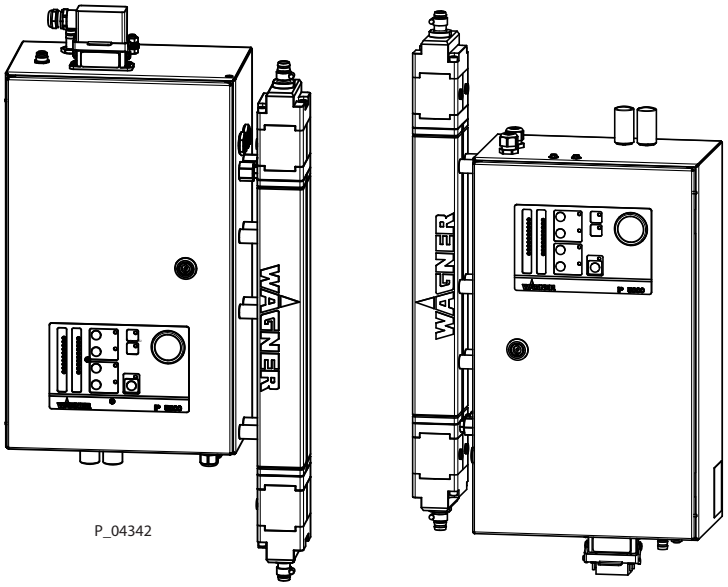
Original Operating Manual

For professional use.
Always follow the information in this manual, particularly the safety instructions and the warning instructions. Store the manual in a safe place.

Edition 08/2021

IP 5000
IP 5000-USD

Fresh Powder and Transfer Pump



P_04342

UK CA Ex II 3D Ex tc IIIB T85°C Dc

Table of Contents

1 ABOUT THESE INSTRUCTIONS

1.1 PREFACE

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

1.2 WARNINGS, NOTICES AND SYMBOLS IN THESE INSTRUCTIONS

Warning instructions in this 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**	Potential danger. Non-observance may result in death or serious injury.
⚠ **CAUTION**	Potentially dangerous situation. Non-observance may result in minor injury.
ⓘ **NOTICE**	Potentially dangerous situation. Non-observance may result in damage to property.
Note:	Provides information about particular characteristics and how to proceed.

Explanation of warning notice:

⚠ **LEVEL OF DANGER**

This notice warns you of a danger!
Possible consequences of not observing the warning notice.
→ The measures for preventing the hazard and its consequences.

1.3 LANGUAGES

The operating manual is available in the following languages:

Original operating manual

Language	Order no.
English	2428973

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
Pos	Position
Stk	Number of pieces
--	Item not available as spare part
/	Item does not exist

1.5 TERMINOLOGY FOR THE PURPOSE OF THIS MANUAL

Cleaning	
Cleaning	Manual cleaning of devices and device parts with cleaning agent
Flushing	Internal flushing of paint-wetted parts with compressed air
Personnel 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	A person who, based on his/her technical training, experience and recent vocational experience, has sufficient technical knowledge in the area of electrostatic coating and is familiar with the relevant and generally accepted rules of technology so that he/she can inspect and assess the status of devices and coating systems based on workplace safety. → Additional requirements for skilled persons are: Expert knowledge in the areas of protection against excessive pressure, electrical hazards, and explosion protection (where applicable).

2 USING IN ACCORDANCE WITH THE INSTRUCTIONS

2.1 DEVICE TYPE

Pneumatic feed pump for feeding powder lacquers.

2.2 TYPE OF USE

The IP 5000 powder pump is used to feed powder coating products from different container types.

Application areas:
The IP 5000 powder pump is used to feed powder lacquers

- from original tanks (25 kg; 55.1 lbs)
- from BigBags (500 kg; 1102.3 lbs)
- as a transfer pump, e.g., to empty a powder container or to convey powder from one tank to another

⚠ WARNING

Dust formation!
Danger of poisoning.
Danger due to escaping dust, contamination of the device and device components.
→ Only operate the device in conjunction with exhaust air equipment, for example a suction device on the powder center.

The device may only be operated under the following conditions:

→ Use the device only to work with the products recommended by WAGNER.
→ Do not deactivate safety fixtures.
→ Use only WAGNER original spare parts and accessories.
→ The operating personnel must be trained on the basis of this operating manual.
→ Follow the instructions in the operating manual.

2.3 FOR USE IN POTENTIALLY EXPLOSIVE AREAS

The device is suitable for use in potentially explosive areas (zone 22) as defined by UK statutory requirement SI 2016 No. 1107.

2.4 PROCESSIBLE WORKING MATERIALS

In principle all powder lacquers can be conveyed with the powder pump, for example epoxy, polyester, mixed powders EP/PES/PUR.
However, in individual cases the use of powders with special recipes can cause malfunctions, which cannot be eliminated with the various pump recipes.

2.5 MISUSE

Misuse can lead to physical injury and/or property damage!
Special attention must be paid that:

→ no liquid coating products, e.g., solvents or water-based lacquers are processed;
→ no food, medicine or cosmetics are processed.

3 IDENTIFICATION

3.1 EXPLOSION PROTECTION IDENTIFICATION

Device type:	Powder feed pump
Manufacturer:	Wagner International AG 9450 Altstätten Switzerland

UK CA Ex II 3D Ex tc IIIB T85°C Dc

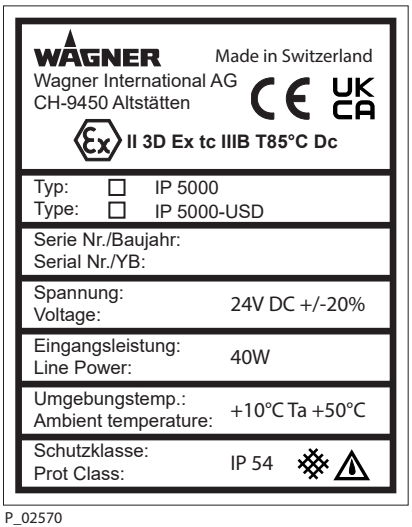
UKCA:	UK Conformity Assessed
Ex:	Symbol for explosion protection
II:	Device class II
3:	Category 3
D:	Ex-atmosphere dust
IIIB:	Explosion group (dust group)
T85°C:	Temperature class: maximum surface temperature < 85 °C; 185 °F
Dc:	High safety level

3.2 PERMISSIBLE DEVICE COMBINATIONS

The IP 5000 powder pump can be used in the following WAGNER powder centers:

- PZ 2008 powder center
- SuperCenter 2012
- PXM powder center
- PXS powder center

3.3 TYPE PLATE



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1 Serial number
2 Input voltage
3 Input power
4 Ambient temperature
5 Protection class

4 BASIC SAFETY INSTRUCTIONS

4.1 SAFETY INSTRUCTIONS FOR THE OPERATOR

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

4.1.1 ELECTRICAL DEVICES AND EQUIPMENT

Danger of electric shock!
Danger to life from electric shock.
→ Prepare device in accordance with the applicable 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, the mains voltage poses a danger.
→ Operate device in accordance with the safety regulations and electrotechnical regulations.
→ Do not disconnect any plug connections during operation.
→ Label plug connections with the warning "Do not disconnect under voltage".
→ Must be repaired immediately in the event of problems.
→ Decommission if device poses a danger or is damaged.
→ Must be de-energized before work is commenced. Secure the device against being switched back on without authorization. Inform personnel 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 A SAFE WORK ENVIRONMENT

Danger due to dust formation!
Severe or fatal injuries due to explosion danger or inhalation, swallowing or contact with the skin or eyes.

- → The floor in the working area must be electrostatically conductive (measurements according to BS EN 1081:2018+A1:2020 and BS EN 61340-4-1:2004+A1:2015).
- → In the spray booth, coating may only be performed with correctly designed and locked technical ventilation.
- → Make sure that the ground connection and potential equalization of all system parts are reliable and continuous and can withstand the expected stress (e.g., mechanical stress, corrosion).
- → Ensure that personal protective equipment (see Chapter 4.2.1) is available and is used.
- → Make sure that all people within the work area wear static dissipative shoes. Footwear must comply with BS EN 20344:2011. The measured insulation resistance must not exceed 100 MΩ.
- → Protective clothing, including gloves, must comply with BS EN 1149-5:2018. The measured insulation resistance must not exceed 100 MΩ.
- → Ensure that there are no ignition sources such as naked flames, sparks, glowing wires, or hot surfaces in the vicinity. Do not smoke.
- → A suitable system for suppressing fire and explosion must be installed.
- → The powder release must be electrically interlocked with the connected technical ventilation of the spray system.
- → Excess coating product (overspray) must be collected up safely. Accumulations of powder in the spray booth are to be avoided. Set the parameters of the floor cleaning and manually clean the spray booth as needed.
- → The operating company must ensure that an average concentration of powder lacquer in the air does not exceed 50% of the lower explosion limit (LEL = max. permitted concentration of powder to air). If no reliable LEL value is available, the average concentration must not exceed 20 g/m^3.
- → Ensure that maintenance and safety checks are performed regularly.
- → In case of defects, immediately shut down and repair the device or system before switching it back on. Accumulations of powder are to be removed before switching the system back on.

