Translation of the Original Operating Manual

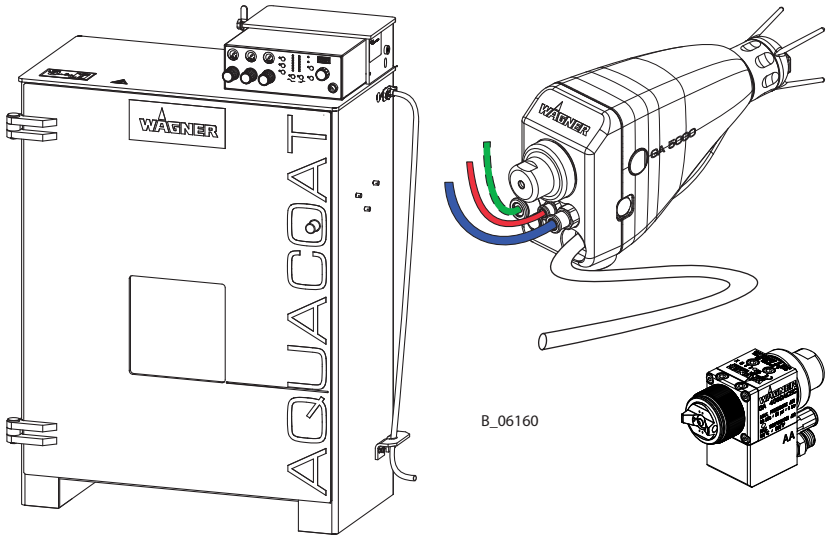
AquaCoat 5010 / 5020

GA 5000EACW
GA 4000AC

High pressure
Automatic

Version 08/2016

AirCoat Spraying System for Non-flammable Liquids



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1 ABOUT THESE INSTRUCTIONS

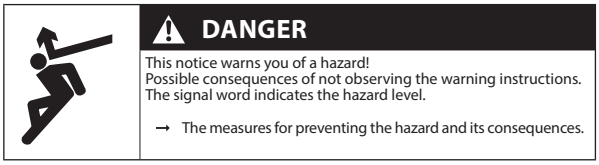
1.1 PREFACE

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.

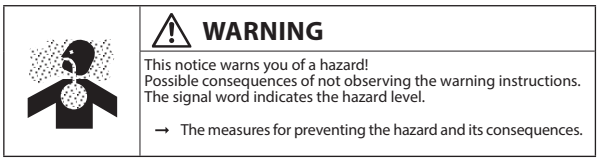
1.2 WARNINGS, NOTICES AND SYMBOLS IN THESE INSTRUCTIONS

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:

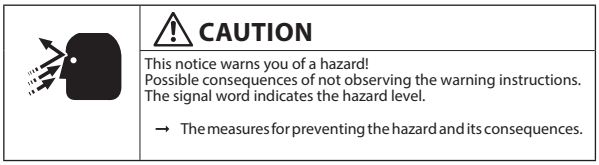
Danger - immediate risk of danger.
Non-observance will result in death or serious injury.



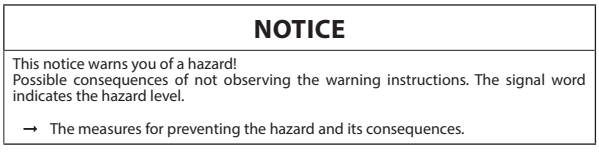
Warning - possible imminent danger.
Non-observance may result in death or serious injury.



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 **AquaCoat 5020 GA 5000EACW** operating manual is available in the following languages:

Language	Order No.	Language	Order No.
German	2369728	English	2369730
French	2369729	Italian	2369732
Spanish	2369731		

1.3.1 OPERATING MANUALS FOR THE INDIVIDUAL COMPONENTS

Puma 28-40 PE+TG piston pump operating manual

Language	Order No.	Language	Order No.
German	2333537	English	2333538
French	2333539	Italian	2333540
Spanish	2333541		

→ **AquaCoat compressed air connection** for Puma: Refer to Chapter 5.6.2.1.

Double diaphragm pump Cobra 40-10 operating manual

Language	Order No.	Language	Order No.
German	2340850	English	2340851
French	2340852	Italian	2340853
Spanish	2340854		

→ **AquaCoat compressed air connection** for Cobra: Refer to Chapter 5.6.2.2.

EvoMotion 20-30 piston pump operating manual

Language	Order No.	Language	Order No.
German	2333552	English	2333553
French	2333554	Italian	2333555
Spanish	2333556		

→ **AquaCoat compressed air connection** for EvoMotion: Refer to Chapter 5.6.2.3.

GA 5000EACW automatic spray gun operating manual

→ Is included in this AquaCoat operating manual.

GA 4000ACIC automatic spray gun operating manual

Language	Order No.	Language	Order No.
German	2312955	English	2312956
French	2312957	Italian	2312958
Spanish	2312959		

Operating manual for **GA 4000ACEC automatic spray gun** and **GA 4000ACEC robot**

Language	Order No.	Language	Order No.
German	2311056	English	2311057
French	2311058	Italian	2311059
Spanish	2311060		

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
AC	AirCoat
EACW	AirCoat electrostatic, water-based
EACW**IC**	Internal shaping air setting on the gun (Internal Control)
EACW**EC**	External shaping air setting (External Control)
GA	Automatic gun
HS	High voltage
HP	High pressure
SSt	Stainless steel
PE	Ultra high molecular weight polyethylene
TG	PTFE with graphite
Pos	Position
Stk	Number of pieces
SW	Wrench size
FKM	Fluorocarbon rubber

1.5 TERMINOLOGY FOR THE PURPOSE OF THIS MANUAL

GA 5000EACW	GA 5000EACWIC or GA 5000EACWEC
GA 4000AC	GA 4000ACIC or GA 4000ACEC or GA 4000ACEC robot
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 TRBS 1203 (2010 / Revision 2012)	A person who, based on his/her technical training, experience and recent vocational experience, has sufficient technical knowledge 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 spraying unit for automatic coating of grounded work pieces using the AirCoat process.

AquaCoat 5010/5020 systems are equipped with the AquaCoat 5010/5020 cabinet, the VM 5020WA control unit, a GA 5000EACW or GA 4000AC AirCoat automatic spray gun and matching hose set, a high-voltage generator, all safety devices and one of the following spray product supplies:

- Piston pump, Puma 28-40 PE/TG (in accordance with the spare parts catalog)
- Double diaphragm pump, Cobra 40-10 (in accordance with the spare parts catalog)
- Piston pump, EvoMotion 20-30 (in accordance with the spare parts catalog)

2.2 TYPE OF USE

AquaCoat 5010/5020 can be used to spray liquid, non-flammable products, in particular non-flammable coating products in accordance with Chapter 2.5.

WAGNER forbids any other use!

2.3 USE IN AN EXPLOSION HAZARD AREA

The device is **not** suitable for use in potentially explosive areas.
(See Chapter 3.1 "CE Identification".)

2.4 SAFETY PARAMETERS

The system may only be used as described in this operating manual. In particular, no conversions are permitted on the system otherwise the warranty ceases to apply and WAGNER is not liable for any claims.

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 spray unit may only be operated if all parameters are set and all measurements/safety checks are carried out correctly.

2.5 PROCESSIBLE WORKING MATERIALS

Water-dilutable lacquers are in principle divided into 3 groups:

→	**Green**	Non-flammable lacquers.
	Yellow	Lacquers with low flammability.
	Red	Flammable lacquers.

Only non-flammable (non-combustible) liquid spray products (**green** group) can be processed with the present spray system. The specific resistance of the spray product must be between 0.5 kΩ cm and 1 MΩ cm.

The following recipe can be used to determine whether the product is non-flammable:

$$\text{Gew. \% } H_2O > \frac{63}{37} \times \text{Gew. \% LM} + \frac{49}{51} \times \text{Gew. \% ORG}$$

Where:

Gew. %	Weight percent
H_2O	Water
LM	Liquid organic phase; main components: Higher glycol esters in a mixture with max. 1:1 of propanol.
ORG	Solid organic phase; main components: Binding agents and pigments.

Such lacquers behave like water in liquid form (liquid phase) and in sprayed form.

Thinners must also be non-flammable.

If the cleaning and flushing agents also align with this category, the system may be used.

Example of non-combustible liquid: No more than 35 weight percent, 1:1 butylglycol/n-propanol, rest water.

- → 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:

- → coating work pieces which are not grounded;
- → unauthorized conversions or modifications to the system;
- → working with combustible 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	Use personal safety equipment. 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. Use personal safety equipment	Operation, maintenance

3 IDENTIFICATION

3.1 CE IDENTIFICATION

The device may **not** be used in potentially explosive areas.

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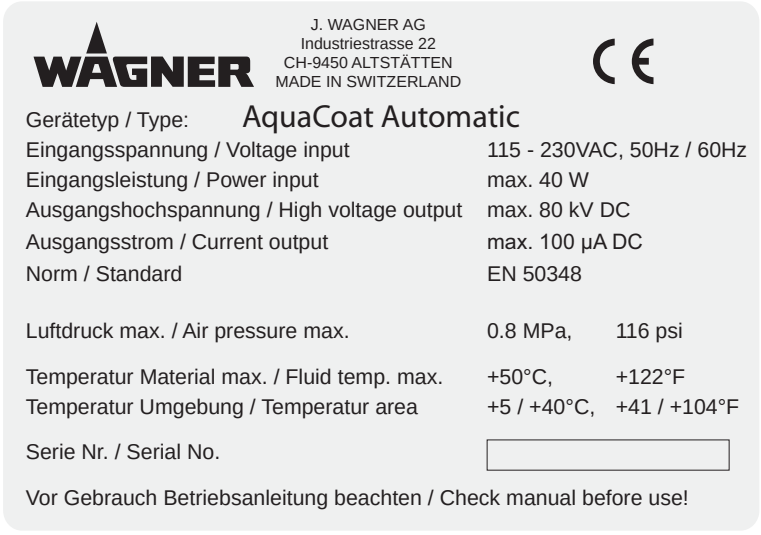
3.2 TYPE PLATES

AquaCoat cabinet



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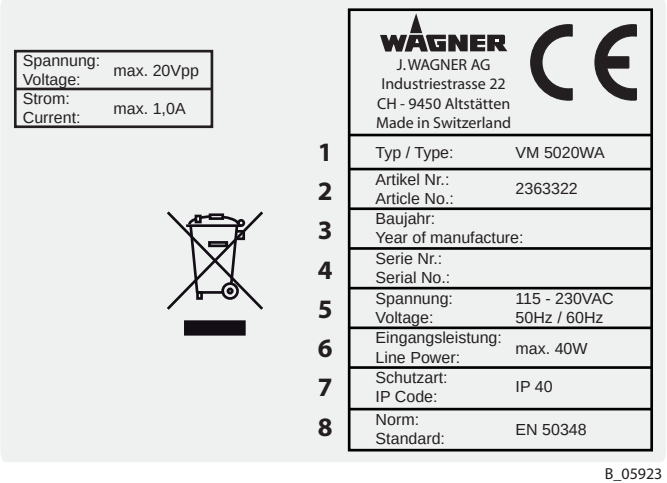
1 Device type
2 Input voltage
3 Input power
4 Output high voltage
5 Output current
6 Standard
7 Maximum air pressure
8 Maximum product temperature
9 Ambient temperature
10 Serial number
11 Read operating manual before use!

VM 5000WA control unit



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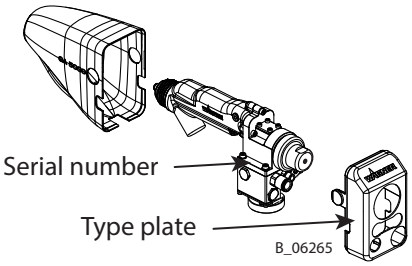
1 Type
2 Article number
3 Year of manufacture
4 Serial number
5 Input voltage
6 Maximum input power
7 Protection class
8 Standard
9 Maximum output voltage
10 Maximum output current

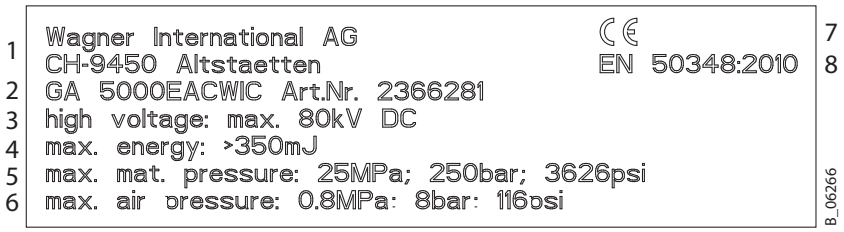
GA 5000EACW spray gun

Serial number
YY-XXX

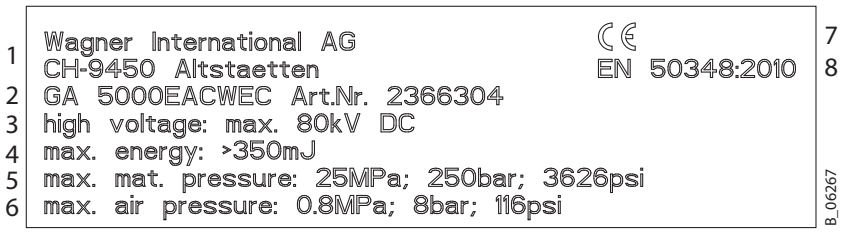
YY Year of production
XXX Current number



GA 5000EACWIC



GA 5000EACWEC



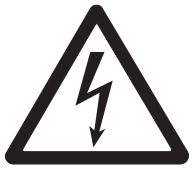
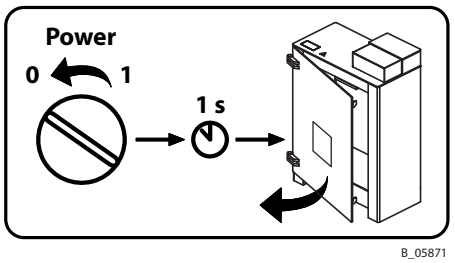
Type plate

1 Manufacturer
2 Gun type / Article number
3 Maximum high voltage
4 Maximum energy
5 Maximum product pressure
6 Maximum air pressure
7 CE identification
8 In compliance with EN 50348

GA 4000AC spray gun

→ See operating manual for automatic gun (Order No., see Chapter 1.3.1)

3.3 SAFETY SIGNAGE

AquaCoat Cabinet		VM 5020WA control unit
		
Warning: Hazardous voltage	**Door lock** One second after the control unit has been switched off, the system is grounded and the door lock opened.	**Do not dispose of used electrical equipment with household refuse.** → see Chapter 12

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

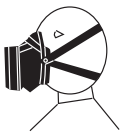
Electrical devices and equipment
→ To be provided in accordance with the local safety requirements with regard to the operating mode and ambient influences.
→ May only be maintained by skilled electricians or under their supervision. With open housings, there is a danger from line voltage.
→ Must be 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.
→ Ground 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).
→ Paint mist extraction systems/ventilation systems must be fitted on site according to local regulations.
→ Ensure that product / air hoses adapted to the working pressure are used.
→ Ensure that personal protective equipment is available and is used (breathing and skin protection).



→ 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.
→ Ensure that during spraying, persons wear static dissipative gloves. The grounding takes place via the spray gun handle or the trigger.

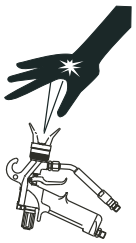
→ Protective clothing, including gloves, must comply with EN 1149-5. The measured insulation resistance must not exceed 100 megohms.
→ Ensure that there are no ignition sources such as naked flames, sparks, glowing wires, or hot surfaces in the vicinity. No smoking.
→ Ensure that the pipe joints, hoses, 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.

Grounding
→ Make sure that the ground and potential equalization of all system parts are performed reliably and continuously and can withstand the expected stress (e.g., mechanical stress, corrosion).

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.
→ In electrostatics application: 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 pressure from spray guns and devices.
  - Secure spray guns against actuation.
  - In the event of functional faults, remedy the fault as described in the "Troubleshooting" chapter.
→ If needed, the liquid ejection devices must be checked by experts (e.g., WAGNER service technician) at least every 12 months for their work-safe condition in accordance with DGUV regulation 100-500.
  - 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.

Avoid risk of injury from recoil forces:
→ Ensure that you have firm footing when operating the spray gun.
→ Only hold the spray gun briefly in a position.

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.
→ Wear static dissipative gloves when spraying. The grounding takes place via the spray gun handle or the trigger.

4.2.3 PRODUCT HOSES

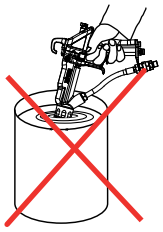
→ Ensure that the hose material is chemically resistant to the sprayed products and the flushing agents used.
→ Ensure that the product hose is suitable for the pressure generated.
→ Ensure that the following information can be seen on the high-pressure hose:
- Manufacturer
- Permissible operating pressure
- 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.
→ The electrical resistance of the product hose outer sheath, measured over the entire length of the outer sheath, must be less than 1 megohm.
→ 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.
- → When carrying out cleaning work with flammable cleaning agents, make sure that all equipment and resources (e.g., collection tank, funnel, transport cart) are conductive or static dissipative and grounded.

- → 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 electric component is cleaned with or 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, use personal protective equipment: safety goggles, protective clothing and gloves, as well as respiratory protection and 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 °F: identify the unit with a warning label that says "Warning - Hot Surface".
  - Instruction label Order No. 9998910
  - Protection label Order No. 9998911

  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 SAFETY-RELEVANT INFORMATION ABOUT DISCHARGES

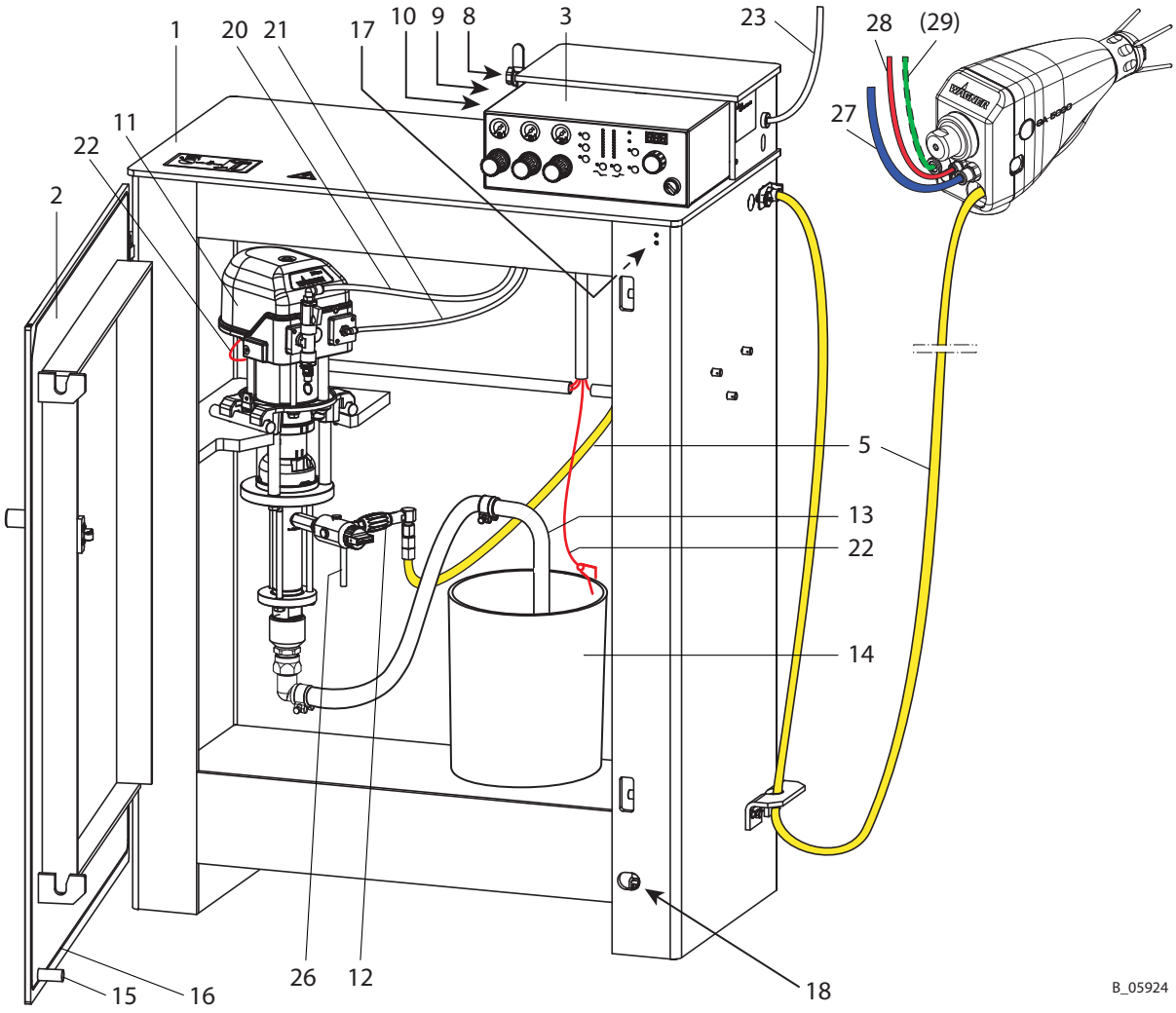
The plastic parts of the cabinet are charged electrostatically by the high-voltage field. Contact with plastic parts harmless discharges (brush discharges) may occur. They are completely non-hazardous for human health.

5 DESCRIPTION

5.1 COMPONENTS

AquaCoat with Puma 28-40 piston pump

Example for
GA 5000EACWEC

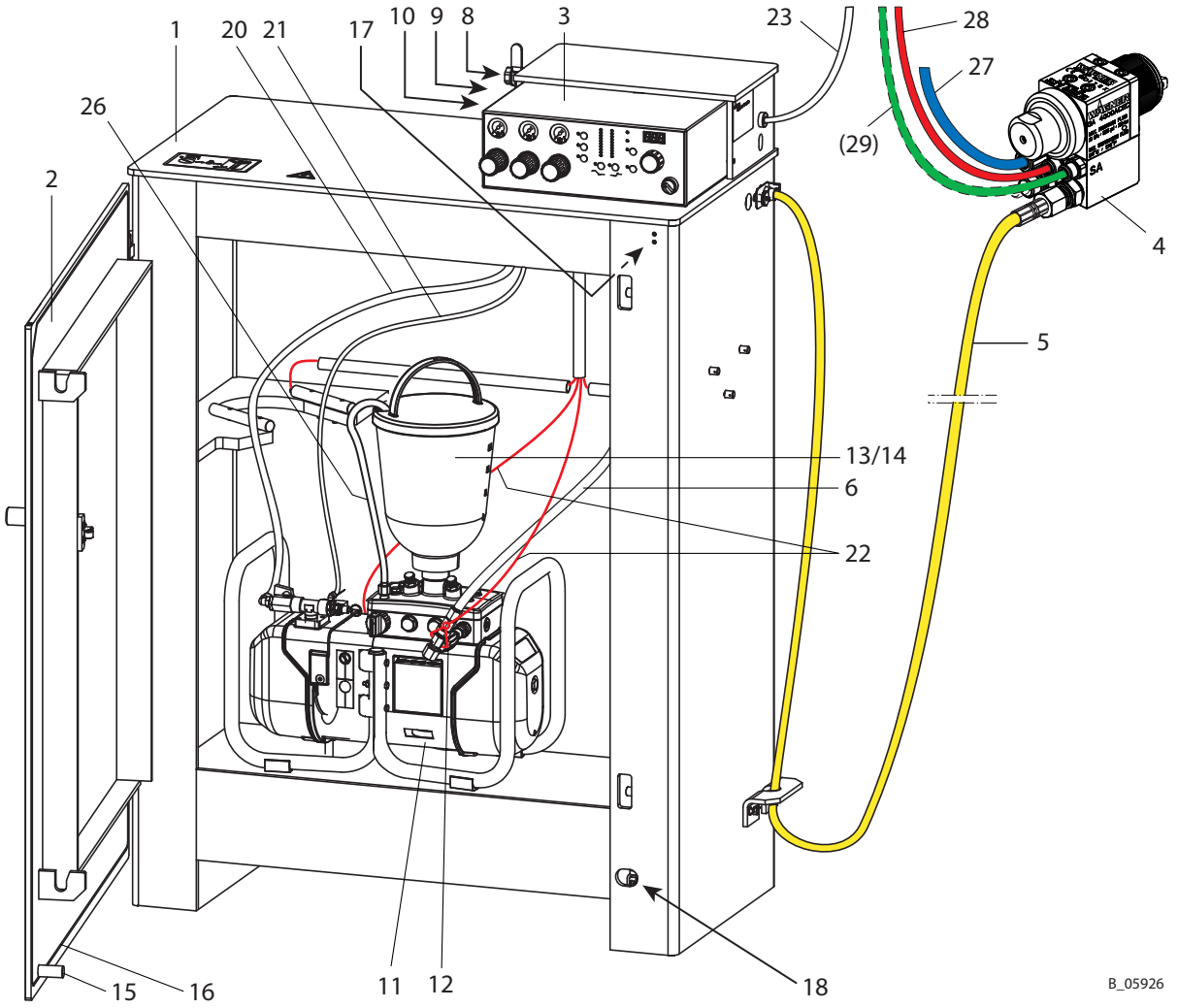


Pos	Designation
1	AquaCoat cabinet
2	Cabinet door
3	VM 5020WA control unit
4	GA 5000EACW or GA 4000AC spray gun (max. 2 spray guns possible)
5	EACW product hose (Puma: from high-pressure filter to spray gun; Cobra: potential equalization connection (33) to spray gun)

Pos	Designation
6	Only Cobra: product hose from high-pressure filter to potential equalization connection (33)
8	Air inlet with ball valve
9	Inlet for mains cable
10	Grounding terminal (input: grounding cable)
11	Product pressure generator (pump)
12	High-pressure filter
13	Suction system

AquaCoat with Cobra 40-10 double diaphragm pump

Example for
GA 4000ACEC

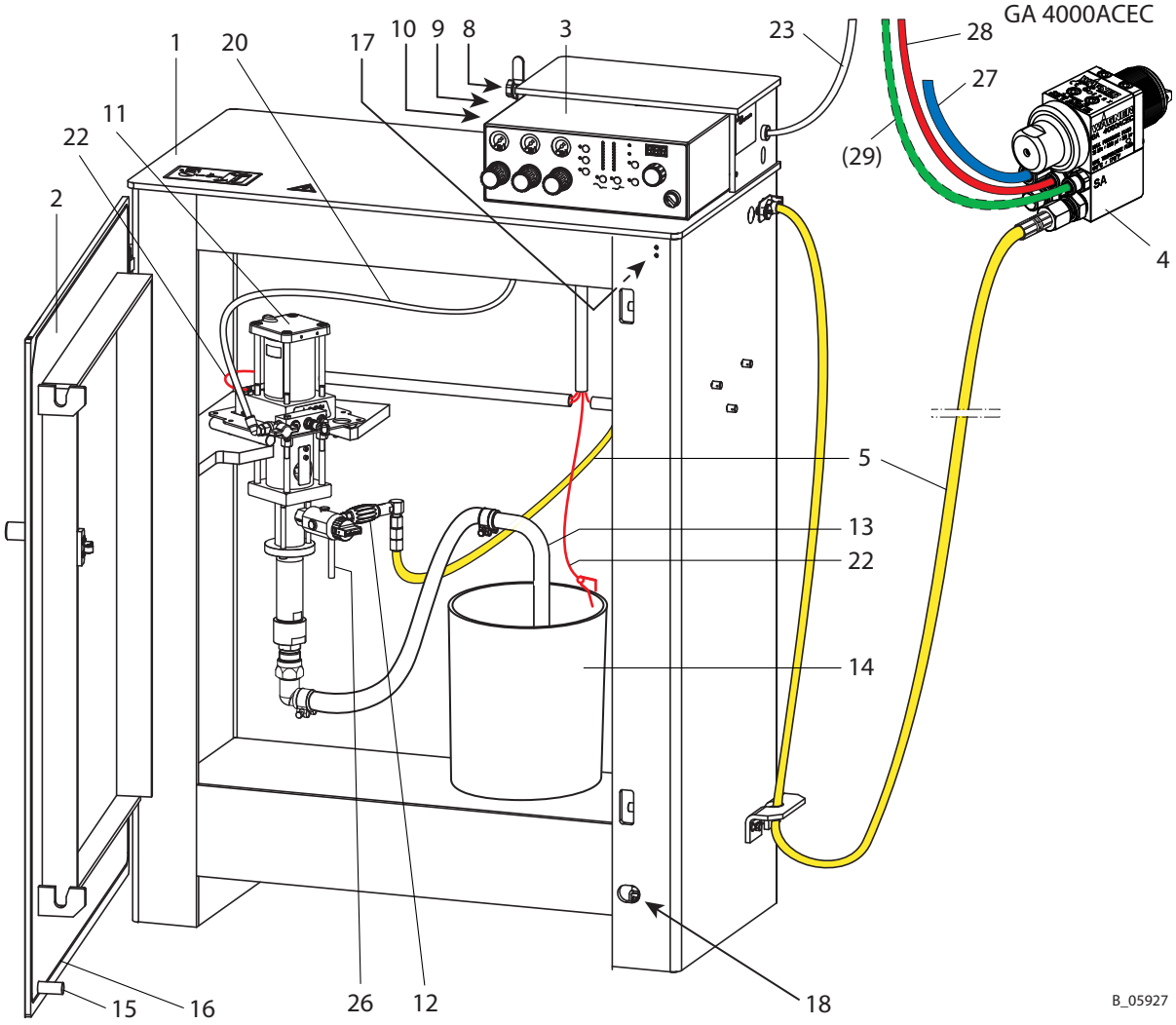


Pos	Designation
14	Product tank (Puma: metallic product tank; Cobra: hopper)
15	Grounding bolt on the cabinet door
16	Grounding band in the cabinet door
17	Electrical door switch
18	Pneumatic door switch
20	Air hose (pump air supply)
21	Air hose (for the air motor reversing valve)
22	Potential equalization lines, orange (4 pieces)

Pos	Designation
23	Control cable
26	Return line
27	Atomizing air hose (blue) The atomizing air can be supplied externally or from the control unit.
28	External control air hose (red)
29	External shaping air hose (green) for GA 5000EACWEC or GA 4000ACEC automatic spray gun (flat jet)

AquaCoat with EvoMotion 20-30 piston pump

Example for GA 4000ACEC

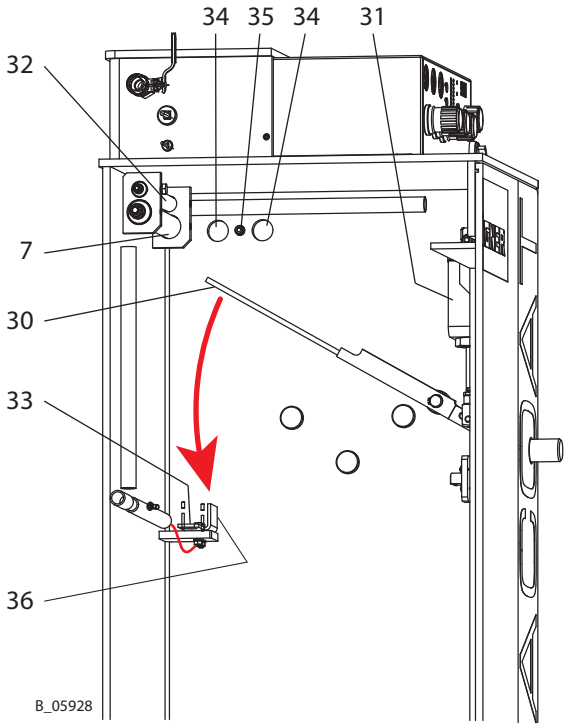


Pos	Designation
1	AquaCoat cabinet
2	Cabinet door
3	VM 5020WA control unit
4	GA 5000EACW or GA 4000AC spray gun (max. 2 spray guns possible)
5	EACW product hose (from high-pressure filter to spray gun)
8	Air inlet with ball valve
9	Inlet for mains cable
10	Grounding terminal (input: grounding cable)
11	Product pressure generator (pump)
12	High-pressure filter
13	Suction system
14	Metallic product tank

Pos	Designation
15	Grounding bolt on the cabinet door
16	Grounding band in the cabinet door
17	Electrical door switch
18	Pneumatic door switch
20	Air hose (pump air supply)
22	Potential equalization lines, orange (4 pieces)
23	Control cable
26	Return line
27	Atomizing air hose (blue) The atomizing air can be supplied externally or from the control unit.
28	External control air hose (red)
29	External shaping air hose (green) for GA 5000EACWEC or GA 4000ACEC automatic spray gun (flat jet)

AquaCoat cabinet
RH side wall (from the inside)

Pos	Designation
7	High-voltage generator (HV cascade)
30	Grounding switch
31	Grounding cylinder
32	Leakage resistance 7.5 GOhm
33	Potential equalization connection of the stripped part of the product hose (for Cobra)
34	Passageway for product hose
35	Connection for grounding cable for grounding the conductive sheath of the product hose.
36	Grounding point



Automatic guns

- GA 5000EACW: For design, see Chapter 5.7.1.
- GA 4000AC: For design, see operating manual of automatic gun (Order No., see Chapter 1.3.1)

5.2 MODE OF OPERATION

The AquaCoat spray system is designed for processing non-combustible liquids (water-based lacquers) in accordance with the AirCoat method.

The VM 5020WA control unit regulates the high voltage. The spray product is drawn in the sealed off inner chamber of the AquaCoat cabinet (1) with a product pressure generator (11) via a suction system (13), electrostatically charged and sprayed in the nozzle of the spray gun using the AirCoat process.

The product pressure generator and spray gun are connected by the shielded, high-pressure product hose.

Automatic guns

- GA 5000EACW: For mode of operation, see Chapter 5.7.2.
- GA 4000AC: For mode of operation, see operating manual of automatic gun (Order No., see Chapter 1.3.1)

5.3 PROTECTIVE AND MONITORING EQUIPMENT

⚠ 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.

The following elements are provided for system safety:

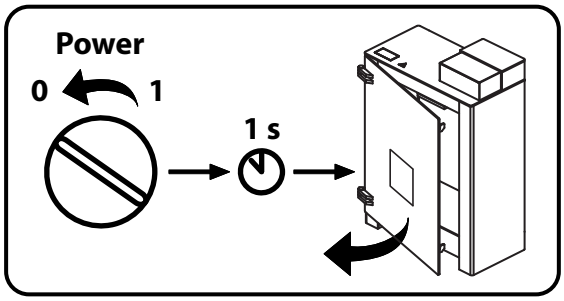
Safety element	Function
Grounding switch (30)	Grounding the potential equalization lines and pump support (for Puma / EvoMotion) or the stripped part of the product hose (for Cobra).
Electrical door switch (17)	The grounding switch is closed with an open cabinet door (potential equalization lines are grounded).
Pneumatic door switch (18)	
Leakage resistance (32)	Reduces the high voltage in a controlled manner.
Door lock	Cabinet door can not be opened when the control unit is switched on.
Grounding band (16) in the cabinet door.	The grounding band is grounded over the pneumatic door switch with a closed cabinet door.

Protective and monitoring equipment of the spray gun: see Chapter 5.7.3

Door lock

Only open or close the cabinet door (2) when the control unit (3) is switched off.

One second after the control unit (3) has been switched off, the system is grounded and the door lock opened.



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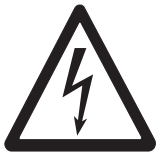
AquaCoat cabinet
To achieve an optimal application efficiency, the lacquer supply (lacquer tank and pump) is brought to high-voltage potential in an insulated cabinet. The interior of the cabinet, connected to high voltage, is protected by double (redundant) safety elements before touching. Before the cabinet door can be opened, the system is grounded abruptly by pneumatic grounding switch. A direct discharge of the system to the user is not possible in the area of lacquer supply system. However, the plastic surface of the cabinet can charge, which results in small discharges (brush discharges) when touching the cabinet. These discharges are perceptible but harmless and they are completely non-hazardous for human health.

Product hose
The product hose directs the coating product, which is under high voltage, to the spray gun. The product hose is designed on one hand high voltage resistant and on the other hand, there is the outer shell of the product hose from a conductive, grounded plastic sheath. Even of an electrical breakdown of the product hose, there is no danger to the user, since the current would flow through the grounded sheath.

Automatic spray gun
The coating product under high voltage is sprayed on the automatic spray gun. The energy on the spray gun can be >350mJ. Personal injury cannot be ruled out with the level of energy. Access to the spray gun must be prevented. Access to the spray gun can only be approved after the entire system has been grounded.
If the high voltage is switched off (e.g., during coating intervals), the system discharges slowly using a leakage resistance of 7.5 GOhm. This process can take more than 10 seconds depending on the design of the system. The system is intentionally not abruptly discharged when switched off the high voltage, so that the high voltage does not have to power up from zero again at very short interruptions.
Access to the spray gun may only be enabled if the mains supply on the AquaCoat control unit is switched off. This ensures the system is completely earthed.



⚠ WARNING

Electrical discharges!
Danger due to electrically charged spray gun.

→ Access to the spray gun must be prevented.
→ As long as the mains supply on the AquaCoat control unit is switched on, access to the spray gun must be prevented.

5.4 SCOPE OF DELIVERY

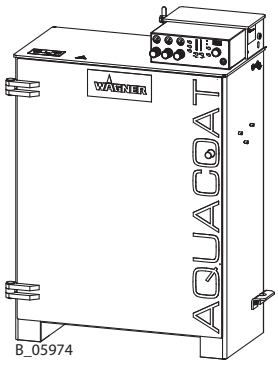
AquaCoat basic device	Automatic basic device			
	5020	5010	5020G	5010G
Designation	**Order No.**	**Order No.**	**Order No.**	**Order No.**
AquaCoat basic device: Cabinet including VM 5020WA control unit	2363400	2363404	2363735	2363737

The scope of delivery of a basic device includes:

Declaration of Conformity. For details, see Chapter 15.3	2369733
AquaCoat 5020 operating manual, German	2369728
Operating manual in the local language	see Chapter 1.3

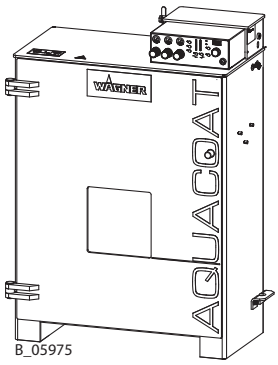
Without window

Example:
AquaCoat 5020



With window (G)

Example:
AquaCoat 5020G



Designations	Meaning
5020	The cabinet is 100 cm; 39.4 inches wide
5010	The cabinet is 80 cm; 31.5 inches wide
5020G	The cabinet is 100 cm; 39.4 inches wide. With window in the cabinet door.
5010G	The cabinet is 80 cm; 31.5 inches wide. With window in the cabinet door.

Control cable

Control cable, external 15 m; 49.2 ft	2316194

Additional Accessories

→ see Chapter 13.3

Pomp set	Pomp set		
	Puma 28-40	Cobra 40-10	EvoMotion 20-30
Designation	**Order No.**	**Order No.**	**Order No.**
Pomp set	2363746	2363747	2363946

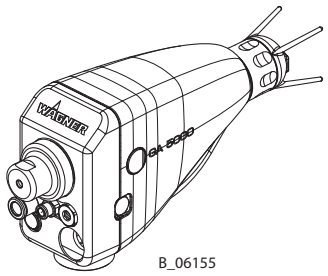
The scope of delivery of a pump set includes:

Declaration of Conformity for pump	see pump's operating manual		
Pump operating manual, German	2333537	2340850	2333552
Operating manual pump in the local language	see Chapter 1.3.1		

The delivery note shows the exact scope of delivery.

