapter and that are assigned to the unit.
→ Before all work on the device and in the event of work interruptions:
- Switch off the energy supply and the compressed air supply.
- Relieve the pressure from the spray gun and device.
- Secure the spray gun against actuation.
→ Observe the operating and service manual for all work.

14.2 GA 5000EAIC SPRAY GUN



Spare parts list for GA 5000EAIC

Pos	K	Stk	Order No.	Designation
1		1	2360900	GA 5000EAIC
2		1	2315709	Protection cap valve needle
3		1	2307039	Union nut
4	◆	1	2311217	O-ring
5		1	-	Adapter, complete GA 5000EA (for details, see Chapter 14.2.1)
6		1	2307232	Adapter seal
7		2	2360690	Plug
8		2	9930128	Parallel pin
9	◆	5	9974265	O-ring
10	◆	1	2360689	Seal
11		1	2360813	Cable, complete (only for WAGNER Service Department)
12		1	2357712	Locknut
13	◆	1	9974089	O-ring
14		1	2358895	Sealing plug
15	◆	1	2357738	Seal
16	◆	1	2357739	Cover
17		1	2360888	Product hose, complete GA 5000EA
18		2	9900353	Hexagon socket cylinder head screw
19		2	9900329	Hexagon socket cylinder head screw
20	◆	1	2357737	Mounting bracket
21		9	9906029	Hexagon socket cylinder head screw
22		1	9998995	Coding ring red, d6
23		1	9998987	Straight threaded fitting
24		1	9998770	Coding ring blue, d10
25		1	9998274	Threaded plug, G1/4"
26		1	9998090	Straight screw-in fitting
27	◆	1	9971388	O-ring
28		1	2307739	Mounting nut
29		1	2307868	Round spray jet reduction
30		1	2313501	Piston, IC
31		7	9900308	Hexagon socket cylinder head screw
32		4	9920104	Washer
33		1	2357167	Lock plate
34		1	2357166	Seal
35		1	2357164	Contact holder
36	◆	1	248314	O-ring
37	◆	1	9971025	O-ring
38		1	2371130	Pull rod
39	◆	1	2309945	Cylindrical helical spring
40	◆	1	9998991	Cylindrical helical spring
41		1	2307741	End cap short
42		1	9913058	Hexagon nut

◆ = Wearing part

Spare parts list for GA 5000EAIC

Pos	K	Stk	Order No.	Designation
43	◆	1	2367333	Hexagon screw without shaft
44		1	2365237	Cover, labeled
45		1	2365248	Lid, labeled EAIC
46		1	2338526	Contact spacer
50		1	9992511	Loctite® 243
		1	2369320	Service set Air/Controller, GA 5000EA