4.1.3 PERSONNEL QUALIFICATIONS

Danger due to incorrect use of device!
Risk of death due to untrained personnel.

- → Ensure that the operating personnel has been instructed by the operator in accordance with the operating manual and the operating instructions. The device must only be operated, maintained and repaired by trained personnel. Refer to the operating instructions for information about the required personnel qualifications.

4.2 SAFETY INSTRUCTIONS FOR THE PERSONNEL

→ Always observe the information in this manual, particularly the safety instructions and the warning instructions.
→ Always follow statutory provisions concerning occupational safety and accident prevention regulations.
→ In electrostatics applications: Persons belonging to a risk group as defined by the UK statutory requirement SI 2016 No. 588 (EMF) (e.g., carriers of active implants), must not enter the high-voltage area.

4.2.1 PERSONAL SAFETY EQUIPMENT

Danger due to dust formation!
Serious or fatal injuries due to inhalation, swallowing or contact with the skin or eyes.
→ Observe the processing regulations laid down by the manufacturer of the powder lacquer being used, when preparing or processing the powder.
→ Take note of the manufacturer's notification and the relevant environmental protection regulations when disposing of powder lacquers.
→ Take the specified protective measures. In particular, wear safety goggles, protective clothing and gloves, as well as hand protection cream if necessary.
→ Use a mask or breathing apparatus if necessary.
→ For sufficient health and environmental protection, only operate the device with technical ventilation (extraction) switched on.

4.2.2 SAFE HANDLING OF WAGNER POWDER SPRAY DEVICES

Danger due to dust formation!
→ Do not point spray guns at people.
→ Do not spray device parts using electrostatic equipment.
→ Before any work on the device, in the event of work interruptions and malfunctions:
  – Switch off the energy/compressed air supply.
  – Relieve pressure on powder spray gun and device.
  – Secure the powder spray gun against actuation.
  – Disconnect the control unit from the mains.
  – In the event of functional faults: remedy the fault as described in the "Troubleshooting" chapter.
→ Carry out the work steps in accordance with the chapter on pressure relief in the operating manual of the corresponding device:
  – if pressure relief is required,
  – if the coating work is interrupted or stopped,
  – before the device is cleaned on the outside, checked, or serviced,
  – before the spray nozzle is installed or cleaned.

4.2.3 GROUNDING THE DEVICE

Danger due to electrostatic charge!
Explosion hazard and damage to the device.
The electrostatic charge may, in certain cases, give rise to electrostatic charges on the device. Flames or sparks can form during discharge.
Correct grounding of the entire coating system prevents electrostatic charges:

- → Ensure that all devices and tanks are grounded before each coating process.
- → All of the system's conductive elements, such as floors, walls, ceilings, protective grating, transport equipment, work pieces, powder tanks, automatic moving devices or construction parts etc. in the spray area, with the exception of parts which carry high voltage during operation, must be connected to the grounding system.
  Parts of the spray booth must be grounded.
- → Ensure that all persons inside the working area are grounded, e.g., that they are wearing static dissipative shoes.
- → Grounding cables must be checked regularly to ensure that they are functioning properly (see BS EN IEC 60204-11:2019).

4.2.4 PRODUCT HOSES

Danger due to damaged product hoses!
The product hose may cause dangerous injuries.

- → Use only an original WAGNER powder hose.
- → 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.
- → Ensure that no work is ever performed with a damaged hose.
- → Make sure that the hoses are never used to pull or move the device.

⚠ WARNING

Bursting powder hose!
Risk of injury and damage to the device.

- → The powder hose may be loaded with a maximum pressure of 0.6 MPa; 6 bar; 87 psi.

4.2.5 ELECTRICAL CONNECTION CABLES

Risk caused by improperly laid cables!
Risk of injury and damage to the device.
- → Properly lay connection cables and check them regularly.
- → Immediately replace damaged connection cables.
- → Ensure that no work is ever performed with a damaged connection cable.
- → Do not lay connection cables on routes used by product handling vehicles and not through doors/gates.
- → Do not route connection cables near aisles or walkways in order to avoid tripping.

4.2.6 CLEANING AND FLUSHING

Danger due to cleaning and flushing!
Explosion hazard and damage to the device.

- → Before starting cleaning or any other manual work, the high voltage in the spray area must be shut down and locked to prevent it from being switched back on.
- → Lock the compressed air supply and decompress the device.
- → Secure the device against being switched back on without authorization.
- → Use only electrically conducting and grounded tanks for cleaning fluids.
- → Preference should be given to non-ignitable cleaning fluids.

- → If ignitable cleaning fluids are used, all parts carrying high voltage must be discharged to a discharge energy of less than 0.24 mJ, once the high voltage has been switched off, before they can be reached. Most ignitable solvents have an ignition energy of around 0.24 mJ or 60 nC.
- → The cleaning agent's flash point must be at least 15 K above the ambient temperature.
- → Note the details provided by the powder lacquer manufacturer.
- → Only mobile industrial vacuum cleaners of design 1 (BS EN 60335-2-69:2012) may be used for getting rid of dust build-up.
- → Take measures for workplace safety (see Chapter 4.1.2).

4.2.7 MAINTENANCE AND REPAIR

Danger due to improper maintenance and repair!
Danger to life and equipment damage.

- → Repairs and replacement of parts may only be carried out by a WAGNER service center or a specially trained person.
- → Repair or replacement of devices or parts of devices are only allowed to be performed outside the hazard area by qualified personnel.
- → Use only WAGNER original spare parts and accessories.
- → Wagner assumes no liability for changes to the product made by the operating company without the knowledge of WAGNER. Any adjustments to the documentation and the market release are the responsibility of the operating company.
- → Only repair and replace parts that are listed in the chapters "Accessories" and "Spare Parts" and that are assigned to the device.
- → Do not use any defective components.
- → Before all work on the device and in the event of work interruptions:
  - – Switch off the energy and compressed air supply.
  - – Relieve pressure on powder spray gun and device.
  - – Secure the powder spray gun against actuation.
- → Observe the operating and service manual for all work.

4.2.8 PROTECTIVE AND MONITORING EQUIPMENT

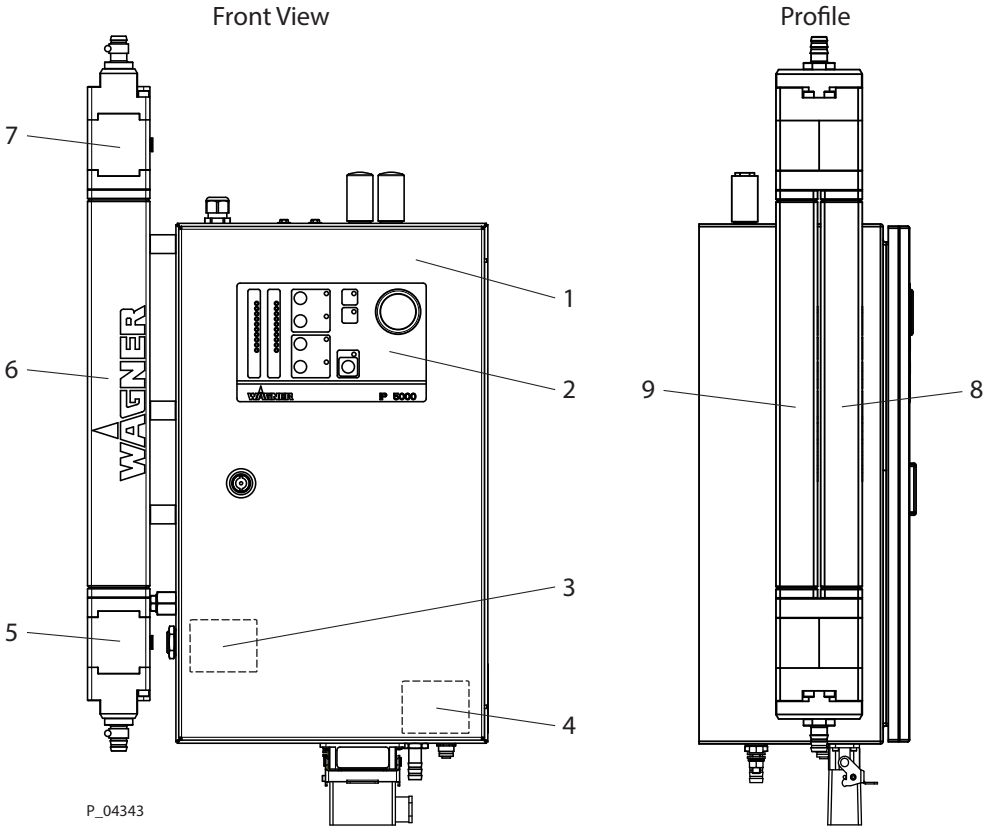
Danger due to removal of protective and monitoring equipment!
Danger to life and equipment damage.