GA 5000EACW spray gun

Designation	Order No.
GA 5000EACWIC automatic gun	2366352
GA 5000EACWEC automatic gun	2366353



The scope of delivery of a spray gun includes:

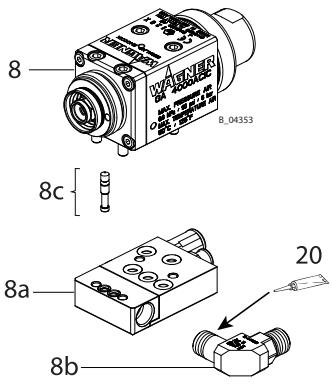
Valve needle assembly tool	2309368
Clamping screw assembly tool	2325263
Declaration of Conformity. For details, see Chapter 15.3	2369733
AquaCoat GA 5000EACW operating manual, German	2369728
Operating manual in the local language	see Chapter 1.3.1

GA 4000AC spray gun		**GA 4000ACIC**	**GA 4000ACEC**	**GA 4000ACEC robot**
Pos	**System component**	**Order No.**	**Order No.**	**Order No.**
GA 4000ACIC Spray Gun				
8	Spray gun body	2312132	2312145	
8a	Ground plate (including seals and air connections)	2312144	2308812	2313677
8b	Fitting, EF-MM-R1/4-G1/4-530 bar-SSt	2331202		
	Fitting, DF-MM-R1/4-G1/4-530 bar-SSt		M801.03B	
8c	Product channel lock pin	2314064		
20	Loctite® 542	9992831		

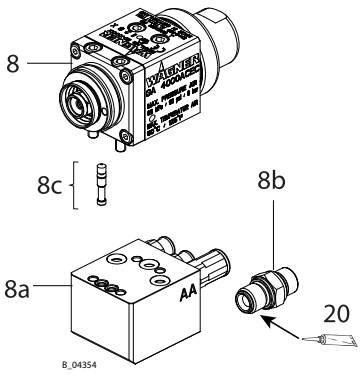
The scope of delivery of the gun body includes:

Declaration of Conformity for GA4000AC	2315627		
GA 4000AC operating manual, German	2312955	2311056	
Operating manual in the local language	see Chapter 1.3.1		

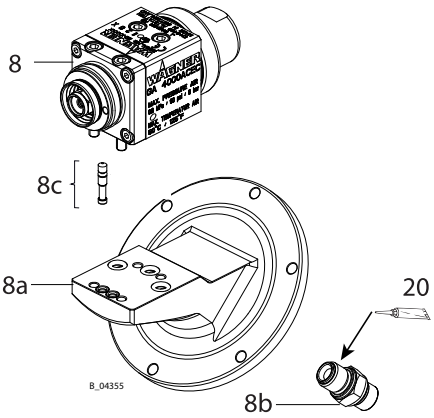
GA 4000ACIC



GA 4000ACEC



GA 4000ACEC-Robot



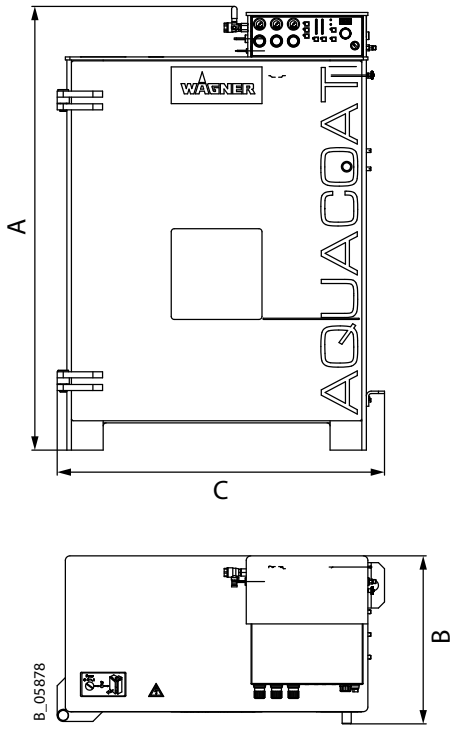
Product hoses → see Chapter 13.2

Nozzles and air caps → GA 5000EACW: see Chapter 13
→ GA 4000AC: see gun's operating manual (Order No., see Chapter 1.3.1)

5.5 TECHNICAL DATA

Technical data for AquaCoat 5010 / 5020

Air pressure inlet	0.4–0.8 MPa 4–8 bar 58–116 psi
Air inlet connection	R 1/2" I
Atomizing air connection	G 1/4" A
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
Ambient temperature	5 °C to 40 °C 41 °F to 104 °F
Maximum product temperature	50 °C 122 °F
Sound pressure level	*When the cabinet is open:* Dependent on the installed pump, data can be found in the enclosed operating manual.
	When the cabinet is closed: The values are 10–12 dB(A) lower.
Weight (without product tank and pump)	AquaCoat 5010: 62 kg; 136.7 lb AquaCoat 5020: 70 kg; 154.3 lb



Dimensions

	AquaCoat 5010		AquaCoat 5020	
	mm	inch	mm	inch
A	1467	57.76	1467	57.76
B	556	21.89	556	21.89
C	882	34.72	1082	42.60

Including underframe with rolls:

A	1572	61.89	1572	61.89

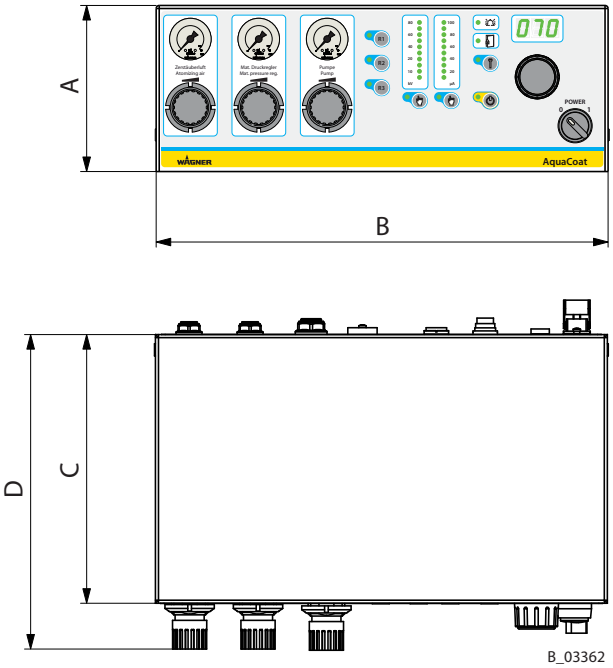
5.5.1 VM 5020WA CONTROL UNIT

Technical data for VM 5020WA

Input voltage	115 VAC - 230 VAC 50 Hz/60 Hz
Input power	maximum 40 W
Output voltage	maximum 20 Vpp
Output current	maximum 1.0 A AC
High voltage	maximum 80 kV DC
Spray current	maximum 100 µA DC
Ambient temperature	5 °C to 40 °C 41 °F to 104 °F
Protection class	IP 40
Weight (without cables)	6.2 kg; 13.7 lb

Dimensions

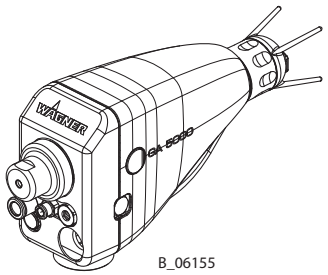
	mm	inch
A	136	5.35
B	370	14.57
C	220	8.66
D	252	9.92



5.5.2 PRODUCT PRESSURE GENERATOR

Product pressure generator	Technical data	Order No.
Puma 28-40 PE+TG pneumatic piston pump	in the IceBreaker operating manual	see Chapter 1.3.1
Cobra 40-10 double diaphragm pump	in the Cobra operating manual	
EvoMotion 20-30 pneumatic piston pump	in the EvoMotion operating manual	

5.5.3 AUTOMATIC GUNS



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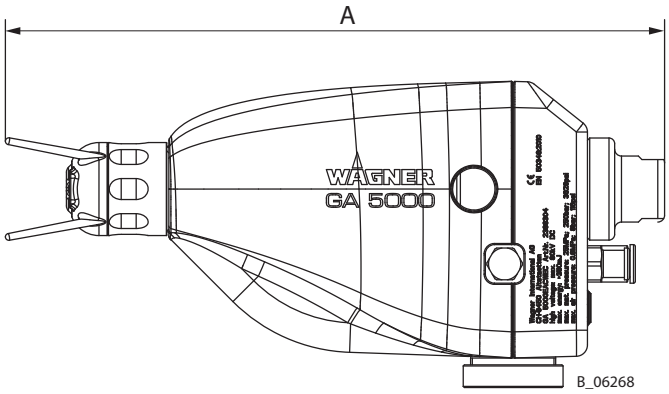
Technical data for GA 5000EACW

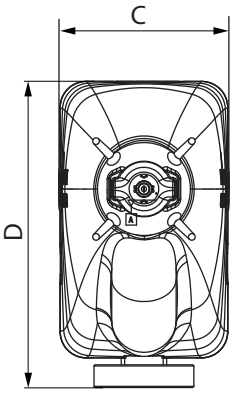
Control air pressure (open product valve)	0.4–0.8 MPa; 4–8 bar; 58–116 psi			
Maximum atomizing air pressure	0.8 MPa; 8 bar; 116 psi			
Maximum shaping air pressure	0.8 MPa; 8 bar; 116 psi			
Maximum product pressure	25 MPa; 250 bar; 3626 psi			
Product hose lengths	7.5 m; 24.6 ft	10 m; 32.8 ft	15 m; 49.2 ft	20 m; 65.6 ft
Product connection	to product hose: G1/4" A			
Control air connection	Outer Ø 6 mm; 0.24 inches			
Atomizer air connection	Outer Ø 10 mm; 0.39 inches			
Shaping air connection (only for GA 5000EACWEC)	Outer Ø 8 mm; 0.32 inches			
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			
Ambient temperature	5 °C up to 40 °C; 41 °F up to 104 °F			
Maximum product temperature	50 °C; 122 °F			
Flow rate	according to nozzle size (see nozzle table in "Accessories" chapter)			
Product: Maximum high voltage Maximum energy	80 kV DC > 350 mJ			
Weight (without houses)	1.0 kg; 2.2 lb			
Sound level at 0.3 MPa; 3 bar; 43.5 psi air pressure and 11 MPa; 110 bar; 1549 psi product pressure	73 dB (A) *			

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

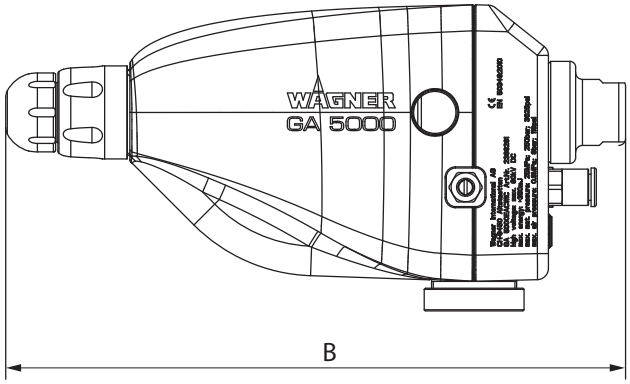
Dimensions

GA 5000EACW with flat jet nozzle



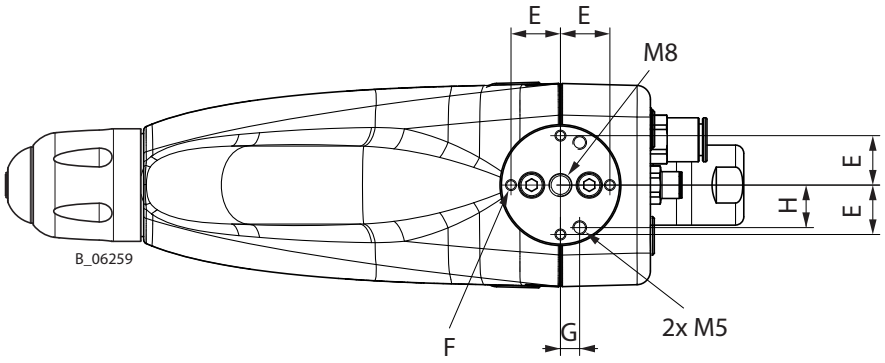


GA 5000EACW with round jet nozzle



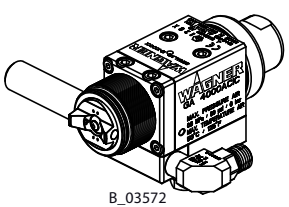
	mm	inch
A	291	11.46
B	273	10.75
C	75	2.95
D	135	5.315
E	18	0.71
f	3.2	0.13
G	7	0.28
H	15.5	0.61

Connection plate



Technical data for GA 4000AC

Technical data for the GA 4000ACIC and GA 4000ACEC spray guns and the GA 4000ACEC robot can be found in the separate operating manual (Order No., see Chapter 1.3.1).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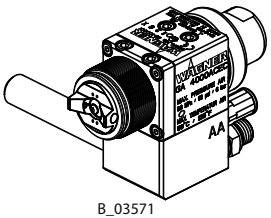
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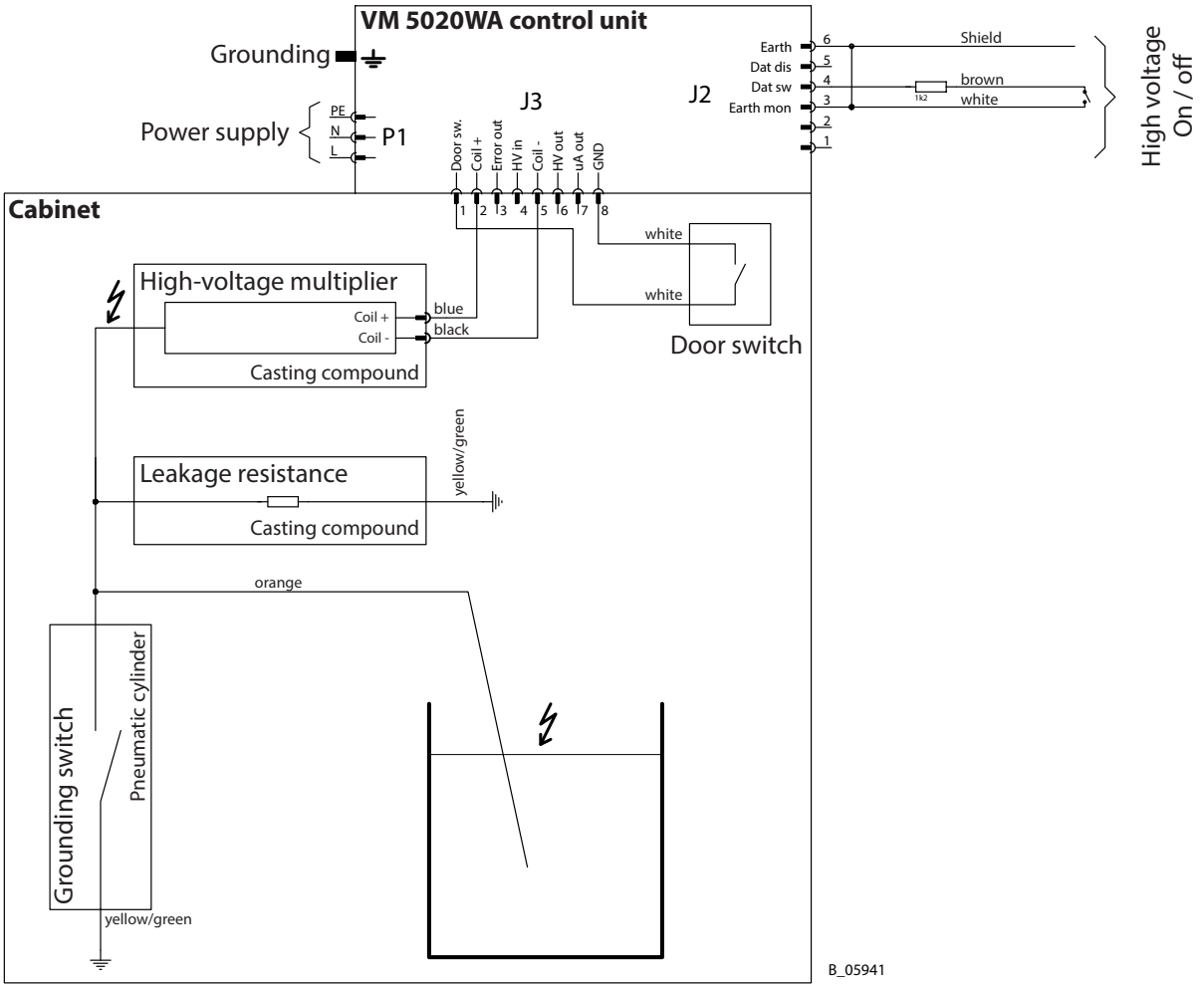
5.5.4 AQUACOAT ELECTRIC BLOCK DIAGRAM



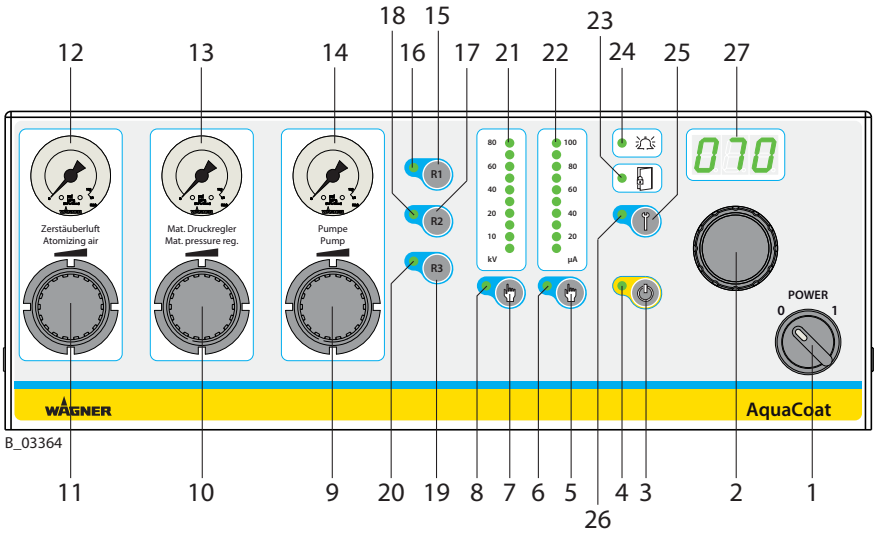
Connection	Function
J2	Control connection
J3	External interface, see Chapter 7.5

5.6 CONTROLS

5.6.1 VM 5020WA CONTROL UNIT

The assembled spray system can be operated and regulated with the VM 5020WA control unit.

5.6.1.1 OPERATING ELEMENTS, FRONT SIDE



1 Selector (mains supply)
0 = Control unit switched off.
1 = Control unit switched on.

2 Universal control dial
- Dynamic digital control dial with 32 positions per revolution.
- Adjustment speed is proportional to rotational speed.
- Used to adjust high voltage and spray current.
- For setting parameter values in configuration mode.

3 Push button "Standby"
For switching to standby mode.

4 Illuminated display "Standby"
Lights up when the device is in standby mode.

5 Push button "Spray current"
For activating the function.
The current limitation is set with the rotary controller (2) and is indicated in the LED display (27).
- Adjusting range: 10–100 µA.
- Resolution: 1 µA.

6 Illuminated display "Spray current"

7 Push button "High voltage"
For activating the function.
The high voltage is set with the control dial (2) and is indicated in the LED display (27).
- Adjusting range: 5–80 kV.
- Resolution: 1 kV.

8 Illuminated display "High voltage"

9 Regulator "Pump pressure"
Pressure regulator for pump pressure.
- Adjusting range based on the pump ratio.

10 Regulator "Product pressure"
The "product pressure" regulator is not operable for AirCoat systems.

11 Regulator "Atomizing air"
It can be used, if the atomizing air is fed from the control unit to the gun. (GA 5000EACWEC and GA 4000ACEC (flat jet): The shaping air must be fed externally in any case.)

12 Pressure gauge "Atomizing air"
It can be used, if the atomizing air is fed from the control unit to the gun. (GA 5000EACWEC and GA 4000ACEC (flat jet): The shaping air must be fed externally in any case.)

13 Pressure gauge "Product pressure"
The "product pressure" pressure gauge is not operable for AirCoat systems.

14 Pressure gauge "Pump pressure"
Pressure display for the pump pressure.
- Display range 0–1.0 MPa; 0–10 bar; 0–145 psi.

The display is multiplied by the pump ratio:

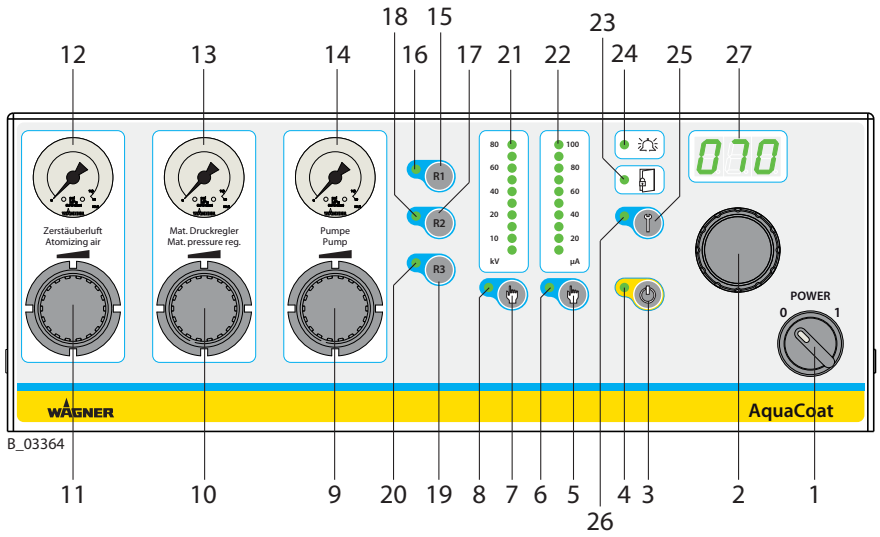
- Puma 28-40	Product pressure = display x 28
- Cobra 40-10	Product pressure = display x 40
- EvoMotion 20-30	Product pressure = display x 20

15 Push button "Recipe 1"

16 Illuminated display "Recipe 1"
Illuminates if recipe 1 is used.

17 Push button "Recipe 2"

18 Illuminated display "Recipe 2"
Illuminates if recipe 2 is used.



19 Push button "Recipe 3"

20 Illuminated display "Recipe 3"
Illuminates if recipe 3 is used.

21 Illuminated display "High voltage"
- Illuminates in green.
- Display range: 0–80 kV.
- Single LED display: Nominal voltage.
- Bar display: Working voltage.

22 Illuminated display "Spray current"
- Illuminates in green.
- Display range: 0–100 µA.
- Single display: Spraying current limit.
- Bar display: Actual spraying current.

23 Illuminated display "Door control"
- Illuminates in green when the cabinet door is closed.

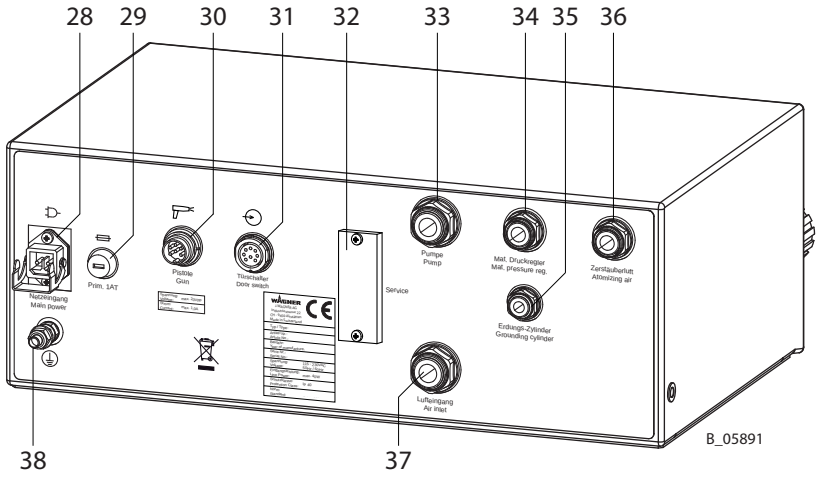
24 Illuminated display "Fault"
- Illuminates if there is a fault in the system.

25 Push button "Service"

26 Illuminated display "Service"

27 LED display: 7 segments, three-digit number
- Indicates the target and actual values of high voltage and spray voltage.
- Display of error number about warnings and malfunctions.
- Information about the parameter setting.

5.6.1.2 CONNECTIONS ON THE REAR SIDE



28 Mains input terminal
Connection for mains cable with safety clip.

29 Primary fuse
1.0 Ampere slow-acting.

30 Control connection
Control cable connection for switching the high voltage on and off.

31 High-voltage connection
Connection for high-voltage generator.

32 Cover of the service connection
For WAGNER service personnel only!

33 Connection pump air
Hose connector ∅ 10 mm; 0.39 inches.

34 Product pressure regulator connection (not used for AirCoat systems)
Hose connector ∅ 8 mm; 0.32 inches.

35 Grounding switch air connection
Hose connector ∅ 6 mm; 0.24 inches.

36 Atomizing air connection
Hose connector ∅ 8 mm; 0.32 inches.

37 Compressed air Inlet
Hose connector ∅ 10 mm; 0.39 inches.

38 Grounding (self-locking nut)
Connection for the grounding cable (signal ground).

5.6.2 PRODUCT PRESSURE GENERATOR

5.6.2.1 PUMA 28-40 PE+TG PNEUMATIC PISTON PUMP

→ The pump is equipped with a special AquaCoat compressed air connection (see below).
All other relevant information can be found in the IceBreaker-operating manual (Order No., see Chapter 1.3.1).

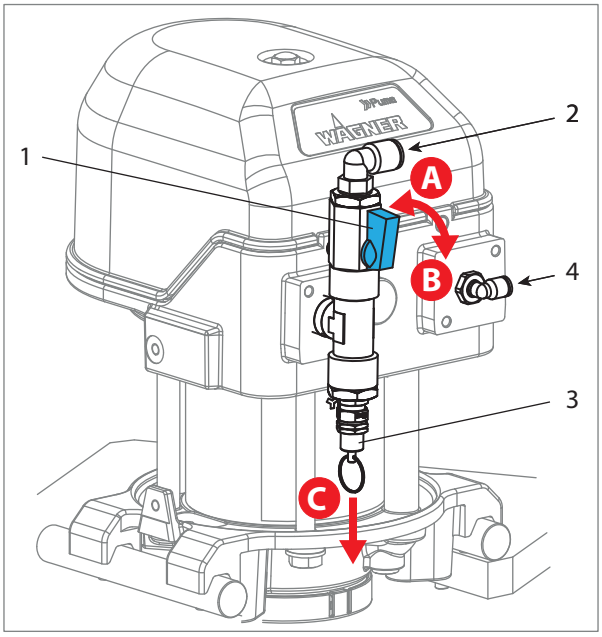
AquaCoat compressed air connection for Puma

The AquaCoat control unit controls the pressure air ("Pump pressure" regulator, see Chapter 5.6.1.1).

1 Ball valve
2 Compressed air Inlet
3 Safety valve
4 Compressed air input for the air motor reversing valve (mains pressure)

Positions of the ball valve

A Open: Working position
B Closed: the air motor can still be under pressure.
C Vent: Pull the ring on the safety valve to vent. Operating pressure in the air motor is vented (control air pressure is still present).



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5.6.2.2 COBRA 40-10 DOUBLE DIAPHRAGM PUMP

→ The pump is equipped with a special AquaCoat compressed air connection (see below).
All other relevant information can be found in the Cobra operating manual (Order No., see Chapter 1.3.1).

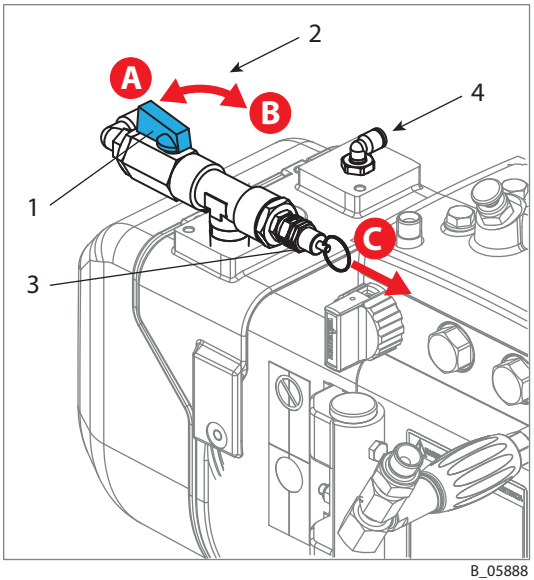
AquaCoat compressed air connection for Cobra

The AquaCoat control unit controls the pressure air ("Pump pressure" regulator, see Chapter 5.6.1.1).

1 Ball valve
2 Compressed air Inlet
3 Safety valve
4 Compressed air input for the air motor reversing valve (mains pressure)

Positions of the ball valve

A Open: Working position
B Closed: the air motor can still be under pressure.
C Vent: Pull the ring on the safety valve to vent. Operating pressure in the air motor is vented (control air pressure is still present).



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5.6.2.3 EVOMOTION 20-30 PISTON PUMP

→ The pump is equipped with a special AquaCoat compressed air connection (see below).
All other relevant information can be found in the EvoMotion operating manual (Order No., see Chapter 1.3.1).

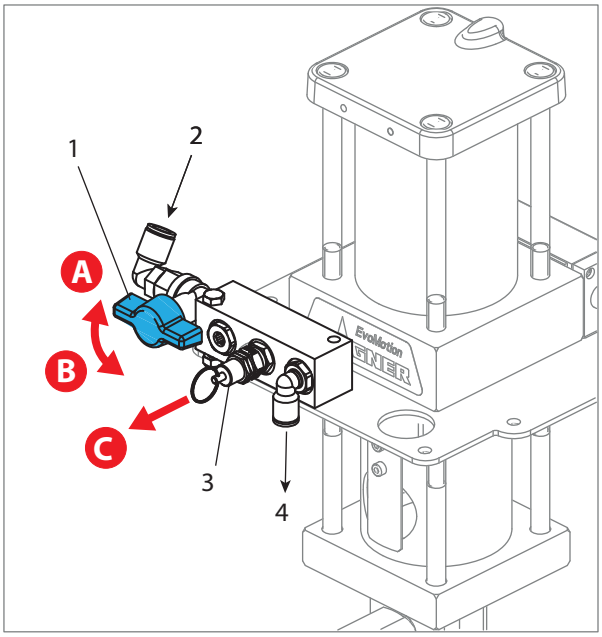
AquaCoat compressed air connection for EvoMotion

The AquaCoat control unit controls the pressure air ("Pump pressure" regulator, see Chapter 5.6.1.1).

1 Ball valve
2 Compressed air Inlet
3 Safety valve
4 Compressed air output to the air motor / reversing valve (mains pressure)

Positions of the ball valve

A Open: Working position
B Closed: the air motor can still be under pressure.
C Vent: Pull the ring on the safety valve to vent.
Operating pressure in the air motor is vented.



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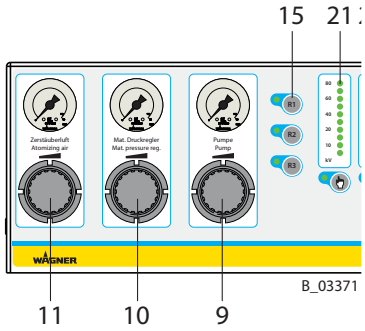
5.6.2.4 WORKING IN ACCORDANCE WITH PUMP'S OPERATING MANUAL

For preparation, commissioning and maintenance work at the pump, proceed as follows:

1. Switch off control unit. (The pressure regulators continue to function.)
2. Open the cabinet door.
3. Work in accordance with pump's operating manual. While doing so:
   - Puma and EvoMotion: Only metal tanks may be used for product and flushing agents. Ground the tank with the AquaCoat cabinet's potential equalization.
   - Use the pump pressure regulator (9) as air pressure regulator on the switched off control unit.
   - Use the ball valve (1) as air motor ball valve in Chapters 5.6.2.1 to 5.6.2.3. Pull the ring on the safety valve (3) to vent the air motor.



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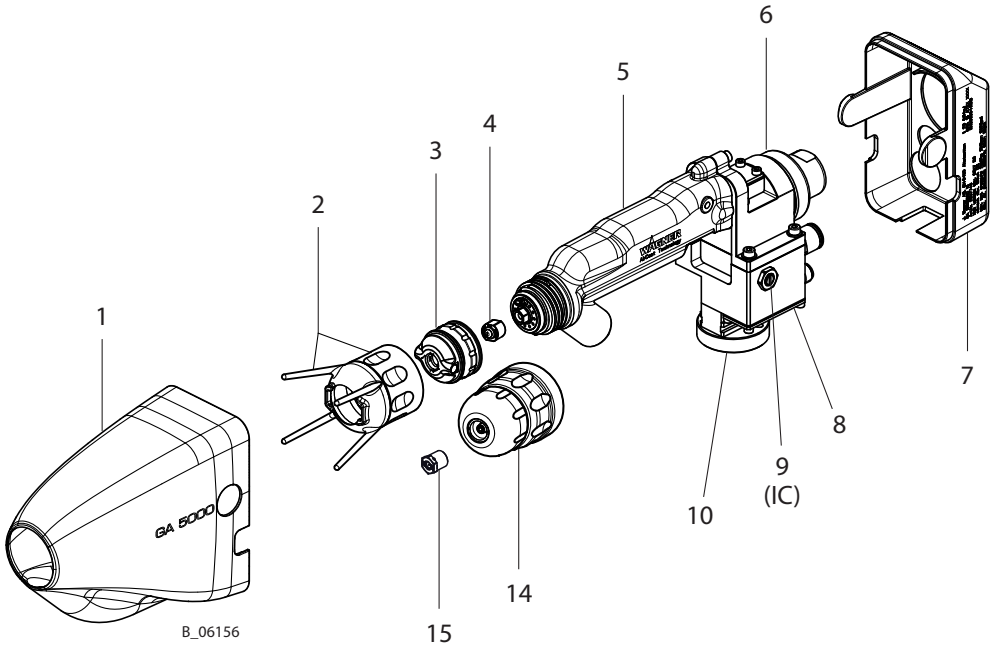
5.7 GA 5000EACW AUTOMATIC GUN

5.7.1 GA 5000EACW DESIGN

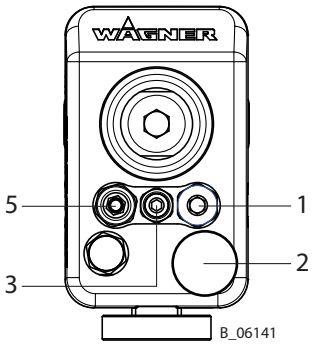


1	Front cover
2	Union nut with protection against contact
3	Air cap for flat jet nozzle (see accessories in Chapter 13.1.1.2)
4	ACF 5000 flat jet nozzle (see accessories in Chapter 13.1.1.2)
5	Gun adapter
6	Piston housing

7	Cover
8	Air diffuser plate
9	Shaping air regulation (only with GA 5000EACWIC)
10	Gun holder
14	Round jet nozzle attachment (see accessories in Chapter 13.1.1.1)
15	Round jet nozzle insert (see accessories in Chapter 13.1.1.1)

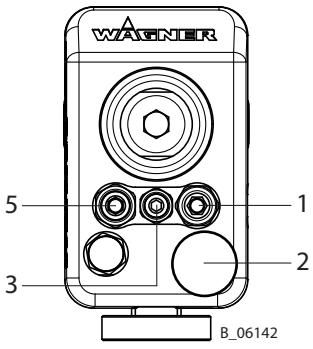
Connections on the rear side

GA 5000EACWIC



1 (IC)	Connection closed with dummy plug
1 (EC)	Atomizing air connection (D10/blue)
2	Bushing for product hose
3	Control air connection (D6/red)
5 (IC)	Shaping air or atomizing air connection (D10/blue)
5 (EC)	Shaping air connection (D8/green)

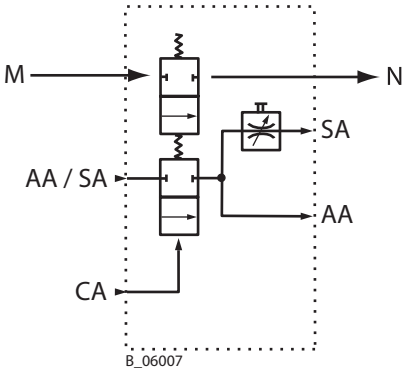
GA 5000EACWEC



5.7.2 GA 5000EACW MODE OF OPERATION

→ The GA 5000EACW spray gun may only be operated with the control units designed for that purpose.

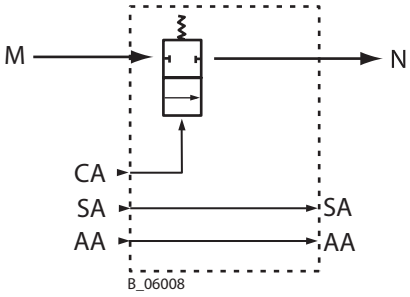
GA 5000EACWIC



Pneumatic Diagram

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

GA 5000EACWEC



GA 5000EACWIC

Open valves
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 valves
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.

Shaping air
The relationship between shaping air and atomizing air is set using the shaping air regulator (6).

GA 5000EACWEC

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

Shaping air / atomizing air
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.

High voltage
- High voltage is activated when the VM 5020WA control unit is switched on.
- The high voltage can be adjusted at the VM 5020WA and can be adapted to the paint or to the spraying object.

5.7.3 GA 5000EACW PROTECTIVE AND MONITORING EQUIPMENT

The following elements are provided for safety:

- Anti-contact guard for flat jet nozzle

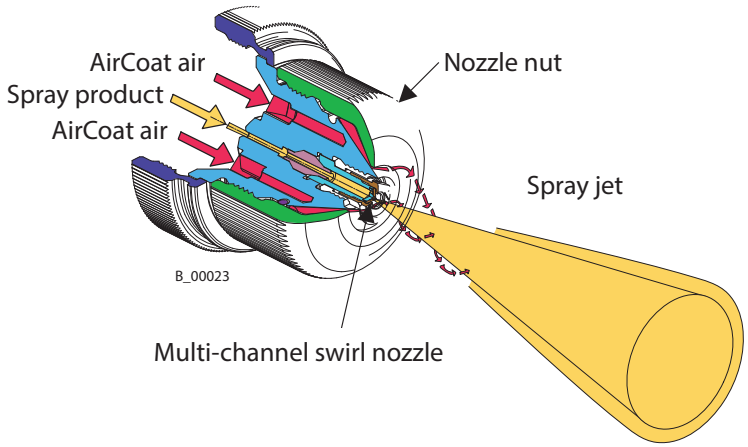
→ Observe safety information in Chapter 5.3.

5.7.4 SPRAYING PROCEDURE FOR AIRCOAT ROUND JET

In the AirCoat procedure, the spray product is atomized at a pressure of 3 - 15 MPa; 30 - 150 bar; 435 - 2176 psi. The air at 0-0.25 MPa; 0-2.5 bar; 0-36 psi produces a soft jet. The spray jet diameter can be adjusted by turning the nozzle nut.

Advantages

- Large application volume
- Low fogging tendency
- Good finish
- High-viscosity products can easily be applied
- High endurance of the nozzles
- Jet width adjustment

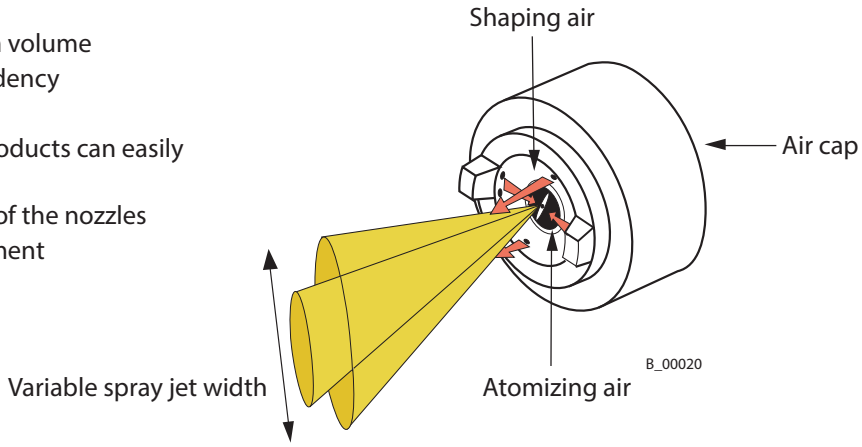


5.7.5 SPRAYING PROCEDURE FOR AIRCOAT FLAT JET

In the AirCoat procedure, the spray product is atomized at a pressure of 3 - 15 MPa; 30 - 150 bar; 435 - 2176 psi. With the help of the AirCoat air, with a pressure of 0-0.25 MPa; 0-2.5 bar; 0-36 psi, a soft, flat spray jet is produced which largely eliminates the problem of overlapping in the peripheral zones. With shaping air, there is the possibility of reducing the width of the spray jet.

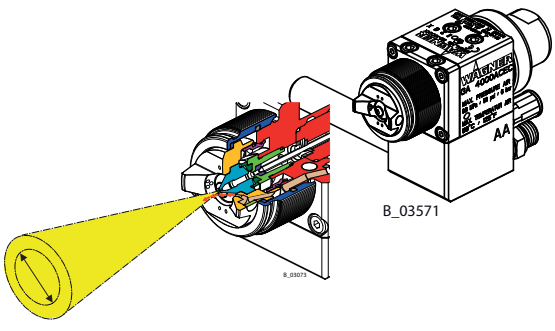
Advantages:

- Large application volume
- Low fogging tendency
- Good finish
- High-viscosity products can easily be applied
- High endurance of the nozzles
- Jet width adjustment



5.8 GA 4000AC AUTOMATIC GUN

Design, function and how to use the GA 4000ACIC and GA 4000ACEC spray guns are described in the separate operating manual (Order No., see Chapter 1.3.1).



5.9 SECURING THE SPRAY GUN AGAINST ACTUATION

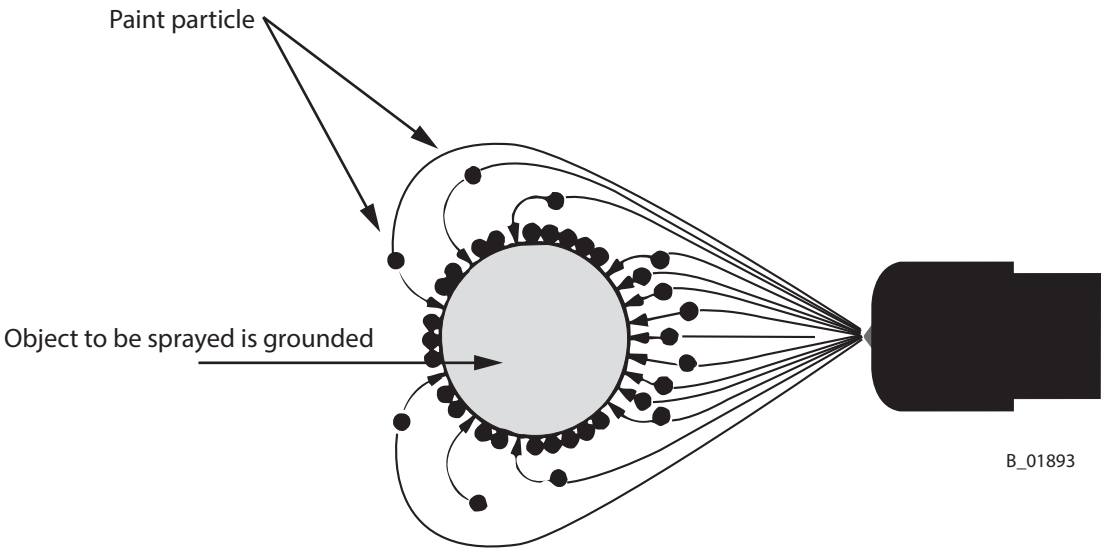
Secure the spray gun against actuation:

→ **Remove the external control air hose (red)**.

Note: To secure the entire system, pressure must be relieved as described in Chapter 7.3.3.

5.10 ELECTROSTATIC EFFECT

After being electrically charged in the system and atomized by the spray gun, the paint particles are now transported by kinetic and electrostatic energy to the grounded work piece and adhere to the sprayed object, finely distributed over the entire surface.



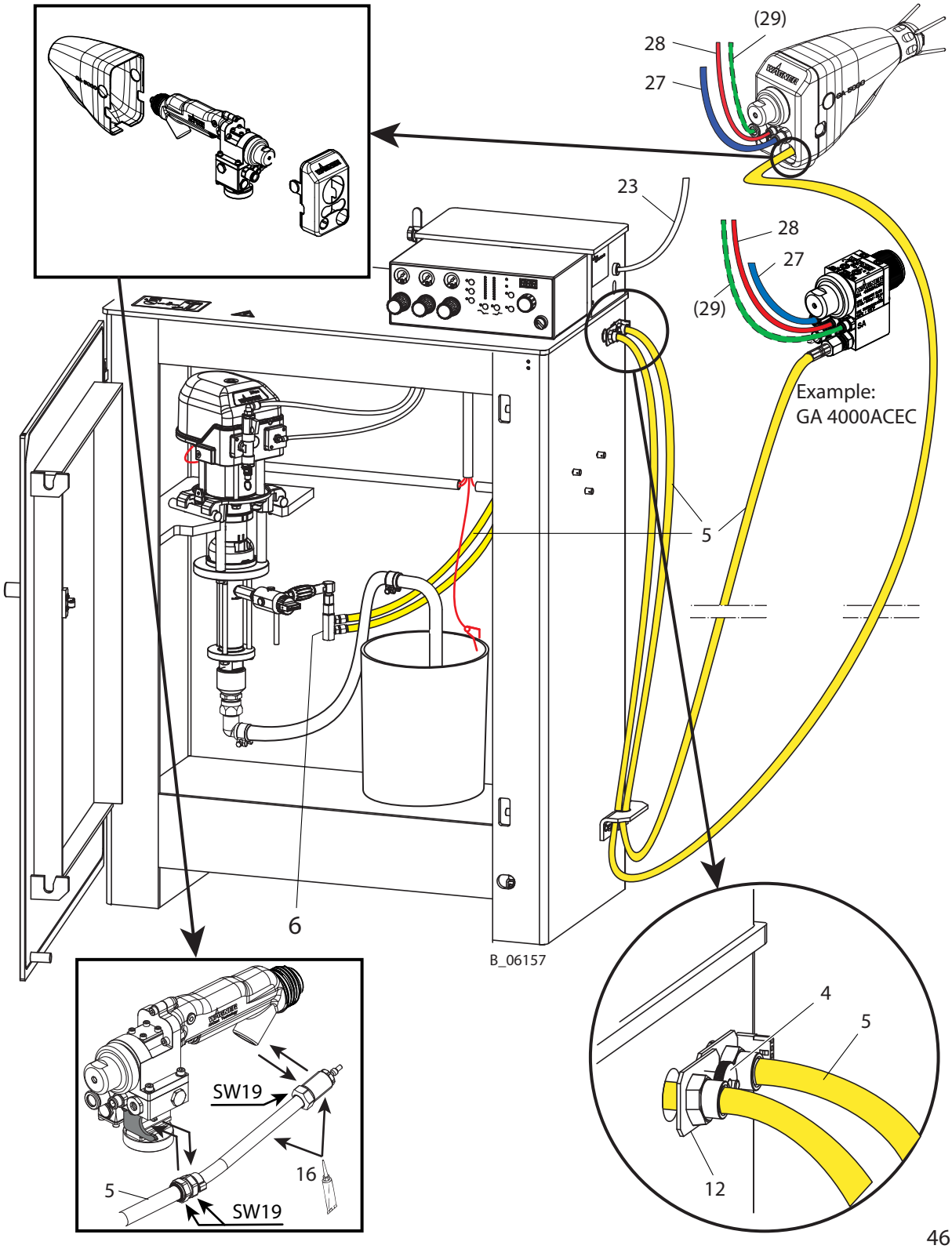
Advantages

- Very efficient spraying.
- Low overspray.
- Coating of entire circumferences due to the electrostatic effect.
- Savings in working time.

5.11 USE WITH TWO AUTOMATIC GUNS

Example for Puma

Example: GA 5000EACWEC



When using a second automatic gun, the following needs to be considered:

Grounding

- The grounding of the product hoses (5) is safeguarded with the knurled nut (4) via the assembly sheet metals (12).