◆ = Wearing part

14.2.1 GA 5000EA ADAPTER

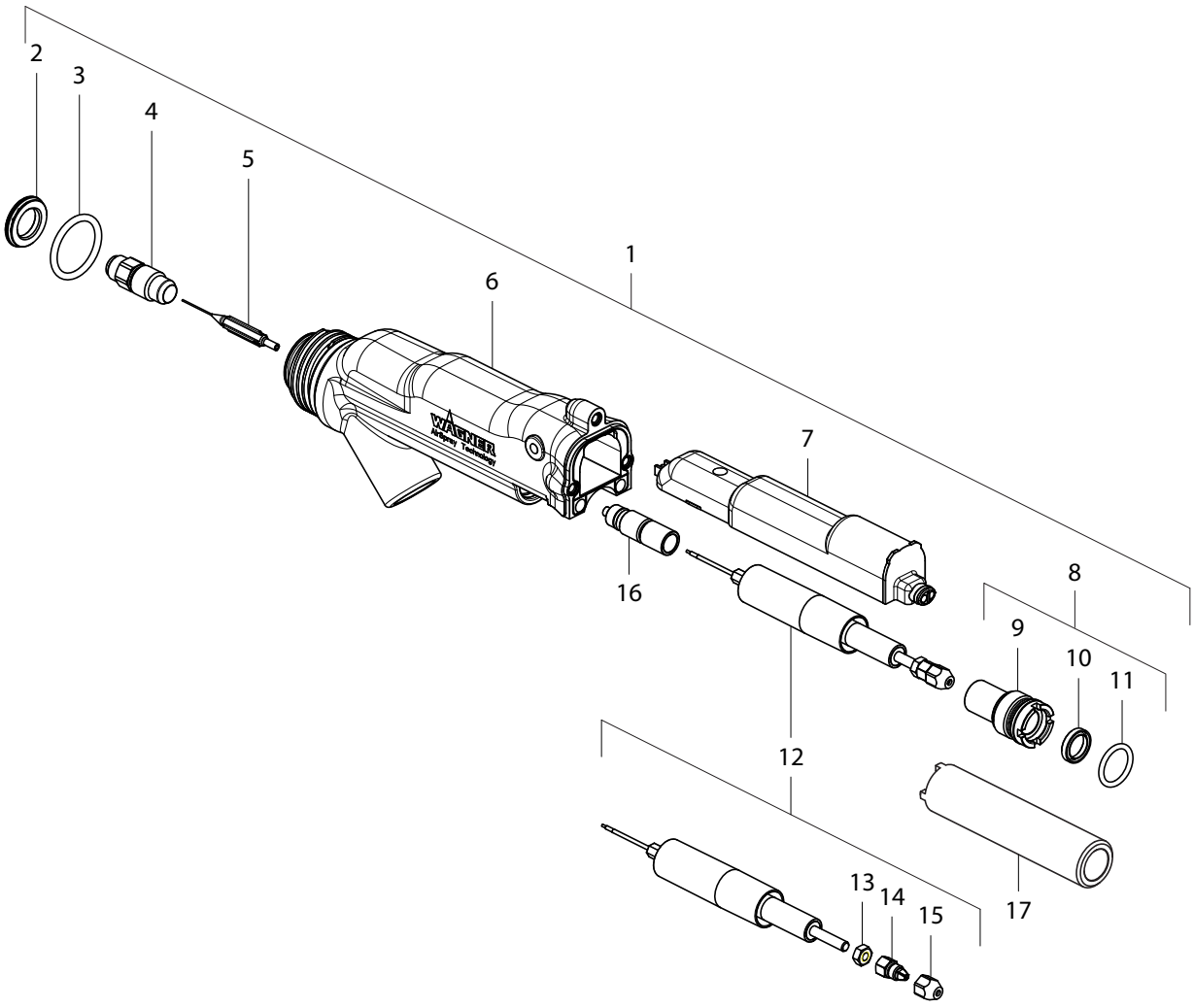
Spare parts list for adapter

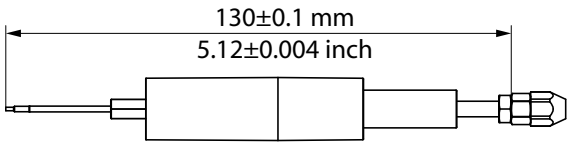
Pos	K	Stk	Order No.	Designation
1		1	-	Adapter, complete GM 5000EA
2	★	1	2309391	Air manifold ring, Air
3	◆★	1	2307180	O-ring, sheathed
4	◆★	1	2312179	Valve housing, complete Air (steel) (standard)
	◆ ●	1	2312176	Valve housing, complete Air (PEEK) (standard)
5	◆★	1	2312184	Valve tip, complete Air (PEEK)
	◆ ●	1	2312185	Valve tip, complete Air (steel)
6		1	2314271	Adapter, GM 5000EA
7		1	2312181	Cascade, complete
8		1	2357665	Clamping screw valve rod, complete
9		1	2307062	Clamping screw valve rod
10	◆★	1	2311562	Rod seal
11	◆★	1	9974166	O-ring
12	◆★	1	2369017	Valve rod unit, Air
13		1	9910108	Hexagon nut
14		1	2357740	Collet chuck
15		1	2357741	Tension nut
16	◆★	1	2357106	Packing, complete
17		1	2325263	Clamping screw assembly tool
		1	2369016	Service set, GA 5000EA adapter