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

5 DESCRIPTION

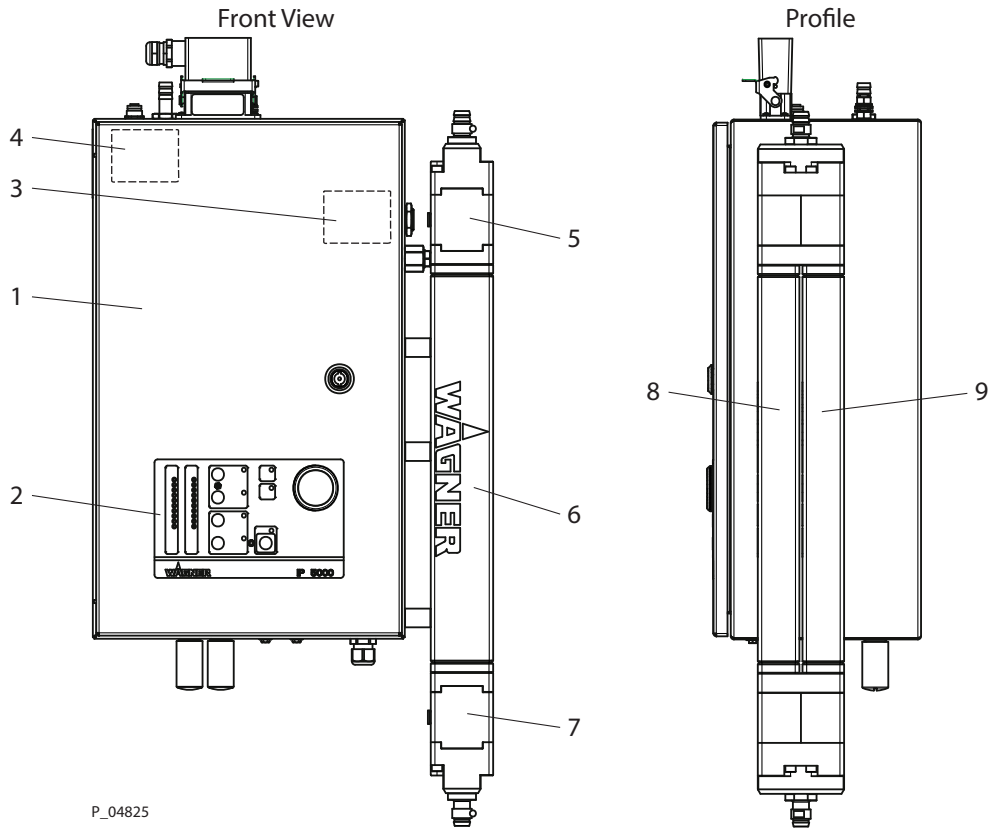
5.1 DESIGN OF THE IP 5000 POWDER PUMP

5.1.1 IP 5000 VERSION



Pos	Designation
1	Control cabinet
2	Control panel
3	Cooling box for inlet valve air
4	Pressure regulator (in the control cabinet)
5	Powder inlet valve
6	Pump body
7	Powder outlet valve
8	Pump tube 1
9	Pump tube 2

5.1.2 IP 5000-USD VERSION



Pos	Designation
1	Control cabinet
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5	Powder inlet valve
6	Pump body
7	Powder outlet valve
8	Pump tube 1
9	Pump tube 2

5.2 FUNCTIONING

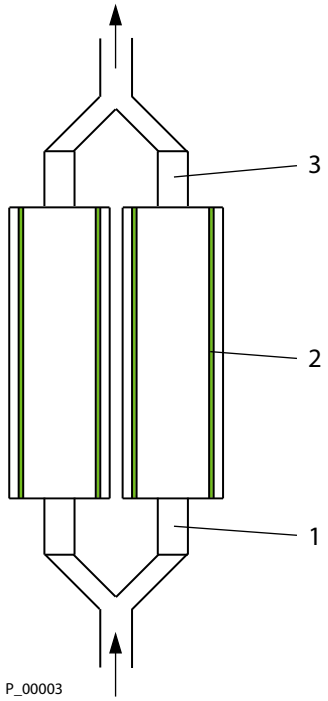
The powder pump can be operated in two ways:

- Automatic mode, for example on a WAGNER powder center
- Manual mode for commissioning or non-automatically controlled feeding tasks

If used in a WAGNER powder center, the powder pump is controlled via the powder center controller. The 24V supply to the powder pump is provided via the powder center.

Two recipes for full or reduced performance are stored in the powder pump controller. A cleaning recipe for cleaning suction and pressure hose is also stored in the controller. The powder pump is equipped with an active inlet valve cooling for gentle powder feeding.

Mode of operation:
The IP 5000 powder pump is a vacuum-assisted peristaltic pump. Feeding occurs by means of two pump hoses. The pump hoses are reciprocally sealed by pressure. Through generation of a vacuum, the pump hose is opened again and the powder is fed. The reciprocal control of the two pump hoses produces an even powder flow under optimal conditions.



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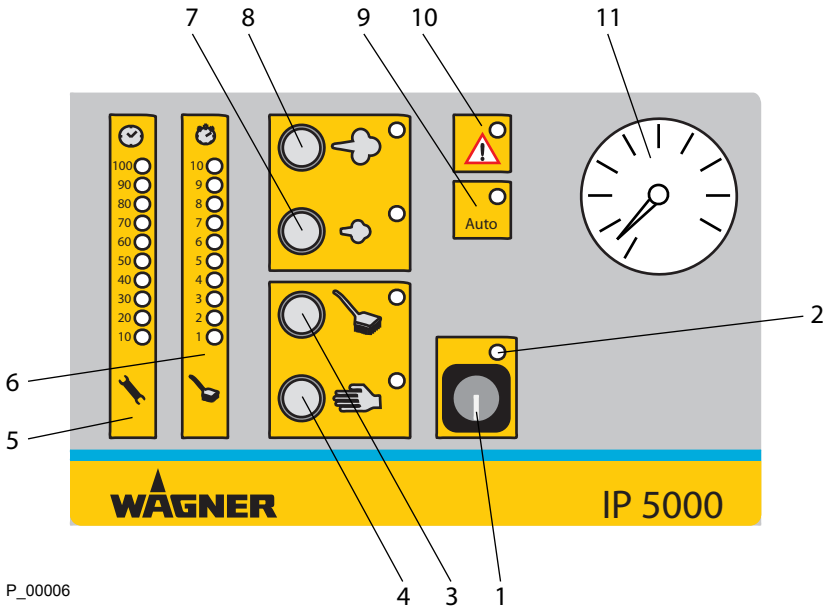
Pos	Designation
1	Inlet valve
2	Pump hose
3	Outlet valve

5.3 OPERATING ELEMENTS ON CONTROL CABINET



Pos	Designation
1	Button: "ON/OFF"
2	LED flashes if no release has been issued by the powder center. The buttons are then locked.
3	Button: "Cleaning ON/OFF"
4	Button: "START / STOP" (manual operations)
5	LED display: "Service Interval" (cycle counter) *
6	LED display: "Cleaning Time" *
7	Button: "Reduced Flow Rate"
8	Button: "Full Flow Rate"
9	Display for control via level monitoring
10	Fault display (LED lights up)
11	Pressure gauge for piston air

* The LEDs also light up when the pump is switched off with "ON/OFF" button 1 (serves for 24 VDC voltage monitoring).

5.4 EXTENT OF DELIVERY

Stk	Order no.	Designation
1	241004	IP 5000 powder pump
1	2386088	IP 5000-USD powder pump
The standard equipment includes:		
1	241942	Declaration of Conformity
1	241935	Operating manual, in German
1	see Chapter 1.3	Operating manual in local language

For special versions the delivery note applies.