Assembly

- In addition to that, a product distribution piece (6), order number 2359038 is required on the cabinet side.
  - Puma / EvoMotion: assembly to product filter
  - Cobra: assembly to the potential equalization connection of the stripped part of the product hose

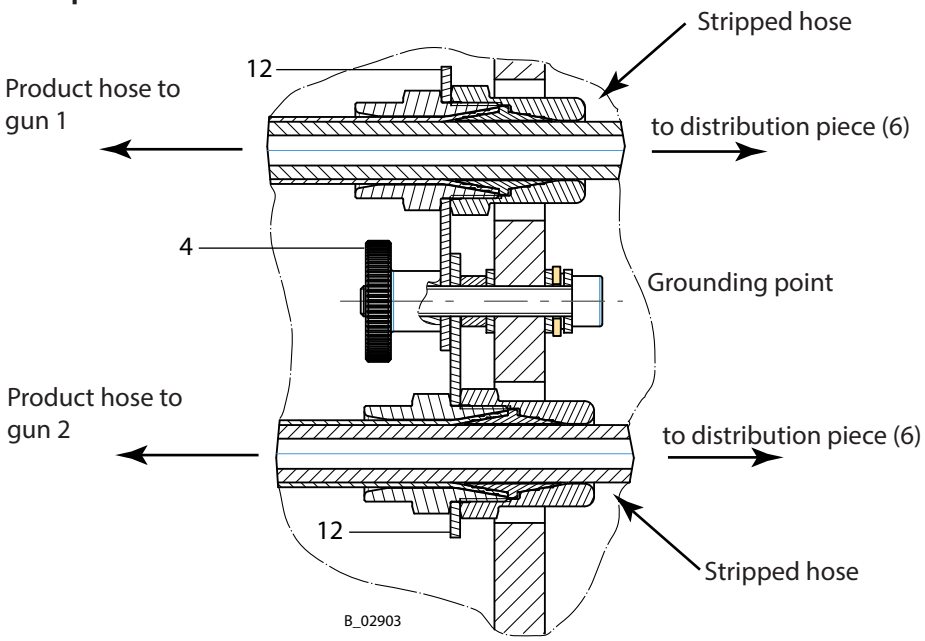
  Control air (28) red and atomizer air (27) blue are supplied externally and separately to the automatic spray guns. The same also applies to the shaping air (29) green when using the GA 5000EACWEC or GA 4000ACEC flat jet.
- Both ends of the product hose must be stripped.
  - Strip insulation in the cabinet is starting from the cabinet entrance (see figure below).
  - GA 5000EACW: Strip insulation on the gun side within the cover to a length of approx. 150 mm; 5.9 inches. Clean thread and stripped parts of product hoses (5). Grease thread with Vaseline (16).
  - GA 4000AC: Strip insulation on the gun side to a length of approx. 250 mm; 9.84 inches.

Mounting materials for GA 5000EACW

Pos	Order No.	Description
16 *	9992698	Vaseline white, PHHV II

* Use Vaseline sparingly

View from top



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

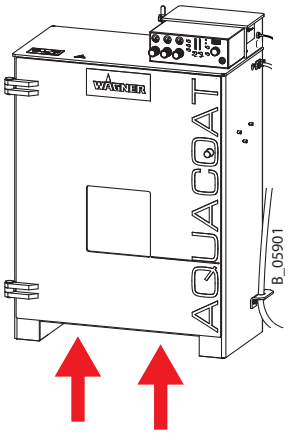
The air temperature at the installation site must be in a range between 0 °C and 40 °C; 32 °F and 104 °F.

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

6.4 TRANSPORTATION

For underframe with rolls: The device can be moved on the rollers for short distances.

Without underframe: The device can be transported using a pallet jack. Use the recessed area on the underside of the cabinet for this purpose.



⚠ WARNING

Inclined ground!
Risk of accidents if the device rolls away/falls.

→ Place the device on horizontal floor.
→ The wheels should be fixed or replaced by levelling feet and secured.
→ Do not tilt the device during shifting / transporting.

6.5 ASSEMBLY AND INSTALLATION

Check the individual components of the AquaCoat spraying system against the consignment note. Familiarize yourself with the mode of functioning of the individual components, reading the enclosed operating manuals thoroughly. Note the special requirements of the designated electrostatic AirCoat spray procedure.

6.5.1 ASSEMBLING THE AQUACOAT SYSTEM

Accessories (option)

1. - Mount underframe with rolls, according to the assembly manual 2367143.
   - Place tub insert into AquaCoat cabinet.

Pump set

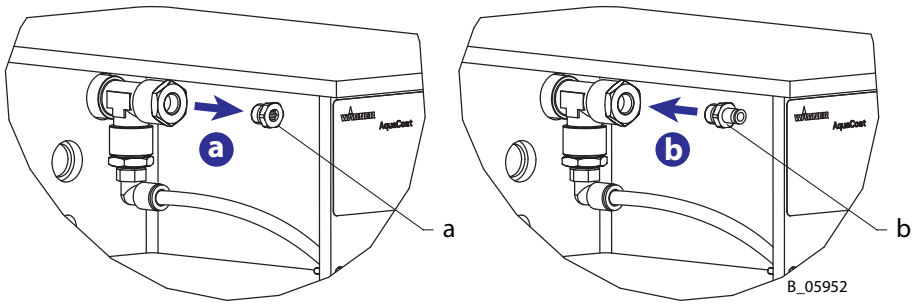
All required parts are included in the scope of delivery of the pump set (see Chapter 14.3).

The cabinet contains two air hoses:

- The air hose ∅ 10 mm; 0.39 inches is connected with the control unit, pump air connection.
- The air hose ∅ 8 mm; 0.32 inches is not used for AirCoat-systems.

Procedure:

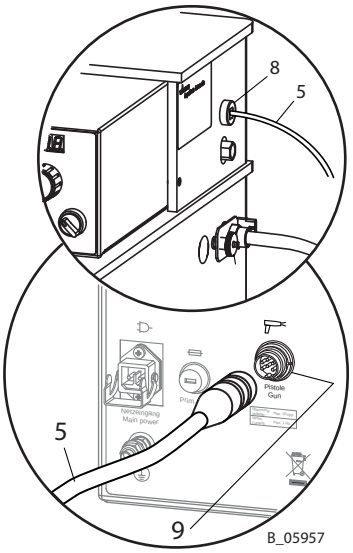
2. - Puma: Screw the pump onto pump support in accordance with Chapter 14.3.1.
   - Cobra: Place the pump on the frame in the cabinet (product outlet to front).
   - EvoMotion: Screw the pump onto pump support in accordance with Chapter 14.3.3.
3. Screw the orange potential equalization line (see Chapter 5.1) onto pump's grounding connection. (Grounding connection see pump's operating manual.)
   - Cobra: Pull potential equalization line out of the left tube on the rear panel and use this cable.
4. - Puma / EvoMotion: Mount suction hose on pump inlet.
   - Cobra: Mount hopper and return tube.
5. Pump's air supply: Connect air hose ∅ 10 mm; 0.39 inches (see Chapter 5.1) to pump's compressed air inlet. (Compressed air inlet, see Chapter 5.6.2.)
6. Dismount the VM 5020WA control unit in accordance with Chapter 10.6.
7. Puma / Cobra:
   a. Unscrew threaded plug G1/4" (a) at the air inlet.
   b. Screw in the Screw-in fitting 6-1/4 (b) (Order No. 9992742).
   c. With air hose ∅ 6 mm; 0.24 inches (Order No. 9982079): Connect connection (b) with compressed air input for the air motor reversing valve. (Compressed air inlet for reversing valve, see Chapter 5.6.2.)



8. Cobra:
   Mount inside the cabinet on the RH side wall in accordance with Chapter 14.3.2:
   - Pos. 15: Fitting, DF-MM-G3/8-G1/4-530 bar-SSt – Order No. 2364802
   - Pos. 16: Hexagon nut, 0.5 d – Order No. 9910109
   - Pos. 14: HPP hose, DN10-PN530 FEP W-G 0.73 m – Order No. 2332865

Mount the product hose to the cabinet

9. Mount the product hose to the cabinet in accordance with Chapter 8.2.6 (assembly).
   Secure the product hose to the side wall with the hose holder toward the outside.

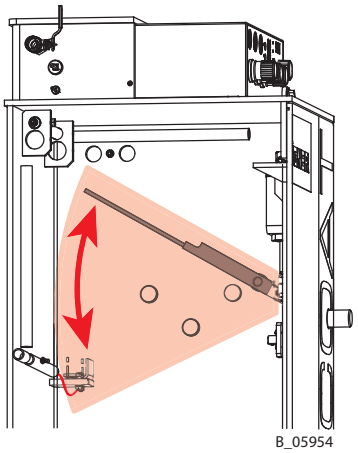


Connect the control cable to the control unit externally

10. Guide the control cable (5) through the bushing (8). Connect the control cable (5) to the control unit (control connection (9)). Secure with knurled nut. Attach strain relief grommet (8).

Secure cables and hoses

11. Secure al cables and hoses with cable ties in the AquaCoat cabinet.
    →The door switch moves up and down on the RH cabinet wall. It must be ensured that no cables and hoses are located within the travel of the door switch.



Control unit

12. Carefully push the VM 5020WA control unit back again to the limit stop. Note the connecting lines and connecting cables at the back of the control unit!
13. Screw the VM 5020WA control unit on the cabinet.

Additional Accessories (option)

14. Mount additional Accessories, if available.

6.5.2 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.

6.5.3 AIR SUPPLY

You must ensure that only dry, clean atomizing air is used in the spray gun. Dirt and moisture in the atomizing air worsens the spraying quality and spray pattern.

⚠ WARNING

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

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

6.5.4 PRODUCT SUPPLY

NOTICE

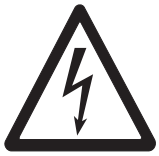
Impurities in the spraying system!
Spray gun blockage, products harden in the spraying system.

→ 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

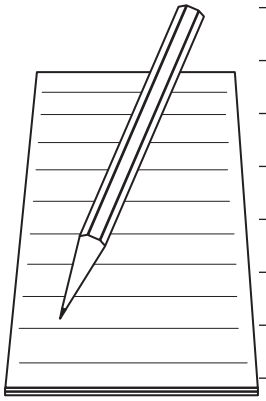


WARNING

Electrical discharges!
Danger due to electrically charged product lines.

→ The conductive sheath of the product hose must not be removed and the connection to the ground potential must not be loosened:
- Do not loosen the cabinet's knurled nut and the grounding cable in the cabinet.

Assembling product hose
→ See Chapter 8.2.6.



6.6 GROUNDING

It is important for systems safety and to achieve an optimum coating that all system components such as work pieces, conveyors, paint supply, control unit and booth or spraying stand are perfectly grounded.

⚠ WARNING

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

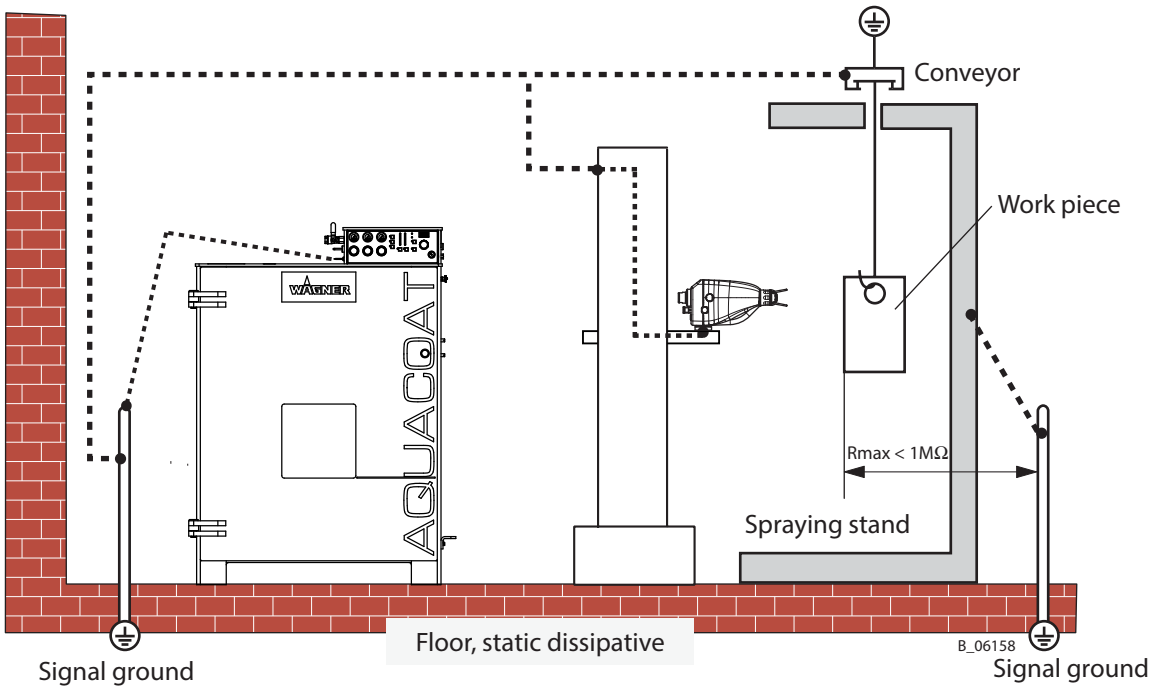
→ Ground all device components.
→ Ground the work pieces to be coated.

A poorly grounded work piece causes:
- very bad wrap around,
- uneven coating,
- back spraying to the spray gun, i.e., contamination.

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 may not exceed 1 MΩ (megaohm) (ground leakage resistance measured at 500 V or 1000 V).
- Connect the AquaCoat cabinet to the signal ground.
- Connect all ground cables using a short and direct route.
- Safety shoes and gloves, if used, must be static dissipative.

6.6.1 GROUNDING SCHEME FOR GA 5000EACW

Example



Minimum cable cross-section

AquaCoat cabinet	4 mm²; AWG 12
Reciprocator	16 mm²; AWG 6
Conveyor	16 mm²; AWG 6
Spray booth	16 mm²; AWG 6
Spraying stand	16 mm²; AWG 6

Safe operation of the AquaCoat system is only guaranteed with a grounding connection.

Connect all ground cables using a short and direct route.

Assembling product hose

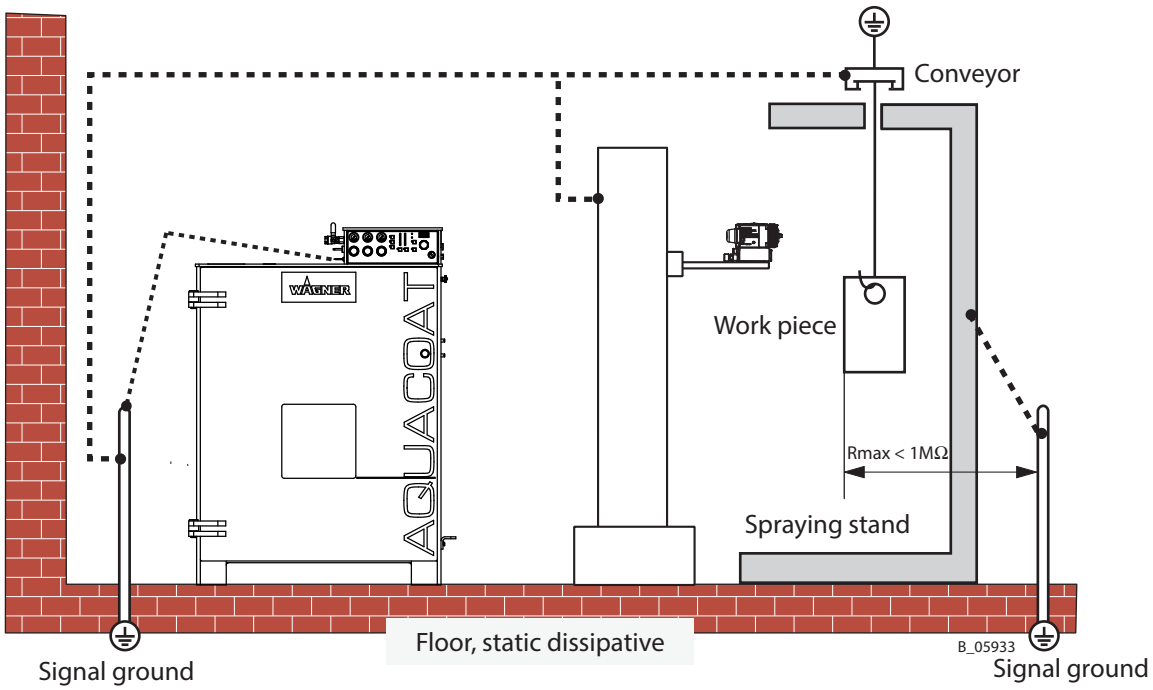
→ See Chapter 8.2.6.

Tank

- → All paints, flushing agents and waste tanks have to be made of metal.
- → All tanks in the cabinet must be connected to the potential equalization. All further tanks must be grounded.

6.6.2 GROUNDING SCHEME FOR GA 4000AC

Example



Minimum cable cross-section

AquaCoat cabinet	4 mm²; AWG 12
Reciprocator	16 mm²; AWG 6
Conveyor	16 mm²; AWG 6
Spray booth	16 mm²; AWG 6
Spraying stand	16 mm²; AWG 6

Safe operation of the AquaCoat system is only guaranteed with a grounding connection.

Connect all ground cables using a short and direct route.

GA 4000AC automatic gun

The gun must be fastened with isolating parts and the distance to the next grounded parts must amount to at least 200 mm; 8 inches.

Assembling product hose

→ See Chapter 8.2.6.

Tank

- → All paints, flushing agents and waste tanks have to be made of metal.
- → All tanks in the cabinet must be connected to the potential equalization. All further tanks must be grounded.

6.7 SAFETY CHECKS

→ Carry out safety checks in accordance with Chapter 8.2.3.

6.8 PREPARATION OF WATER-BASED LACQUER

The viscosity of the lacquer is of great importance. The best spraying results are obtained with values between 25 and 40 DIN/4 seconds (measured in immersion flow cup DIN 4 mm; 0.16 inches).

Processing of up to 60 DIN/4 seconds is generally possible without problem if high coating thicknesses are required.

In the case of application problems contact the lacquer manufacturer.

6.8.1 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		

6.9 COMMISSIONING

6.9.1 SAFETY INSTRUCTIONS

→ Observe the safety instructions in Chapter 4, Chapter 7.2 and Chapter 8.1.2.
→ Only metal tanks may be used for product and flushing agents, no plastic tanks.

6.9.2 PREPARATION

Before every start-up, the following points should be observed as laid down in the operating manual:
- Secure spray gun against actuation (see Chapter 5.9)
- For underframe with rolls (option): Lock all four swivel castors with the footbrake.
- Check the permissible pressures.
- Check all connections for leaks.
- Check hoses for damage in accordance with Chapter 8.2.9.

Connect the compressed air
- Connect the AquaCoat system to the compressed air source (8).

Fill the devices with flushing agent
The devices are tested during manufacturing with emulsifying oil, pure oil or solvent. Possible residues must be flushed out of the circuits with a solvent (flushing agent) before commissioning.
- Puma and EvoMotion: Fill separating agent in accordance with pump's operating manual.
- Fill the empty device with flushing agent in accordance with pump's operating manual.

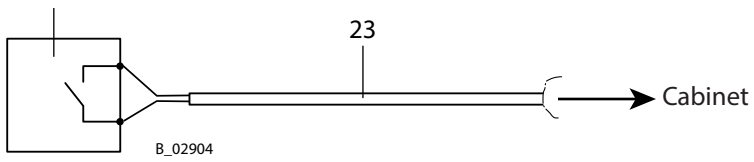
NOTICE
Impurities in the spraying system! Spray gun blockage. → Flush the spray gun and paint supply with a suitable flushing agent before commissioning.

6.9.3 COMMISSIONING

6.9.3.1 CONNECTING THE CONTROL CABLE

- Connect the external control cable (23) 15 m; 49.2 ft (order number 2316194) to external, floating switches.
- The switch is used to switch the high voltage in the cabinet on and off.

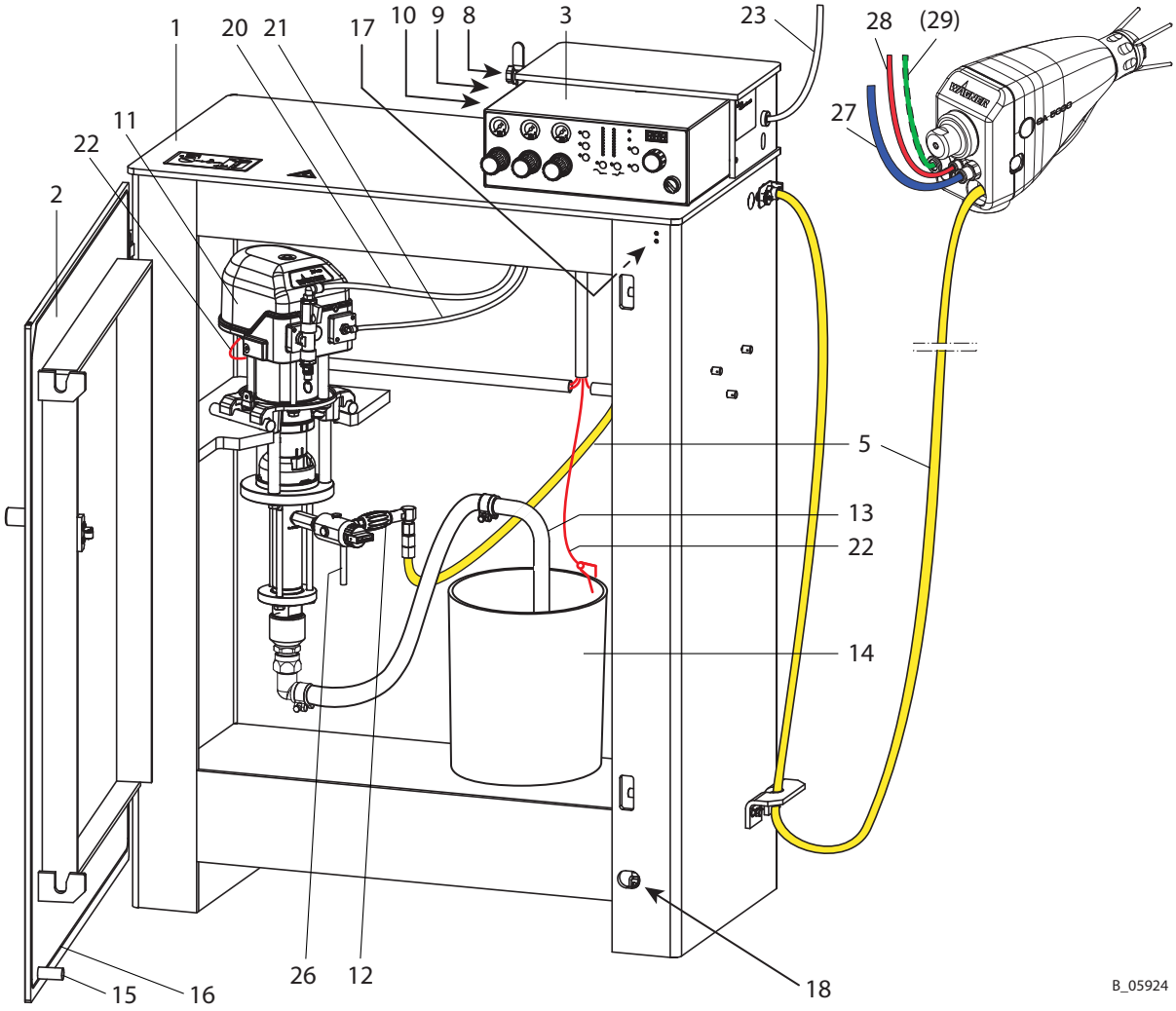
Switch floating



6.9.3.2 AQUACOAT WITH PUMA 28-40 OR EVOMOTION 20-30

Example for Puma 28-40

Example for
GA 5000EACWEC



⚠ CAUTION

Electrical discharge when using coated product tanks!
Risk of injury; product charge not optimal.

→ Ensure that the metal part of the tank is connected to the potential equalization line (e.g., remove coating from around the connection point).

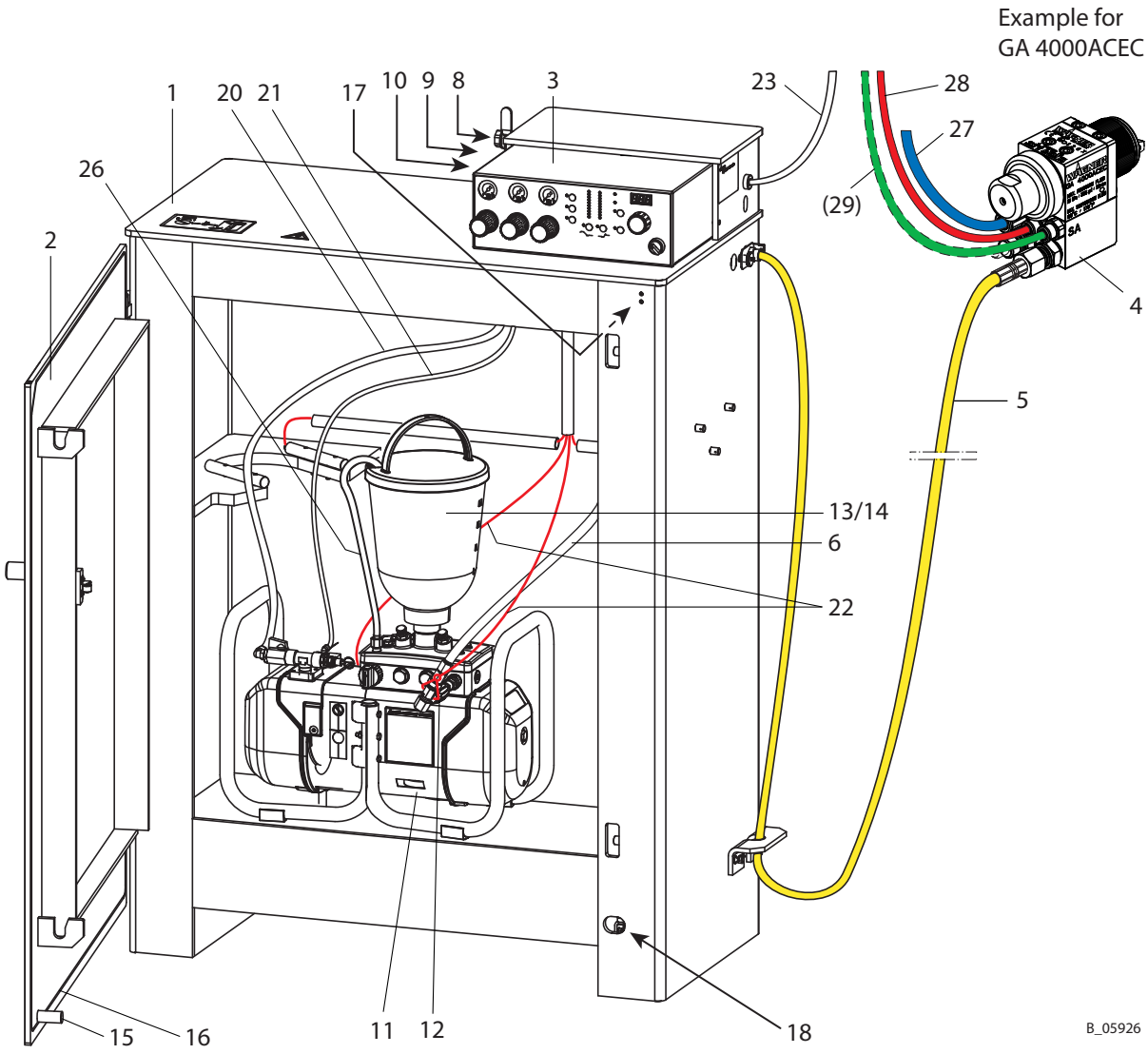
Check the unit for leaks

1. Place metallic product tank (14) containing a suitable medium (e.g., flushing agent or water) in the AquaCoat cabinet.
2. Immerse in tank the suction system (13).
3. Clamp the potential equalization line (22) to the product tank (14).
4. Mount spray gun (4) to reciprocator or other gun mounting.
   → GA 5000EACW: The mounting bracket of the gun must be grounded.
   → GA 4000AC: The gun must be fastened with isolating parts and the distance to the next grounded parts must amount to at least 200 mm; 8 inches.
5. Establish connection for atomizer air (27) (blue) between spray gun and external controller.
6. GA 5000EACWEC and GA 4000ACEC: Establish connection for shaping air (29) between spray gun and external controller.
7. Establish connection for control air (28) (red) between spray gun and external valve.
8. Connect the control cable (23) to external floating switch (see Chapter 6.9.3.1).
9. To perform a leak test on the entire installation, the pressure is slowly increased step by step until the maximum pressure as indicated on the type plate for the system and product pressure generator fitted is reached.
   → Puma 28-40: "Pump pressure" regulator up to 0.8 MPa; 8 bar; 116 psi
   → EvoMotion 20-30: "Pump pressure" regulator up to 0.67 MPa; 6.7 bar; 97 psi
10. Maintain the pressure for 5 minutes and check all connecting parts for leaks.
11. Reduce the pressure, when the seal of the system has been ascertained.
12. Flush system through well → Chapter 8.1.3.
13. Relieve the pressure from the system and close the spray gun. → Chapter 7.3.3.
14. Remove flushing agent.

Preparation for spraying

1. Fill the metal product tank (14) with lacquer and place in the cabinet.
2. Immerse the suction system (13) in the product tank.
3. Clamp the potential equalization line (22) to the product tank (14).
4. Connect the AquaCoat system to the electric socket with the electric cable (9).
5. Close the cabinet door (2).
6. Switch on mains switch on the VM 5020WA.
7. Activate high voltage at the external switch via the control cable (23).
8. The system is ready for use.

6.9.3.3 AQUACOAT WITH COBRA 40-10 DOUBLE DIAPHRAGM PUMP



	⚠ CAUTION
	Electrical discharge when using coated product tanks! Risk of injury; product charge not optimal. → Ensure that the metal part of the tank is connected to the potential equalization line (e.g., remove coating from around the connection point).

Check the unit for leaks

1. Clamp the potential equalization line (22) to pump's product connection.
2. Fill the upper tank (14) with a suitable medium (e.g., flushing agent or water).
3. Guide return hose (26) into upper tank.
4. Mount spray gun (4) to reciprocator or other gun mounting.
   → GA 5000EACW: The mounting bracket of the gun must be grounded.
   → GA 4000AC: The gun must be fastened with isolating parts and the distance to the next grounded parts must amount to at least 200 mm; 8 inches.
5. Establish connection for atomizer air (27) (blue) between GA 4000 AC spray gun and external controller.
6. GA 5000EACWEC and GA 4000ACEC: Establish connection for shaping air (29) between spray gun and external controller.
7. Establish connection for control air (28) (red) between GA 4000 AC spray gun and external valve.
8. Connect the control cable (23) to external floating switch (see Chapter 6.9.3.1).
9. To perform a leak test on the entire installation, the pressure is slowly increased step by step until the maximum pressure as indicated on the type plate for the system and product pressure generator fitted is reached.
   → Cobra 40-10: "Pump pressure" regulator up to 0.6 MPa; 6 bar; 87 psi
10. Maintain the pressure for 5 minutes and check all connecting parts for leaks.
11. Reduce the pressure, when the seal of the system has been ascertained.
12. Flush system through well → Chapter 8.1.3.
13. Relieve the pressure from the system and close the spray gun. → Chapter 7.3.3.
14. Remove flushing agent.

Preparation for spraying

1. Fill upper tank (14) with lacquer.
2. Clamp the potential equalization line (22) to pump's product connection.
3. Connect the AquaCoat system to the electric socket with the electric cable (9).
4. Close the cabinet door (2).
5. Switch on mains switch on the VM 5020WA.
6. Activate high voltage at the external switch via the control cable (23).
7. The system is ready for use.

6.9.4 VERIFYING A SAFE OPERATIONAL CONDITION

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

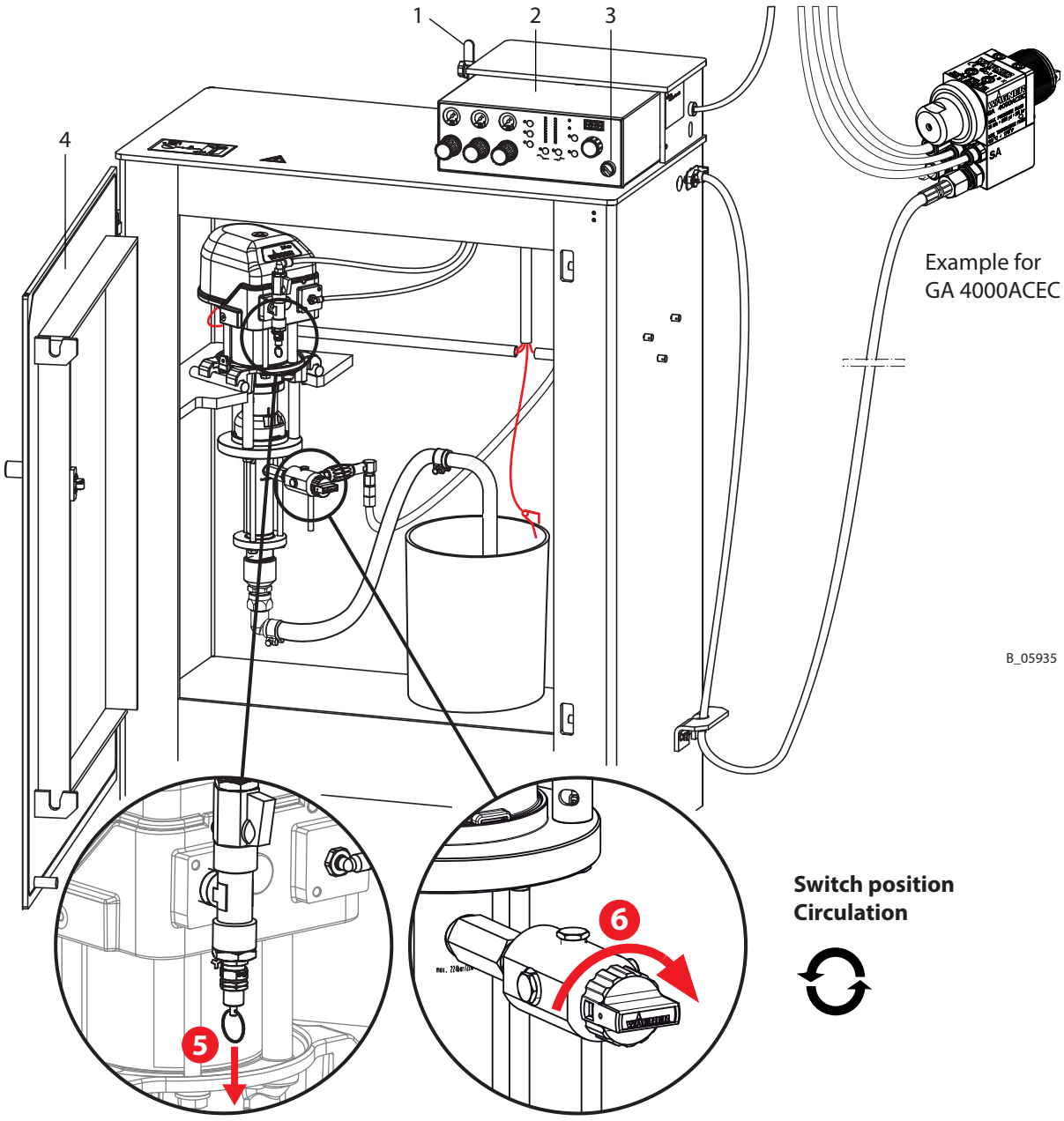
Unintentional putting into operation!
Risk of injury.

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.

7.2.1 EMERGENCY DEACTIVATION FOR PUMA

In the case of unforeseen occurrences, proceed as follows:

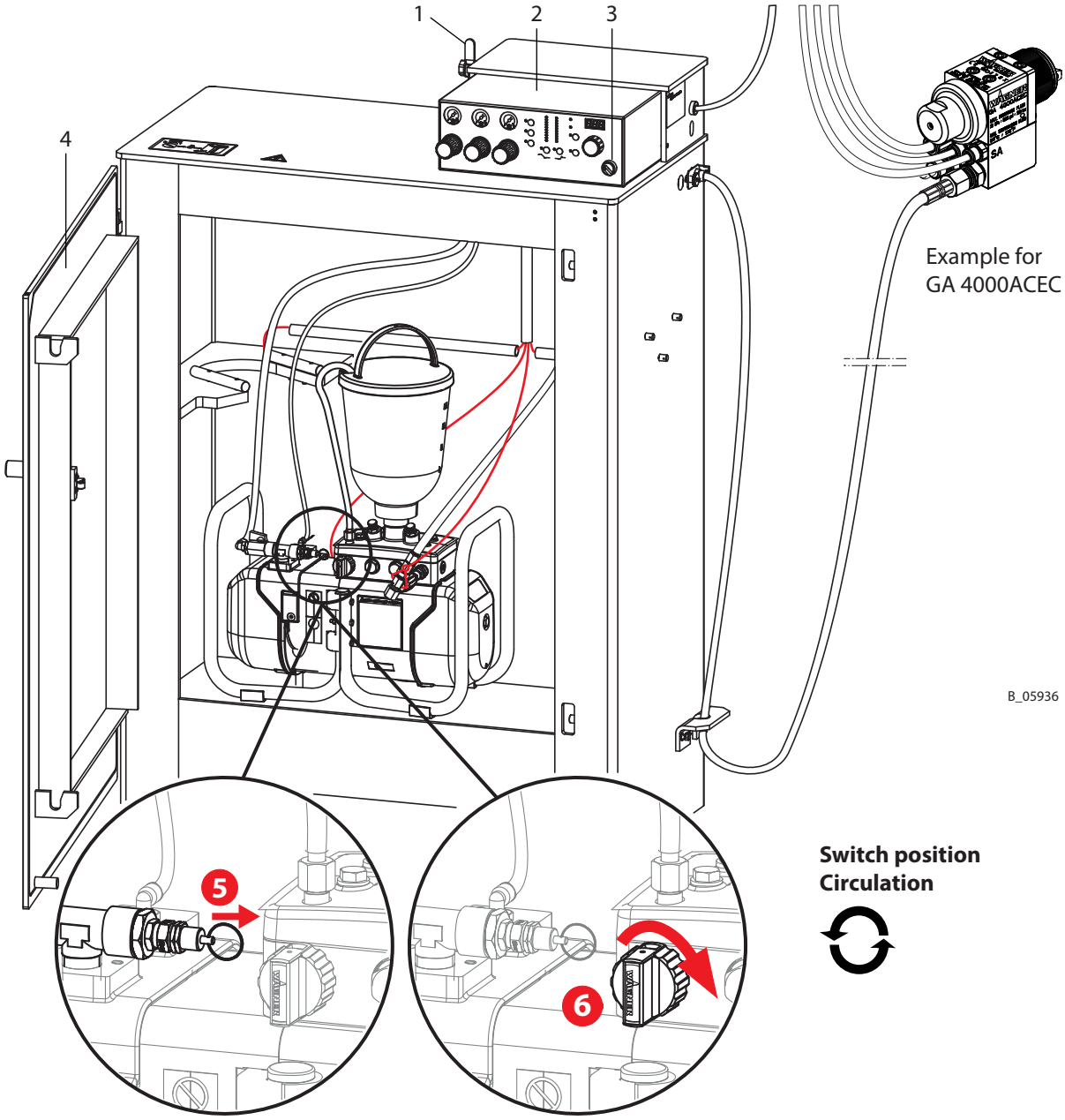
1. Carry out emergency deactivation for external controller – Air supply for spray gun must be closed.
2. Close main tap (1).
3. Switch off control unit (2) at main switch (3).
4. Open cabinet door (4).
5. Vent air motor by pulling ring on safety valve (5).
6. Vent product pressure by turning relief valve (6) on fluid section: Switch position Circulation.



7.2.2 EMERGENCY DEACTIVATION FOR COBRA

In the case of unforeseen occurrences, proceed as follows:

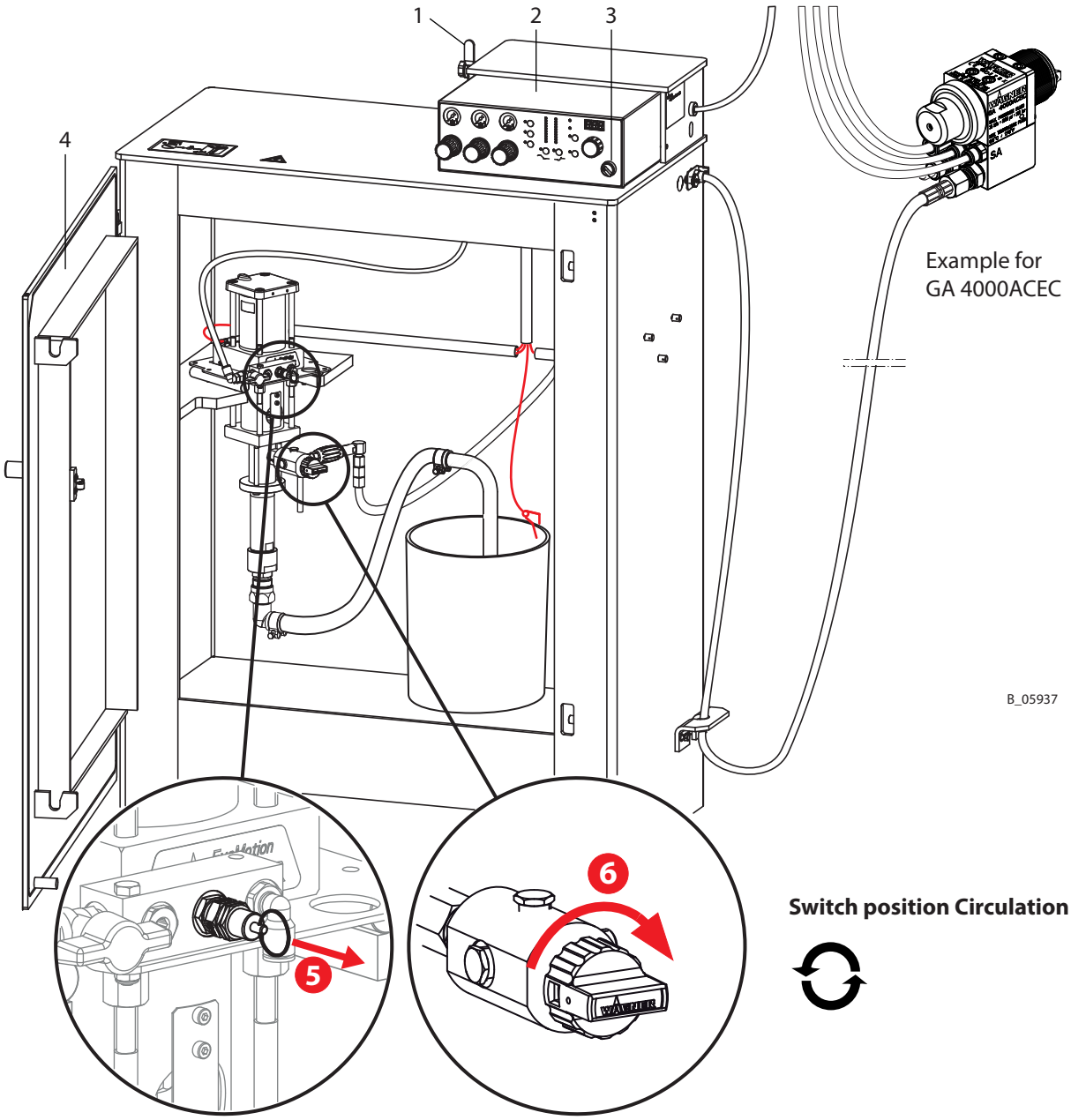
1. Carry out emergency deactivation for external controller – Air supply for spray gun must be closed.
2. Close main tap (1).
3. Switch off control unit (2) at main switch (3).
4. Open cabinet door (4).
5. Vent air motor by pulling ring on safety valve (5).
6. Vent product pressure by turning relief valve (6) on fluid section: Switch position Circulation.



7.2.3 EMERGENCY DEACTIVATION FOR EVOMOTION

In the case of unforeseen occurrences, proceed as follows:

1. Carry out emergency deactivation for external controller – Air supply for spray gun must be closed.
2. Close main tap (1).
3. Switch off control unit (2) at main switch (3).
4. Open cabinet door (4).
5. Vent air motor by pulling ring on safety valve (5).
6. Vent product pressure by turning relief valve (6) on fluid section: Switch position Circulation.