◆ = Wearing part

★ = Included in service set

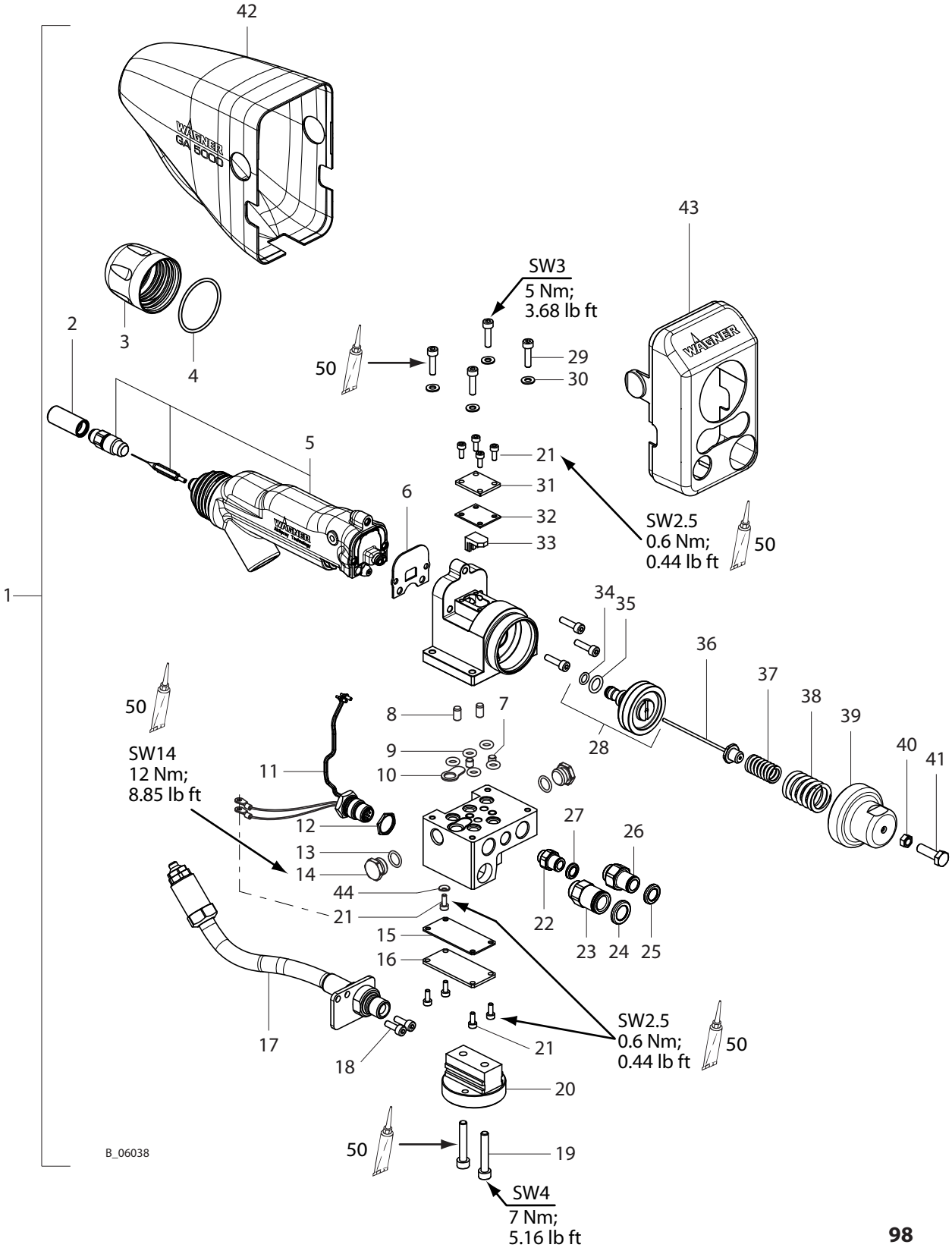
● = Not part of the standard equipment but available as a special accessory.