5.5 DATA

5.5.1 TECHNICAL DATA

Dimensions:	
Width	385 mm; 15.6 inch
Height	760 mm; 29.92 inch
Depth	202 mm; 8 inches
Weight	approx. 20.5 kg; 45.2 lbs

Electrical:	
Mains	24 VDC±20%
Input power	40 W
IP Code	IP 54/IP 55
Ex zone	II 3D Ex tc IIIB T85°C Dc

Pneumatic:	
Input air pressure	0.6–0.8 MPa; 6–8 bar; 97–116 psi
Air consumption	10–24 m^3/h; 353–874 cf
Required compressed air quality	Quality standard 6.5.2 according to ISO 8573.1, 2010

⚠ WARNING

Exhaust air containing oil!

Risk of poisoning if inhaled.

Insufficient paint application quality

→ The compressed air must meet the following quality requirements: (Quality Standard 6.5.2 according to ISO 8573.1, 2010) 6.5.2 = particle density ≤ 5 mg/m^3; pressure dew point ≤ +7 °C; oil content ≤ 0.1 mg/m^3

Flow rate *	up to 5 kg/min depending on operating mode and recipe
Maximum sound pressure level Measurements according to BS EN ISO 3744:2010	80 dB (A)

* Depending on suction length, feed length, feed height, powder level, adequately fast running of the powder in the tank, powder composition.
Therefore, a 20-40% lower average flow rate can be assumed for the system design, particularly for feeding from BigBags or boxes.
A residual quantity in the tank when changing is system-related and is not a malfunction.

Ambient conditions:	
Operating temperature range	0–45 °C; 32–113 °F
Maximum air humidity	80%

6 ASSEMBLY AND COMMISSIONING

6.1 TRAINING OF ASSEMBLY/COMMISSIONING PERSONNEL

→ The assembly and commissioning personnel 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 assembled 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).

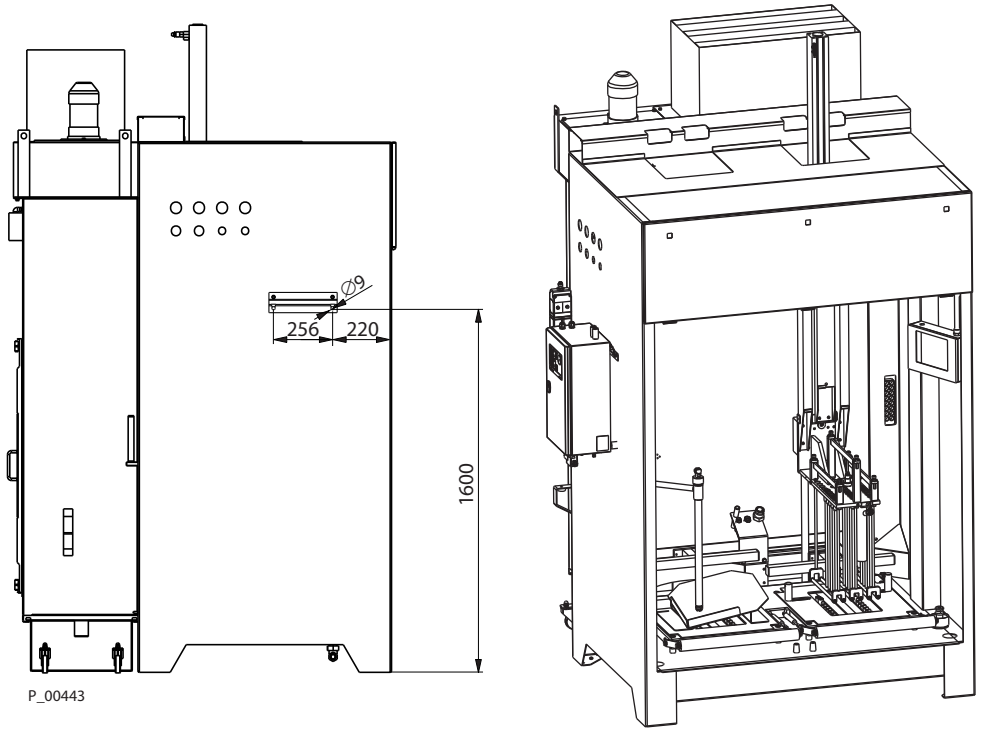
6.3 INSTALLATION CONDITIONS

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 ASSEMBLY EXAMPLE OF THE WAGNER POWDER CENTER

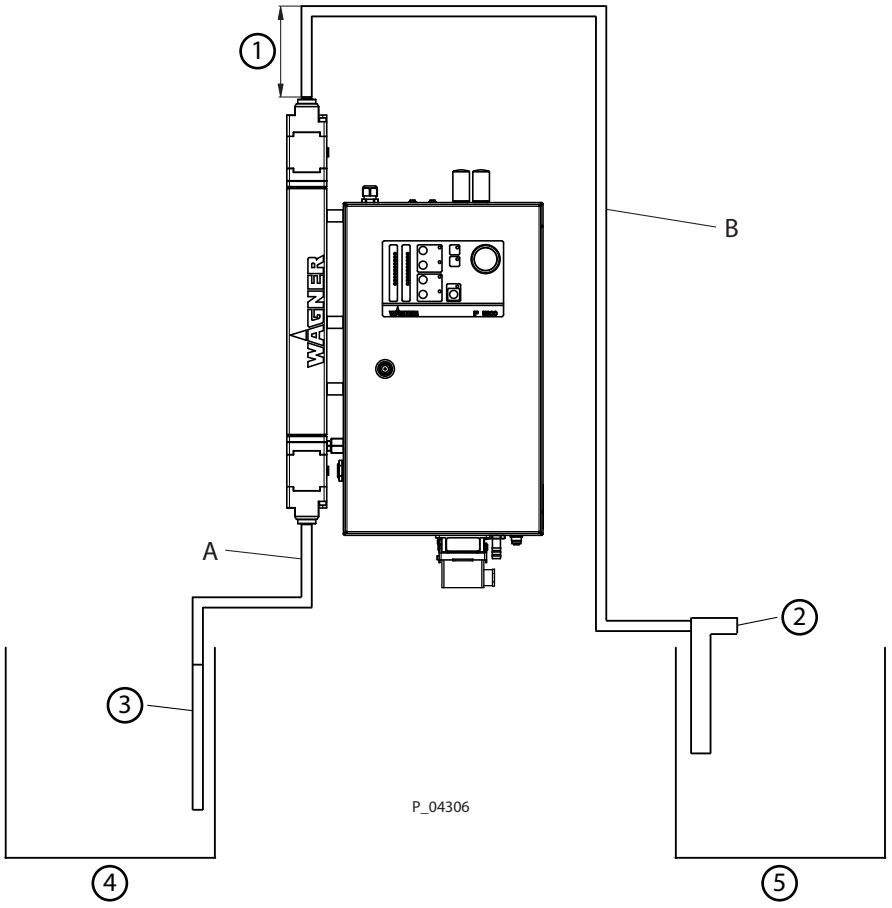
Pump mounted to the side using fastening set (accessory order no. 241550).



Measurements in mm

6.5 INSTALLATION RECOMMENDATION

6.5.1 IP 5000 VERSION



Pos	Designation
A	Suction side (powder inlet)
B	Pressure side (powder outlet)
1	Maximum delivery head 5 m; 16.4 ft
2	Surge damper
3	Suction Lance
4	Fresh powder
5	Target tank

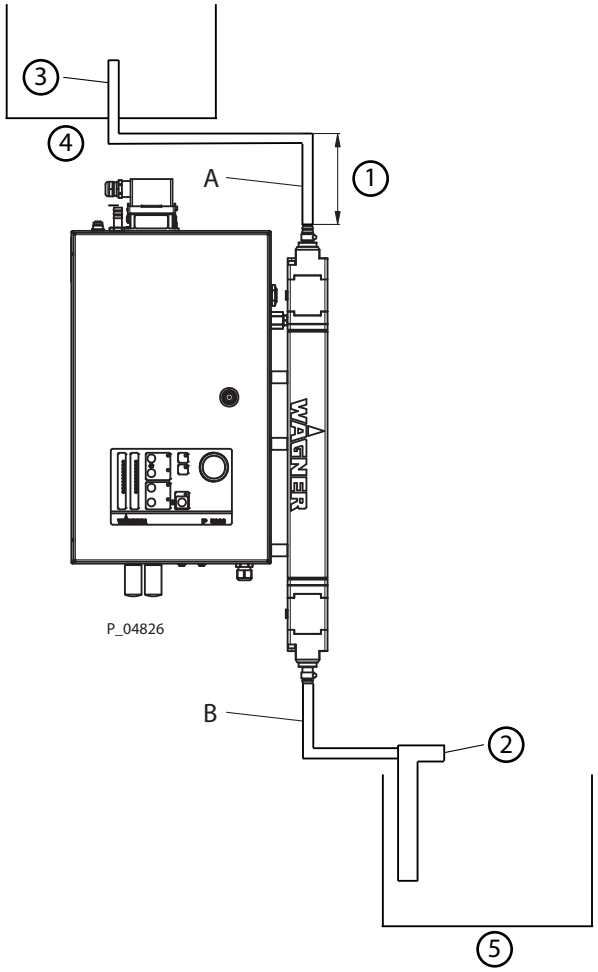
Suction side A:

- Keep hose length as short as possible, maximum 4 m; 13.2 ft
- Use POE 12 powder hose (order no. 2310700).