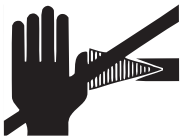


7.2.4 GENERAL RULES FOR MAKING ADJUSTMENTS TO THE SPRAY GUN

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.

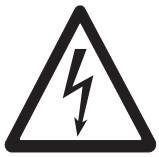


WARNING

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

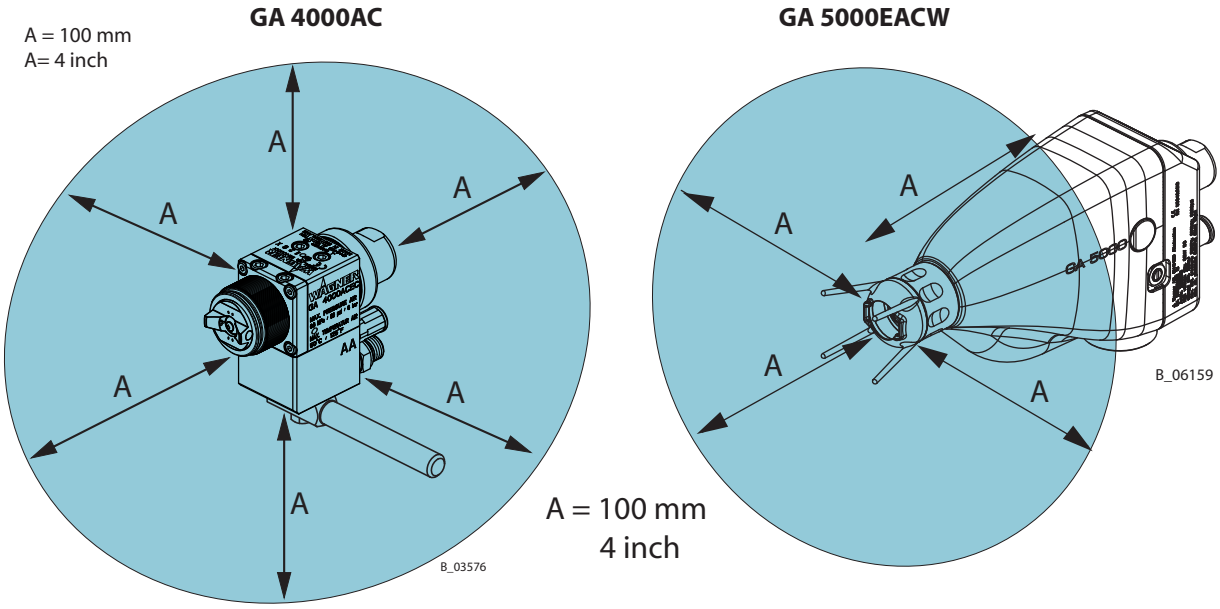
→ Never reach into the spray jet.
→ Never point the spray gun at people.
→ Consult a doctor immediately in the event of skin injuries caused by paint or solvent. Inform the doctor about the paint or solvent used.
→ Never seal defective high-pressure parts; instead relieve the pressure from them and replace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

7.2.4.1 ELECTRICAL DISCHARGE

	**⚠ CAUTION** **Electrical discharge!** Risk of injury. → Maintain a safety distance of 100 mm; 4 inches from the nozzle area of the spray gun during the spraying process and at least 20 seconds after the end of the spraying process.

Danger zone

In order to avoid electrical discharges, a distance of 100 mm or 4 inches must be maintained from the work piece and other grounded objects during and after the spraying process.



7.3 WORKING

Optimal coating results

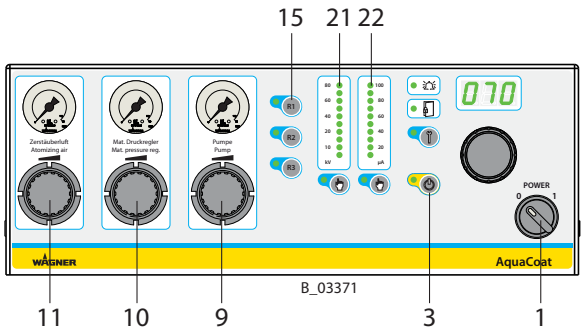
- When relative humidity of 55–65% optimal coating results are expected.
- For the required electrostatic effect the work pieces to be coated must be conductive and grounded.
- In the case of a wood coating, optimum results are achieved with a minimum of 12% residual moisture.

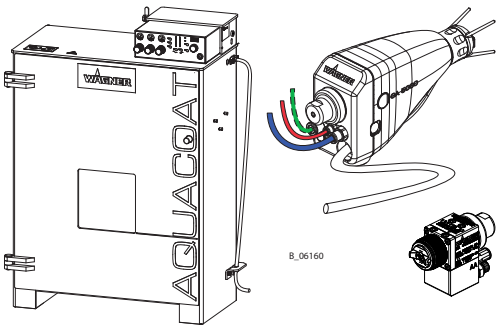
Prerequisites

Ensure that:

→ the regular safety checks are carried out in accordance with Chapter 8.2.3,

→ commissioning is carried out in accordance with Chapter 6.9.





7.3.1 STARTING THE SYSTEM

Control unit, VM 5020WA

1. Set the main switch (1) to position 1.
   → During the start-up phase, the device automatically performs an internal function test and then automatically switches to recipe 1 (15).
2. Set the desired recipe.

→ See Chapter 7.3.6 and the following for information on how to operate the control unit.

Product supply

3. Open the compressed air supply.
4. Adjust the product supply to approx. 8 MPa; 80 bar; 1160 psi of operating pressure (10).

Spray gun

5. Open atomizing air regulator (11) (approximately 0.05-0.25 MPa; 0.5-2.5 bar; 7-36 psi).
6. If the spray gun is subjected to external control air (red), the nozzle is opened.
7. If the high voltage is switched on, the displays (21) and (22) on the control unit change from point to bar display, i.e. the actual value of the high voltage (21) and the actual value of the spray current (22) are displayed.
   → The high voltage can only be switched on and off with the "Stand-by" push button (3) if high voltage is switched on via the external control cable.
8. Spray on a test object.
9. Adjust the product pressure regulator (10) and external atomizing air in accordance with the nozzle and object. See Chapter 7.3.2.
10. Secure the spray gun.

7.3.2 SPRAYING

1. Secure spray gun and insert the desired nozzle.
2. Commissioning the system → see Chapter 7.3.1.

AirLess spraying

3. Turn the external atomizing air/shaping air all the way down.
4. Spray on a test object.
5. Adjust the spray pressure at the pump pressure regulator (9) according to the nozzle and object being sprayed.

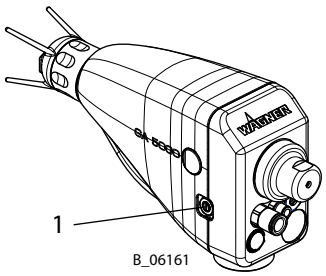
AirCoat spraying

6. When IC variant open the atomizing air (approx. 0.05–0.25 MPa; 0.5–2.5 bar; 7–36 psi) and adjust for optimal atomization.
   When EC variant set shaping and atomizing air on the pressure regulators.

GA 5000EACW spray jet adjustment

Flat-jet method

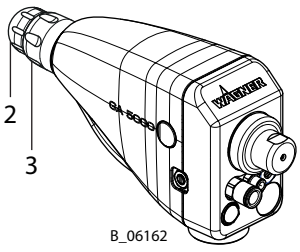
7. Change the spray jet width by selecting the appropriate nozzle.
   By adjusting the shaping air, the spray jet can additionally be adjusted (see Chapter 7.3.2.1)
   → GA 5000EACWIC: Turning the shaping air regulation (1).
   → GA 5000EACWEC: Regulate external shaping air.



Round-jet method

7. By gently turning the nozzle nut (2), the atomizing air jet can additionally be adjusted.

→ **Do not fully tighten the nozzle nut:**
Do not turn the nozzle nut (2) until it is flush with the nozzle body (3). There must be play for the atomizing air between the nozzle nut and the nozzle body.



GA 4000AC spray jet adjustment

→ See operating manual for automatic gun (Order No., see Chapter 1.3.1)

Flow rate

8. The flow rate can be reduced by:
   - Minimizing the product pressure.
   - Use a different nozzle (see Chapter 13).

7.3.2.1 GA 5000EACW SPRAY PATTERN, FLAT JET

Regulate atomizing air

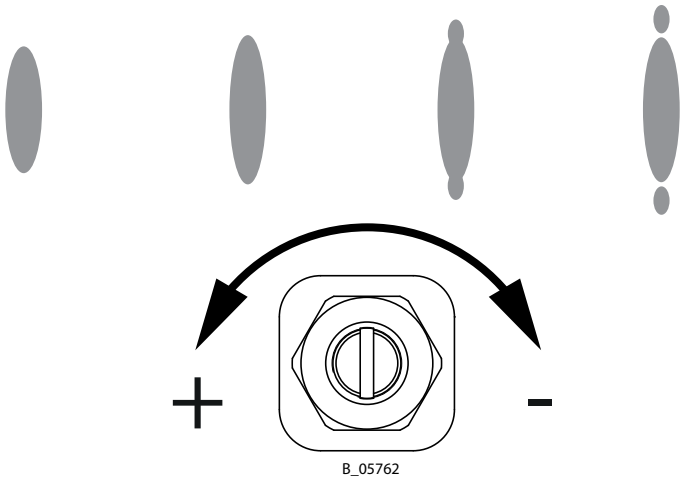
No air | Not enough air | Correct amount of air

Regulate shaping air

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

→ GA 5000EACWIC: Shaping air regulation on the side of the gun regulates the ratio of shaping/atomizing air.

→ GA 5000EACWEC: External controller regulates the shaping air.



Shaping air/shaping air regulation opened = maximum shaping air

Shaping air/shaping air regulation closed = minimum shaping air

Changing the Flow Rate

→ Adapt product pressure

→ Use a different nozzle (see Chapter 13)

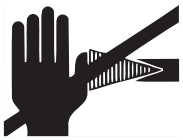
Change spray jet width

→ Use a different nozzle (see Chapter 13)

7.3.3 PRESSURE RELIEF/WORK INTERRUPTION

The pressure must always be relieved when:
- The spraying tasks are finished.
- Servicing the system.
- Carrying out cleaning tasks on the system.
- Moving the system to another location.
- Something needs to be checked on the system.
- The nozzle is removed from 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. Close the spray gun.
2. Switch off control unit.
3. Close the compressed air supply.
4. Open the cabinet door.
5. Relieve pressure according to the operating manual of the product pressure generator.
6. Using the external control air (red), open the nozzle of the spray gun until no more pressure is applied.
7. Secure the spray gun against actuation → Remove the external control air hose (red).
8. Close cabinet door again.

7.3.4 GA 5000EACW NOZZLE REPLACEMENT AND NOZZLE CLEANING

7.3.4.1 CHANGING FROM AIRCOAT ROUND JET TO AIRCOAT FLAT JET

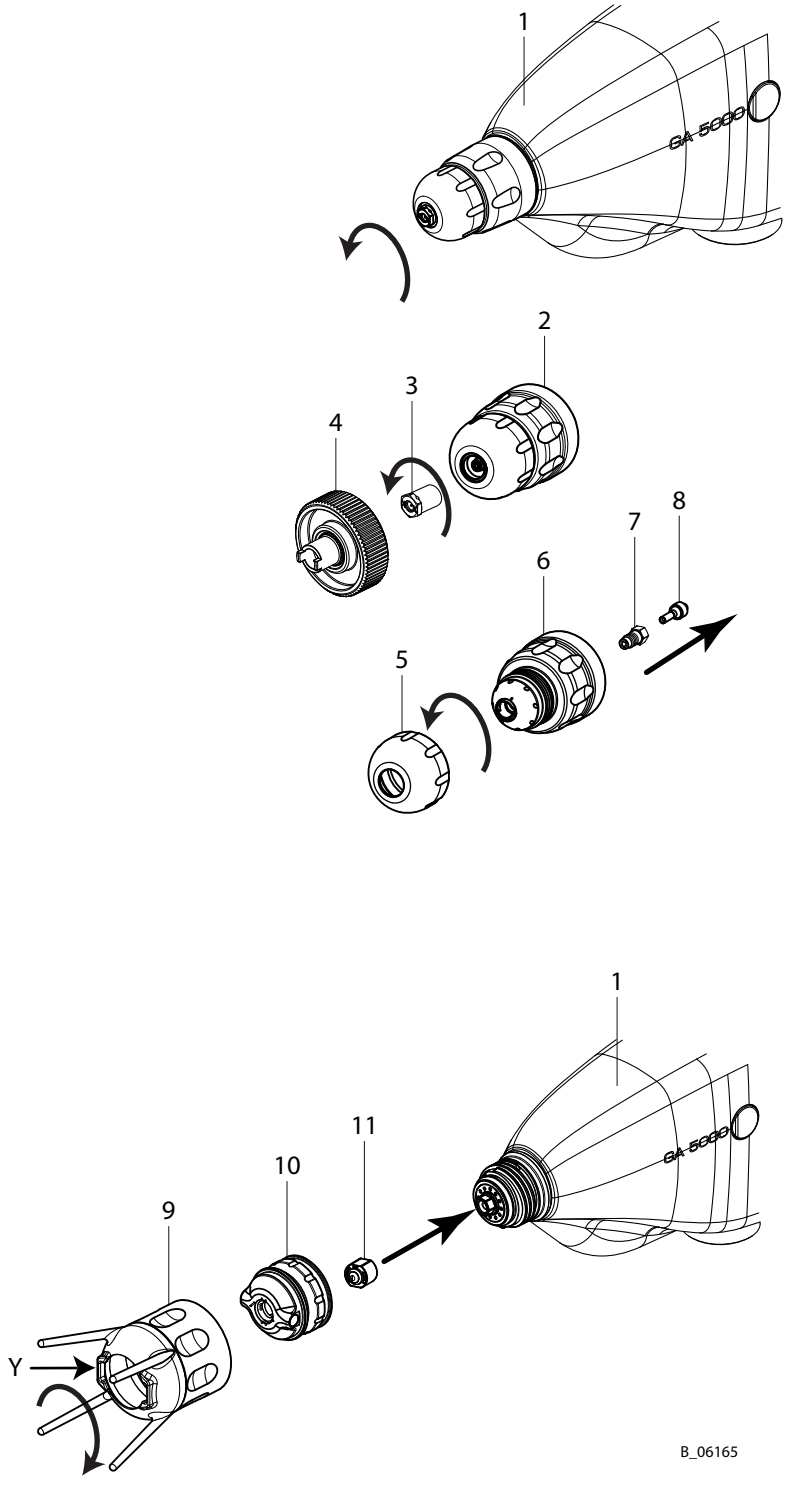
1. Thoroughly flush the spray gun (1) with flushing agent → Chapter 8.1.3.
2. Relieve pressure → Chapter 7.3.4.
3. Secure the spray gun (1) using the trigger lock.

Changing from round jet to flat jet

4. Unscrew round jet nozzle attachment (2) incl. nozzle insert (3).
5. Unscrew nozzle insert (3) using nozzle spanner (4).
6. Unscrew nozzle nut (5). Remove nozzle screw joint (7) and sealing fitting (8) from the nozzle body (6). Thoroughly clean all parts.
7. Insert desired ACF5000 nozzle (11) into the valve housing.
8. Put the air cap (10) on the nozzle (11) and pay attention to the position of the guide surfaces.
9. Screw union nut with attached nozzle guard (9) to the gun body and make sure that the air cap horns lie in the designated recess (Y).
10. Before tightening with the air cap horns (Y), set the desired jet level and then tighten the union nut to stop by hand.

Changing from flat jet to round jet

4. Unscrew union nut (9) with air cap (10) and ACF5000 nozzle (11).
5. Remove air cap (10).
6. Press ACF5000 nozzle (11) out of air cap (10) by hand. Thoroughly clean all parts.
7. Insert nozzle screw connection (7) and sealing fitting (8) into nozzle body (6).
8. Screw nozzle nut (5) onto nozzle body (6).
   Do not screw on nozzle nut completely. There must be play for the atomizing air between the nozzle nut and the nozzle body.
9. Screw on nozzle insert (3) using nozzle spanner (4).
10. Screw round jet nozzle attachment (2) with nozzle insert (3) onto spray gun and tighten by hand.


1
GA 5000
2
3
4
5
6
7
8
1
GA 5000
9
10
11
Y
B_06165

7.3.4.2 REPLACING THE AIRCOAT FLAT JET NOZZLES

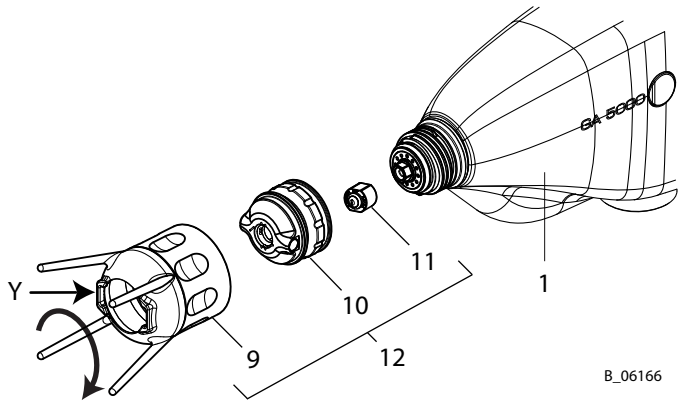
1. Switch off control unit.
2. Relieve pressure → Chapter 7.3.4.
3. Secure the spray gun (1) using the trigger lock (14).
4. Unscrew union nut completely (12) and remove air cap (10).
5. Remove and clean the ACF5000 AirCoat nozzle (11).

NOTICE

Defective AirCoat nozzle!
Insufficient paint application quality.

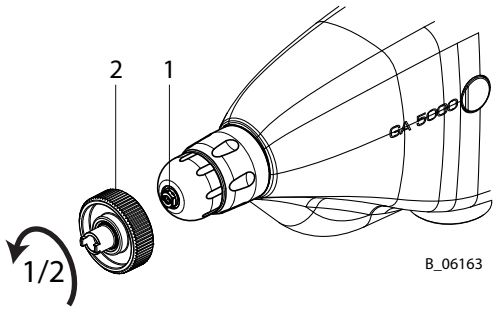
→ Do not use sharp-edged objects to treat carbide on the AirCoat nozzle.

6. Insert new ACF5000 nozzle (11) into the valve housing.
7. Put the air cap (10) on the nozzle (11) and pay attention to the position of the guide surfaces.
8. Screw union nut with attached nozzle guard (9) to the gun body and make sure that the air cap horns lie in the designated recess (Y).
9. Before tightening with the air cap horns (Y), set the desired jet level and then tighten the union nut to stop by hand.



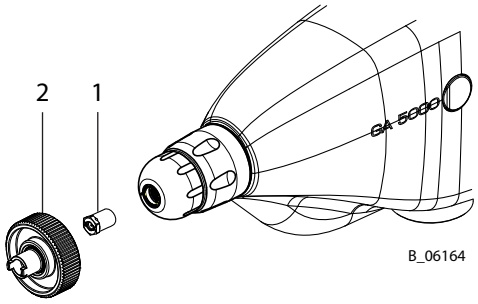
7.3.4.3 FLUSHING OUT CLOGGED ROUND JET NOZZLES

1. Use nozzle spanner (2) to loosen nozzle insert (1) by a half turn.
2. Remove the nozzle spanner and briefly actuate trigger.
3. After flushing the nozzle, re-tighten the nozzle insert.



7.3.4.4 REPLACING NOZZLE INSERT OF ROUND JET NOZZLE

1. Remove nozzle insert (1) using nozzle spanner (2).
2. Assembling new nozzle insert.



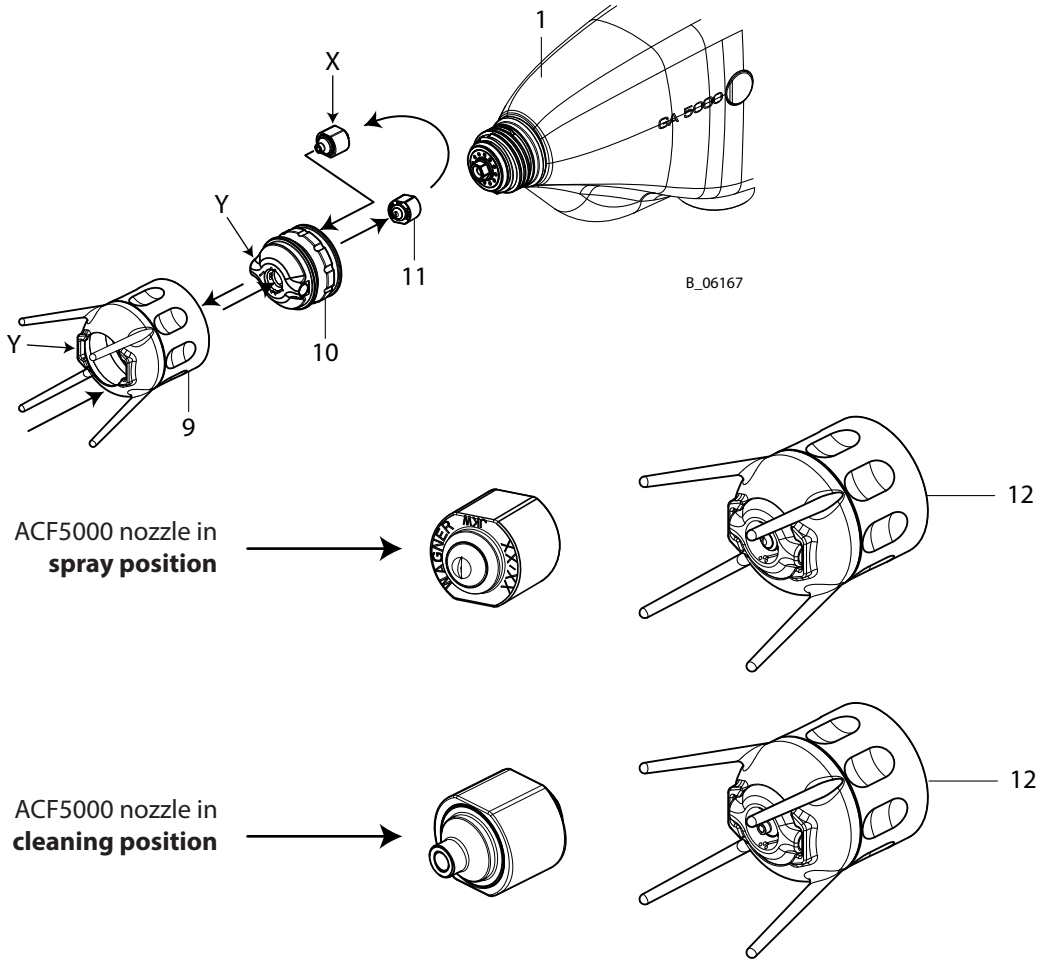
7.3.4.5 CLEANING OF THE NOZZLE PARTS

The AirCoat ACF5000 nozzles (11), the nozzle inserts (3) and the nozzle screw connection (7) can be placed in a cleaning solvent recommended by the lacquer manufacturer.

All other nozzle parts may not be put into cleaning solvent. Clean these parts with a cleaning solvent recommended by the lacquer manufacturer and dry with a cloth or blow gun.

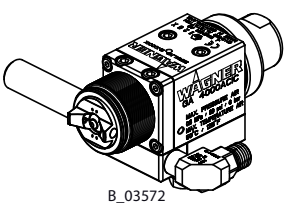
7.3.4.6 ELIMINATE NOZZLE CLOGGING

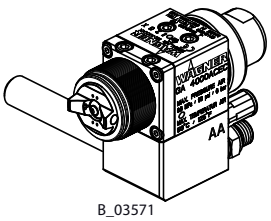
1. Switch off control unit.
2. Relieve pressure → Chapter 7.3.4.
3. Secure spray gun (1): Remove external control air hose.
4. Unscrew union nut (12) with air cap (10) and ACF5000 nozzle (11).
5. Remove air cap (10).
6. Push ACF 5000 nozzle (11) out of air cap (10) by hand, reverse it and put it into the air cap (10) with the nozzle tip towards the rear. Pay attention to the position of the guide surfaces (X).
7. Insert air cap (10) with integrated ACF 5000 nozzle (11) into the union nut (9). Make sure that the air cap horns (Y) lie in the recess of the nozzle guard.
8. Screw preassembled union nut (12) to gun (1) and tighten by hand.
9. Switch the product pressure back on.
10. Release spray gun (1) and open product valve briefly.
11. When the blockage has been flushed out, secure the gun again.
12. Relieve pressure → Chapter 7.3.4.
13. Unscrew union nut (12) completely.
14. Remove air cap (10) and push ACF 5000 nozzle (11) out of the air cap by hand. Clean ACF5000 nozzle and insert it in spraying position into the valve housing.
15. Put the air cap (10) on the nozzle (11) and pay attention to the position of the guide surfaces (X).
16. Screw union nut with attached nozzle guard (9) to the gun body and make sure that the air cap horns lie in the designated recess (Y).
17. Before tightening with the air cap horns (Y), set the desired jet level and then tighten the union nut to stop by hand.
18. Switch the product pressure and the air pressure back on.
19. Switch on the control unit.



7.3.5 GA 4000AC NOZZLE REPLACEMENT AND NOZZLE CLEANING

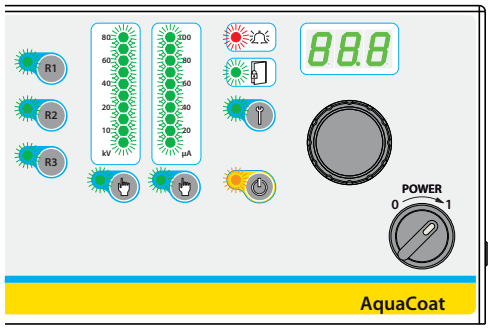
Information about round and flat jet nozzles, nozzle cleaning, nozzle replacement, and gun maintenance is provided in the operating manual for the automatic gun (Order No., see Chapter 1.3.1).





7.3.6 VM 5020WA CONTROL UNIT STARTUP

1. Turn switch to position 1.
2. All LEDs on the control unit illuminate for approximately 1 second.



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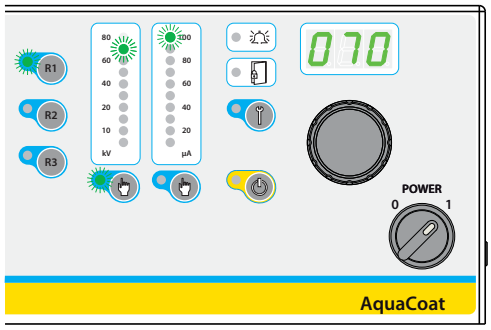
3. The hardware version and the software version are shown on the display alternately in succession.



B_03373

Hardware version Software version

4. After a few seconds, the control unit is ready for operation.
   Note:
   Each starting sequence is concluded by allocating the saved set data in recipe "R1".



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7.3.7 SETTING AND SAVING RECIPES

Nominal values for the high voltage (kV) and for the spray current limiter (µA) are stored in a recipe. As standard, the following values are saved in the factory in the 3 storage places available for recipes:

Recipe No.	Set value - high voltage in kV	Target spray current limitation in µA
R1	80	100
R2	60	100
R3	40	80

Recipes 1-3 can be selected and saved directly with the program buttons "R1", "R2" and "R3". Once the recipe required has been called up, the individual coating parameters can be called up and changed using the corresponding selection buttons (see Chapters 7.3.8, 7.3.9). When a parameter is changed, the LED on the left of the program button goes out and indicates to the user that a parameter value has been changed.

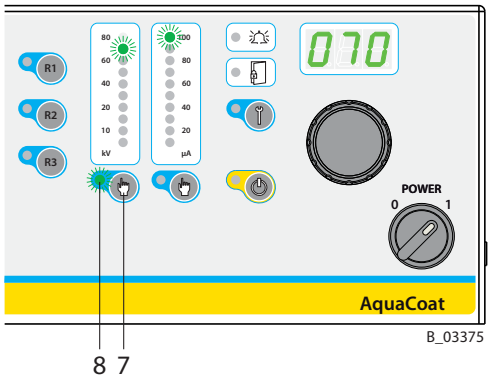
Rejecting parameter values

To reuse the originally set values, press the program button briefly. The modified values are not taken over.

Saving parameter values

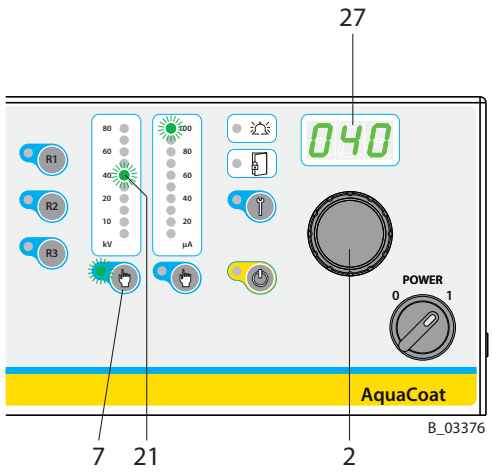
However, if the modified values should be saved, press and hold the corresponding program button for approx. 2 seconds until the LED beside the button starts to flash quickly. The modified values are then saved.

7.3.8 SETTING THE HIGH VOLTAGE



Procedure:

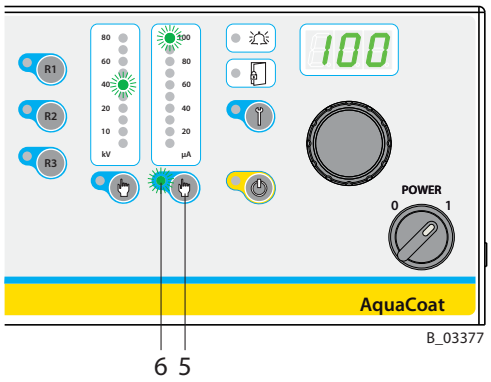
1. Press the "High-voltage" button (7) to adjust the high voltage.
   The LED (8) indicates that high voltage is selected.



2. The high voltage can now be adjusted using the universal rotary controller (2) between 5 to 80 kV with a resolution of 1 kV. The corresponding value is indicated in the LED display (27).

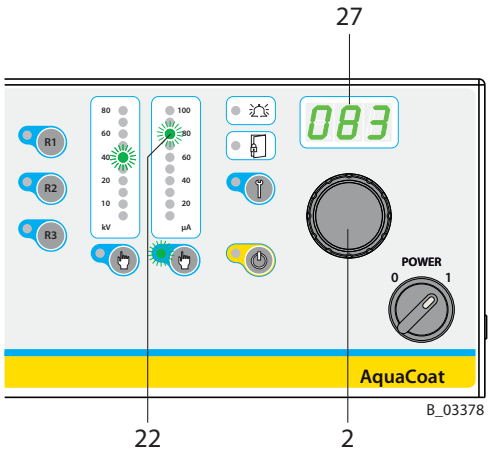
Above the "High-voltage" button (7) is the "High-voltage" bar graph display (21).
If the control unit is in the ready position, this light strip shows the set value as a dot.

7.3.9 SETTING THE CURRENT LIMITATION



Procedure:

1. Press the "Current limitation" button (5) to adjust the limitation of the spray current. The LED (6) indicates that current limitation is selected.



2. The current limitation can now be adjusted using the universal rotary controller (2) between 10 - 100 µA with a resolution of 1 µA. The corresponding value is indicated in the LED display (27).

Above the "Current limitation" button (5) is the "Current limitation" bar graph display (22). If the control unit is in the ready position, this light strip shows the set value as a dot.
The current limitation is an adjustable threshold. If this threshold is exceeded, for example, by the spray gun having approached the object being sprayed, the high voltage is adjusted downwards until the threshold is no longer exceeded.

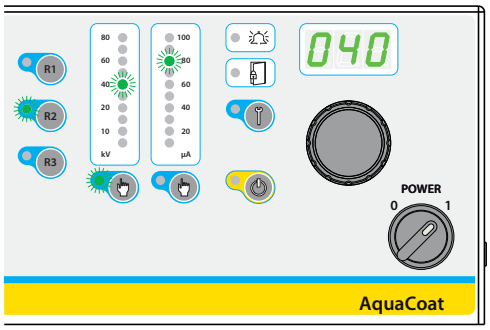
The set values for high voltage (40 kV) and for spray current limitation (83 mA) that are shown in the examples are saved in R2 by pressing and holding for a longer time the recipe push button (for > 2 seconds).

7.3.10 DISPLAY DURING SPRAYING

Ready to spray using R2 recipe (see picture below).

Control unit in standby position.

The nominal value LEDs illuminate as dots and the high-voltage value is digitally displayed in the LED display. If you press the current limiter push button, the set nominal value for the spray current limiter is digitally displayed in the LED display.



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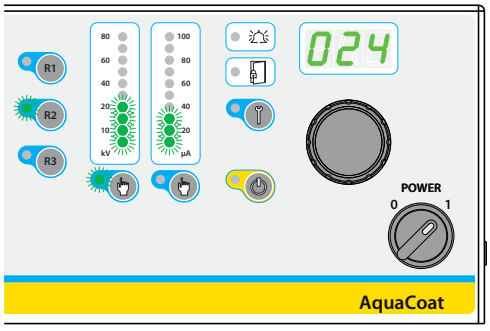
Spraying using recipe R2:

Actuate the contact on the control cable to switch on the high voltage. The LEDs light up in a bar display showing the actual values. The current actual value of the activated push button for the high voltage (kV) is digitally displayed on the LED display. If the push button for the spray current limiter is pressed, the relevant LED lights up and the corresponding actual value in µA appears on the LED display.



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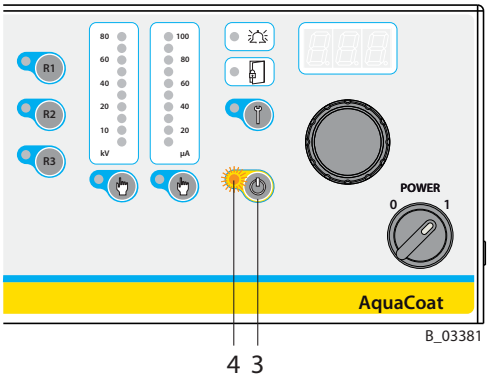
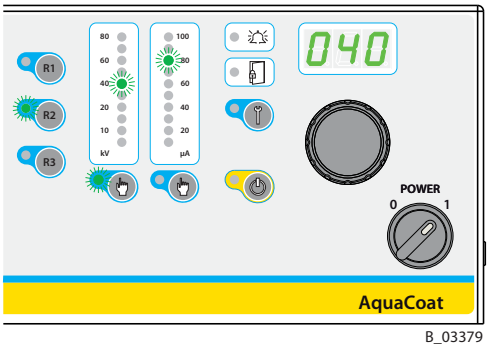
7.3.11 STANDBY MODE

If you want to spray without high voltage, select standby mode. Briefly press the "Standby" push button (3), LED (4) will illuminate. All other LEDs are extinguished.



Press push button (3) to return from this standby mode to the previously saved standby mode (see figure below).



Note:
The high voltage cannot be switched on at the device as long as the voltage is switched off via the external control cable.

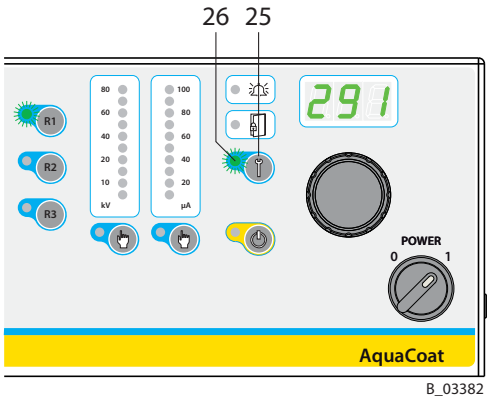
7.3.12 OPERATING HOURS COUNTER/SERVICE DISPLAY

Two hour counters are integrated into the control unit. The absolute counter measures the ongoing hours of operation of the spray gun and with the maintenance hours counter, maintenance intervals can be determined and monitored for the spray gun.

Push button "Service"
Press the "Service" button (25) to go from the standby position of the control unit to the service menu display.

Structure of the service menu (LED display 26 illuminates):

Push button	Description of display
R1	Display of the spray gun's absolute accrued operating hours. Display format: Counter reading < 999 hours: 001 = 1 hour; 291 = 291 hours. Counter reading > 1000 hours: 1.23 = 1230 hours; 45.2 = 45200 hours. Maximum display value = 99.9 = 99900 h Flashing lines are then displayed.
R2	Display of temporary maintenance counter and resetting this counter (see Chapter 7.3.13).
R3	Set maintenance interval in hours, activate or lock this function (see Chapter 7.3.13).



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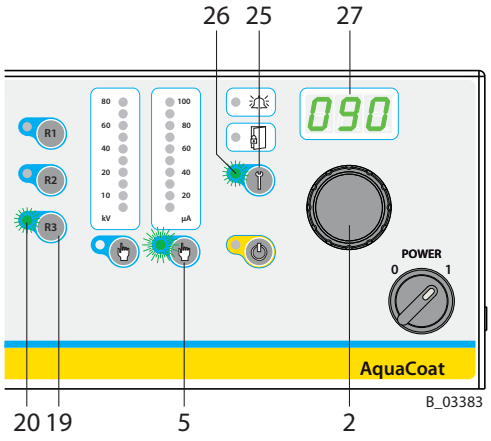
7.3.13 SERVICE DISPLAY SETUP

When the device is first used, the function for the service interval is deactivated. This function can be activated with the "R3" push button (19). The maintenance interval limit can be set within a range of 0 to 999 hours.

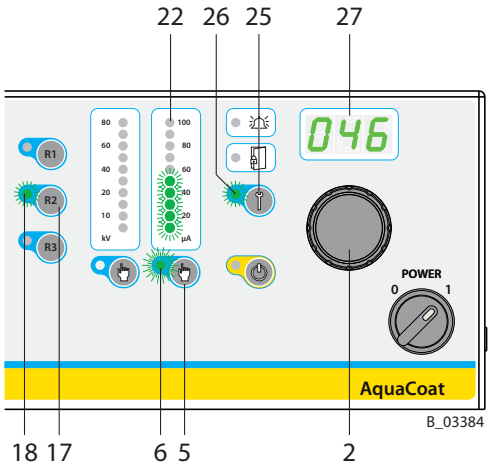
Setting and saving the maintenance interval limit in hours



Procedure

1. Press the "Service" button (25) to access the service menu. LED (26) lights up.
2. Actuate the push button R3 (19) for a short time, the LED (20) display lights up.
3. Use the dial (2) to set the maintenance interval limit you want (e.g., 90 hours).
4. Check setting in the LED display (27).
5. The value is saved by pressing down the "Spray current" push button (5) until the LED display (27) starts to flash.

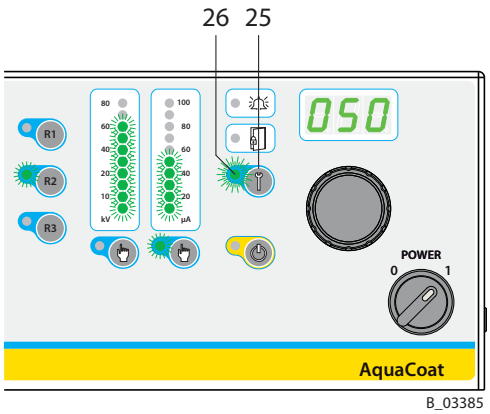
Review counter status since last service carried out on gun



Procedure

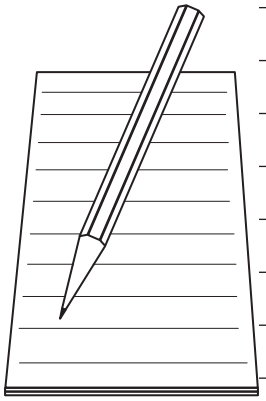
1. Press the "Service" button (25) to access the service menu. LED (26) lights up.
2. Actuate the push button R2 (17) for a short time; the LED (18) display lights up.
3. Read off display in the LED display (27). In the example, 46 hours have passed since realization of the last spray gun service. The bar display to the left (22) indicates that 50% of the set interval time has passed.
4. By keeping push button (5) pressed down, the display in the LED display (27) can be set to "0" (reset after expiry of the set interval limit).

7.3.14 "CARRY OUT SERVICE" DISPLAY



Prerequisite
The "Service interval limit" function is activated (see Chapter 7.3.13).

"Service spray gun"
Once the time for the defined maintenance interval has expired, the LED display (26) starts to flash.
The flashing service display merely acts as a warning. You can continue working without any limitations.

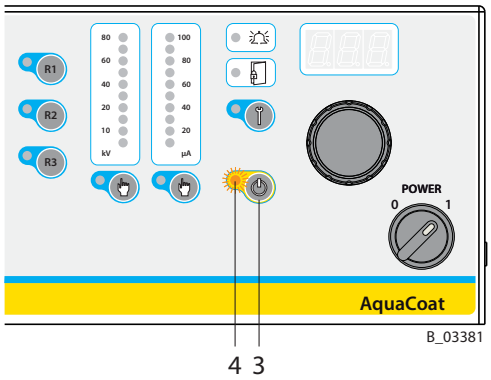


7.4 DEVICE CONFIGURATION

7.4.1 OVERVIEW OF PARAMETERS

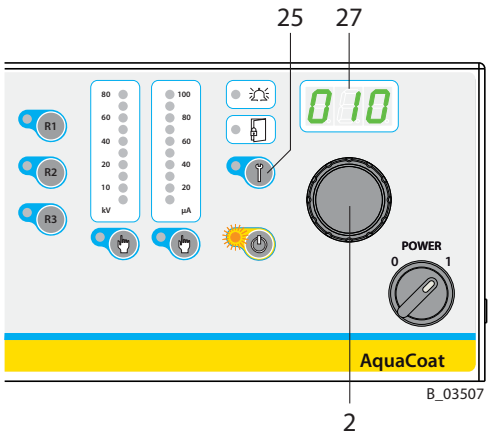
Parameter		Value	Description
C12	External set value specification	off (factory setting)	The target values for high voltage in kV and current limitation in µA are adjusted at the front control panel of the control unit.
		on	- The target value for high-voltage in kV is defined by an analog voltage input of the interface. Application example: Set value specification by a superordinate controller (PLC). - The spray current limitation is fixed at 100 µA. - Set values can no longer be adjusted at the front control panel. All recipe functions (save, call up recipe, etc.) are locked.
C13	Lock	off (factory setting)	Lock is deactivated.
		on	Operating inhibit is activated. - You can select recipes and control functions. - The set values (kV and µA) cannot be adjusted.
		pro	Lock pro (program). - You can select recipes and control functions. - The target values (kV and µA) can be adjusted but cannot be saved in the recipes.
C19	Reset recipes	no (factory setting)	No reaction
		res	All programs are set to delivery condition, if "res" is saved with the "Service" button.
C20	Reset configuration	no (factory setting)	No reaction
		res	All configuration parameters are set to delivery condition (factory setting), if "res" is saved with the "Service" button.

7.4.2 ACCESS TO THE DEVICE CONFIGURATION MODE

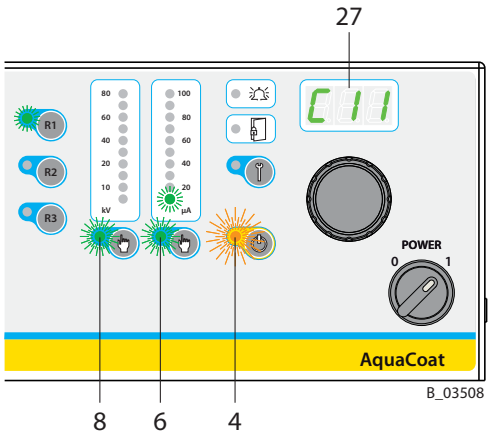


Procedure:

1. Switch device to "Standby" by pressing the "Standby" key (3).
   The "Standby" LED (4) lights up yellow.



2. Press and hold the "Service" push button (25).
3. Turn the universal control dial (2) with the other hand until the LED display (27) shows the number "10".
   Then release the "Service" button (25).
   The running text "configuration" is displayed in the LED display (27).
   The device is now in configuration mode.