B_06041

14.3 GA 5000EAEC SPRAY GUN



Spare parts list for GA 5000EAEC

Pos	K	Stk	Order No.	Designation
1		1	2360901	GA 5000EAEC
2		1	2315709	Protection cap valve needle
3		1	2307039	Union nut
4	◆	1	2311217	O-ring
5		1	-	Adapter, complete GA 5000EA (For details, see Chapter 14.2.1)
6		1	2307232	Adapter seal
7		2	2360690	Plug
8		2	9930128	Parallel pin
9	◆	5	9974265	O-ring
10	◆	1	2360689	Seal
11		1	2360813	Cable, complete (only for WAGNER Service Department)
12		1	2357712	Locknut
13	◆	2	9974089	O-ring
14		2	2358895	Sealing plug
15	◆	1	2357738	Seal
16	◆	1	2357739	Cover
17		1	2360888	Product hose, complete GA 5000EA
18		2	9900353	Hexagon socket cylinder head screw
19		2	9900329	Hexagon socket cylinder head screw
20	◆	1	2357737	Mounting bracket
21		9	9906029	Hexagon socket cylinder head screw
22		1	9998090	Straight screw-in fitting
23		1	9998987	Straight threaded fitting
24		1	9998770	Coding ring blue, d10
25		1	9998616	Coding ring green, d8
26		1	9998254	Straight screw-in fitting
27		1	9998995	Coding ring red, d6
28		1	2313501	Piston IC
29		7	9900308	Hexagon socket cylinder head screw
30		4	9920104	Washer
31		1	2357167	Lock plate
32		1	2357166	Seal
33		1	2357164	Contact holder
34	◆	1	248314	O-ring
35	◆	1	9971025	O-ring
36		1	2371130	Pull rod
37	◆	1	2309945	Cylindrical helical spring
38	◆	1	9998991	Cylindrical helical spring
39		1	2307741	End cap short
40		1	9913058	Hexagon nut
41	◆	1	2367333	Hexagon screw without shaft
42		1	2365237	Cover, labeled

◆ = Wearing part

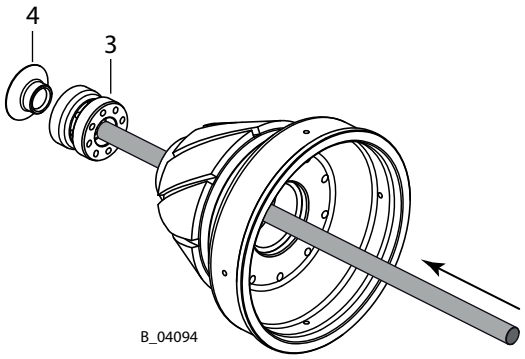
Spare parts list for GA 5000EAEC

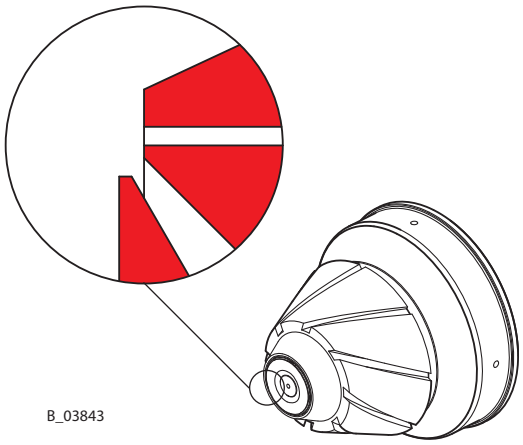
Pos	K	Stk	Order No.	Designation
43		1	2365249	Lid labeled, EAEC
44		1	2338526	Contact spacer
50		1	9992511	Loctite® 243
		1	2369320	Service set Air/Controller, GA 5000EA

◆ = Wearing part

14.4 ACCESSORIES SPARE PARTS LISTS

Notes concerning AR5000 D8 nd D12 nozzles:
Parts 3 and 4 can be pushed out of the nozzle with a suitable pin (∅ 2.0 – 2.3 mm; 0.08 – 0.09 inches).



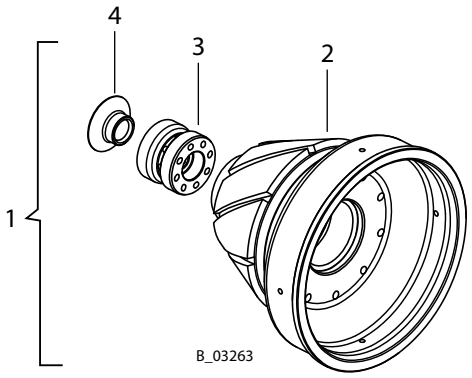


NOTICE

Incorrect assembly!
Damage to the parts or device.