Pressure side B:

- Hose length maximum 50 m; 164 ft
- Use POE 12 powder hose up to 20 m; 65.62 ft (order no. 2310700).
- Use POE 14 powder hose up to 50 m; 164 ft (order no. 2312126).

6.5.2 IP 5000-USD VERSION



Pos	Designation
A	Suction side (powder inlet)
B	Pressure side (powder outlet)
1	Suction length, maximum of 5 m; 16.4 ft
2	Surge damper
3	Suction Lance
4	Fresh powder
5	Target tank

Suction side A:

- Keep hose length as short as possible, maximum 4 m; 13.2 ft
- Use POE 12 powder hose (order no. 2310700).

Pressure side B:

- Hose length maximum 50 m; 164 ft
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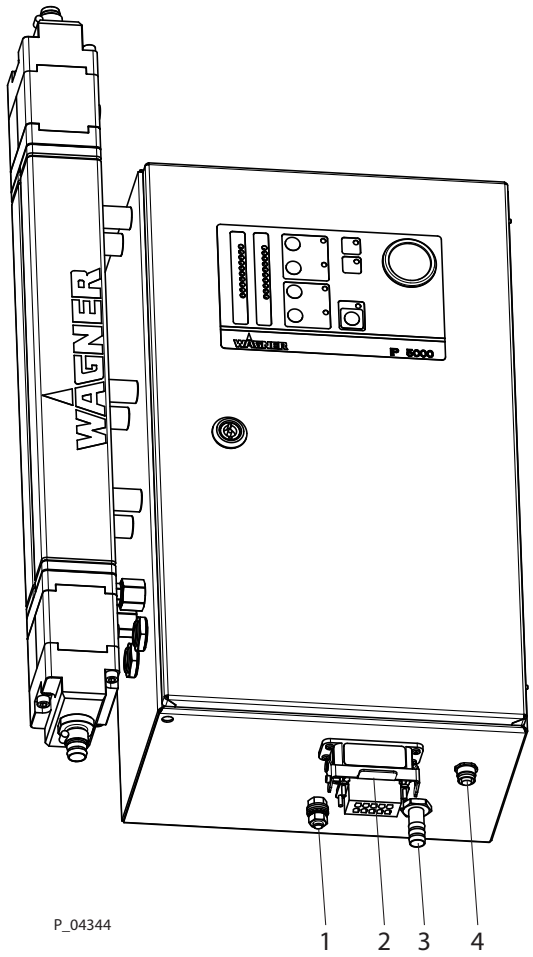
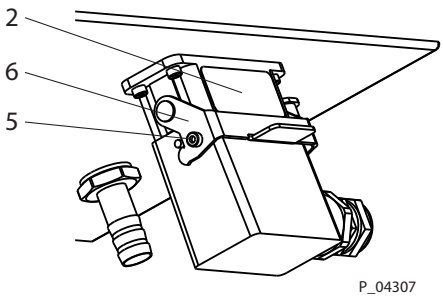
6.6 ASSEMBLING THE POWDER PUMP



Pos	Designation
1	Grounding screw
2	Plug connection 24 VDC and I/O signals
3	Compressed air connection
4	Plug connection of external cleaning box (accessory order no. 241570)

The powder pump is fixed next to the feed tank, for example the powder center or BigBag.



Work steps:

1. Mount the powder pump at installation location (fastening set order no. 241550, available as an accessory).
2. Loosen the Allen screw 5 at plug 2 and unscrew it so that the safety clip 6 on plug 2 can be opened.
3. Connect the grounding cable to grounding screw 1.
4. Connect +24 VDC supply voltage and signal lines to upper part of plug in accordance with configuration plan (see Chapter 13.1).
5. Attach 24 VDC electric cable to the plug 2 and secure with safety clip 6.

⚠ WARNING

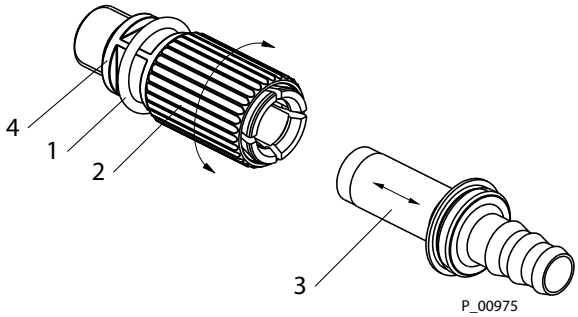
IP Code of device not guaranteed!

Explosion hazard and damage to the device.

→ After completing the connection work, the safety clip on the connecting plug must be secured again with a screw to prevent unintentional opening (EX regulation)!

6. Connect the compressed air hose (e.g., order no. 700095, Ø 1/2") to the compressed air connection 3.
7. Push feed hoses onto the inlet and outlet valve and secure with hose clips (note installation direction of feed hose).

6.7 HOW TO HANDLE THE HOSE COUPLING



Loosening the hose coupling:

Work steps:

1. Lift the O-ring 1 out of the groove and slide it to the front.
2. Turn the locking nut 2 in a clockwise direction up to the stop and pull the hose coupling 3 out of the coupling piece 4.

Connecting the hose coupling:

Work steps:

3. Insert the hose coupling 3 into the coupling piece 4 and turn the locking nut 2 counterclockwise up to the stop.
4. Press the O-ring 1 into the groove again (securing function).

Note:
Slide the powder hose onto the hose coupling as far as possible (up to the stop)!

6.8 GROUNDING

For safety reasons the system must be properly grounded. WAGNER recommends the use of a copper cable of at least 4 mm^2 with sufficient mechanical stability.

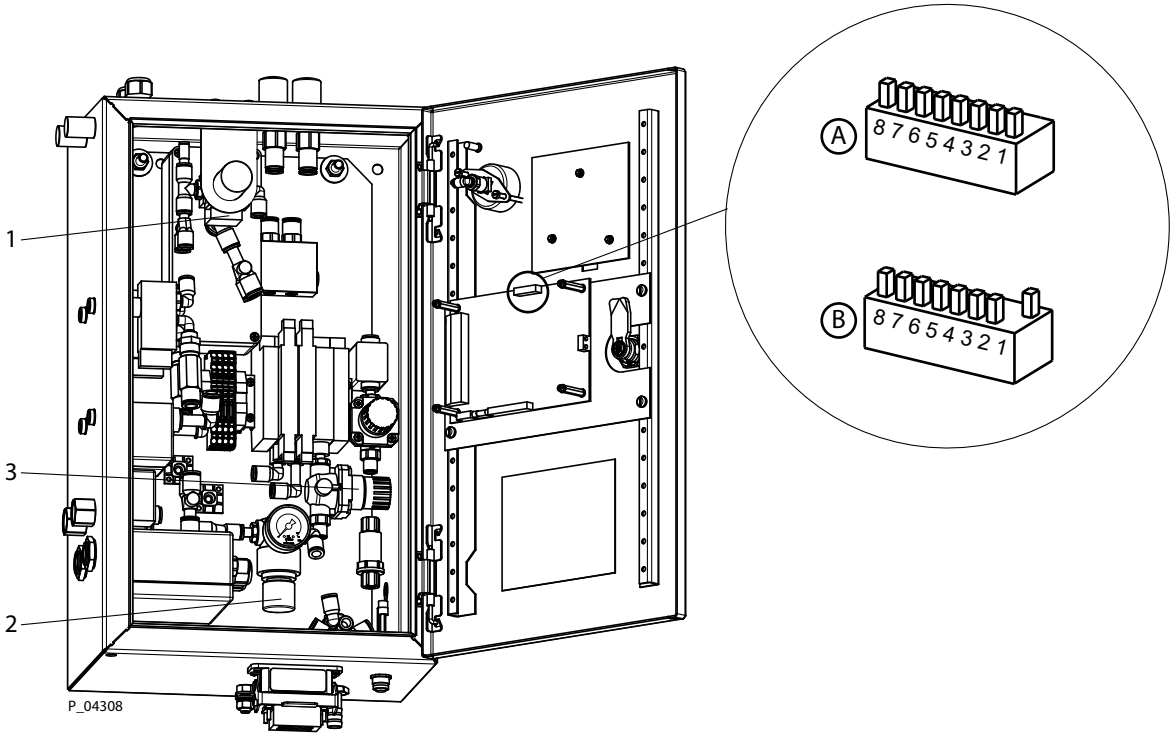
A poorly grounded powder pump will damage the controller!