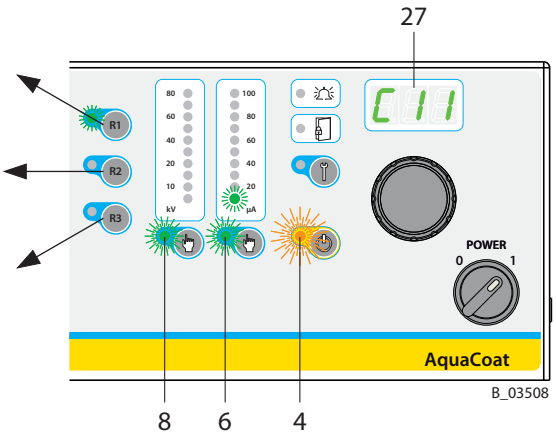
4. The first configuration parameter C11 is now displayed in the LED display (27).
   The two LED displays "Spray current" (6) and "High voltage" (8) flash at the same time.
   The "Standby" (4) LED display flashes quickly.
   Note:
   The C11 parameter can be changed, but this will not have any effect.

For ease of operation, the configuration settings are divided into three groups. The first group is for the end user; the other two groups, protected by a password, are reserved for WAGNER Service Department and the WAGNER production sites or the WAGNER Service Center, which have the necessary infrastructure.

Group 1:
Parameters C11 to C20
(End user)

Group 2:
Parameters C21 to C30
(WAGNER Service Department)

Group 3:
Parameters C31 to C40
(Production plant, service center)

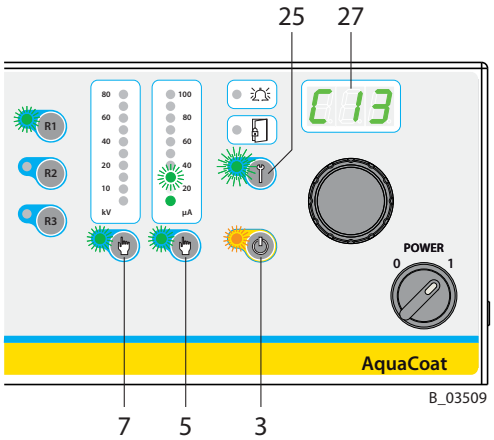


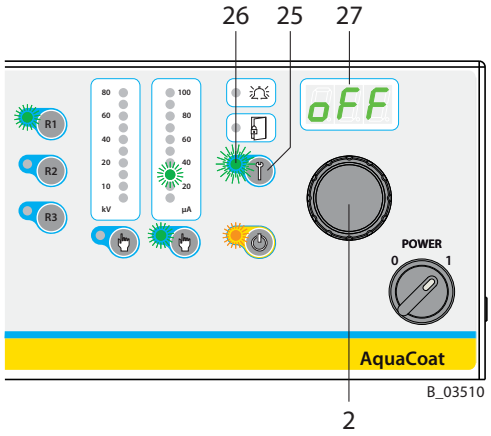
7.4.3 SETTING EXAMPLE "PARAMETER C13"

After getting started in configuration mode, the LED display (27) shows the parameter "C11" by default.

Selecting parameters
You can change to parameter "C13" by pressing the "Spray current" (5) or the "High-voltage" (7) button.

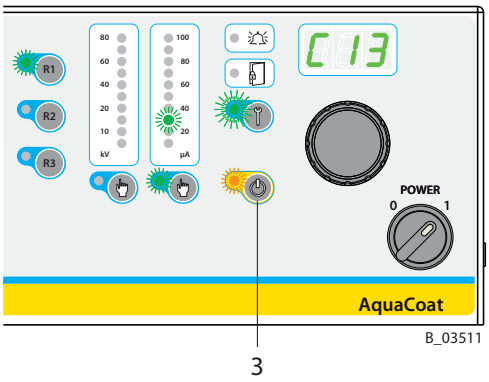
Changing parameter values
To change a selected parameter value (e.g. C13), press push key "Service" (25). The content of the parameter is displayed in the LED display (27).





The flashing LED display "Service" (26) indicates that the parameter value "OFF" in the display (27) can be changed by the universal control dial (2). Possible values for parameter C13 are "on", "off" or "pro".

Saving a set parameter value
Press push button "Service" (25) for two seconds.



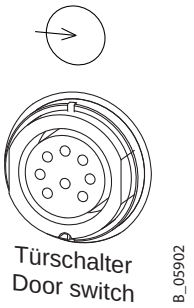
Returning to operation mode
Press the "Standby" key (3) to exit configuration mode.

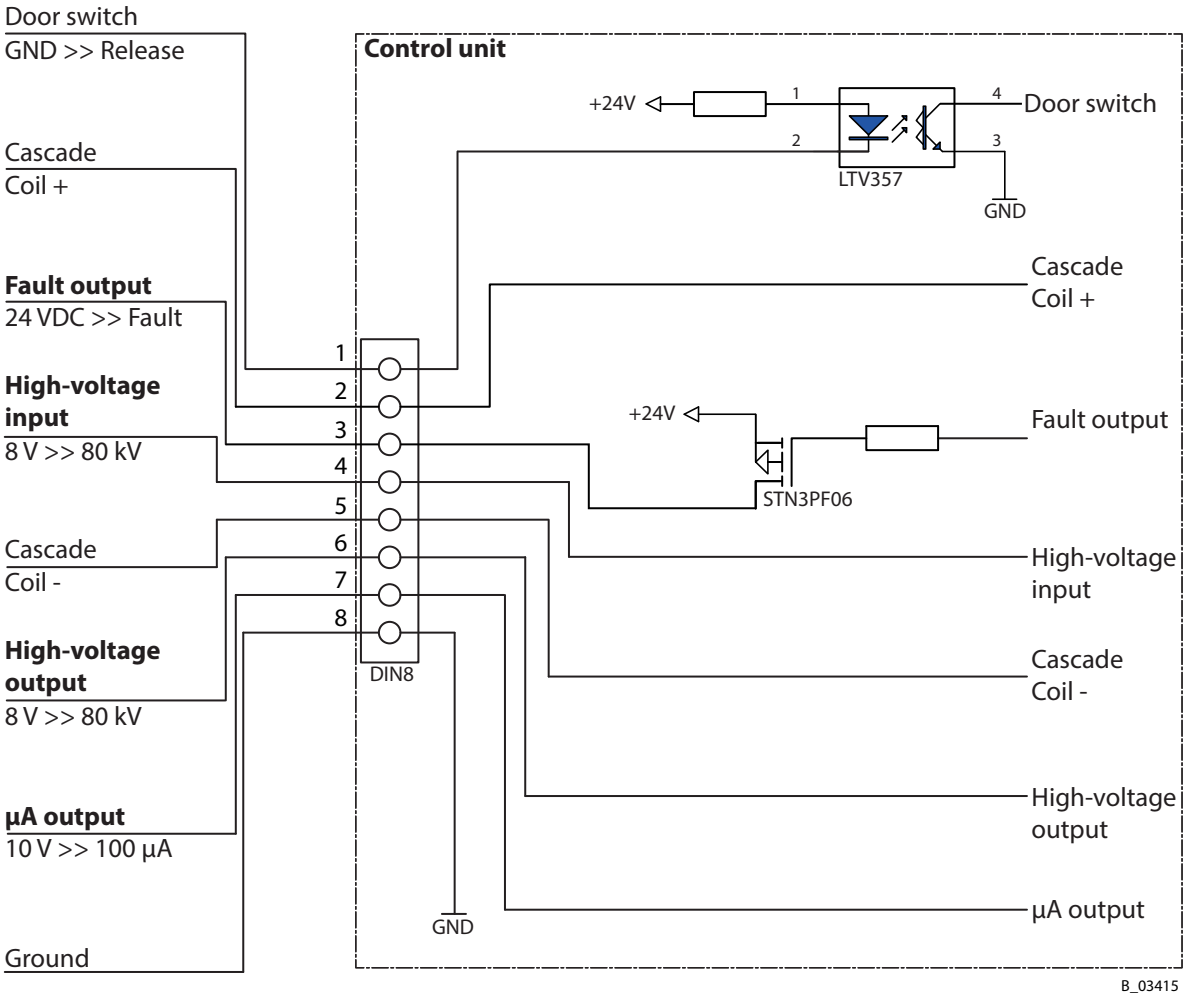
7.5 EXTERNAL INTERFACE

The control unit is equipped with an interface. The door switch and high-voltage cascade are wired as standard at the 8-pin socket on the back of the VM 5020WA control unit (also refer to the J3 connector in the block diagram, Chapter 5.5.4).

This socket also offers the functions designated in the following illustration.

→ Before using it, you have to select the respective parameters in the device configuration.





Pin no.	Designation	Description
3 out	Fault output	If there is a fault, +24 VDC is issued at pin 3 in reference to pin 8 (ground). → Maximum current 0.5 A
4 in *	DC kV in	Set value specification for high voltage. * Analog d.c. voltage input at pin 4 in reference to pin 8 (ground). → 0.1 V corresponds to 1 kV → 8.0 V is a maximum specification and corresponds to 80 kV
6 out	DC kV out	Output of current actual voltage. Analog d.c. voltage output at pin 6 in reference to pin 8 (ground). → 0.1 V corresponds to 1 kV → 8.0 V is a maximum specification and corresponds to 80 kV
7 out	DC µA out	Output of current actual spraying current. Analog d.c. voltage output at pin 7 in reference to pin 8 (ground). → 0.1 V corresponds to 1 µA → 10.0 V is a maximum specification and corresponds to 100 µA

* If the external voltage set value specification function is to be used, parameter C12 must be set to "on" at the VM 5020WA control unit (see Chapter 7.4.1).

Analog output

→ The analog outputs are not power outputs, but merely **signal outputs**.

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

⚠ 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.
→ Preference should be given to non-flammable cleaning and flushing agents.
If flammable solvents are used:
  → The cleaning and flushing agent's flash point must be at least 15 K above the ambient temperature.
  → Flammable solvents and solvent gases must be completely removed, before the system can be recommissioned.
→ Ensure that no electric component is cleaned with or immersed into solvent.

NOTICE

Damage to electrical devices!

→ Never immerse the spray gun in cleaning agent.

→ Observe safety instructions in Chapter 4.

8.1.3 FLUSHING AND CLEANING THE SYSTEM

The AquaCoat spray system must be cleaned and rinsed out every day. The cleaning and flushing agents 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.

Flush system

1. Relieve pressure. → Chapter 7.3.3.
2. Switch off the air supply to the gun.
3. Dismount nozzle and clean separately.
   → See operating manual for automatic gun (Order No., see Chapter 1.3.1)
4. Connect the system to the flushing agent supply.
5. Open AquaCoat air inlet.
6. Have collecting tray close by and open return valve.
7. Close the valve again as soon as clean flushing agent comes out.
8. Switch on external control air and thoroughly rinse gun.
9. Relieve pressure. → Chapter 7.3.3.
10. Remove flushing agent supply.
11. Switch on the air supply to the gun and blow through the air channels.
12. Switch off the compressed air supply.
13. Secure the spray gun against actuation.

Clean the outside of the system

14. Clean the spray gun body and remaining AquaCoat components with a cleaning agent recommended by the lacquer manufacturer and dry with a cloth or blow gun.

Cleaning of the nozzle parts

→ See operating manual for automatic gun (Order No., see Chapter 1.3.1)

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 and check for leaks as described in Chapter 6.9.
- Carry out a function test, if required, in accordance with Chapter 11.

→ According DGUV regulation 100-500:

- 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.

8.2.3 SAFETY CHECKS

8.2.3.1 GROUNDING CHECK

Every day

Before starting work, carry out a visual check to ensure that the grounding connection is present in the AquaCoat cabinet and in all relevant components.

8.2.3.2 INSPECTING THE SAFETY ELEMENTS

Every day

- General visual inspection:
  Check for damage or loose contacts:
  - black grounding band in the cabinet door,
  - black grounding bolt at the cabinet door (below),
  - grounding switch on the RH side wall,
  - all cables and connections.

Monthly

- Door switch test:
  Open the cabinet door.
  Switch on the control unit.
  Switch air on.
  Apply "high voltage on" signal to control cables.
  - Electrical door switch test:
    - The high voltage must remain switched off.
    - The control unit displays error E30.
  - Pneumatic door switch test:
    - The grounding switch must remain closed (below).

- Grounding switch test:
  Close cabinet door.
  Switch on the control unit.
  Acoustically ascertain switch movement.
  Check that the cabinet door is locked.
  Switch off control unit.
  Acoustically ascertain switch movement.

8.2.3.3 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.

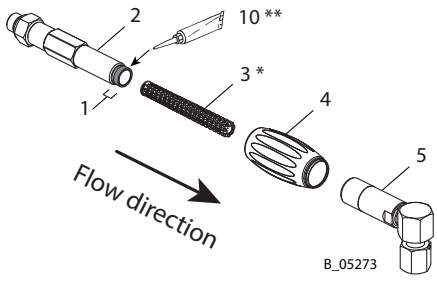
- → Check hoses, pipes, and couplings every day and replace if necessary.
- → Before every commissioning, check all connections for leaks.
- → Additionally, the operator must regularly check the complete hoses for wear and tear as well as for damage at intervals that he/she has set. Records of these checks must be kept.
- → The complete hose is to be replaced as soon as 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	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

8.2.4 CLEANING AND REPLACING THE FILTER

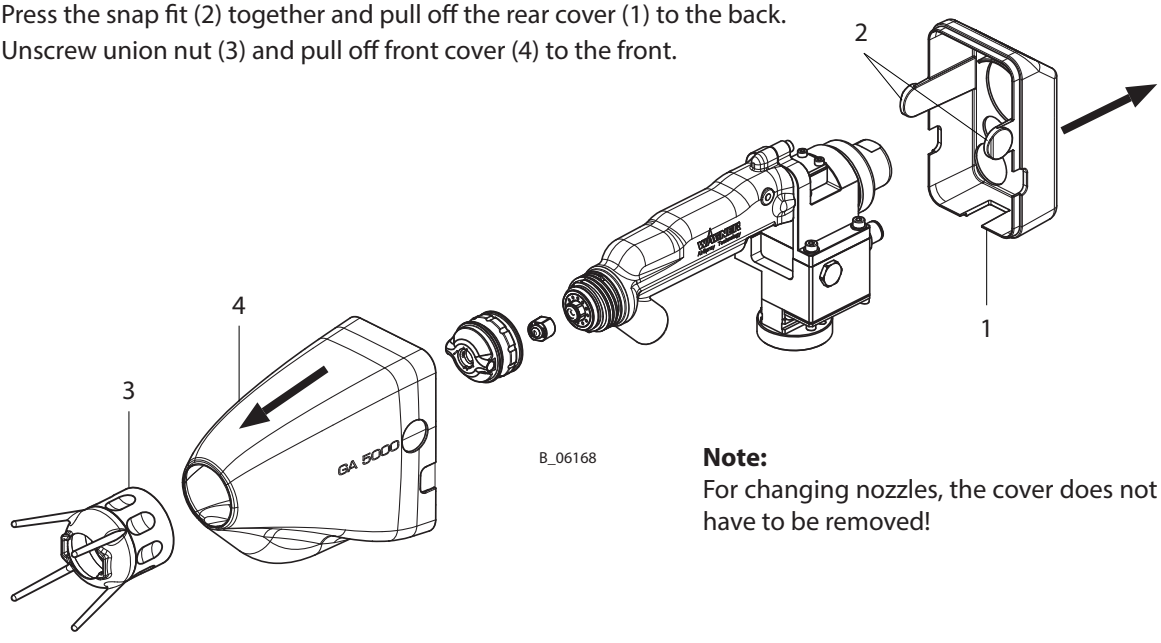
1. Flush the pump and inline filter in accordance with pump's operating manual. Flush using the gun so that the flushing agent flows through the inline filter. Maximize the flow (remove the nozzle, open the dosing valve if necessary).
2. Empty the pump in a controlled manner in accordance with pump's operating manual.
3. Place the grounded collection tank under the inline filter.
4. Unscrew the filter by turning the handle (4).
5. Remove the filter insert (3).
6. If the inline filter has any leaks, replace the seal (1).
7. Insert the new filter insert (3). Note the installation position: Closed end in direction of flow.
8. If necessary, coat the thread with anti-seize paste (10).
9. Assemble the turning handle (4), inlet housing (2) and outlet housing (5) and tighten by turning the handle.
10. Fill the pump in accordance with pump's operating manual.



* Filter insert: Order No., see Chapter 14.3.5.
** Anti-seize paste: Order No., see Chapter 10.3.

8.2.5 DISMOUNTING GUN COVER

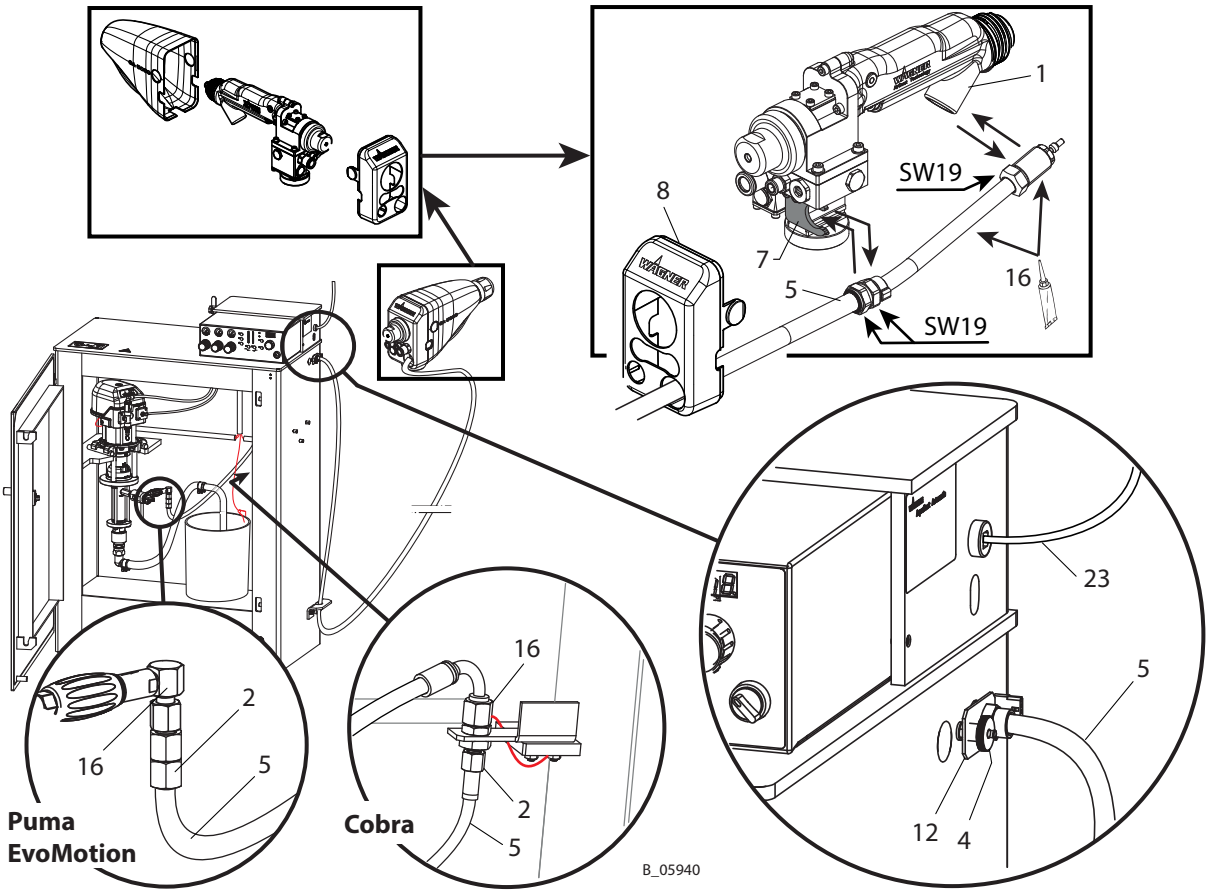
1. Press the snap fit (2) together and pull off the rear cover (1) to the back.
2. Unscrew union nut (3) and pull off front cover (4) to the front.



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

8.2.6 REPLACING THE ENTIRE PRODUCT HOSE

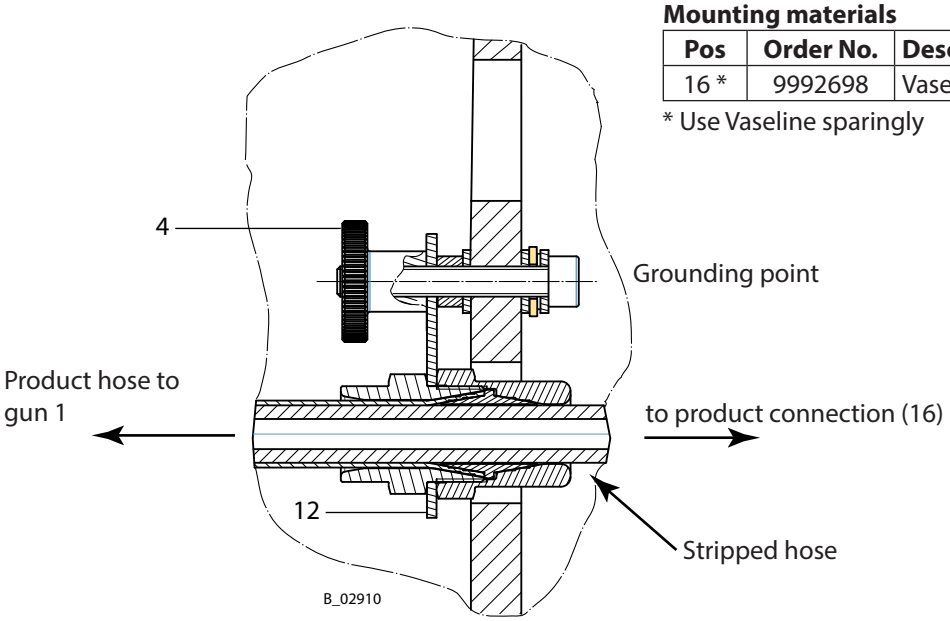
Example for GA 5000EACW



Mounting materials

Pos	Order No.	Description
16 *	9992698	Vaseline white, PHHV II

* Use Vaseline sparingly



Dismantling the entire product hose (5)

From cabinet:
1. Loosen product hose (5) via union nut (2) in cabinet.
2. Loosen knurled nut (4) outside on the cabinet and carefully pull the product hose out of the cabinet.

From GA 5000EACW spray gun:
1. Dismount gun covers in accordance with Chapter 8.2.5.
2. Loosen hose from hose holder (7).
3. Slacken product hose (5) at the product connection of the spray gun (1). Use a wrench when doing this.

From GA 4000AC spray gun:
1. Loosen union nut on the spray gun.

Product hoses

Four preassembled product hoses are available in different lengths:

	GA 5000EACW	GA 4000AC
Designation	**Order No.**	**Order No.**
Product hose, complete GA EACW, 7.5 m; 24.6 ft	2368105	2346090
Product hose, complete GA EACW, 10 m; 32.81 ft	2368110	2346091
Product hose, complete GA EACW, 15 m; 49.2 ft	2368112	2346092
Product hose, complete GA EACW, 20 m; 65.6 ft	2368113	2346093

Assembly

To GA 5000EACW spray gun:
1. Guide product hose (5) through bushing of lid (8).
2. Clean thread and stripped part of product hose (5). Grease thread with Vaseline (16).
3. Screw product hose (5) onto the spray gun product connection (1). Counterhold with a wrench when tightening.
4. Screw hose to hose holder (7).
5. Mount gun covers to the gun again.

To GA 4000AC spray gun:
1. Screw product hose (5) to spray gun using a union nut.

To cabinet:
1. Cabinet side: Push stripped part of product hose (5) approximately 1.25 m; 4.1 ft through opening up to mounting plate (12).
2. Fasten mounting plate (12) to grounding screw with knurled nut (4).
3. Screw stripped end of product hose (5) to product connection (16) with union nut (2) and tighten with universal spanner.
   - Puma / EvoMotion: To product filter.
   - Cobra: To potential equalization point of the grounding switch.

Two automatic guns

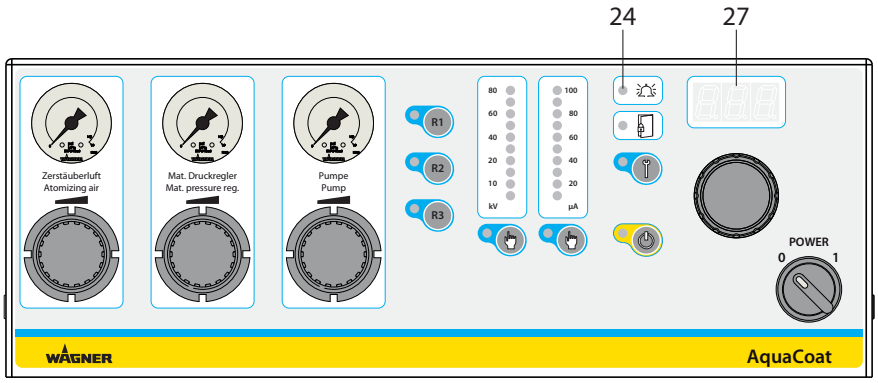
Observe the notices provided in Chapter 5.11 when using two automatic guns.

9 TROUBLE SHOOTING AND RECTIFICATION

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.



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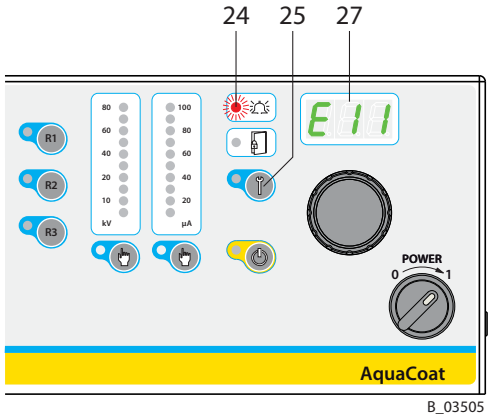
9.1 ERROR DISPLAYS AT THE VM 5020WA CONTROL UNIT

Functional fault	Cause	Remedy
No illuminated display lights up.	- Mains supply not switched on. - Fuses defective.	- Check and switch on mains supply. - Replace fuses. - Contact the WAGNER Service Department.
No high voltage.	- Control cable not connected or defective.	- Connect control cable.
Malfunction LED (24) lights up. Fault message in display (27).	- See the following table.	- See the following table.

Faults are indicated by the "Fault" LED (24). In addition the error number is shown in the display (27). If a fault occurs, the high voltage is switched off immediately. The user can only continue to work once the fault has been remedied and acknowledged with push button "Service" (25).



Code display	Malfunction	Cause	Remedy
E11	Ground monitoring	- Grounding cable is interrupted	- Check/replace control cable
E12	No coil current/ cascade interrupt	- The cascade is not connected - Cascade is interrupted → defective	- Connect the cascade - Check or replace cascade
E13	Coil current too big	- The cascade is defective	- Check or replace cascade
E21-E25	Exception error	- Hardware defect has occurred	- If problem persists, contact the WAGNER Service Department
E30	Door switch	- Door open - Door switch defective	- Close door - Check/replace door switch
E40-E43	Gun communication faulty	- Gun cable defective - Operating unit of spray gun defective - Control unit defective	- Check/replace gun cable - WAGNER Service Department - WAGNER Service Department
E60	Password error	- Password not set	- Password to be set by Service Center

9.2 FAULTS IN THE SYSTEM

Functional fault	Cause	Remedy
Insufficient product output	- Nozzle too small	- Select larger nozzle (see nozzle table).
	- Product pressure too low	- Increase product pressure.
	- Product viscosity too high	- Thin spray product in accordance with the manufacturer's instructions.
	- Filter in gun or in paint supply system clogged	- Clean or replace filter.
	- Nozzle is clogged	- Clean or replace nozzle.
	- Trigger travel of valve rod too short	- Increase the control air pressure or replace valve rod.
Poor spray pattern	- Wrongly adjusted atomizing air	- Readjust atomizing air.
	- Wrongly adjusted shaping air	- Reset shaping air.
	- Unfavorable nozzle size	- Select a different nozzle (see nozzle table).
	- Spray product viscosity too high	- Thin product in accordance with the manufacturer's instructions.
	- Wrong air cap type	- Use suitable air cap (high viscosity/low viscosity).
	- Damaged or blocked drilled holes in air cap	- Clean or replace the air cap.
	- Product pressure too high/ too low	- Adapt product pressure.
	- Damaged nozzle	- Attach new nozzle.
	- Partial nozzle blockage	- Clean nozzle.
Poor wrap-around	- Poor grounding at object	- Check grounding of object or hanger with ohmmeter.
	- 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 (external) and exit standby mode. - Connect control cable/check for defects. - Check lacquer resistance (see Chapter 2.5).
	- Seal in end piece defective	- Repair by WAGNER service
	- Air-passages damp	- Clean and dry air passages.

Functional fault	Cause	Remedy
Back-spray	- Object not grounded	- 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.
	- For round jet method: Excessive play between nozzle nut and nozzle body	- Lighten tighten the nozzle nut by hand, but do not connect it flush with the nozzle body.
Product emission at nozzle when the gun is closed	- Valve seat leaks, valve seat or valve tip worn	- Replace valve seat or valve tip.
Product emission from gun	- Valve rod packing leaks/ damaged	- Replace the packing (GA 5000EACW: see Chapter 10).

For **GA 4000AC**:
See also the operating instructions of the spray gun, "Troubleshooting" chapter.

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 and check for leaks as described in Chapter 6.9.
- Function test in accordance with Chapter 11.

→ According DGUV regulation 100-500:

- 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.

⚠ 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.

10.3 MOUNTING MATERIALS

In Chapter 14 the order numbers for device spare parts can be found, as well as for wearing parts such as seals.
→ Use torques, greases and glues in accordance with Chapter 14.

Mounting materials

Order No.	Quantity	Designation	Smaller tanks
9992511	1 pc ≙ 50 ml	Loctite® 243	
9992528	1 pc ≙ 150 g	Loctite® 270	
9992831	1 pc ≙ 50 ml	Loctite® 542	
9992616	1 pc ≙ 1 kg can	Molykote® DX grease	50 g tube ≙ Order No. 2355419
9992698	1 pc ≙ 200 g can	Vaseline white, PHHV II	
9992609	1 pc ≙ 100 g	Anti-seize paste	

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

10.4 GA 5000EACW SPRAY GUN

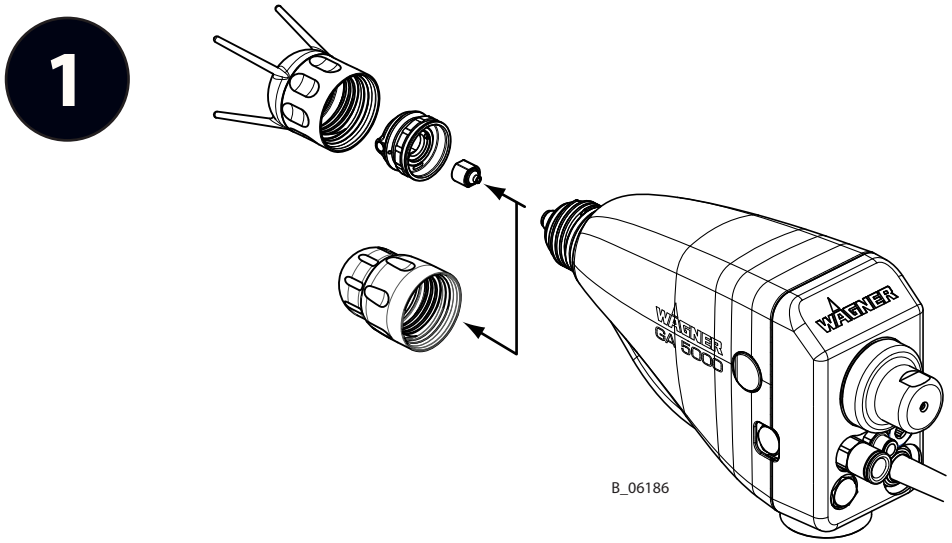
Plastic parts
Gently handle all plastic parts.

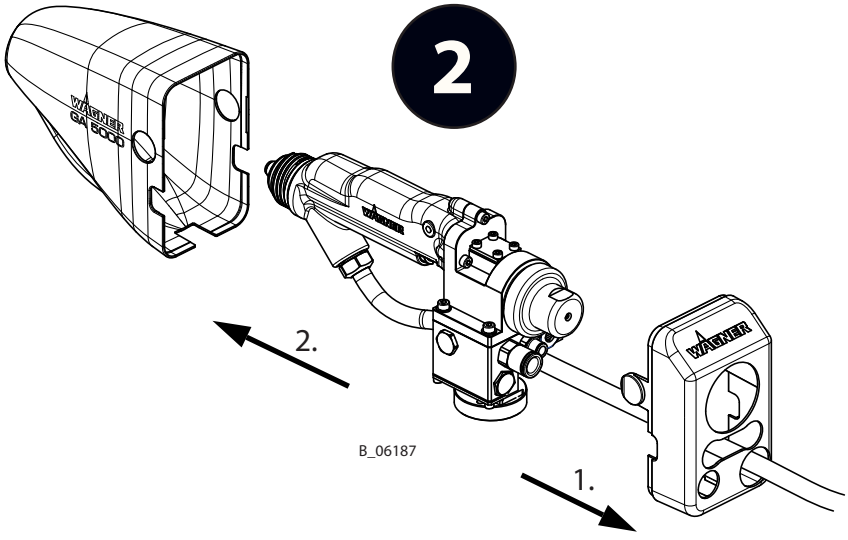
10.4.1 TOOLS

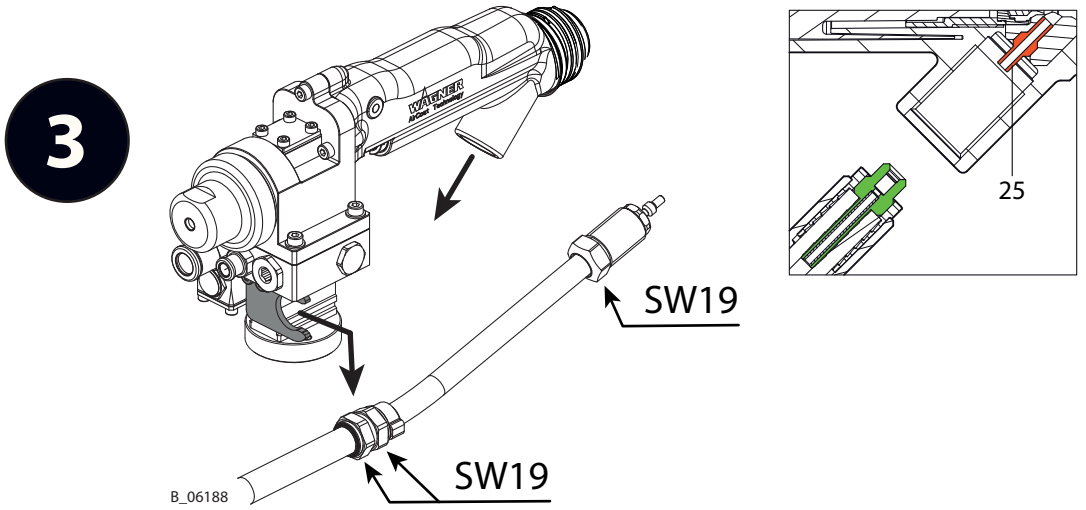
For disassembling and assembling the spray gun, the following tools are required:

- Allen wrench, SW 3	- Wrench, SW 22
- Wrench, SW 5	- Ring spanner, SW9
- Wrench, SW 7	- Slide gauge
- Wrench, SW 8	- Valve needle assembly tool, Order No. 2309368
- Wrench, SW 19	- Clamping screw assembly tool, Order No. 2325263

10.4.2 DISMANTLING OF THE SPRAY GUN





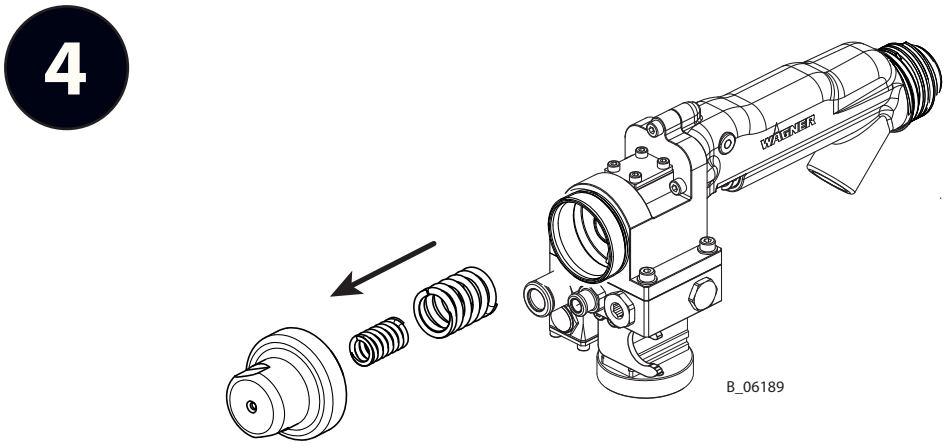


Product hose
Do not tilt, but pull it straight out in direction indicated by arrow. At the same time, execute slight rotational movements.

Fitting (25), if fitting has any leaks:
If the fitting (25) does not come out with the product hose, it must be removed from the gun adapter as follows:

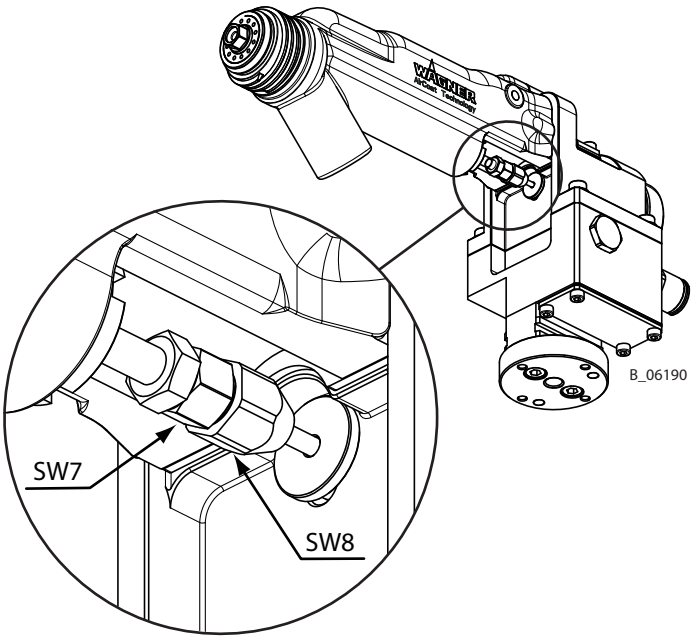
- Screw the wood screw (Ø 3 mm; 0.12 inches, length 40 mm; 1.6 inches) into the fitting (25), max. 6 mm deep.
- Pull out straight with suitable pliers. Possibly rotate clockwise simultaneously.
- Thereafter, the fitting must be replaced.

If the fitting is broken in the gun adapter, WAGNER Service Department must be contacted.



5

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



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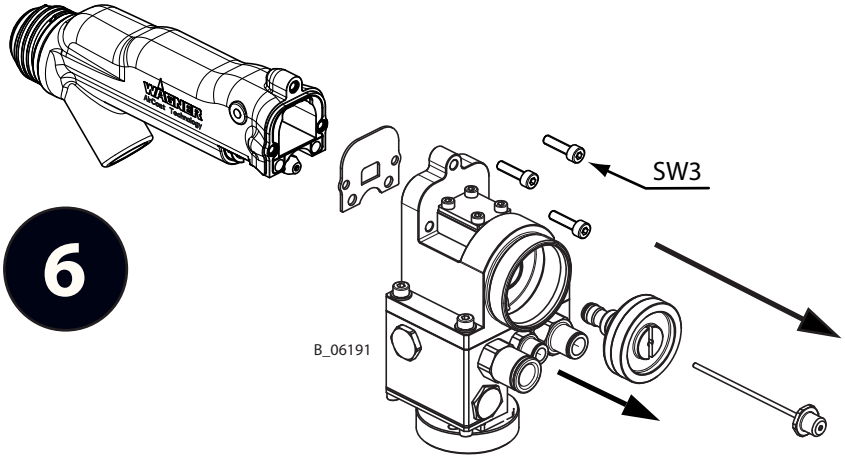

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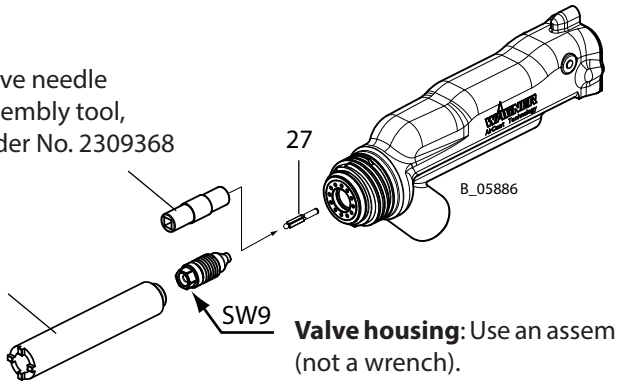
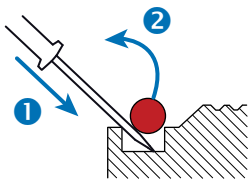
Valve needle assembly tool, Order No. 2309368

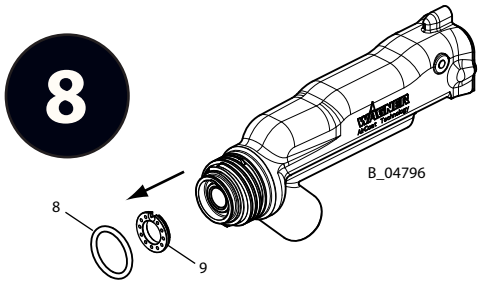
Clamping screw assembly tool, Order No. 2325263

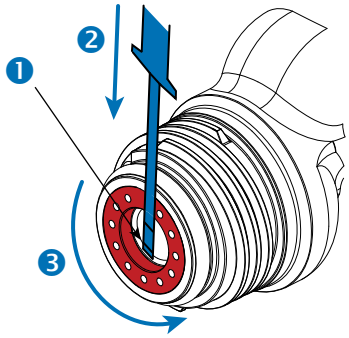


Valve tip (27)
Loosen valve tip by hand using the valve needle assembly tool (Order No. 2309368).

Valve housing: Use an assembly tool or socket or ring spanner (not a wrench).





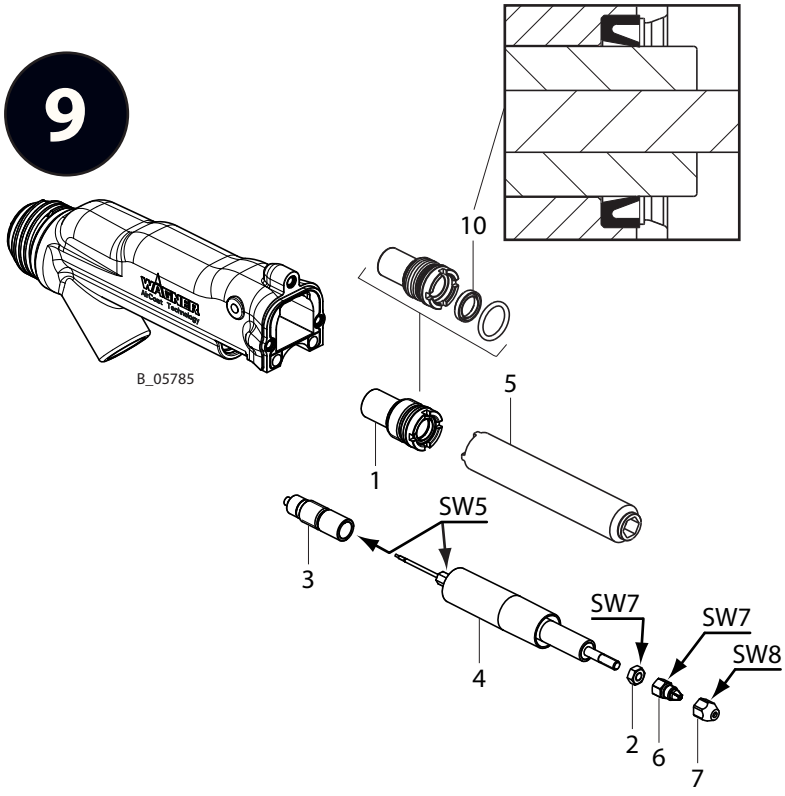


O-ring (8):

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.