→ Do not deteriorate the edges of the parts (see detail) during assembly (press parts carefully on stop).

14.4.1 AR 5000 NOZZLE (D8)

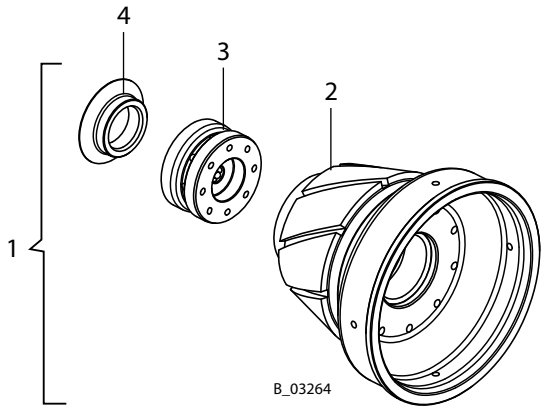


Spare parts list for AR 5000 nozzle (D8)

Pos	K	Stk	Order No.	Designation
1		1	2310558	Nozzle, complete AR 5000 (D8)
2	◆	1	2327658	Nozzle, AR (D8)
3	◆	1	2327659	Nozzle attachment, AR (D8)
4	◆	1	2327660	Air diffuser, AR (D8)

◆ = Wearing part

14.4.2 AR 5000 NOZZLE (D12)



Spare parts list for AR 5000 nozzle (D12)

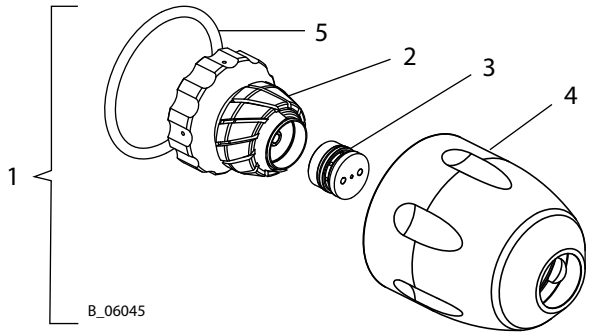
Pos	K	Stk	Order No.	Designation
1		1	2315050	Nozzle, complete AR 5000 (D12)
2	◆	1	2327661	Nozzle, AR (D12)
3	◆	1	2327662	Nozzle attachment, AR (D12)
4	◆	1	2327663	Air diffuser, AR (D12)

◆ = Wearing part

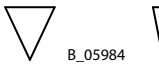
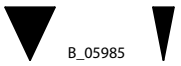
14.4.3 ADJUSTABLE EARV 5000 ROUND JET NOZZLE

Spare parts list for EARV 5000				LV Low-viscosity (LV) products	HV High-viscosity (HV) products
Pos	**K**	**Stk**	**Designation**	**Order No.**	**Order No.**
1		1	Nozzle set, EARV 5000	2361290	2365979
2	◆	1	Nozzle, EARV	2361273	
3	◆	1	Nozzle insert, EARV	2361274	
4		1	Union nut, EARV	2361272	2365978
5	◆ ★	1	O-ring, sheathed	2311217	

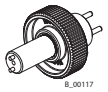
◆ = Wearing part



Markings on union nut

LV Low-viscosity (LV) products	HV High-viscosity (HV) products
	

Mounting tool

353210	Air nozzle spanner	

15 WARRANTY AND CONFORMITY DECLARATIONS

15.1 IMPORTANT NOTES REGARDING PRODUCT LIABILITY

As a result of an EC regulation effective from January 1, 1990, the manufacturer shall only be liable for his product if all parts originate from him or are approved by him, and if the devices are properly mounted, operated and maintained.
The manufacturer will not be held liable or will only be held partially liable if third-party accessories or spare parts have been used.
With genuine WAGNER accessories and spare parts, you have the guarantee that all safety regulations are complied with.