6.9 START UP

⚠ WARNING

Incorrect commissioning!
Risk of injury and damage to the device.
→ Trained and authorized personnel may only carry out commissioning.

We recommend that commissioning is carried out by WAGNER personnel.



Pos	Designation
1	Pressure regulator 1
2	Pressure regulator 2
3	Pressure regulator 3
A	Switch position "0" (BigBag)
B	Switch position "1" (powder center)

Factory settings:

Operating mode:	Powder center
Pressure regulator 1:	0.3 MPa; 3 bar; 43.5 psi
Pressure regulator 2:	0.3 MPa; 3 bar; 43.5 psi
Pressure regulator 3:	0.37 MPa; 3.7 bar; 53.7 psi
Recipe:	Normal
After-run time:	Level 2 (6 pump cycles)
Cleaning:	Internal, 19 cycles
Level controller:	Deactivated
Standby function:	Activated

6.9.1 COMMISSIONING IN CONNECTION WITH THE POWDER CENTER

Work steps:

1. Set pressure on pressure regulator 1 (piston air KV) in the control cabinet (factory setting 0.3 MPa; 3 bar; 43.5 psi).
   Setting value:
   – 0.2-0.4 MPa; 2-4 bar; 29-58 psi for use in powder center (up to 20 m; 66 ft feed hose length).
   – 0.3-0.6 MPa; 3-6 bar; 43.5-87 psi for feeding from BigBag (20-50 m; 66-164 ft feed hose length).
2. Set pressure on pressure regulator 2 (blow-out air AL) in the control cabinet (factory setting 0.3 MPa; 3 bar; 43.5 psi).
   Setting value:
   – 0.2-0.4 MPa; 2-4 bar; 29-58 psi for use in powder center (up to 20 m; 66 ft feed hose length).
   – 0.3-0.6 MPa; 3-6 bar; 43.5-87 psi for feeding from BigBag (20-50 m; 66-164 ft feed hose length).
   The precise setting of the blow-out air is used to obtain an even powder flow.
   Blow-out air which is set too high, results in excessive dust in the target tank.
3. Set DIP switches in the control cabinet (for settings see Chapter 7.5.1).

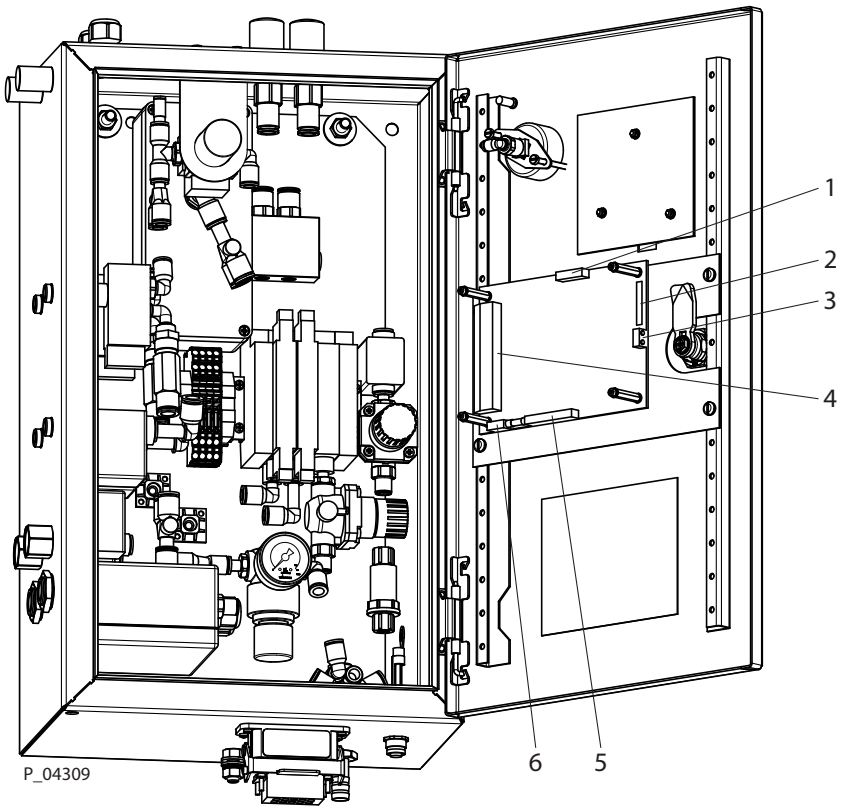
6.9.2 COMMISSIONING AS TRANSFER PUMP (BIGBAG)

When commissioning the powder pump as a transfer pump or for hose lengths over 20 m; 66 ft, in contrast to Chapter 6.9, the following settings must be made as described below.

Work steps:

1. Increase pressure on pressure regulator 3 (control pressure inlet/outlet valves) in control cabinet from 0.37 MPa; 3.7 bar; 53.7 psi (factory setting) to 0.4 MPa; 4 bar; 58 psi.
2. Set DIP switches in the control cabinet (for settings see Chapter 7.5.1).

6.9.3 PIN ASSIGNMENT IN THE CONTROL CABINET



Pos	Designation
1	DIP switches 1-8 (for setting, see Chapter 7.5.1)
2	LED display: "After-run, Level Controller"
3	A+ button/A- button
4	Valve connections
5	I/O connections
6	24 VDC connection

7 OPERATION

7.1 TRAINING THE OPERATING PERSONNEL

→ The operating personnel 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 personnel must receive appropriate system training.

7.2 TASKS

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.

7.3 OPERATING MODES

The powder pump can be operated in two ways:
– in conjunction with a powder center or BigBag
– used as a transfer pump

7.4 OPERATION WITH WAGNER POWDER CENTER

The powder pump is controlled via the powder center controller. The powder pump is operated via the powder center touch screen (from PZ 2005).

Attention:
The powder pump can only be operated when the ventilator is switched on.

Standard equipment:
Two recipes for full or reduced flow rate are available.
The powder pump has a self-cleaning mode, which can be switched on via the powder center or at the powder pump. First, the hoses are emptied, then the powder pump cleaning function is activated.
The powder pump can be switched on and off manually with the START/STOP button, or automatically via the powder level monitoring.

7.5 SETTING ELEMENTS IN THE CONTROL CABINET

7.5.1 DIP SWITCH FUNCTIONS

Function No.	Switch No.	1	2	3	4	5	6	7	8	Explanation
1	on	■								1 on = use of powder center*
	off									(hose lengths < 20 m)
1	on									1 off = use of BigBag*
	off	■								(hose lengths > 20 m)
2	on		■							2 on = recipe "soft"
	off									
2	on									2 off = recipe "normal"
	off		■							
3	on									3+4 off = set after-run time
	off			■	■					
4	on			■						3 on
	off				■					4 off = set cleaning time
5	on					■				5 on = internal cleaning
	off									(without cleaning box)
5	on									5 off = external cleaning
	off					■				(with cleaning box)
6	on				■					3 off
	off			■						4 on = set service interval
7	on			■	■					3+4 on = set level controller time
	off									
8	on						■			6 on = standby deactivated
	off									(from software version 1.03)
9	on							■		SuperCenter Cleaning Procedure
	off									
10	on	■					■	■		PXM Cleaning Procedure
	off									
11	on									For service purposes only, must be set to
	off								■	"off"

* The terms powder center or BigBag are synonymous for the distance of the pump to the target tank.

Powder center distance < 20 m; 66 ft

BigBag distance > 20 m; 66 ft

7.5.2 A+/A- BUTTONS

With functions 2, 3, 4, 6, 7 and 9, the parameters can be adjusted with the A+/A- buttons (see Chapter 6.9.3).