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.

10.4.3 CLEANING THE PARTS AFTER DISASSEMBLY

ATTENTION

Please note:

- → All reusable parts (except for the parts conducting high voltage such as adapter etc.) should be cleaned thoroughly using a suitable cleaning agent.
- → The adapter 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.

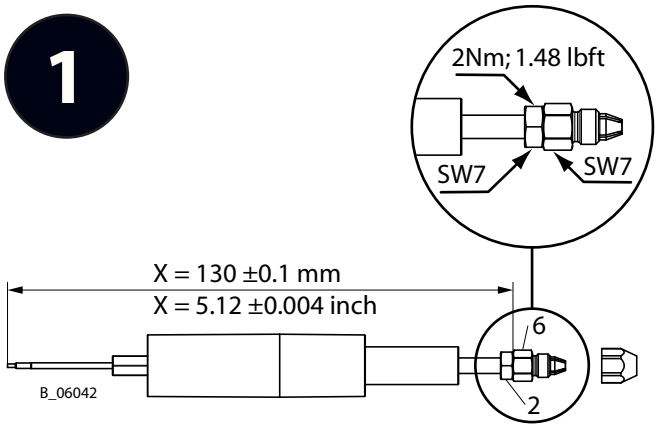
In Chapter 14 the part numbers for gun spare parts can be found as well as for wearing parts such as seals.

10.4.4 ASSEMBLING THE SPRAY GUN

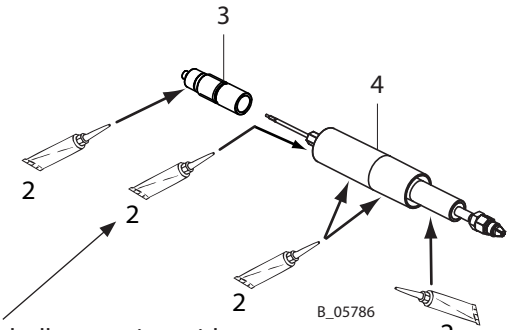
Assembly aids:		
Pos	**Order No.**	**Description**
2 *	9992698	Vaseline white, PHHV II
4	9992511	Loctite® 243

* 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)

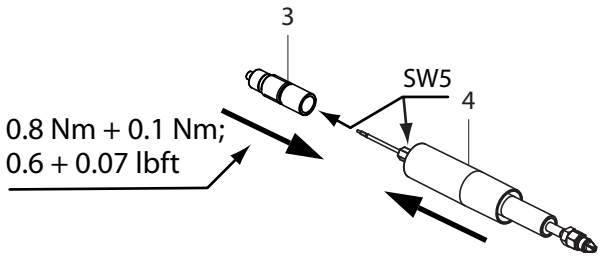
2

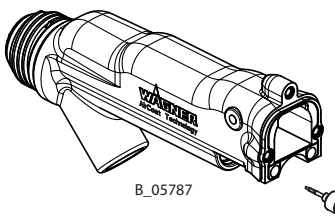
Wear gloves!

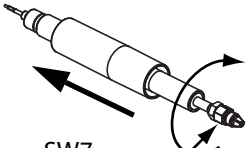
The outside thread of the packing (3) must be free of lacquer.

Grease, push and screw valve rod unit (4) and packing (3) together.

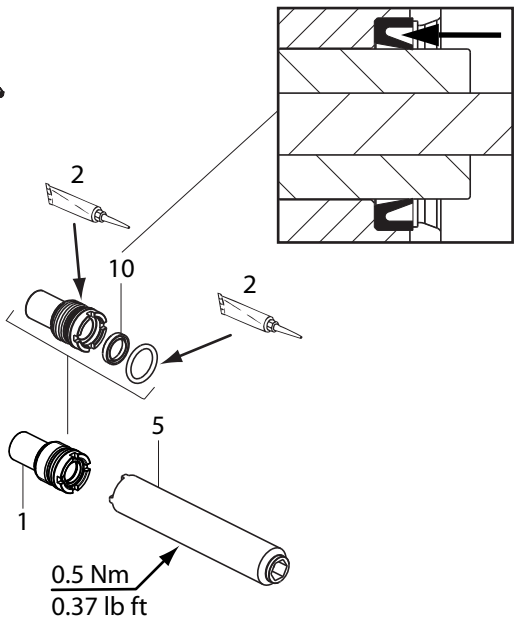
Grease clamping screw (1) and mount using assembly tool (5).



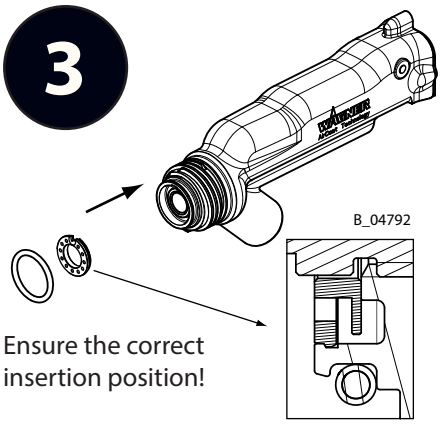


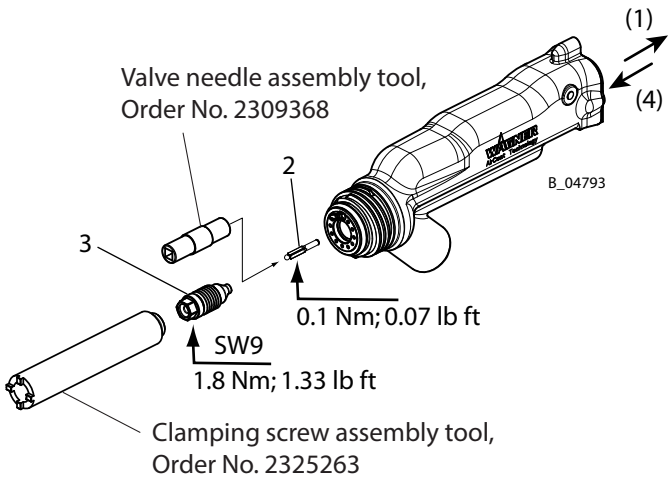


Only as required (if the rod seal was removed): Press in rod seal (10). In the process, press only on the lowest area of the rod seal.



3

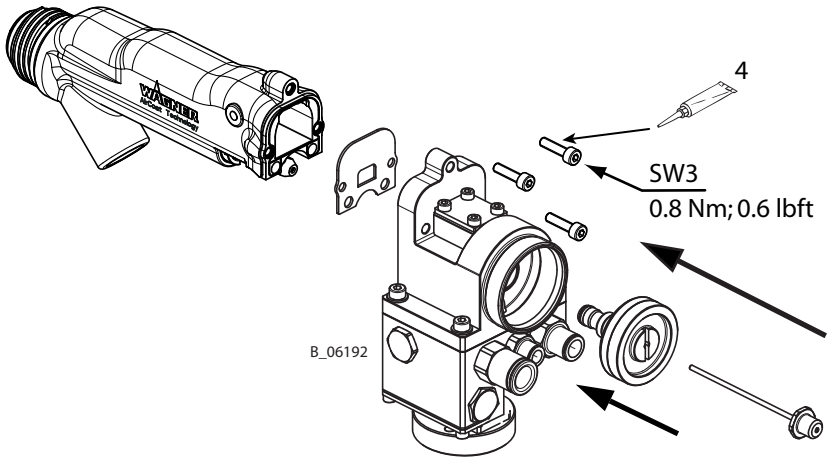




1. Move the valve rod to the rear position so that the sealing area does not become scratched (1).
2. Slightly tighten AC valve tip (2) by hand (3 fingers) using an assembly tool.
3. Use socket or ring spanner (no wrench) to tighten the valve seat (3).
4. Slide the valve rod to the forward position (at the valve seat) (4).

4

Clean and degrease the inside of the adapter.



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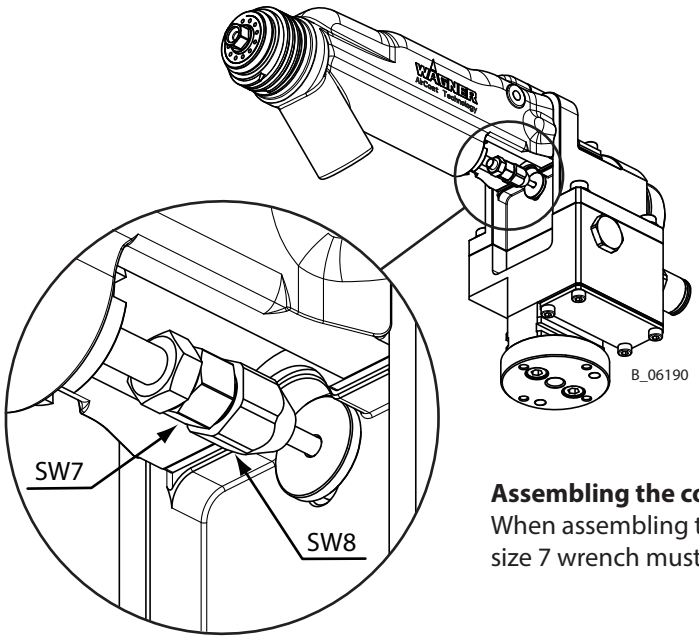
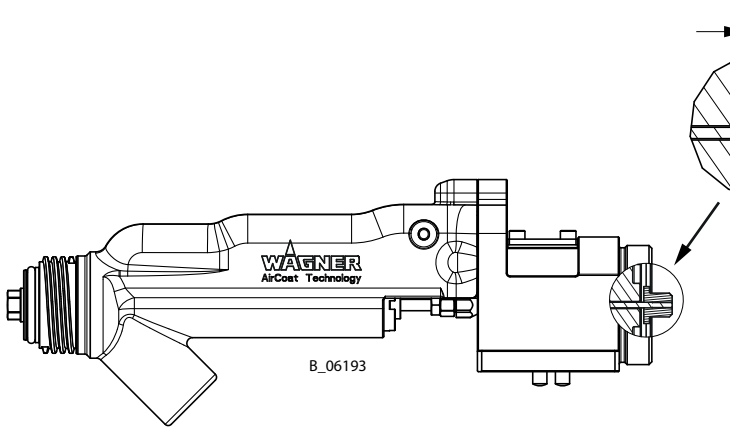
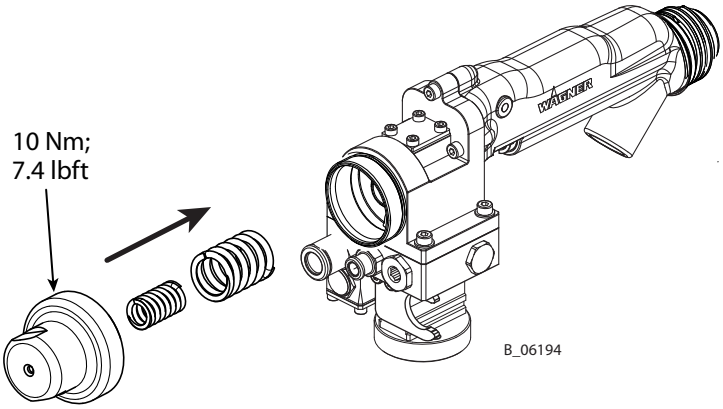


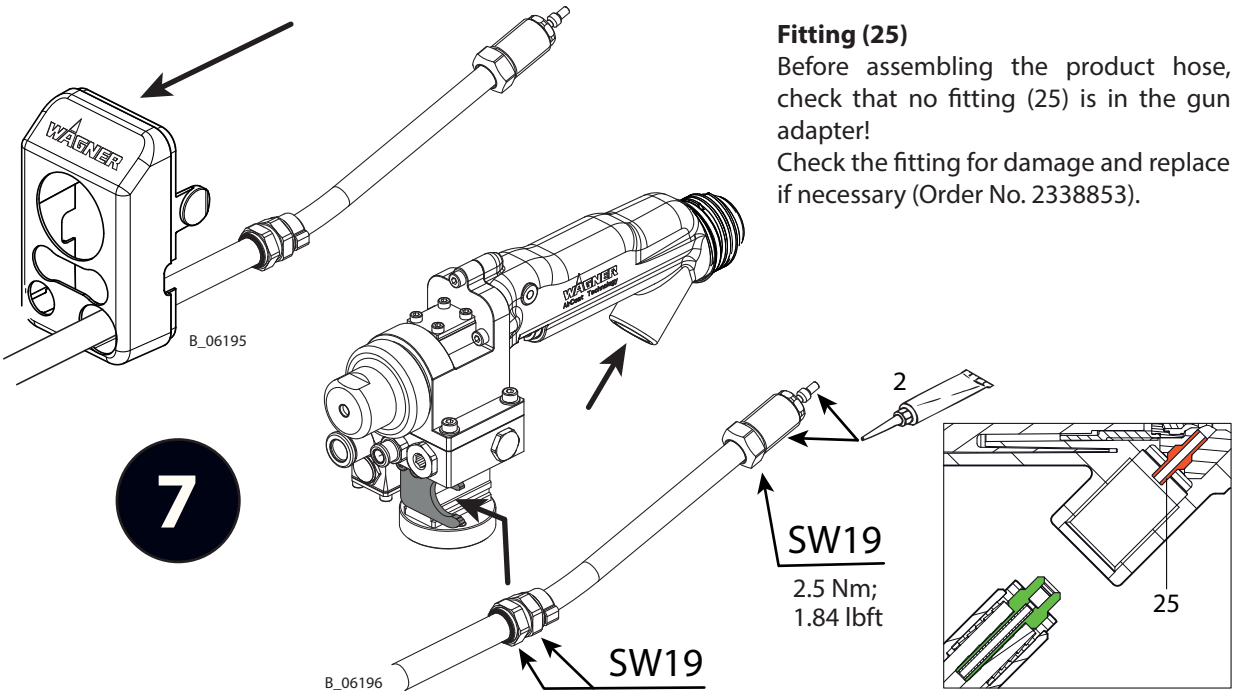
Assembling the collet chuck:
When assembling the collet chuck, a second size 7 wrench must be used for bracing.



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

6

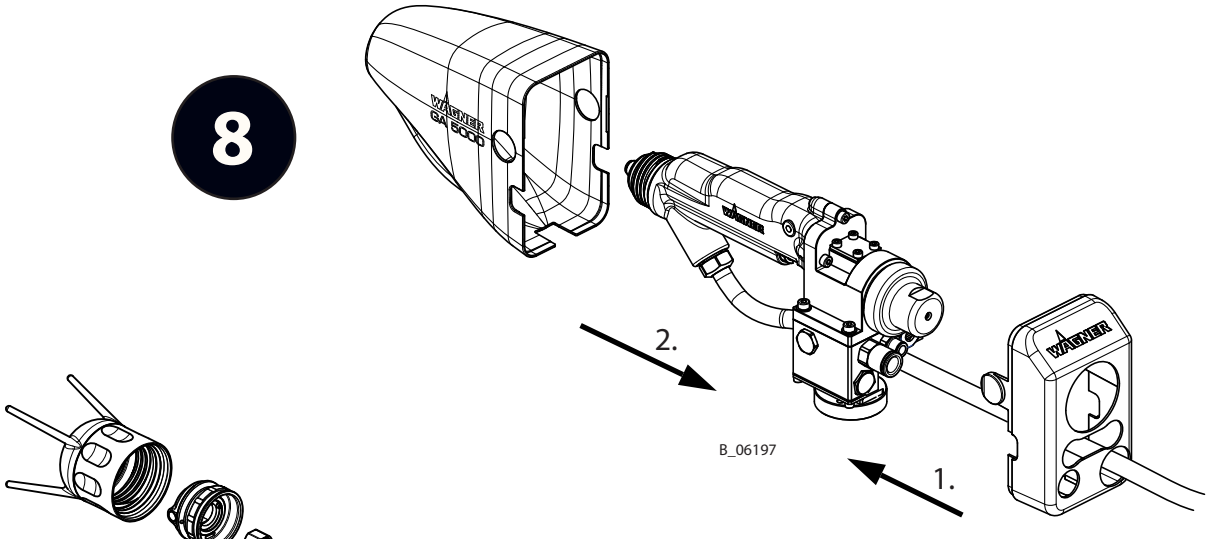


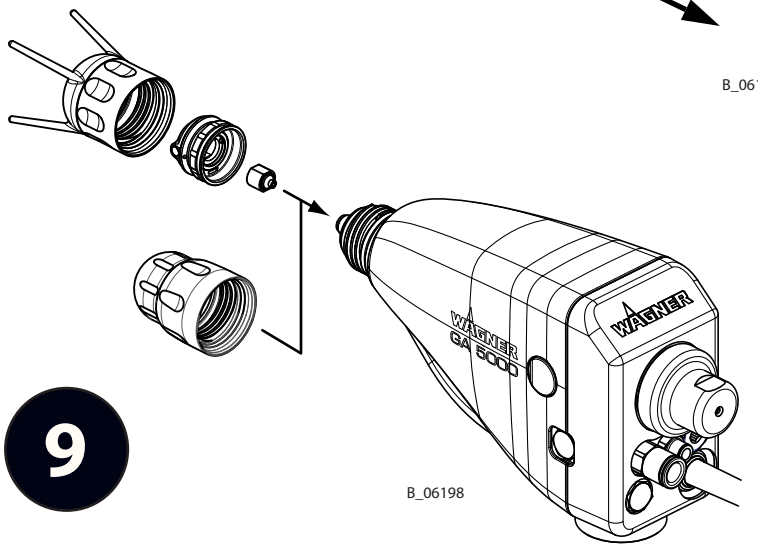


Fitting (25)

Before assembling the product hose, check that no fitting (25) is in the gun adapter!

Check the fitting for damage and replace if necessary (Order No. 2338853).





Round jet nozzle

Assembly, see Chapter 14.5.1

Various nozzle sizes, see Chapter 13.1.1.1

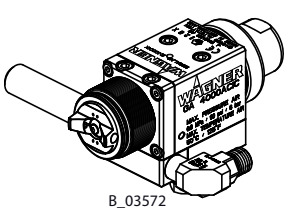
Flat jet nozzle

Assembly, see Chapter 14.5.2

Various nozzle sizes, see Chapter 13.1.1.2

10.5 GA 4000AC SPRAY GUN

See operating manual for GA 4000ACIC and GA 4000ACEC automatic guns (Order No., see Chapter 1.3.1).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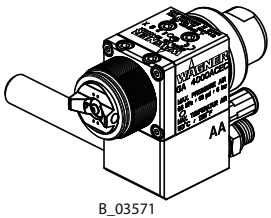
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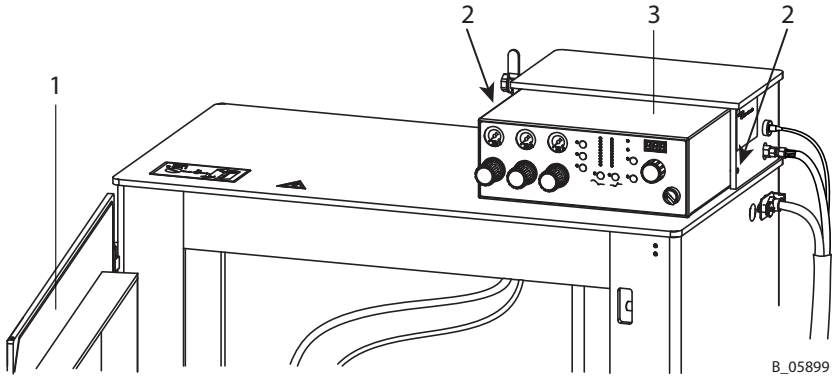
10.6 DISASSEMBLING VM 5020W CONTROL UNIT

1. Switch off control unit and open cabinet door (1).
2. Lock the compressed air supply and decompress the system.
3. Loosen and unscrew screw (2).
4. Carefully remove control unit (3) forwards. Note the connecting lines and connecting cables at the back of the control unit!



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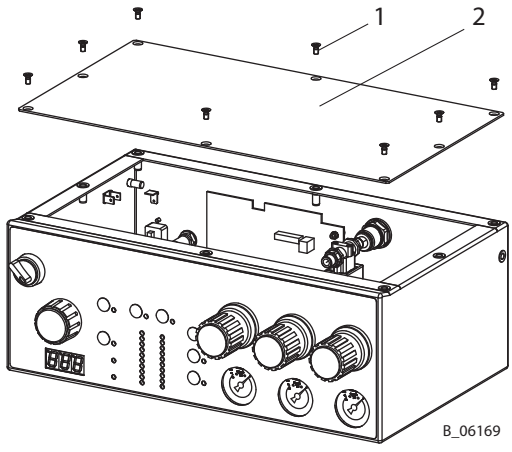
10.7 OPENING THE CONTROL UNIT

1. Dismount the control unit from the AquaCoat system (see Chapter 10.6).
2. Place control unit on a suitable surface.
3. Loosen and unscrew screw (1).
4. Remove cover (2) from housing.
5. When the repair is complete, replace the cover (2) on the housing and fasten with the screws (1).
   → Attention: Connect the grounding cable to the cover.



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11 FUNCTION TEST AFTER THE REPAIR

After all repairs, the AquaCoat system 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.
The system must not be filled with liquid for this function check. Empty pump in accordance with pump's operating manual.

Activities	Aid tools
1. Check connections - Check all product screw connections. - Check all air connections. - All electrical cables must be firmly secured.	Visual check
"Safety-relevant check" **2. Check grounding connection** - Measure resistance between grounding terminal and: - Pneumatic door switch - Product hose connection - Grounding switch → Setpoint: Max. 10 Ω. - Outer shell of the product hose on the spray gun (in front of the stripped part) → Desired value: maximal 1 MΩ. - Check visually the black grounding band in the cabinet door including the black grounding bolt.	Multimeter
"Safety-relevant check" **3. Check potential equalization** - Measure resistance between leakage resistance and: - High-voltage multiplier - Grounding point - Pump support - Potential equalization line at the pump - Connection terminal for product tank → Set value: respective maximum 10 Ω.	Multimeter
4. Connect the device - Connect grounding cable. - Main tap closed. - Connect air supply (mains pressure 0.8 MPa; 8 bar; 116 psi). - Connect the mains.	

Activities	Aid tools
5. Adjust alarm horn (only for level indication with alarm horn) - Loosen control unit and remove from mounting (see Chapter 10.6). - Switch air on. - Set alarm horn regulator to normal volume. - Switch air off and remount control unit in cabinet.	Hexagonal wrench 3 mm; 0.12 inches
6. Check door switch - Open the cabinet door. - Switch on the control unit. - Switch air on. - Actuate the trigger on the spray gun. → Electrical door switch test: - The high voltage must remain switched off. - The control unit displays error E30. → Pneumatic door switch test: - The grounding switch must remain closed (below).	
7. Test grounding switch - Close cabinet door. - Air tap closed. - Switch on high voltage → The "High-voltage" LED illuminates. - Voltage indicator 0 kV. - Current 80-100 µA.	
8. Test door lock - Main switch off. - Air on. - Main switch on → Door locked. - Main switch off → Door unlocked.	
9. Test spraying - Close cabinet door. - Main switch on. - Set high voltage to 5 kV. - Switch on high voltage. - With the high voltage on, gradually increase the voltage up to maximum (80 kV). → The spray current must not exceed 50 µA. - Main switch off.	

11.1 FUNCTION TESTS FOR SPRAY GUN

11.1.1 AIR TEST

GA 5000EACWIC, GA 5000EACWEC, GA 4000ACIC and GA 4000ACEC
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.

GA 5000EACWIC and GA 4000ACIC
Switch off control air, switch on atomizing air. Test for air seal:

1. - at 0.1 MPa; 1 bar; 14.5 psi
2. - at 0.8 MPa; 8 bar; 116 psi

11.1.2 PRODUCT PRESSURE TEST

Connect high-pressure 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 25 MPa; 250 bar; 3626 psi. Increase the pressure gradually while doing so.

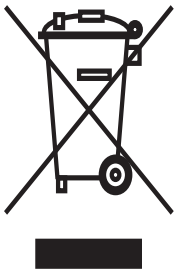
DANGER

Exploding gas / air mixture!
Danger to life from flying parts and burns.
→ Never spray into a closed tank.
→ Ground the tank.

11.1.3 TEST OF SPRAY PATTERN

Check spray pattern in accordance with Chapter 7.3.2.

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 NOZZLES, AIR CAPS, NOZZLE INSERTS, NOZZLE SCREW JOINT

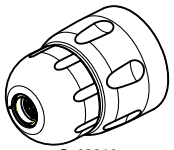
13.1.1 FOR GA 5000EACW

13.1.1.1 GA 5000EACW ROUND JET

The round jet nozzles are especially suitable for spraying delicate parts, tubes, profiles and complex work pieces.

Round jet nozzle attachment

Order No.	Designation
2309902	Round jet nozzle attachment, ACWR 5000 (with nozzle spanner, without AC round jet nozzle insert) For details, see Chapter 14.5.4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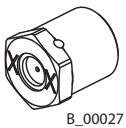
Round jet nozzle inserts

Order No.	Marking	Jet width ** mm; inch	Recommended gun filter
132720	11	Approx. 250; 10	red
132721	12	Approx. 250; 10	(200 mesh)
132722	13	Approx. 250; 10	
132723	14	Approx. 250; 10	
132724 *	15	Approx. 250; 10	
132725	16	Approx. 250; 10	yellow
132726	17	Approx. 250; 10	(100 mesh)
132727	18	Approx. 250; 10	
132728	19	Approx. 250; 10	
132729	20	Approx. 250; 10	white
132730	21	Approx. 250; 10	(50 mesh)
132731	22	Approx. 250; 10	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* Standard version

** Jet width at approx. 30 cm; 11.8 inches of distance and 10 MPa; 100 bar; 1450 psi of pressure.

13.1.1.2 GA 5000EACW FLAT JET

ACF air caps (flat jet)

Order No.	Designation
2309901	Air cap, ACWF 5000 - LV, complete, suitable for low-viscosity products (marked red)
2314204	Air cap, ACWF 5000 - HV, complete, suitable for high-viscosity products (marked blue)


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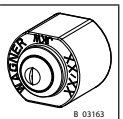
B_03552

ACF5000 AirCoat flat jet nozzles

Order No.	Marking	Bore∅ mm; inch	Spray angle	Application  B 03163
395107	07/10	0.18; 0.007	10°	Natural lacquer
395207	07/20		20°	
395407	07/40		40°	
395109	09/10	0.23; 0.009	10°	Clear lacquer
395209	09/20		20°	Oils
395309	09/30		30°	
395409	09/40		40°	
395509	09/50		50°	
395609	09/60		60°	
395111	11/10	0.28; 0.011	10°	Synthetic resin lacquer
395211	11/20		20°	PVC lacquers
395311	11/30		30°	
395411	11/40		40°	
395511	11/50		50°	
395611	11/60		60°	
395811	11/80		80°	
395113	13/10	0.33; 0.013	10°	Lacquers, undercoat
395213	13/20		20°	Primer
395313	13/30		30°	Filler
395413	13/40		40°	
395513	13/50		50°	
395613	13/60		60°	
395813	13/80		80°	

Order No.	Marking	Bore∅ mm; inch	Spray angle	Application 
395115	15/10	0.38; 0.015	10°	Filler
395215	15/20		20°	Rust proofing paints
395315	15/30		30°	
395415	15/40		40°	
395515	15/50		50°	
395615	15/60		60°	
395815	15/80		80°	
395217	17/20	0.43; 0.017	20°	Rust proofing paints
395317	17/30		30°	Latex paints
395417	17/40		40°	
395517	17/50		50°	
395617	17/60		60°	
395817	17/80		80°	
395219	19/20	0.48; 0.019	20°	Rust proofing paints
395319	19/30		30°	Latex paints
395419	19/40		40°	
395419	19/50		50°	
395619	19/60		60°	
395819	19/80		80°	
395221	21/20	0.53; 0.021	20°	Mica paints
395421	21/40		40°	Zinc rich paints
395521	21/50		50°	Rust proofing paints
395621	21/60		60°	Glue paints
395821	21/80		80°	
395423	23/40	0.58; 0.023	40°	
395623	23/60		60°	
395823	23/80		80°	
395425	25/40	0.64; 0.025	40°	
395625	25/60		60°	
395825	25/80		80°	
395427	27/40	0.69; 0.027	40°	
395627	27/60		60°	
395827	27/80		80°	
395429	29/40	0.75; 0.029	40°	
395629	29/60		60°	
395829	29/80		80°	
395431	31/40	0.79; 0.031	40°	
395631	31/60		60°	
395831	31/80		80°	
395435	35/40	0.90; 0.035	40°	
395635	35/60		60°	
395835	35/80		80°	

13.1.2 GA 4000AC ACCESSORIES

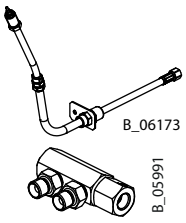
For the following accessories, see operating manual for GA 4000ACIC or GA 4000ACEC automatic guns (Order No., see Chapter 1.3.1):

- ACF 3000 nozzles
- Air caps
- ACR3000 AirCoat nozzles, round
- Rxx nozzle inserts
- Nozzle screw joint

13.2 HOSES AND CABLES

Product hoses:
- DN 4
- Material FEP
- Nominal pressure 25 MPa; 250 bar; 3626 psi

	GA 5000EACW	GA 4000AC
Designation	**Order No.**	**Order No.**
Product hose, complete GA EACW, 7.5 m; 24.6 ft	2368105	2346090
Product hose, complete GA EACW, 10 m; 32.81 ft	2368110	2346091
Product hose, complete GA EACW, 15 m; 49.2 ft	2368112	2346092
Product hose, complete GA EACW, 20 m; 65.6 ft	2368113	2346093



Product distributor for two automatic guns (see Chapter 5.11):

Product distributor for the connection of 2 product hoses	2359038

Air hoses

Order No.	Designation
9982035	Air hose, red, outer ø 6 mm; 0.24 inches, inner ø 4 mm; 0.16 inches, polyamide, per meter
9982033	Air hose, green, outer ø 6 mm; 0.24 inches, inner ø 4 mm; 0.16 inches, polyamide, per meter
9982062	Air hose, blue, outer ø 8 mm; 0.31 inches, inner ø 5.5 mm; 0.22 inches, polyamide, per meter

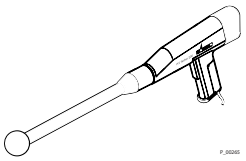
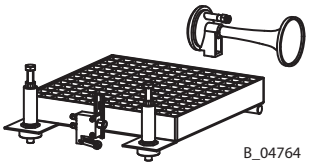
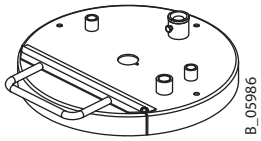
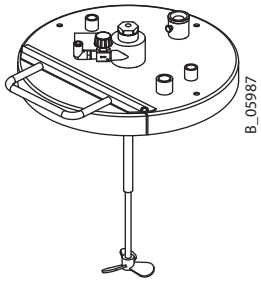
Control cable, external

Order No.	Designation
2316194	Control cable, external, 15 m; 49.2 ft (see Chapter 6.9.3.1)

Mains cable

Order No.	Designation
241270	Mains cable Europe (Schuko) 3 m; 9.8 ft
2330628	Mains cable Europe (Schuko) 10 m; 32.8 ft
241271	Mains cable Switzerland 3 m; 9.8 ft
264626	Mains cable USA 2 m; 6.6 ft
264625	Mains cable Japan 3 m; 9.8 ft

13.3 MISCELLANEOUS

Order No.	Designation	
353702	High-voltage oil (10 ml; 10 cc) (for product hose → assembly)	
259010	High-voltage tester, HV 200 N	
999080	Wet film thickness gauge	
50342	Viscosity cup, DIN/4 (4 mm; 0.16 inches)	
2359029 2364394	Underframe, 5020 with rolls Underframe, 5010 with rolls	
2364791 2364790	Tub insert, 5020 Tub insert, 5010	
353053	Level monitoring, incl. alarm horn	
353054	Drum cover, D350 without agitator	
353055	Drum cover, D350 with agitator	

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

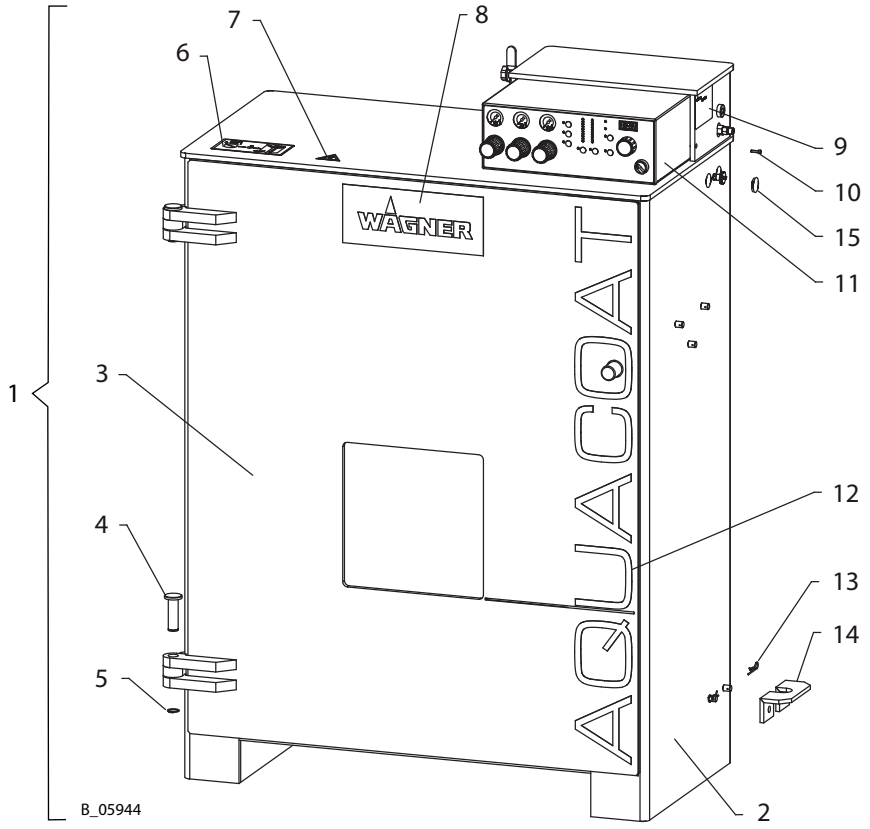
Incorrect maintenance/repair!
Danger to life and equipment damage.

→ 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 AQUACOAT BASIC DEVICE

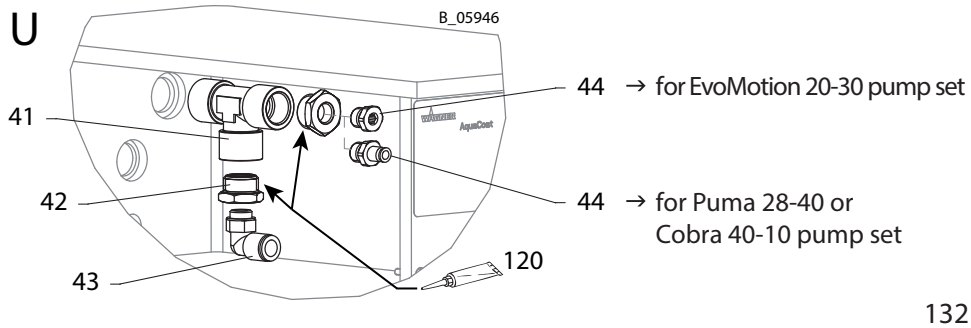
Spare parts list for AquaCoat basic device				5020	5020G	5010	5010G
Pos	**K**	**Stk**	**Designation**	**Order No.**	**Order No.**	**Order No.**	**Order No.**
1		1	Automatic basic device, AquaCoat	2363400	2363735	2363404	2363737
2		1	Cabinet, AquaCoat	--		--	
3		1	Cabinet door, AquaCoat	2367567	2367570	2367569	2367571
4		2	Hinge bolt	2358921			
5		2	Securing ring	9922511			
6		1	Instruction label, AquaCoat 5020	2359298			
7		1	High-voltage warning sign, 50 mm	9952558			
8		1	Label, WAGNER	--			
9		1	Type plate, automatic AquaCoat	--			
10		2	Hexagon socket cylinder head screw	9900308			
11		1	Control unit, VM 5020WA	2363323			
12		1	Label, AquaCoat	--			
13		2	Connection fields	9935049			
14		1	Hose holder, below	2358373			
15		1	Plug	R204.07			

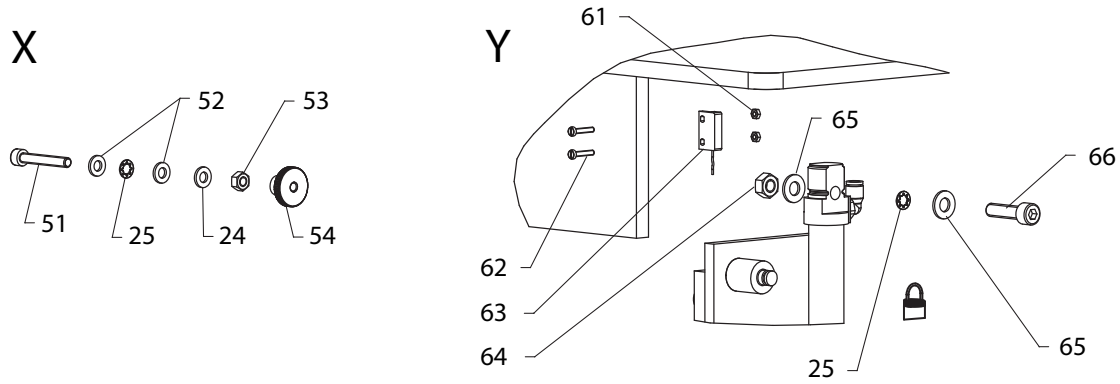
◆ = Wearing parts



Spare parts list for AquaCoat basic device				5020	5020G	5010	5010G
Pos	**K**	**Stk**	**Designation**	**Order No.**	**Order No.**	**Order No.**	**Order No.**
21		2	Hexagon socket cylinder head screw	9900365			
22		1	Pump support	2362723			
23		2	Hexagon socket cylinder head screw	9900346			
24		12	Washer	9920103			
25		6	Lock washer internal teeth	9922109			
26		1	Ground cable, 10 m	130215			
27		1	Strain relief grommet, DM4	9999438			
28		1	Mains cable (see Chapter 13.4)	--			
29	◆	1	Ball valve	9991523			
30		2	Strain relief grommet, DM7	9999437			
31		1	Fitting, G1/2 - G1/2A	9999440			
32		1	Straight hermetic plug connection, G inside	9992741			
33		1	Double fitting, G1/4-G1/4	9994627			
34		1	Interlock lever	2358914			
35		2	Grub screw	9901108			
36		1	Spring rod	2366942			
37	◆	1	Tension spring	2362850			
38		1	Driving pins	2358916			
39		1	Pushrod, welded	2358913			
41		1	Screw connector T	9999109			
42		2	Reducing fitting, A-G1/2 - I-G1/4	9985685			
43		1	Male stud elbow, 10-1/4	9999208			
44		1	Threaded plug, G1/4" (EvoMotion)	9998274			
			Screw-in fitting, 6-1/4 (Puma/Cobra)	9992742			
51		1	Hexagon socket cylinder head screw	9907050			
52		2	Washer	9920118			
53		6	Hexagon nut	9910102			
54		1	High knurled nut	9910522			
61		2	Hexagon nut	9910125			
62		2	Socket cap screw with slit	2311709			
63		1	Door switch, complete	2363036			
64		2	Hexagon nut	9910107			
65		3	Washer	9920102			
66		1	Hexagon socket cylinder head screw	9907079			
120		1	Loctite® 542	9992831			
121		1	Loctite® 243	9992511			

◆ = Wearing parts

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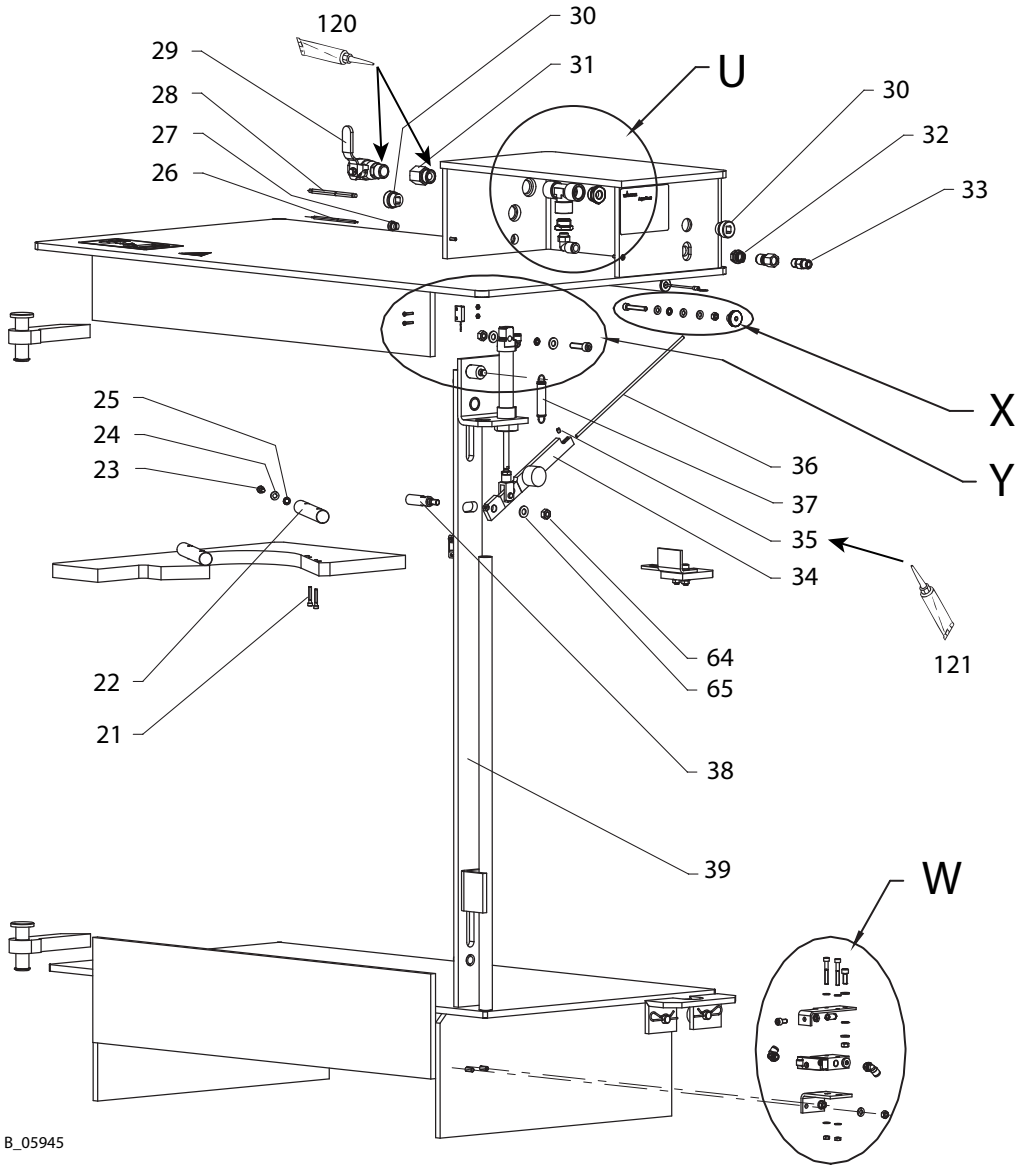
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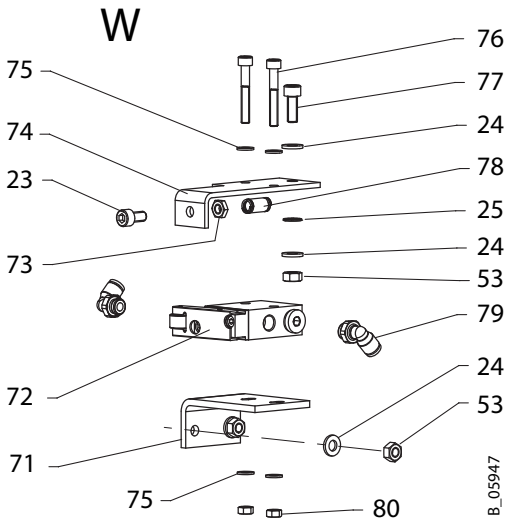
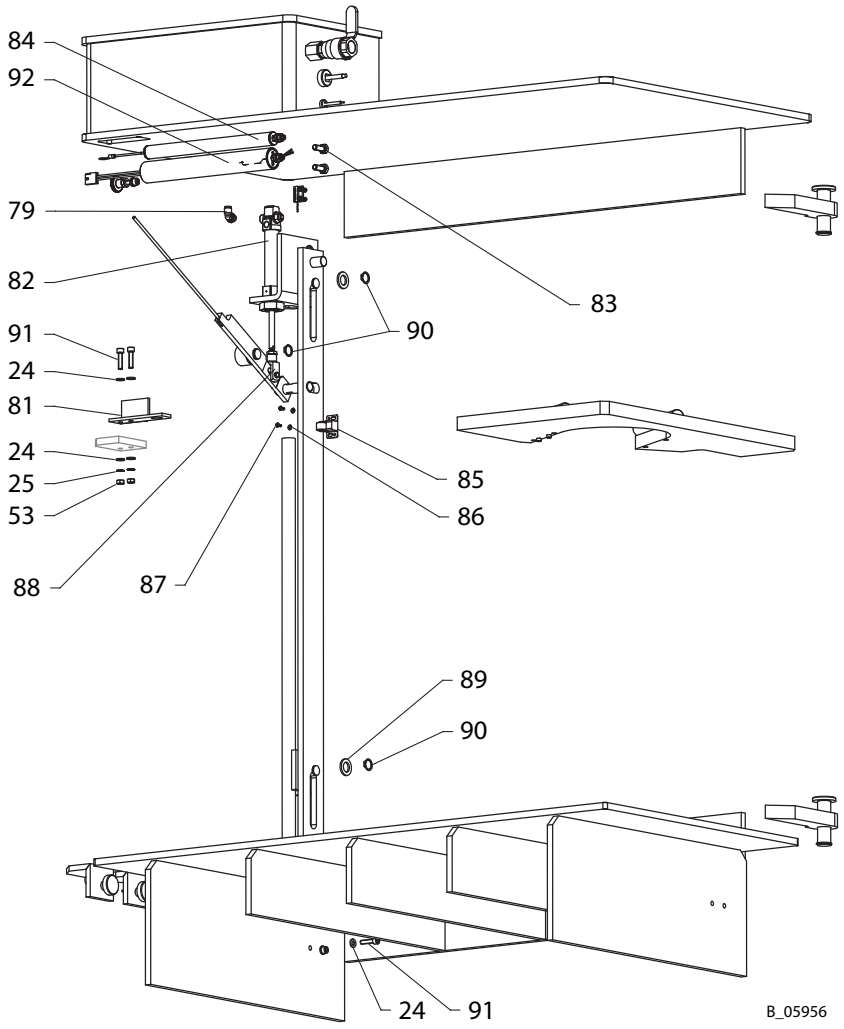
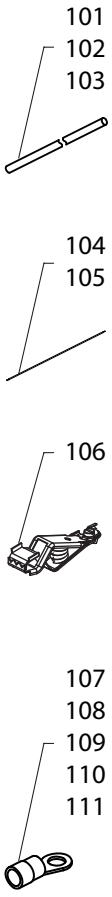