15.2 WARRANTY CLAIM

Full warranty is provided for this device:
We will at our discretion repair or replace free of charge all parts which within 24 months in single-shift, 12 months in 2-shift or 6 months in 3-shift operation from date of receipt by the purchaser are found to be wholly or substantially unusable due to causes prior to the sale, in particular faulty design, defective materials or poor workmanship.
The type of warranty provided is such that the device or individual components of the device are either replaced or repaired as we see fit. The resulting costs, in particular shipping charges, road tolls, labour and material costs will be borne by us except where these costs are increased due to the subsequent shipment of the device to a location other than the address of the purchaser.
We do not provide warranty for damage that has been caused or contributed to for the following reasons:
Unsuitable or improper use, faulty assembly or commissioning by the purchaser or a third party, normal wear, negligent handling, defective maintenance, unsuitable coating products, substitute products and the influence of chemical, electrochemical or electrical agents, except when the damage is attributable to us.
Abrasive coating products such as red lead, emulsions, glazes, liquid abrasives, zinc dust paints and so forth reduce the service life of valves, packings, spray guns, nozzles, cylinders, pistons etc. Signs of wear traced back to these products are not covered by this warranty.
Components that have not been manufactured by WAGNER are subject to the original warranty of the manufacturer.
Replacement of a component does not extend the period of warranty of the device.
The device should be inspected immediately upon receipt. To avoid losing the warranty, we or the supplier company are to be informed in writing about obvious faults within 14 days upon receipt of the device.
We reserve the right to have the warranty compliance met by a contracting company.
The services provided by this warranty are dependent on evidence being provided in the form of an invoice or delivery note. If the examination discovers that no warranty claim exists, the costs of repairs are charged to the purchaser.
It is clearly stipulated that this warranty claim does not represent any constraint on statutory regulations or regulations agreed to contractually in our general terms and conditions.

Wagner International AG

15.3 EU DECLARATION OF CONFORMITY

EU Declaration of Conformity as defined by Atex-directive 2014/34/EU.
Herewith we declare that the supplied version of

Electrostatic automatic spraying system		
EPG 5000	GA 5000EA	GA 5000EAC

complies with the following guidelines:

2006/42/EC	2014/34/EU	2014/30/EU
2011/65/EU	2012/19/EU	

Applied standards, in particular:

EN ISO 12100: 2010	EN 1953:2013	EN 60204-1: 2006 +A1: 2009 +B: 2010
EN 60529: 1991 +A1: 2000 +A2: 2013	EN 50050-1:2013	EN 50176:2009
EN 61000-6-2: 2005 +B: 2011	EN 61000-6-4: 2007 +A1: 2011	EN ISO/IEC 80079-34: 2011

Applied national technical standards and specifications, in particular:

DGUV Information 209-052	DGUV regulation 100-500 Chapter 2.29	DGUV regulation 100-500 Chapter 2.36

EC Type Examination Certificate:

SIRA 16 ATEX5290X by SIRA Certification, Unit 6 Hawarden Industrial Park, Hawarden, CH5 3US United Kingdom

Identification:

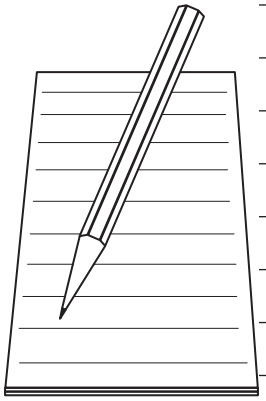
Control unit CE 0102 Ex II (2) G X
SIRA 16 ATEX5290X

Spray gun: CE 0102 Ex II 2 G 0.24mJ X
SIRA 16 ATEX5290X

EU Declaration of Conformity
The EU Declaration of Conformity is enclosed with this product. If needed, further copies can be ordered through your WAGNER dealer by specifying the product name and serial number.

Order number:

2360925



Order No. 2360924
Version 09/2016

Germany
J. Wagner GmbH
Otto-Lilienthal-Str. 18
Postfach 1120
D- 88677 Markdorf
Phone +49/ (0)7544 / 5050
Telefax +49/ (0)7544 / 505200
E-mail service.standard@wagner-group.com

Switzerland
Wagner International AG
Industriestrasse 22
CH- 9450 Altstätten
Phone +41/ (0)71 / 757 2211
Telefax +41/ (0)71 / 757 2222

More contact addresses on the internet at:
www.wagner-group.com
Company/Locations/WAGNER worldwide

Subject to changes without notice

Document No. 11186326
Version A