Note:
Only the parameters of the function currently set with the DIP switches can be changed.

7.5.3 FUNCTION 1 "USE OF POWDER CENTER/BIGBAG"

The setting to powder center or BigBag is dependent on the distance from the pump to the target tank.

Note:
For rising heights above 3 m; 9.9 ft select the "BigBag" setting.

7.5.4 FUNCTION 2 RECIPE "SOFT"

This recipe is recommended for processing pressure-sensitive powder types.
The pump performance is reduced.

7.5.5 FUNCTION 3 "SET AFTER-RUN TIME"

If the pump stops, the inlet valves are closed and the pump body and feed hose are emptied. This function is used for long hose lengths or warm ambient conditions (risk of powder clumping).
With this function, the number of pump cycles can be set after switching off the pump. The set number of pump cycles is displayed on the internal LED bar display (see Chapter 6.9.3). No powder is drawn in during the after-run time.

0 LED lights up = function deactivated
1 LED lights up = 3 pump cycles
2 LEDs light up = 6 pump cycles
3 LEDs light up = 9 pump cycles
4 LEDs light up = 12 pump cycles
5 LEDs light up = 15 pump cycles
6 LEDs light up = 18 pump cycles
7 LEDs light up = 21 pump cycles
8 LEDs light up = 24 pump cycles

7.5.6 FUNCTION 4 "SET CLEANING TIME"

The adjusted cleaning time is shown on the display (see Chapter 5.3).
By pressing the A+/A- buttons the cleaning time is increased/ decreased.

Note:
Depending on the powder type used, the cleaning procedure must be repeated under circumstances!

1 LED lights up = 15 cleaning cycles
2 LEDs light up = 16 cleaning cycles
3 LEDs light up = 17 cleaning cycles
4 LEDs light up = 18 cleaning cycles
5 LEDs light up = 19 cleaning cycles
6 LEDs light up = 20 cleaning cycles
7 LEDs light up = 21 cleaning cycles
8 LEDs light up = 22 cleaning cycles
9 LEDs light up = 23 cleaning cycles
10 LEDs light up = 24 cleaning cycles

7.5.7 FUNCTION 6 "SET SERVICE INTERVAL"

The service interval display is a useful auxiliary function for trouble-free operation of the pump.
The factory settings are based on empirical values and are to be considered as non-binding guide values. In practice, the service life of the wearing parts can deviate up or down, and depends heavily on the application and the selected recipe. An optimal service interval can be determined for the individual system by monitoring the actual wear.

This setting refers to the number of pump cycles until a fault signal is shown on the display (see Chapter 5.3).
We recommend changing the pump and valve hoses when the fault display has appeared (see Chapter 8.2.5).
After replacing the hoses, the cycle counter must be reset to "zero" (see Chapter 7.6).

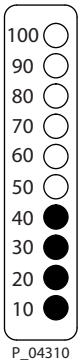
Use of powder center	
LED display	**Number of pump cycles**
100	4 000 000 (maximum)
90	3 600 000
80	3 200 000
70	2 800 000
60	2 400 000
50	2 000 000 (factory setting)
40	1 600 000
30	1 200 000
20	800 000
10	400 000

Use of BigBag	
LED display	**Number of pump cycles**
100	3 000 000 (maximum)
90	2 700 000
80	2 400 000
70	2 100 000
60	1 800 000
50	1 500 000 (factory setting)
40	1 200 000
30	900 000
20	600 000
10	300 000

Work steps:

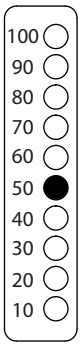
1. Set DIP switch to function 6 (see Chapter 7.5.1).
   The display changes from the actual display to the set display.
2. Set desired value with the A+/A- buttons.
3. The new set value is displayed after exiting the function.

7.5.8 SETTING EXAMPLE



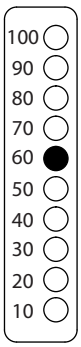
P_04310

The "Powder center" operating mode is activated in the example. 4 LEDs light up on the display, which means that another 800 000 pump cycles can be executed until the fault message appears (factory setting 2 000 000 cycles - 800 000 possible cycles = 1 200 000 cycles have been executed).



P_04311

After the display has changed to setting status, the LED lights up at value 50 (factory setting 2 000 000 with maximum 4 000 000 pump cycles).



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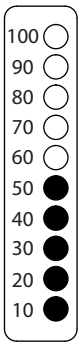
The setting value is increased to 2 400 000 cycles by pressing the A+ button.

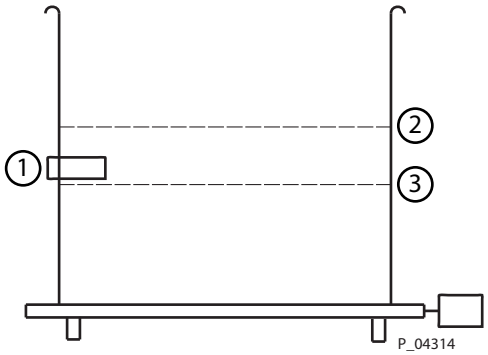


P_04313

After exiting setting mode 5 LEDs light up, which means that another 1 200 000 cycles can be executed
(2 400 000 possible cycles - 1 200 000 completed cycles = 1 200 000 possible cycles).

7.5.9 FUNCTION 7 "LEVEL CONTROLLER"

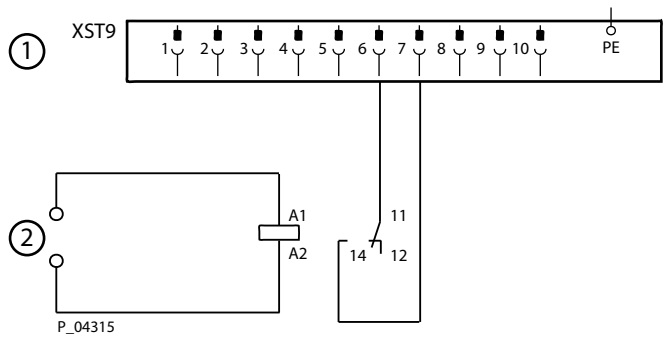
The level controller serves to guarantee a consistent filling level in the powder tank. For this purpose an external level probe is connected, which sends the relevant signal to the powder pump controller. When the level controller is switched on, the "Auto" display flashes on the powder pump control panel.



Pos	Designation
1	Level sensor
2	Filling level according to level controller time
3	Minimum

Internal LED display	Function
No LED lights up	Function deactivated (factory setting)
LED 1 lights up	Signal 1 Pump on Signal 0 Pump off (switch function)
LED 2 lights up	Signal 1 Pump runs for 10 sec., if signal is subsequently still present, pump runs for another 10 sec. until signal = 0
LED 3 lights up	Same function as LED 2 with feed time of 30 sec.
LED 4 lights up	Feed time 45 sec.
LED 5 lights up	Feed time 60 sec.
LED 6 lights up	Feed time 75 sec.
LED 7 lights up	Feed time 90 sec.
LED 8 illuminate	Feed time 120 sec.

7.5.9.1 EXAMPLE FOR LEVEL SENSOR'S CONNECTION DIAGRAM

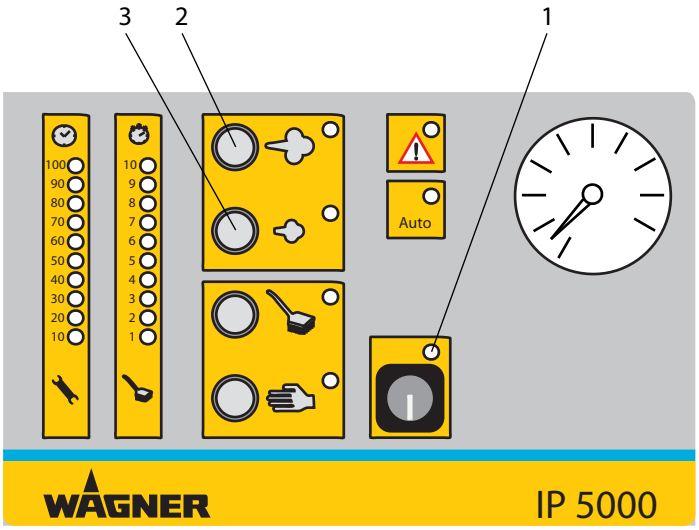


Pos	Designation
1	Plug
2	Level sensor

7.6 CYCLE COUNTER

The powder pump is equipped with a cycle counter, which triggers a warning signal (fault LED flashes) after reaching a set number of pump cycles, prompting replacement of the valve and pump hoses.