Spare parts list for AquaCoat basic device				5020	5020G	5010	5010G
Pos	**K**	**Stk**	**Designation**	**Order No.**	**Order No.**	**Order No.**	**Order No.**
71		1	Valve holder	2362721			
72		1	Roller lever valve, RS-3-1/8	2362775			
73		1	Hexagon nut, 0.5 d	9911005			
74		1	Grounding plate	2362722			
75		4	Washer	9920101			
76		2	Hexagon socket cylinder head screw	9907001			
77		1	Hexagon socket cylinder head screw	9900325			
78	◆	1	Pressure spring, 1.0x8.0 L=17	123357			
79		3	Male stud elbow, 6-1/8 Ex	9998110			
80		2	Hexagon nut	9910106			
81		1	Shorting member	2358920			
82	◆	1	Standard cylinder, ESNU-20-50-P-A	2359249			
83		2	Hexagon screw without shaft	9907222			
84		1	Resistor, automatic AquaCoat	2306978			
85		1	Roll snapper	2362973			
86		2	Washer	9920114			
87		2	Screws, PT fillister head	9905504			
88		1	Rod clevis, SG-M8	2359255			
89		2	Washer	2358919			
90		3	Securing ring	9998144			
91		4	Hexagon socket cylinder head screw	9900315			
92		1	Cascade, AquaCoat 5000	2314238			
120		1	Loctite® 542	9992831			
121		1	Loctite® 243	9992511			

◆ = Wearing parts

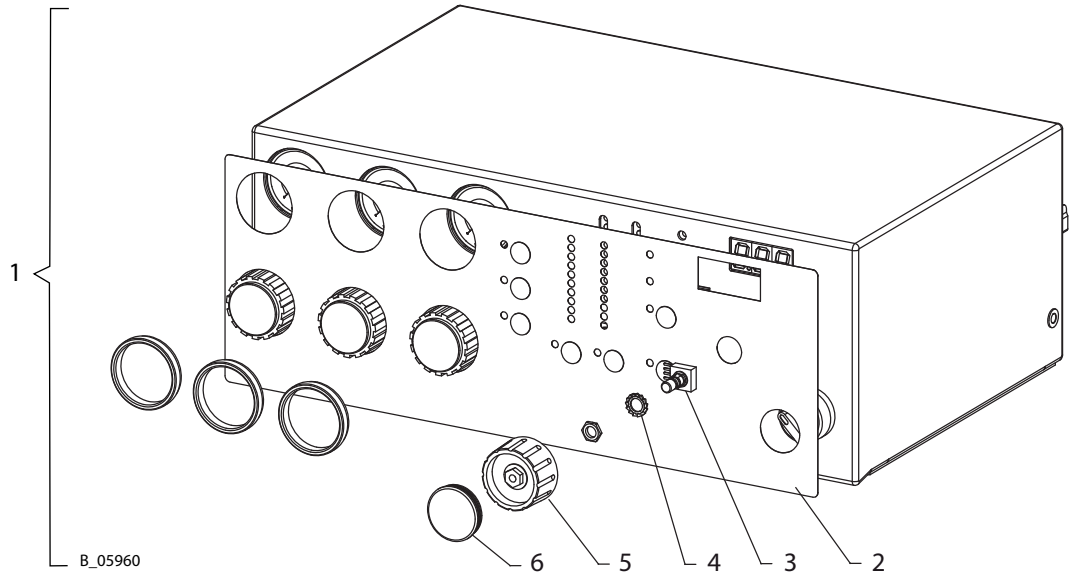




Spare parts list for AquaCoat basic device				5020	5020G	5010	5010G
Pos	**K**	**Stk**	**Designation**	**Order No.**	**Order No.**	**Order No.**	**Order No.**
101		2 m	Hose, black ∅ 10 mm; 0.39 inches	9987076			
102		1.9 m	Hose, black ∅ 8 mm; 0.32 inches	9982078			
103		3.7 m	Hose, black ∅ 6 mm; 0.24 inches	9982079			
104		3.4 m	Strand, yellow/green	9953082			
105		4.2 m	Strand, orange	9953415			
106		1	Battery clip	9950585			
107		1	Cable lug, 0.5–1.0 mm² M4	9950606			
108		1	Cable lug, 0.5–1.0 mm² M5	9950656			
109		8	Cable lug, 0.5–1.0 mm² M6	9950616			
110		5	Cable lug, 1.5–2.5 mm² M6	9955403			
111		1	Cable lug, 1.5–2.5 mm² M8	9950646			
120		1	Loctite® 542	9992831			
121		1	Loctite® 243	9992511			

◆ = Wearing parts

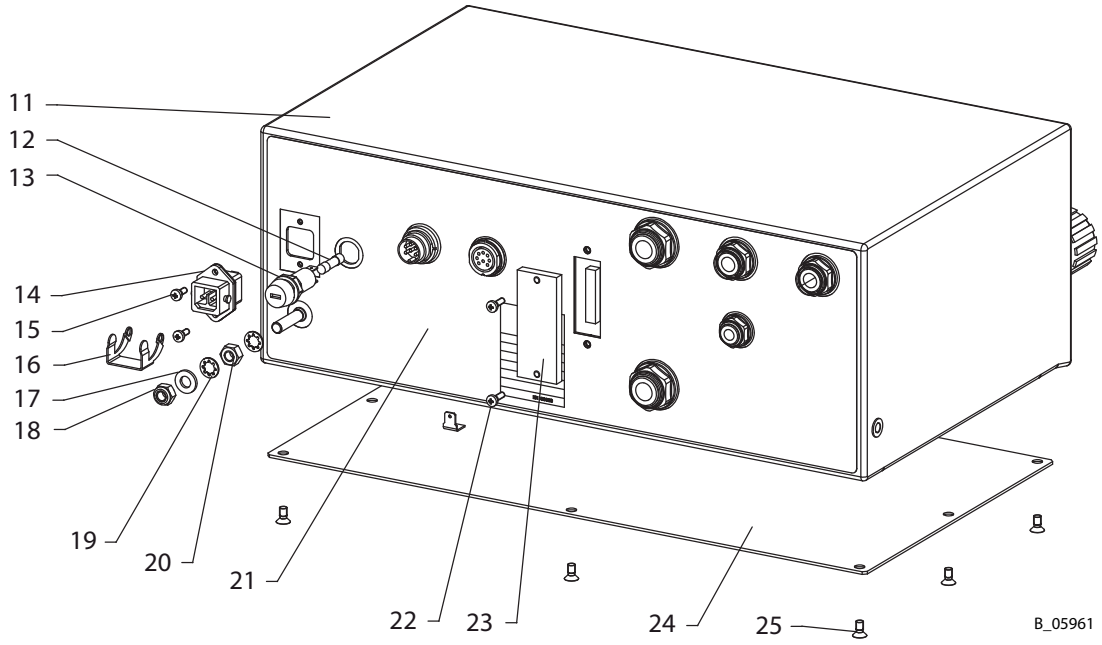
14.2.1 VM 5020WA CONTROL UNIT



Spare parts list for VM 5020WA control unit

Pos	K	Stk	Order No.	Designation
1		1	2363323	Control unit, VM 5020WA
2		1	--	Front panel, VM 5000W
3		1	2304459	Incremental encoder, type E33
4		1	2329441	Serrated lock washer, externally toothed
5		1	2304461	Rotary knob
6		1	2304462	Cover

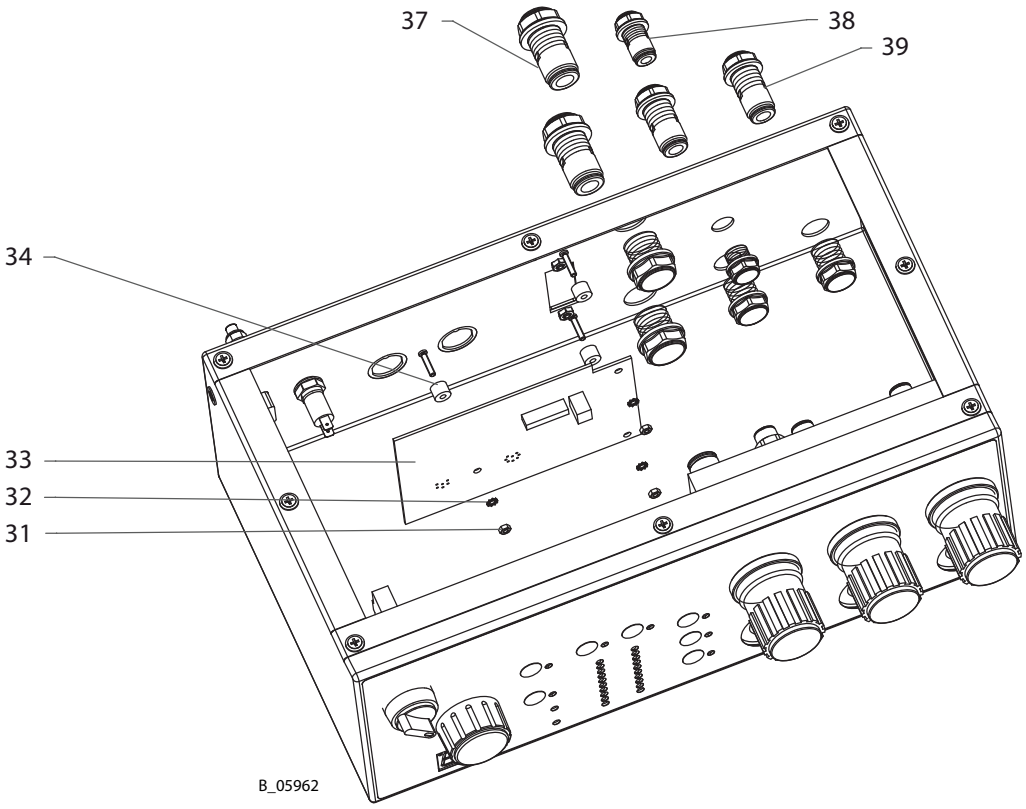
◆ = Wearing parts



Spare parts list for VM 5020WA control unit

Pos	K	Stk	Order No.	Designation
11		1	--	Housing, VM 5020W
12		1	9951117	Delay-action fuse 1.0 AT
13		1	2348276	Fuse socket, FPG1 for 5x20 mm glass
14		1	--	Cable loom, VM 5020W
15		2	9903306	Recessed head raised fillister head screw, H form
16		1	9950330	Safety clip for device sockets
17		1	9920118	Washer
18		1	9910204	Self-locking hexagon nut
19		2	9922109	Lock washer internal teeth
20		1	9910102	Hexagon nut
21		1	--	Back sheet, VM 5020W
22		2	9903311	Recessed head raised fillister head screw, H form
23		1	241323	Cover, white
24		1	2353727	Cover
25		8	2306405	Recessed countersunk flat head screw, Z form

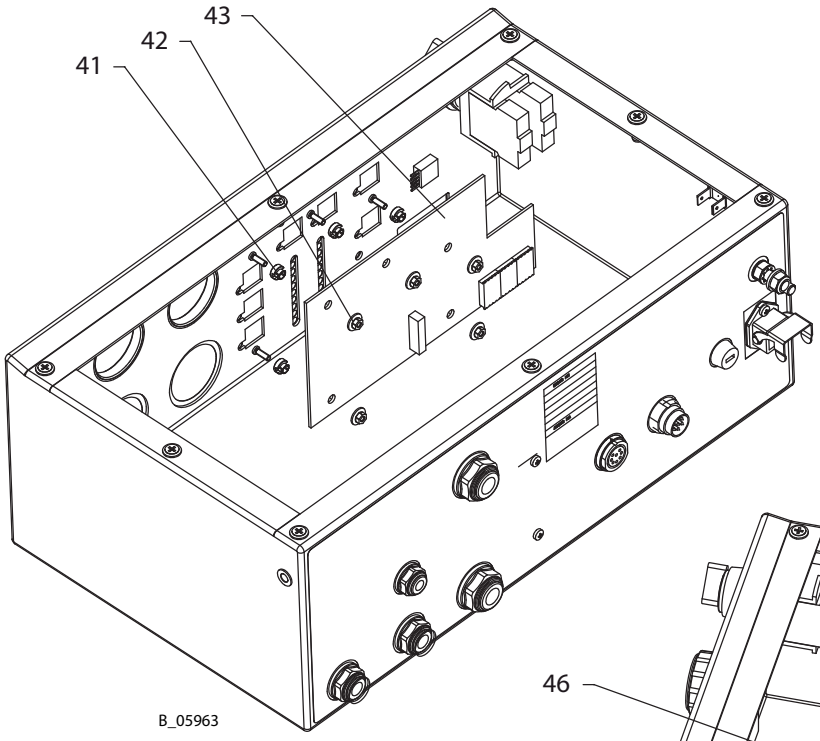
◆ = Wearing parts

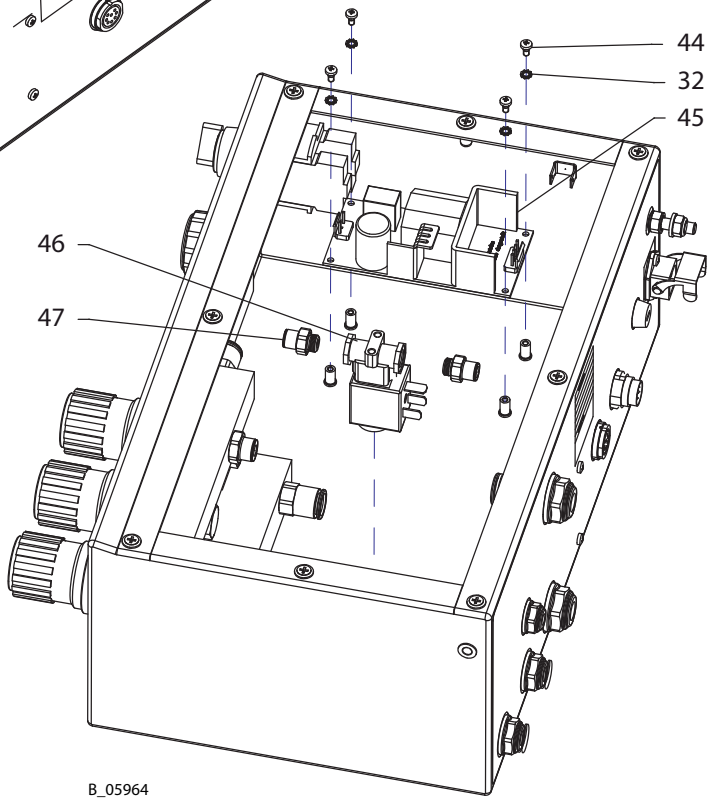


Spare parts list for VM 5020WA control unit

Pos	K	Stk	Order No.	Designation
31		3	9910103	Hexagon nut
32		7	9922011	Serrated lock washer, externally toothed
33		1	2314237	Print VM 5000WA rear panel, complete Including connector plug and socket
34		3	263400	Distance bush
37		2	9998769	Straight hermetic plug connection, D=10
38		1	9998614	Straight hermetic plug connection, D = 6
39		2	9998615	Straight hermetic plug connection, D = 8

◆ = Wearing parts

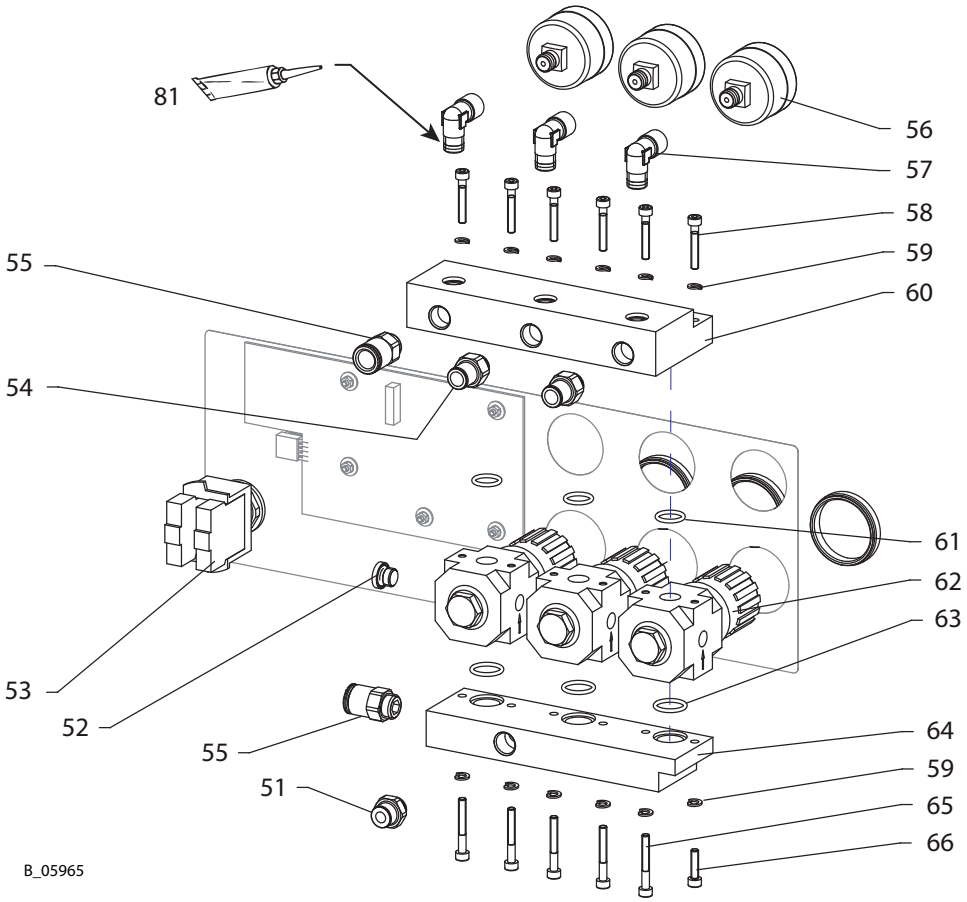




Spare parts list for VM 5020WA control unit

Pos	K	Stk	Order No.	Designation
41		5	2309112	Spacer
42		5	2312348	Hexagon lock nut
43		1	2317539	Print, complete for VM 5000 display. Including pos. 3.
44		4	9903312	Recessed head raised fillister head screw, H form
45		1	2352818	Switching power supply, EPS-45-24
46		1	2360090	Solenoid valve, complete
47		2	9998090	Straight screw-in fitting

◆ = Wearing parts



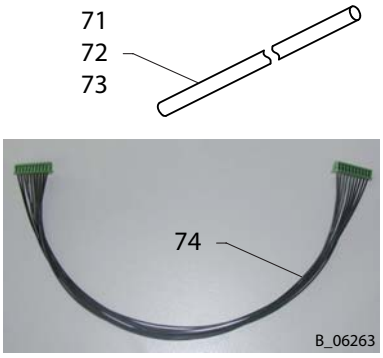
Spare parts list for VM 5020WA control unit

Pos	K	Stk	Order No.	Designation
51		1	9998255	Straight threaded fitting
52		3	9998675	Threaded plug, G1/8"
53		1	9956178	Switch
54		2	9998254	Screw-in fitting, 8 mm -1/4"
55		2	9998987	Threaded fitting, 10 mm – 1/4"
56	◆	3	9998677	Pressure gauge, 0–10 bar RF40 (d40)
57		3	9992289	Male stud elbow
58		6	9900365	Hexagon socket cylinder head screw
59		12	9921511	Spring washer
60		1	2335187	Air outlet, 3-fold
61	◆	3	9971313	O-ring
62		3	2309972	Pressure regulator, LR-1/4-D-O-I-Mini
63	◆	3	9974166	O-ring
64		1	2335186	Air inlet, 3-fold
65		5	9900386	Hexagon socket cylinder head screw
66		1	9900308	Hexagon socket cylinder head screw

Mounting materials

81		1	9992831	Loctite® 542

◆ = Wearing parts



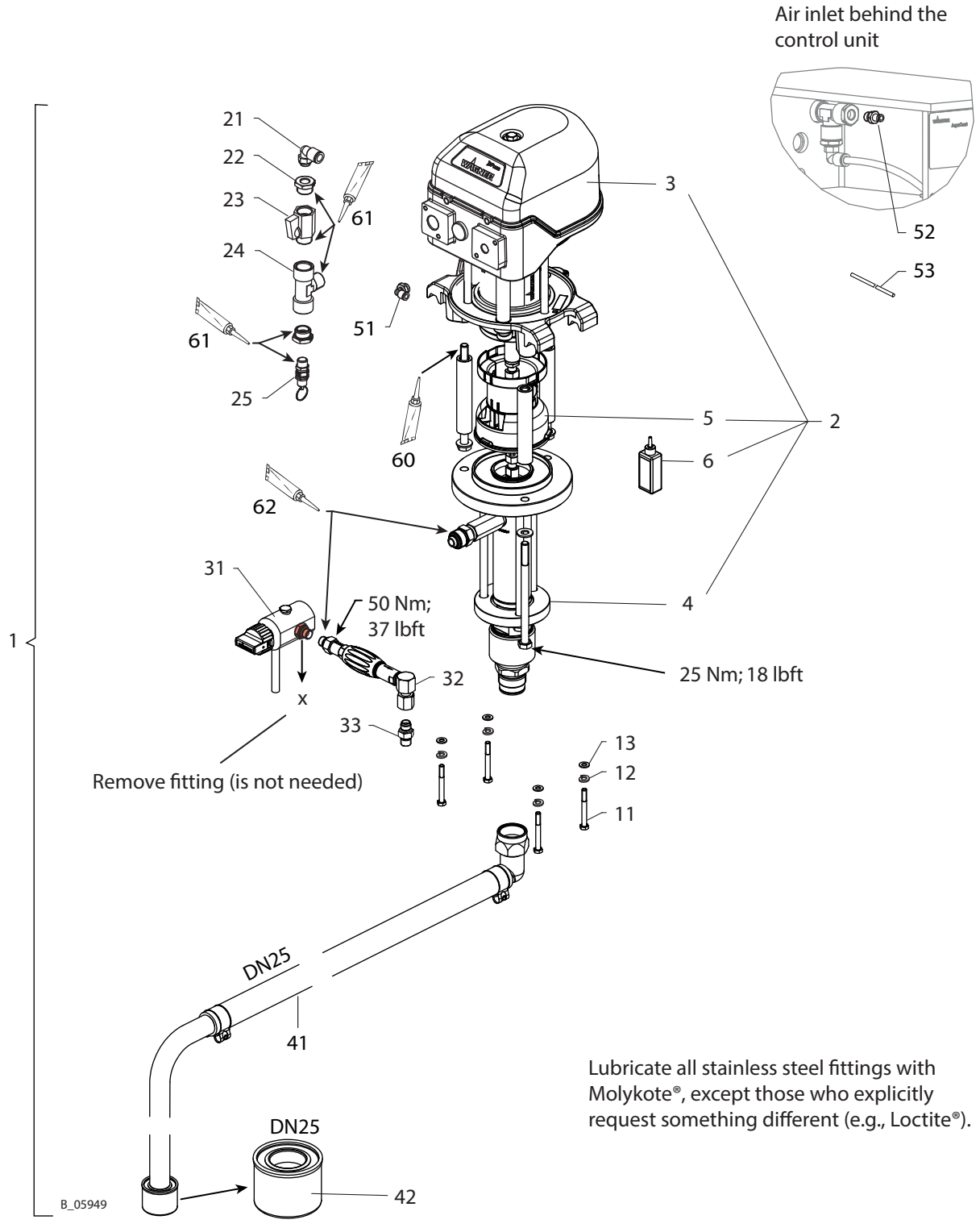
Spare parts list for VM 5020WA control unit

Pos	K	Stk	Order No.	Designation
71		0.45 m	9987076	Hose, black ∅ 10 mm; 0.39 inches
72		0.30 m	9982078	Hose, black ∅ 8 mm; 0.32 inches
73		0.16 m	9982079	Hose, black ∅ 6 mm; 0.24 inches
74		1	2304487	Print connection cable

◆ = Wearing parts

14.3 PUMP SETS

14.3.1 PUMA 28-40 SET FOR AQUACOAT



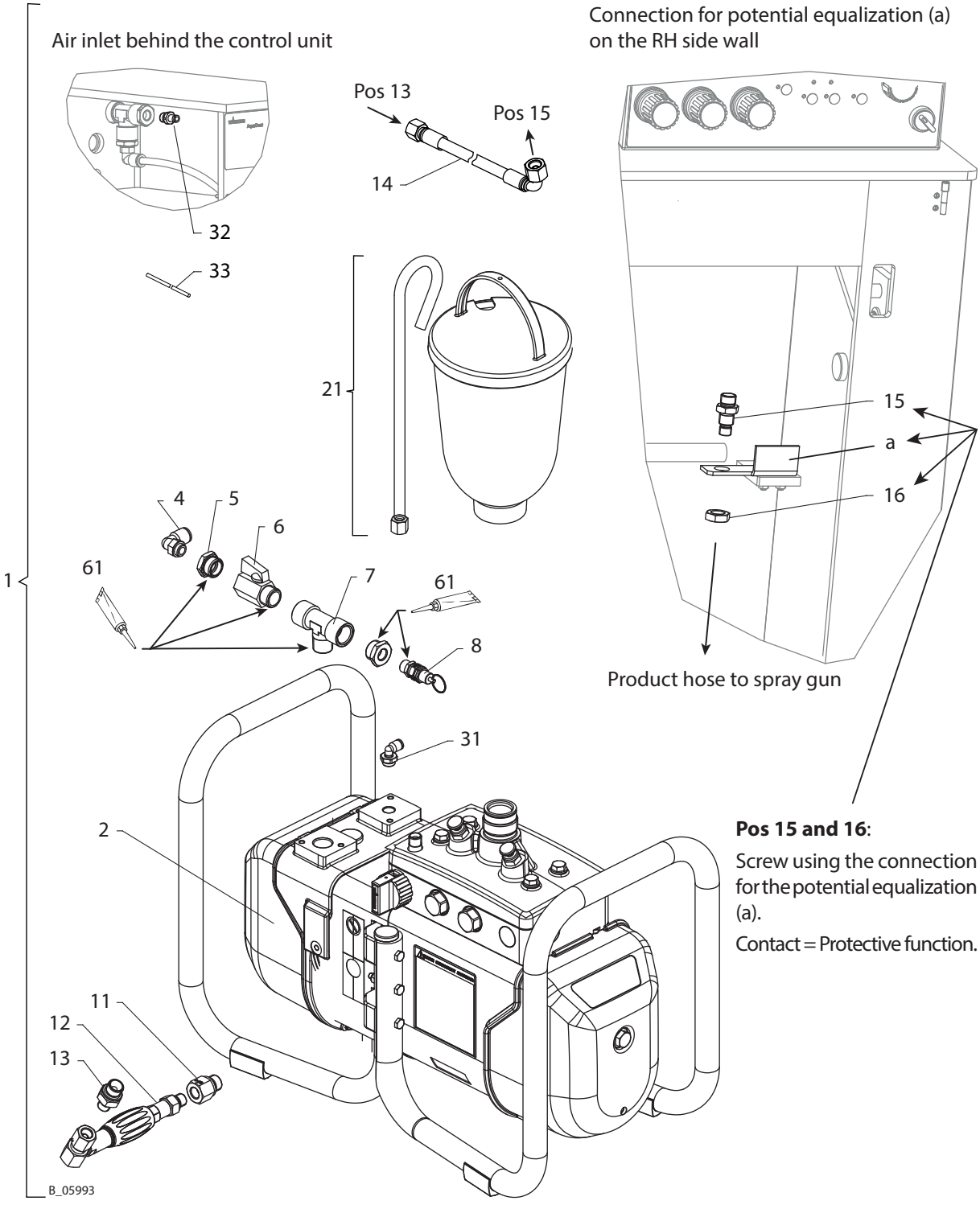
Lubricate all stainless steel fittings with Molykote®, except those who explicitly request something different (e.g., Loctite®).

Spare parts list for Puma 28-40 piston pump set for AquaCoat

Pos	K	Stk	Order No.	Designation
1			2363746	Puma 28-40 set for AquaCoat
Piston pump				
2		1	--	Piston pump, Puma 28-40 PE/TG REM (without pressure regulator unit) Refer to the pump operating manual for details
3		1	2335843	Air motor, Puma REM (without pressure regulator unit) Refer to the pump operating manual for details
4		1	2329641	Fluid section, 40 PE/TG Refer to the pump operating manual for details
5		1	2350028	Connection set, LM-FS 1 Refer to the pump operating manual for details
6		1	9992504	Release agent
Mount on pump support				
11		4	9906036	Hexagon socket cylinder head screw
12		4	9921502	Spring washer
13		4	9920103	Washer
Air motor connection				
21		1	9999208	Male stud elbow, 10-1/4
22		2	9985685	Reducing fitting, A-G1/2 - I-G1/4
23	◆	1	2321426	Low-pressure mini ball valve, G1/2
24		1	9985683	T-piece
25		1	P484.00C0	Safety valve 1/4", blue ring
Product outlet				
31	◆	1	2329023	Relief combination, complete For details, see Chapter 14.3.4
32	◆	1	2329026	Inline filter, HL DN6-PN530-G1/4"-SSt For details, see Chapter 14.3.5
33		1	2330774	Fitting, DF-MM-G1/4-1/4NPSM-530 bar-SSt
Product inlet				
41	◆	1	2324116	Suction hose DN25-SSt, complete
42	◆	1	2323325	Suction filter, DN25-18mesh-SSt
Connection for the air motor reversing valve				
51		1	9998250	Male stud elbow, 6-1/4 Ex
52		1	9992742	Straight threaded fitting
53		1.3 m	9982079	Hose, black PEN 6/4
Mounting materials				
60		1	9992616	Molykote® DX grease
61		1	9992831	Loctite® 542
62		1	9992609	Anti-seize paste

◆ = Wearing parts

14.3.2 COBRA 40-10 SET FOR AQUACOAT



Pos 15 and 16:

Screw using the connection for the potential equalization (a).

Contact = Protective function.

Lubricate all stainless steel fittings with Molykote®, except those who explicitly request something different (e.g., Loctite®).

Spare parts list for Cobra 40-10 piston pump set for AquaCoat

Pos	K	Stk	Order No.	Designation
1			2363747	Cobra 40-10 set for AquaCoat

Piston pump

2		1	--	Cobra 40-10 double diaphragm pump, REM frame Refer to the pump operating manual for details
4		1	9999208	Male stud elbow, 10-1/4
5		2	9985685	Reducing fitting, A-G1/2 - I-G1/4
6	◆	1	2321426	Low-pressure mini ball valve, G1/2
7		1	9985683	T-piece
8		1	P484.00C0	Safety valve 1/4", blue ring

Product outlet

11		1	2353265	Fitting-RF-FM-G1/4-G3/8-530bar-SSt
12	◆	1	2329026	Inline filter, HL DN6-PN530-G1/4"-SSt For details, see Chapter 14.3.5
13		1	2325826	Fitting, DF-MM-G3/8-G1/4-530 bar-SSt
14	◆	1	2332865	HPP hose, DN10-PN530 FEP W-G 0.73 m
15		1	2364802	Fitting, DF-MM-G3/8-G1/4-530 bar-SSt
16		1	9910109	Hexagon nut, 0.5 d

Product inlet

21	◆	1	2344505	5-liter hopper set for Cobra Refer to the pump operating manual for details

Connection for the air motor reversing valve

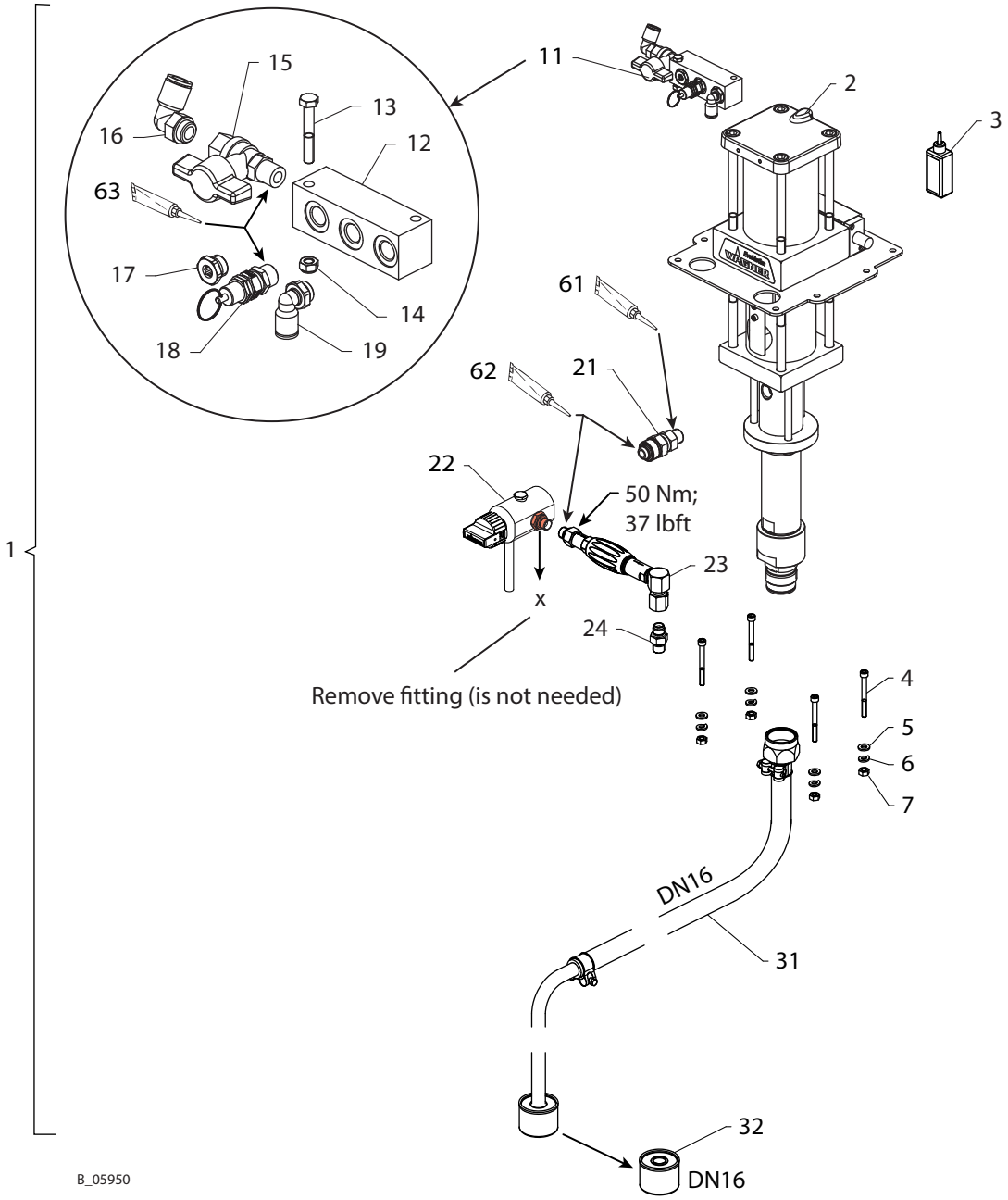
31		1	9998250	Male stud elbow, 6-1/4 Ex
32		1	9992742	Straight threaded fitting
33		1.5 m	9982079	Hose, black PEN 6/4

Mounting materials

60		1	9992616	Molykote® DX grease
61		1	9992831	Loctite® 542

◆ = Wearing parts

14.3.3 EVOMOTION 20-30 SET FOR AQUACOAT



Lubricate all stainless steel fittings with Molykote®, except those who explicitly request something different (e.g., Loctite®).

Spare parts list for EvoMotion 20-30 Set for AquaCoat

Pos	K	Stk	Order No.	Designation
1			2363946	EvoMotion 20-30 set for AquaCoat
2		1	--	Pistonp. EvoMotion 20-30 AQUA Refer to the pump operating manual for details
3		1	9992504	Release agent
4		4	9906036	Hexagon socket cylinder head screw
5		4	9920103	Washer
6		4	9921502	Spring washer
7		4	9910102	Hexagon nut
11		1	2364718	Distributor, complete For details, see Chapter 14.3.3.1
Product outlet				
21		1	2333265	Fitting SF-MM-R3/8-M24x1.5-530 bar-SSt
22	◆	1	2329023	Relief combination, complete For details, see Chapter 14.3.4
23	◆	1	2329026	Inline filter, HL DN6-PN530-G1/4"-SSt For details, see Chapter 14.3.5
24		1	2330774	Fitting, DF-MM-G1/4-1/4NPSM-530 bar-SSt
Product inlet				
31	◆	1	2324110	Suction hose DN16-SSt, complete
32	◆	1	2323396	Suction filter, DN16-18mesh-SSt
Mounting materials				
60		1	9992616	Molykote® DX grease
61		1	9992528	Loctite® 270
62		1	9992609	Anti-seize paste

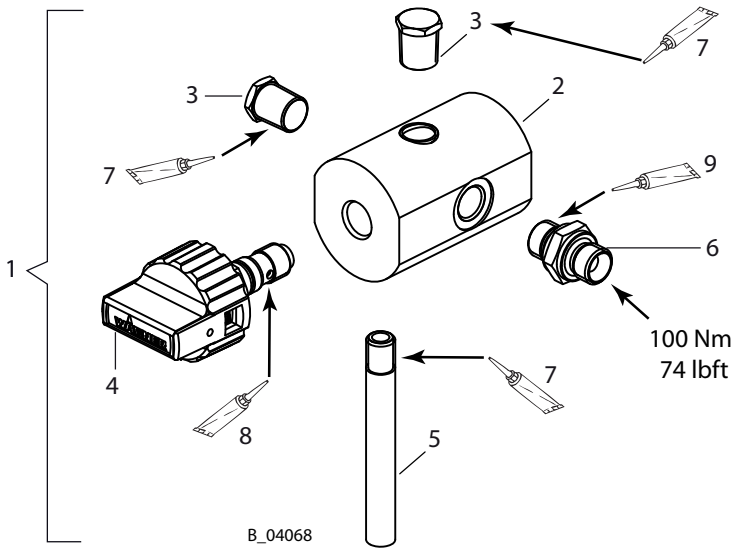
◆ = Wearing parts

14.3.3.1 DISTRIBUTOR FOR EVOMOTION

Pos	K	Stk	Order No.	Designation
11		1	2364718	Distributor, complete
12		1	3110805	Distribution piece, FR-4-1/4-C
13		1	9900202	Hexagon screw
14		1	9910204	Self-locking hexagon nut
15		1	M101.00	Ball valve, FM
16		1	9999208	Male stud elbow, 10-1/4
17		1	9998274	Threaded plug, G1/4"
18		1	P484.00C0	Safety valve 1/4", blue ring
19		1	9998253	Male stud elbow, 8-1/4 Ex
63		1	9992831	Loctite® 542

◆ = Wearing parts

14.3.4 RELIEF COMBINATION, 270 BAR



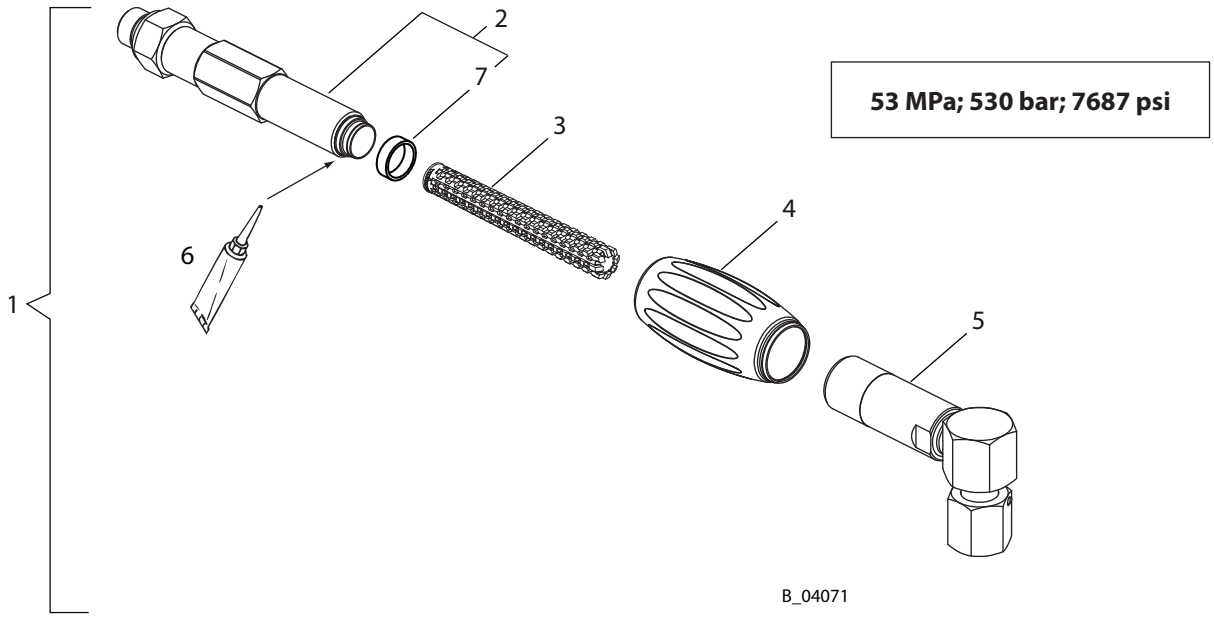
27 MPa; 270 bar; 3916 psi

Spare parts list for relief combination 270 bar

Pos	K	Stk	Order No.	Designation
1		1	2329023	Relief combination
2		1	2324549	Relief housing
3		2	2323718	Hexagon plug
4	◆	1	169248	Relief valve, complete
5		1	2324552	Outlet pipe
6		1	3204611	Fitting-DF-MM-G1/4"-G1/4"-PN530-SSt
7		1	9992831	Loctite® 542, 50ml; 50cc
8		1	9992616	Molykote® DX grease
9		1	9992609	Anti-seize paste

◆ = Wearing parts

14.3.5 ANGLED INLINE FILTER, 530 BAR



Spare parts list for angled inline filter 270 bar

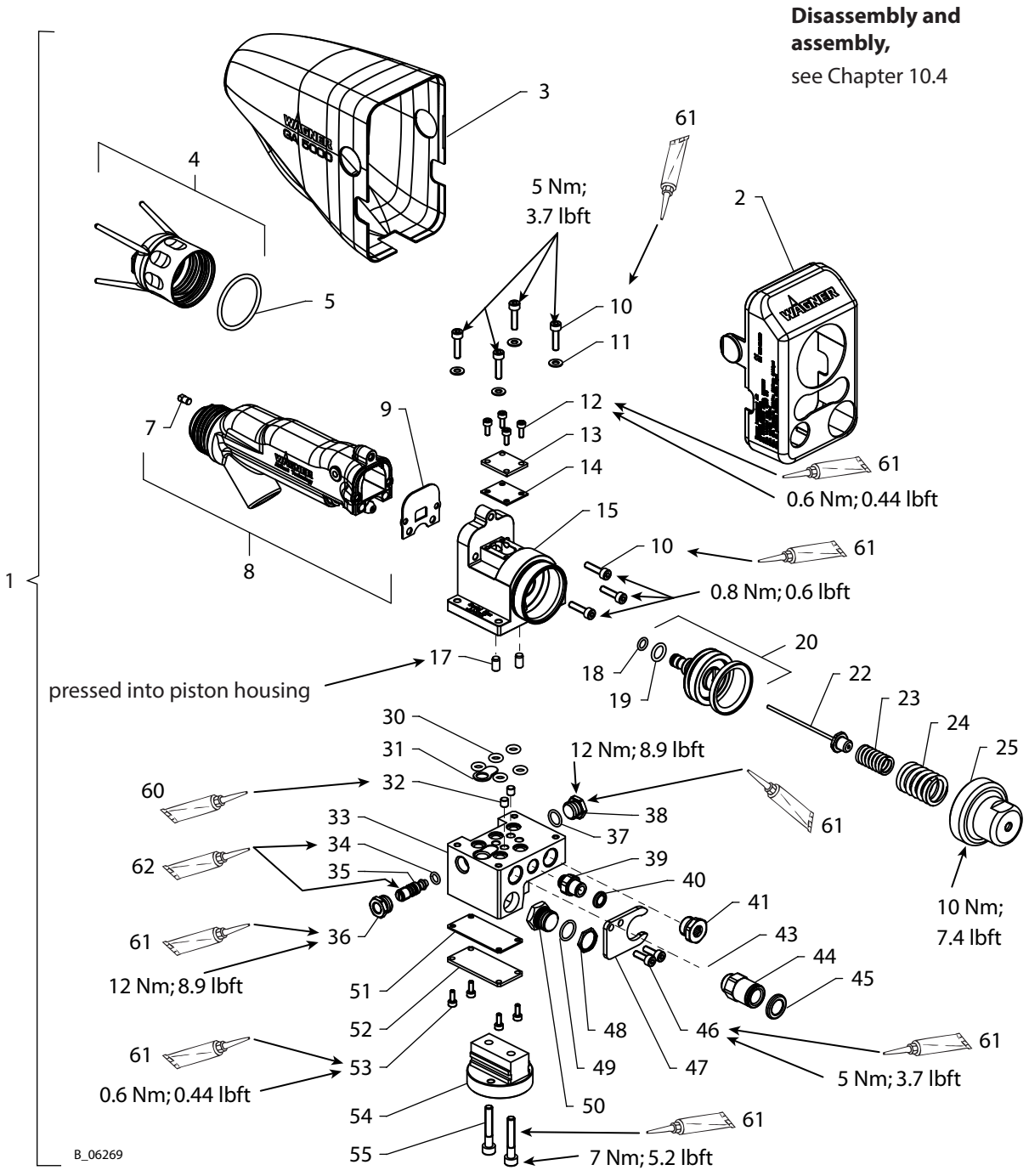
Pos	K	Stk	Order No.	Designation
1		1	2329026	Inline filter, HL DN6-PN530-G1/4"-SSt
2		1	2326045	Filter inlet housing, pre-assembled
3	◆	1	--	Filter insert, yellow (middle), 100 mesh per inch *
	◆ ●	1	2315723	* Filter insert, red (fine), 200 mesh per inch – 10 pieces
	◆ ●	1	2315724	* Filter insert, blue (middle), 150 mesh per inch – 10 pieces
	◆ ●	1	2315725	* Filter insert, yellow (middle), 100 mesh per inch – 10 pieces
	◆ ●	1	2315726	* Filter insert, white (coarse), 50 mesh per inch – 10 pieces
4		1	2311491	Turning handle
5		1	2325950	Filter outlet housing 90°, pre-assembled
6		1	9992609	Anti-seize paste
7	◆	1	128389	Seal

◆ = Wearing parts

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

14.4 SPRAY GUN

14.4.1 GA 5000EACWIC



Spare parts list for GA 5000EACWIC spray gun

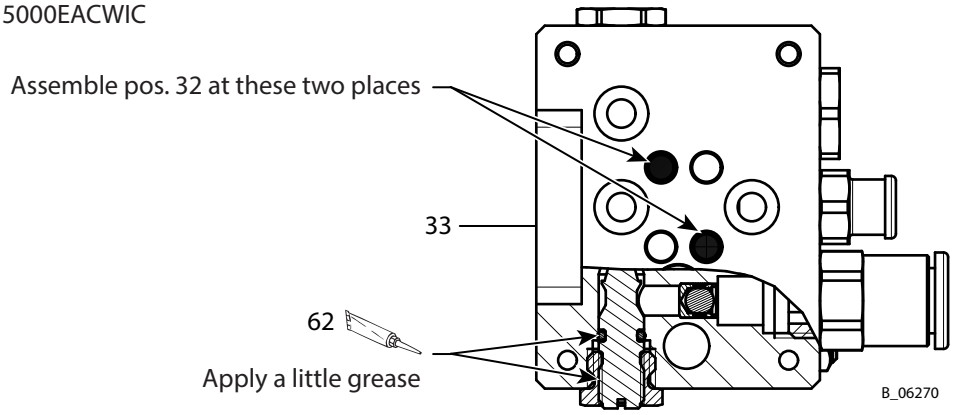
Pos	K	Stk	Order No.	Designation
1		1	2366352	Automatic spray gun, GA 5000EACWIC
2		1	2366278	Cover, EACWIC
3		1	2365237	Cover
4		1	2315775	Union nut AC, complete For details, see Chapter 14.5.2
		--	--	Round jet nozzle: see Chapter 14.5.1
5	◆	1	2311217	O-ring, sheathed Included in the "GA 5000EAC/EACW“ adapter" service set (see Chapter 14.4.3)
7		1	2313630	Plug EACW
8		1	2353477	Adapter, complete GA 5000EACW For details, see Chapter 14.4.3
9	◆	1	2307232	Adapter seal Included in the "GA 5000EAC/EACW“ adapter" service set (see Chapter 14.4.3)
10		7	9900308	Hexagon socket cylinder head screw
11		4	9920104	Washer
12		4	9906029	Hexagon socket cylinder head screw
13		1	2357167	Lock plate
14	◆ ★	1	2357166	Seal
15		1	--	Piston housing
17		2	9930128	Parallel pin
18	◆	1	248314	O-ring
19	◆	1	9971025	O-ring
20		1	2313501	Piston, IC
22		1	2371130	Pull rod, complete
23		1	2309945	Cylindrical helical spring
24		1	9998991	Cylindrical helical spring
25		1	2313515	End cap short
30	◆ ★	5	9974265	O-ring
31	◆ ★	1	2360689	Seal
32		2	2360690	Plug
33		1	--	Air diffuser plate
34	◆ ★	1	9971388	O-ring
35		1	2307868	Round spray jet reduction
36		1	2307739	Mounting nut
37	◆	1	9974089	O-ring
38		1	2358895	Sealing plug
39		1	9998090	Straight screw-in fitting
40		1	9998995	Coding ring red, d6
41		1	9998274	Threaded plug, G1/4"
43		1	9998997	Expander

◆ = Wearing parts

★ = Included in "GA 5000E Air/Controller" service set.

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

GA 5000EACWIC



Spare parts list for GA 5000EACWIC spray gun

Pos	K	Stk	Order No.	Designation
44		1	9998987	Straight threaded fitting
45		1	9998770	Coding ring blue, d10
46		2	9900353	Hexagon socket cylinder head screw
47		1	2367271	Hose holder
48		1	2357712	Locknut
49	◆	1	9974030	O-ring
50		1	2366246	Screw plug
51	◆ ★	1	2357738	Seal
52		1	2357739	Cover
53		4	9906029	Hexagon socket cylinder head screw
54		1	2357737	Mounting bracket
55		2	9900329	Hexagon socket cylinder head screw
60		1	9992833	Loctite® 638 green, 50 ml
61		1	9992511	Loctite® 243
62		1	9992698	Vaseline white, PHHV II

		1	2369320	Service set Air/Controller, GA 5000E

◆ = Wearing parts

★ = Included in "GA 5000E Air/Controller" service set.

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

14.4.2 GA 5000EACWEC

Spare parts list for GA 5000EACWEC spray gun

Pos	K	Stk	Order No.	Designation
1		1	2366353	Automatic spray gun, GA 5000EACWEC
2		1	2366286	Cover, EACWEC
3		1	2365237	Cover
4		1	2315775	Union nut AC, complete For details, see Chapter 14.5.2
		--	--	Round jet nozzle: see Chapter 14.5.1
5	◆	1	2311217	O-ring, sheathed Included in the "GA 5000EAC/EACW" adapter" service set (see Chapter 14.4.3)
7		1	2313630	Plug EACW
8		1	2353477	Adapter, complete GA 5000EACW For details, see Chapter 14.4.3
9	◆	1	2307232	Adapter seal Included in the "GA 5000EAC/EACW" adapter" service set (see Chapter 14.4.3)
10		7	9900308	Hexagon socket cylinder head screw
11		4	9920104	Washer
12		4	9906029	Hexagon socket cylinder head screw
13		1	2357167	Lock plate
14	◆ ★	1	2357166	Seal
15		1	--	Piston housing
17		2	9930128	Parallel pin
18	◆	1	248314	O-ring
19	◆	1	9971025	O-ring
20		1	2313501	Piston, IC
22		1	2371130	Pull rod, complete
23		1	2309945	Cylindrical helical spring
24		1	9998991	Cylindrical helical spring
25		1	2313515	End cap short

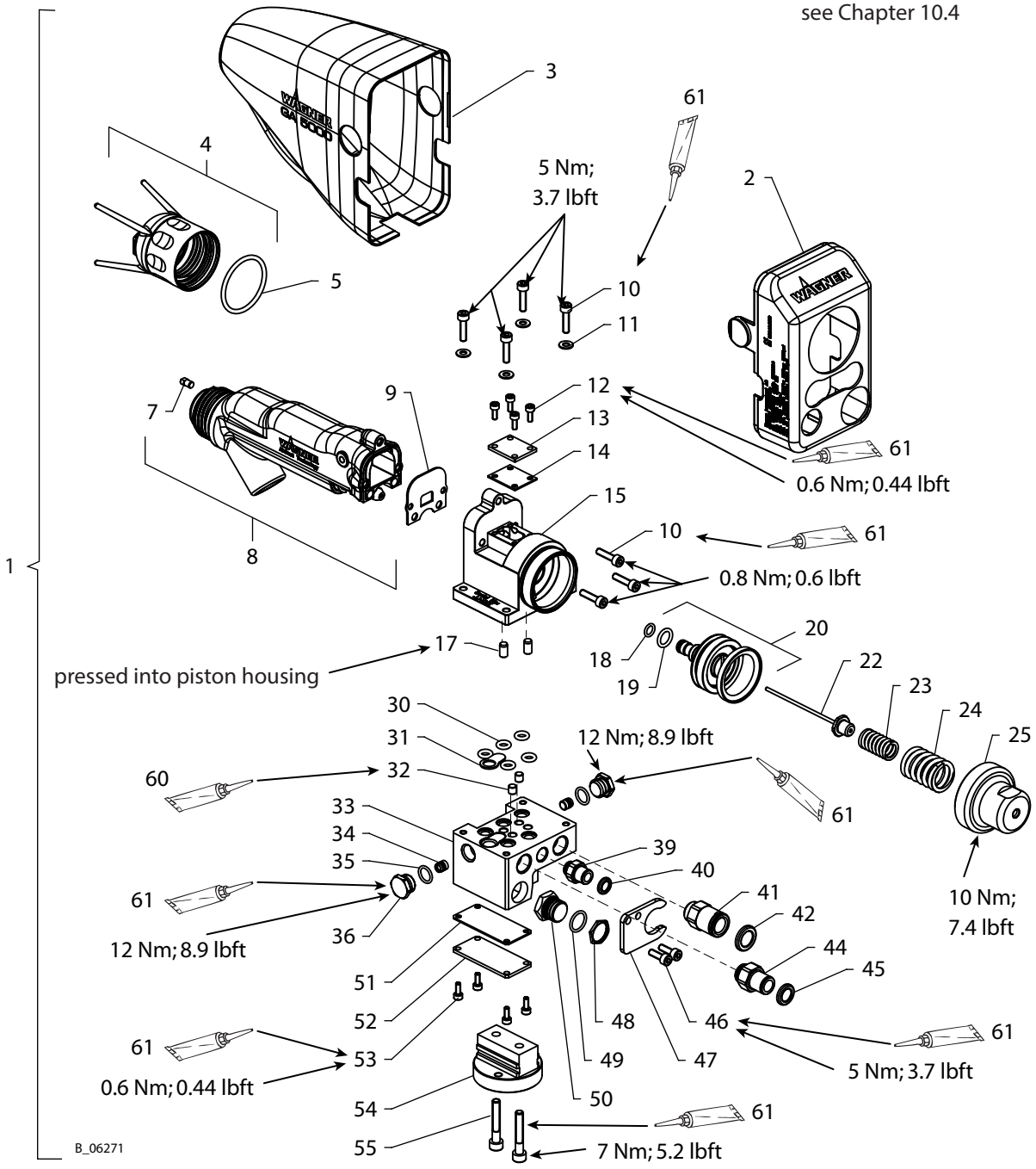
◆ = Wearing parts

★ = Included in "GA 5000E Air/Controller" service set.

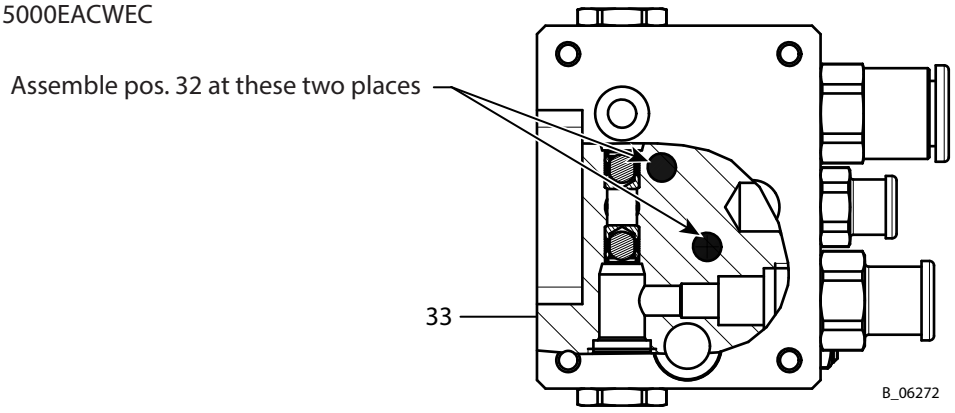
● = Not part of the standard equipment but available as a special accessory.

GA 5000EACWEC

Disassembly and assembly,
see Chapter 10.4



GA 5000EACWEC



Spare parts list for GA 5000EACWEC spray gun

Pos	K	Stk	Order No.	Designation
30	◆ ★	5	9974265	O-ring
31	◆ ★	1	2360689	Seal
32		2	2360690	Plug
33		1	--	Air diffuser plate
34		2	9998997	Expander
35	◆	2	9974089	O-ring
36		2	2358895	Sealing plug
39		1	9998090	Straight screw-in fitting
40		1	9998995	Coding ring red, d6
41		1	9998987	Straight threaded fitting
42		1	9998770	Coding ring blue, d10
44		1	9998254	Straight screw-in fitting, 8 mm - 1/4"
45		1	9998616	Coding ring green, d8
46		2	9900353	Hexagon socket cylinder head screw
47		1	2367271	Hose holder
48		1	2357712	Locknut
49	◆	1	9974030	O-ring
50		1	2366246	Screw plug
51	◆ ★	1	2357738	Seal
52		1	2357739	Cover
53		4	9906029	Hexagon socket cylinder head screw
54		1	2357737	Mounting bracket
55		2	9900329	Hexagon socket cylinder head screw
60		1	9992833	Loctite® 638 green, 50 ml
61		1	9992511	Loctite® 243
62		1	9992698	Vaseline white, PHHV II

		1	2369320	Service set Air/Controller, GA 5000E

◆ = Wearing parts

★ = Included in "GA 5000E Air/Controller" service set.

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

14.4.3 ADAPTER

Spare parts list for GA 5000EACW adapter

Pos	K	Stk	Order No.	Designation
1		1	--	Adapter, complete GA 5000EACW
2	★	1	2313314	Air manifold ring, AC
3	◆ ★	1	2307180	O-ring, sheathed
4	◆ ★	1	2312175	Valve seat AC, complete
5	◆ ★	1	2312186	Valve needle AC, complete
6		1	2313630	Plug EACW
7		1	2353477	Adapter, GM 5000EACW
11		1	2357665	Clamping screw valve rod, complete
12		1	2307062	Clamping screw valve rod
13	◆ ★	1	2311562	Rod seal
14	◆ ★	1	9974166	O-ring
15	◆ ★	1	2369017	Valve rod unit, GA 5000E
16		1	9910108	Hexagon nut
17		1	2357740	Collet chuck
18		1	2357741	Tension nut
19	◆ ★	1	2357106	Packing, complete
20		1	2325263	Clamping screw assembly tool
30		1	9992698	Vaseline white, PHHV II

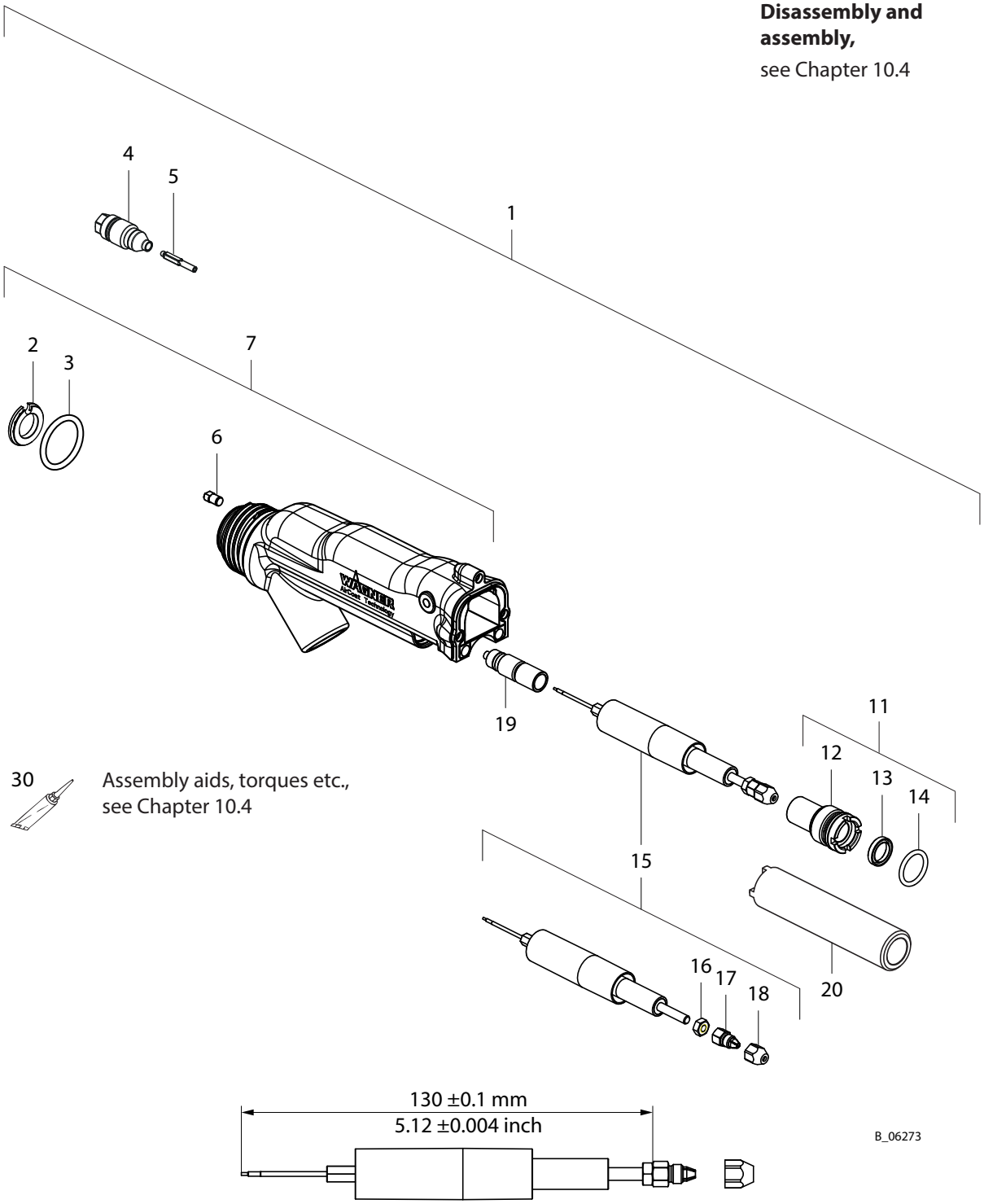
		1	2369015	Service set, GA 5000EAC/EACW adapter

◆ = Wearing parts

★ = Included in GA 5000EAW adapter service set. Additionally:
- from Chapter 14.4.1 or 14.4.2 pos. 5 (2311217, O-ring, sheathed)
- from Chapter 14.4.1 or 14.4.2 pos. 9 (2307232, adapter seal)

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

Disassembly and assembly,
see Chapter 10.4



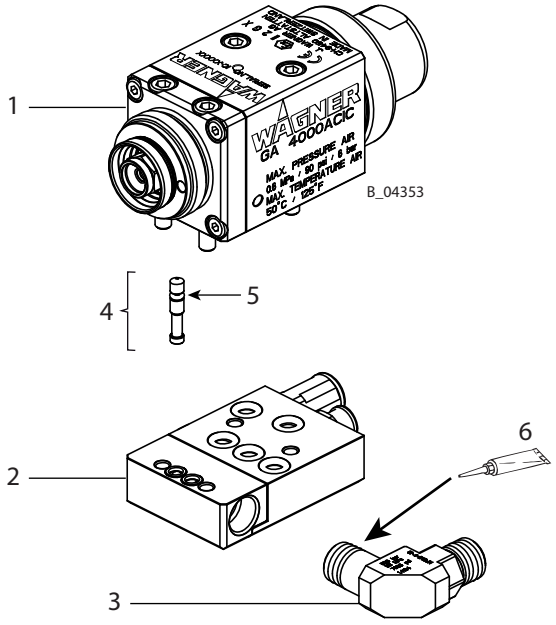
14.4.4 GA 4000ACIC SPRAY GUN

Spare parts list for GA 4000ACIC spray gun

Pos	K	Stk	Order No.	Designation
1	◆	1	2312132	Spray gun body, GA 4000ACIC Refer to the gun operating manual for details
2	◆	1	2312144	Base plate, GA 4000ACIC S (including seals and air connections) Refer to the gun operating manual for details
3		1	2331202	Fitting, EF-MM-R1/4-G1/4-530 bar-SSt
4		1	2314064	Lock pin product channel including FKM O-ring
5	◆	1	2307873	O-ring, FKM
6		1	9992831	Loctite® 542

◆ = Wearing parts

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



Nozzles and air caps: See operating manual for GA 4000ACIC automatic gun (Order No., see Chapter 1.3.1).

Hoses: See Chapter 13.2

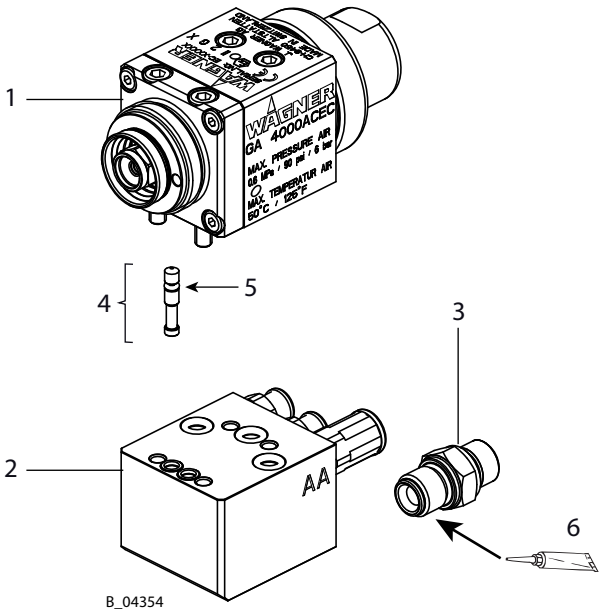
14.4.5 GA 4000ACEC SPRAY GUN

Spare parts list for GA 4000ACEC spray gun

Pos	K	Stk	Order No.	Designation
1	◆	1	2312145	Gun body, GA4000ACEC Refer to the gun operating manual for details
2		1	2308812	Ground plate, GA 4000ACEC R (including seals and air connections) Refer to the gun operating manual for details
3		1	M801.03B	Fitting, DF-MM-R1/4-G1/4-530 bar-SSt
4		1	2314064	Lock pin product channel including FKM O-ring
5	◆	1	2307873	O-ring, FKM
6		1	9992831	Loctite® 542

◆ = Wearing parts

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



Nozzles and air caps: See operating manual for GA 4000ACEC automatic gun (Order No., see Chapter 1.3.1).

Hoses: See Chapter 13.2

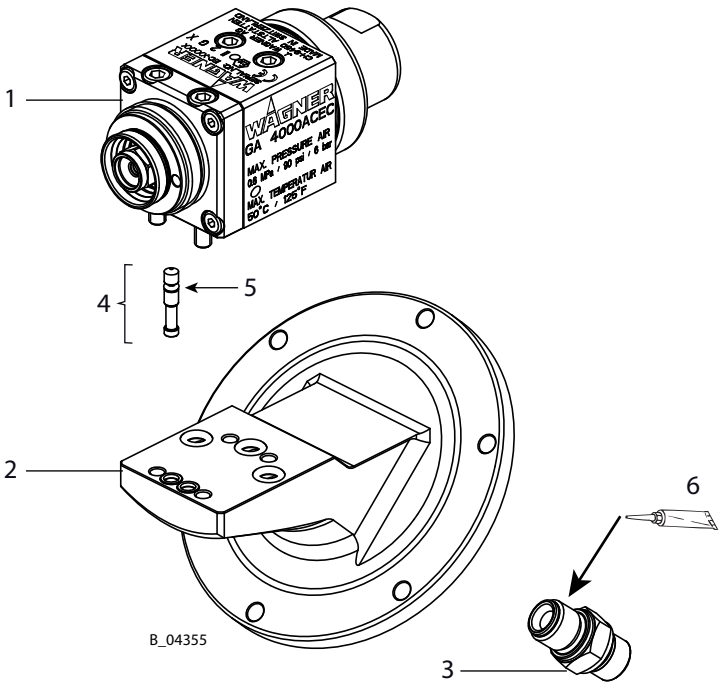
14.4.6 GA 4000ACEC ROBOT SPRAY GUN

Spare parts list for GA 4000ACEC robot spray gun

Pos	K	Stk	Order No.	Designation
1	◆	1	2312145	Gun body, GA4000ACEC Refer to the gun operating manual for details
2		1	2313677	Ground plate, GA 4000ACEC Fanuc Robot (including seals and air connections) Refer to the gun operating manual for details
3		1	M801.03B	Fitting, DF-MM-R1/4-G1/4-530 bar-SSt
4		1	2314064	Lock pin product channel including FKM O-ring
5	◆	1	2307873	O-ring, FKM
6		1	9992831	Loctite® 542

◆ = Wearing parts

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



Nozzles and air caps: See operating manual for GA 4000ACEC automatic gun (Order No., see Chapter 1.3.1).

Hoses: See Chapter 13.2

14.5 ACCESSORIES SPARE PARTS LISTS

14.5.1 ROUND JET NOZZLE ATTACHMENT FOR GA 5000EACW

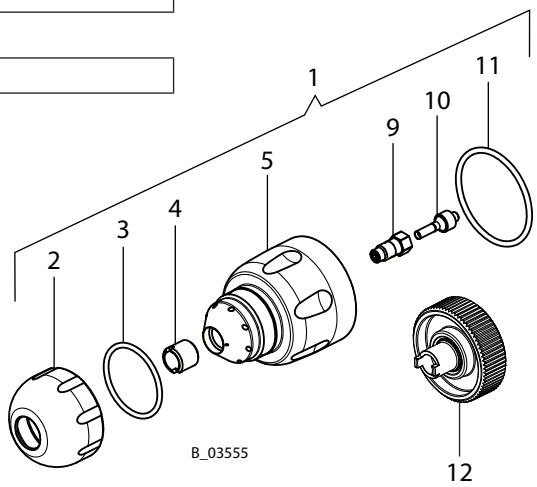
EACW round jet nozzle attachment spare parts list for GA 5000EACW spray gun

Pos	K	Stk	Order No.	Designation
1		1	2309902	Round jet nozzle attachment, ACWR 5000
2		1	2307220	Nozzle nut
3	◆	1	2315310	O-ring
4		1	132351	Nozzle screwed connection holder
5		1	2307219	Nozzle body
9	◆	1	132516	Nozzle screw joint, complete
10	◆	1	2307216	Sealing fitting
11	◆	1	2311217	O-ring

Nozzle wrench

12		1	128901	Nozzle wrench, complete

◆ = Wearing part

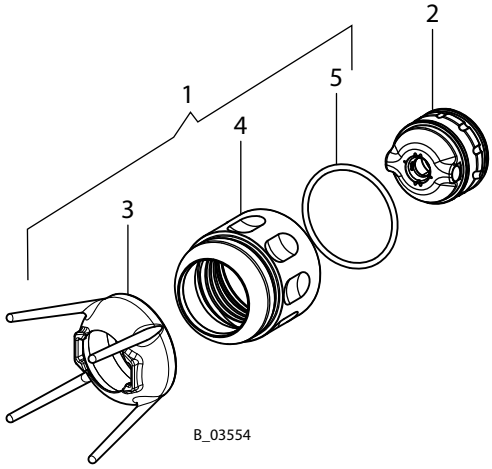


14.5.2 FLAT JET NOZZLES FOR GA 5000EACW

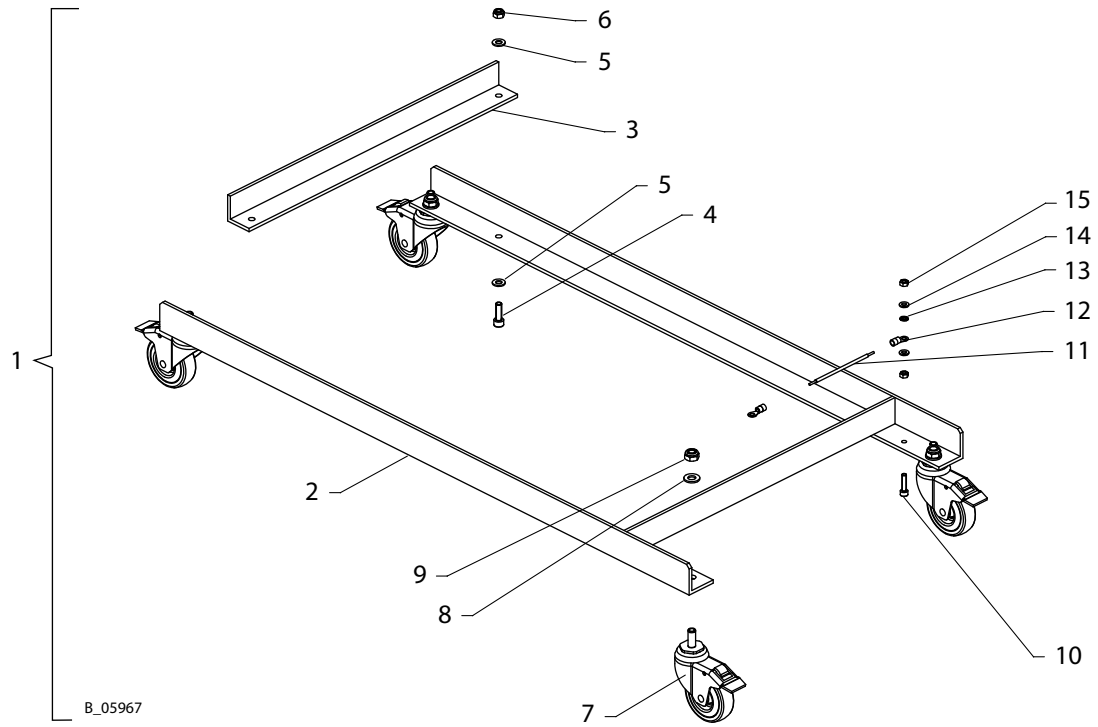
Flat jet nozzles spare parts list for GA 5000EACW spray gun

Pos	K	Stk	Order No.	Designation
1		1	2315775	Union nut AC, complete
2		1	2309901	Air cap, ACWF 5000 - LV (red)
		1	2314204	Air cap, ACWF 5000 - HV (blue)
3	◆	1	2311777	Nozzle guard, AC
4		1	2311776	Union nut, AC
5	◆	1	2311217	O-ring, sheathed

◆ = Wearing part



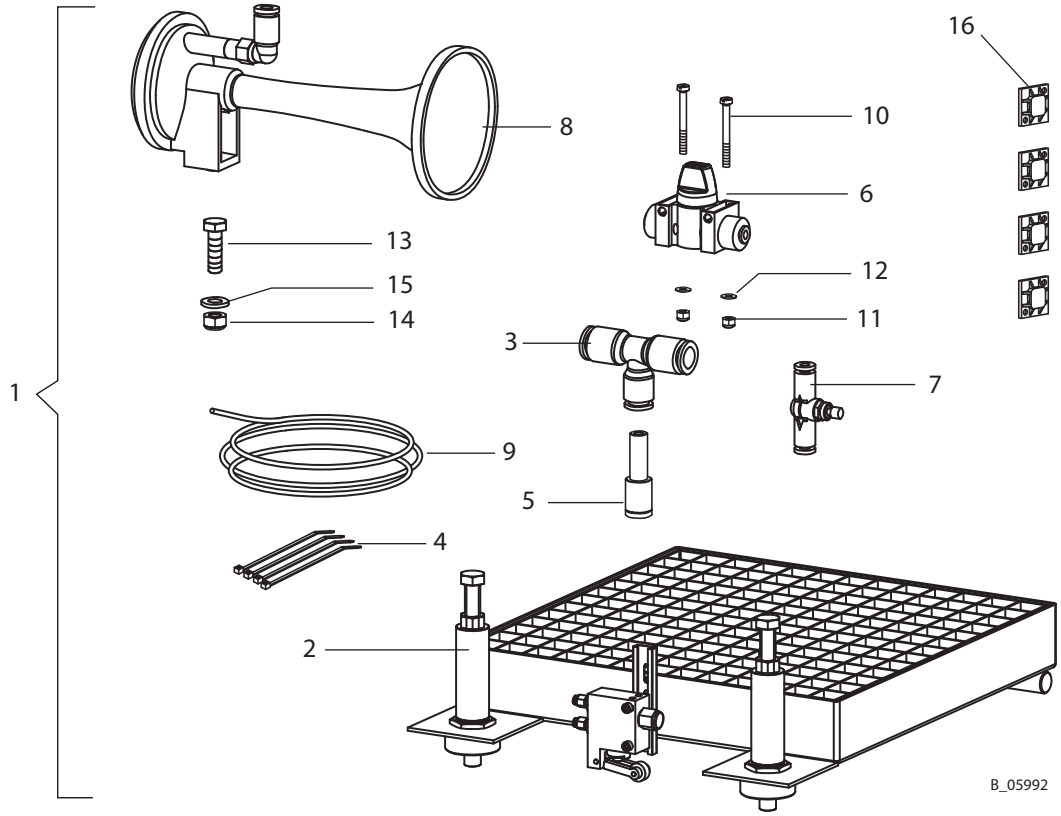
14.5.3 UNDERFRAME WITH ROLLS



Spare parts list for underframe with rolls				5020	5020G	5010	5010G
Pos	**K**	**Stk**	**Designation**	**Order No.**	**Order No.**	**Order No.**	**Order No.**
1		1	Underframe with rolls	2359029		2364394	
2		2	Swivel castor support	--		--	
3		2	Crossbar	--			
4		4	Hexagon socket cylinder head screw	9900313			
5		8	Washer	9920102			
6		4	Self-locking hexagon nut	9910208			
7		4	Swivel castor with double stop	9994947			
8		4	Washer	9920106			
9		4	Hexagon nut with clamp	3055157			
10		1	Hexagon socket cylinder head screw	9900315			
11		0.6 m	Ground wire	9951211			
12		2	Cable lug	9950604			
13		1	Lock washer internal teeth	9922109			
14		2	Washer	9920118			
15		2	Hexagon nut	9910102			

◆ = Wearing parts

14.5.4 LEVEL MONITORING WITH ALARM HORN

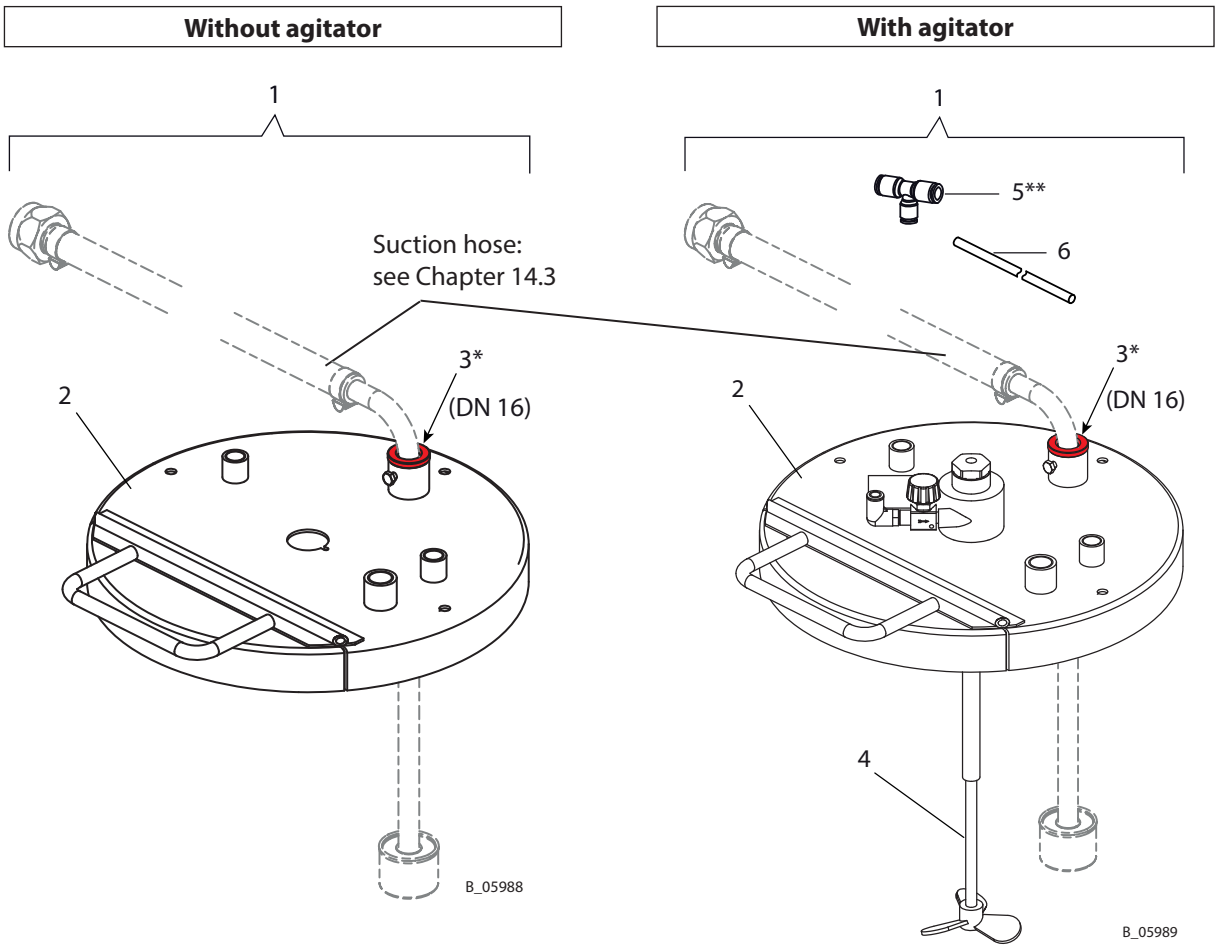


Spare parts list for level monitoring with alarm horn

Pos	K	Stk	Order No.	Designation
1		1	353053	Level monitoring with alarm horn
2	◆	1	3207739	Niveau compensator, 30-liter
3		1	9999435	T-connection
4	◆	4	9950615	Cable tie
5		1	3151777	Straight reduction
6	◆	1	9999441	2/2-way valve
7	◆	1	9943023	Adjustable check-valve
8	◆	1	R037.00	Pneumatic alarm horn
9		5 m	9982072	Hose
10		2	9900704	Socket cap screw with slit
11		2	9910211	Hexagon nut with clamp
12		2	9920114	Washer
13		1	9900108	Hexagon screw
14		1	9910204	Hexagon nut with clamp
15		1	9920103	Washer
16		4	9950385	Fixing element

◆ = Wearing parts

14.5.5 D350 DRUM COVER



Spare parts list for D350 drum cover				Without agitator	With agitator
Pos	**K**	**Stk**	**Designation**	**Order No.**	**Order No.**
1		1	Drum cover, D350	353054	353055
2		1	Cover, 365-A with plug	2304618	
3*		1	Bush	2367311	
4	◆	1	Agitator, P300HS-L400x16-D100-M32		2304533
5**		1	T-connection		9999435
6		2 m	Hose, black PUR 8/5.5		9982078

◆ = Wearing parts

* Pos. 3: Only use with suction hose DN 16 (EvoMotion).

** Pos. 5: Air is branched off from air inlet to control unit.

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 EC DECLARATION OF CONFORMITY

Herewith we declare that the supplied version of:

AquaCoat 5010/5020 System GA 5000EACW / GA 4000AC Automatic AirCoat

complies with the following guidelines:

2006/42/EC	2014/30/EU	2012/19/EU
2014/35/EU	2011/65/EU	

Applied standards, in particular:

EN ISO 12100:2010
EN 50348:2010
EN 1953:2013
EN ISO 4413:2010
EN ISO 4414:2010
EN 12621: 2006+A1: 2010
EN 60204-1:2006+A1:2009+B:2010
EN 61000-6-2:2005+B:2011
EN 61000-6-4:2007+A1:2011
EN ISO 9001:2008

Applied national technical standards and specifications, in particular:

DGUV 209-046
DGUV 209-052

Identification:

CE

EC Declaration of Conformity
The EC 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: 2369733

Order No. 2369730
Version 08/2016

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