After replacing the pump and valve hoses, the cycle counter must be reset.



P_00036

Work steps:

1. Switch powder pump off with "ON/OFF" button 1.
2. Press buttons 2 and 3 simultaneously until the LED flashes quickly (press button for at least 5 sec.).
   The cycle counter is now reset, the LED bar is back to 100%.

7.7 CONDITIONS FOR OPERATING THE PUMP

No flushing is possible during the pump operation. Pressing the "Cleaning" button will have no effect.

8 CLEANING AND MAINTENANCE

8.1 CLEANING

8.1.1 CLEANING PERSONNEL

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

The following hazards may arise during cleaning work:

- health hazard from inhaling powder lacquer,
- use of unsuitable cleaning tools and aids.

8.1.2 CLEANING PROCEDURES

Switch off the system and secure against unauthorized reactivation.
The cleaning intervals should be adapted by the operator depending on the level of use and if necessary the level of soiling.
If in doubt, we recommend contacting WAGNER's specialist personnel.

8.1.3 CLEANING IN CASE OF PAINT CHANGE

In the case of a paint change, all powder feeding parts must be thoroughly cleaned.
An automatic cleaning procedure can be started via the pump controller. The cleaning sequence generally begins with emptying and then changes to a blow-out cycle. The cleaning time can be set with the DIP switches (see Chapter 7.5.1). In the case of powders that tend to sinter heavily or in the case of metallic powders, repeat the cleaning procedure if necessary. Use of the external cleaning box (accessory order no. 241570) is recommended.

8.1.4 INTERNAL CLEANING PROCEDURE

This cleaning mode exclusively uses the air connected to the pump. The feed hose and the suction hose are blown out alternately.

Work steps:

1. End the coating procedure.
2. Switch DIP switch function 5 to "On" (internal cleaning), if necessary.
3. Disconnect suction hose from the feed unit and connect to the park station (e.g., order no. 241565).
4. Press the START/STOP button and empty pump and feed hose.
5. Disconnect feed hose and connect to the park station.
6. Press "Cleaning" button to start the cleaning procedure.
   Note:
   Depending on the powder type used, the cleaning procedure must be repeated under circumstances!
7. Carefully blow out powder feeding parts (suction lance, surge damper, etc.) by hand.
8. Disconnect suction and feed hose from the park station and reconnect to the relevant connection.
9. Restart the coating procedure.

8.1.5 EXTERNAL CLEANING PROCEDURE

⚠ WARNING

Bursting powder hose!
Risk of injury and damage to the device.
→ The powder hose may be loaded with a maximum pressure of 0.6 MPa; 6 bar; 87 psi.

In this cleaning mode a separate cleaning box is used, and hoses and pump are blown through with compressed air pulses from the suction hose.

Work steps:

1. End the coating procedure.
2. Switch DIP switch function 5 to "Off"
   (external cleaning with cleaning box, order no. 241570), if necessary.
3. Disconnect suction hose from the feed unit and connect to the cleaning box.
   Check hose coupling for secure fit!
4. Press the START/STOP button and empty pump and feed hose.
5. Disconnect feed hose and connect to the park station.
6. Press "Cleaning" button to start the cleaning procedure.
   Note:
   Depending on the powder type used, the cleaning procedure must be repeated under circumstances!
7. Carefully blow out powder feeding parts (suction lance, surge damper, etc.) by hand.
8. Disconnect suction and feed hose from the cleaning box or park station and reconnect to the relevant connection.
9. Restart the coating procedure.

8.1.6 SUPERCENTER CLEANING PROCEDURE

The powder pump cleaning procedure, if used at a SuperCenter, is described below.
To activate this function, the DIP switch 7 must be set to "on" (see Chapter 7.5.1).
The setting of the DIP switch 5 "Internal/external cleaning" has no effect on this function.

Work steps:

1. Start the cleaning procedure at the SuperCenter.
2. The SuperCenter sends the signal for starting the cleaning procedure to the powder pump.
3. The SuperCenter carries out the next step only once the powder pump has completed the cleaning procedure (signal output O2 "Cleaning in process" decreases to "0").
4. The further cleaning steps are carried out as before.

0 LED lights up = 1 cleaning cycle
1 LED lights up = 2 cleaning cycles
2 LEDs light up = 3 cleaning cycles
3 LEDs light up = 4 cleaning cycles
4 LEDs light up = 5 cleaning cycles
5 LEDs light up = 6 cleaning cycles
6 LEDs light up = 7 cleaning cycles
7 LEDs light up = 8 cleaning cycles
8 LEDs light up = 9 cleaning cycles
9 LEDs light up = 10 cleaning cycles
10 LEDs light up = 11 cleaning cycles

8.1.7 PXM CLEANING PROCEDURE

The powder pump cleaning procedure with use at a PXM powder center is described below.
To activate this function, the DIP switches 1, 6 and 7 must be set to "on" (see Chapter 7.5.1).

There are two cleaning variants: regular cleaning or intensive cleaning.
The selection is made using the PXM controller; the prerequisite is the correct setting of the DIP switches (see Chapter 7.5.1).
For normal cleaning only the internal cleaning air is used.
In most cases, this results in a sufficient cleaning quality.
In case of high color change requirements, intensive cleaning is recommended.
The external PXM flushing air is used via an adapter piece during intensive cleaning.
The exact sequence of the cleaning procedure is described in the PXM operating manual.

0 LED lights up = 1 cleaning cycle
1 LED lights up = 2 cleaning cycles
2 LEDs light up = 3 cleaning cycles
3 LEDs light up = 4 cleaning cycles
4 LEDs light up = 5 cleaning cycles
5 LEDs light up = 6 cleaning cycles
6 LEDs light up = 7 cleaning cycles
7 LEDs light up = 8 cleaning cycles
8 LEDs light up = 9 cleaning cycles
9 LEDs light up = 10 cleaning cycles
10 LEDs light up = 11 cleaning cycles

8.2 MAINTENANCE

8.2.1 MAINTENANCE PERSONNEL

Maintenance work should be undertaken regularly and carefully by qualified and trained personnel. They should be informed of specific hazards during their training.
The following hazards may arise during maintenance work:

- health hazard from inhaling powder lacquer,
- use of unsuitable tools and aids.

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

8.2.2 MAINTENANCE INSTRUCTIONS

⚠ DANGER

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

→ Only a WAGNER service center or a specially 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 device.
→ Before all work on the device and in the event of work interruptions:
  – Switch off the energy and compressed air supply.
  – Relieve spray gun and device pressure.
  – Secure the spray gun against actuation.
→ Observe the operating and service manual for all work.

Prior to maintenance

- Flush and clean the system → Chapter 8.1.2.

After maintenance

- Carry out safety checks in accordance with Chapter 8.2.3.
- Put the system into operation and check for leaks.
- Have the system checked for safe condition by a skilled person.

8.2.3 SAFETY CHECKS AND MAINTENANCE INTERVALS

Daily: Before starting work, carry out a visual inspection to ensure that the system is grounded.

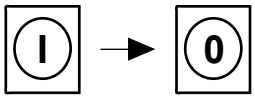
8.2.4 MAINTENANCE PROCEDURES

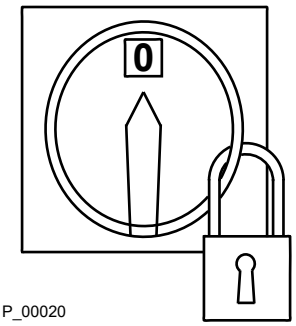
The maintenance intervals should be adapted by the operator depending on the level of use and if necessary the level of soiling.
If in doubt, we recommend contacting WAGNER's specialist personnel.

Activity	Note
Replace pump and valve hoses	Is indicated by the cycle counter via the fault display (fault LED flashes)

After replacing the pump and valve hoses, the cycle counter must be reset to "zero" (see Chapter 7.6).

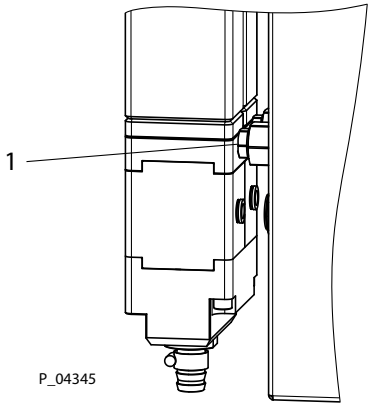
8.2.5 CHANGING VALVE AND PUMP HOSES



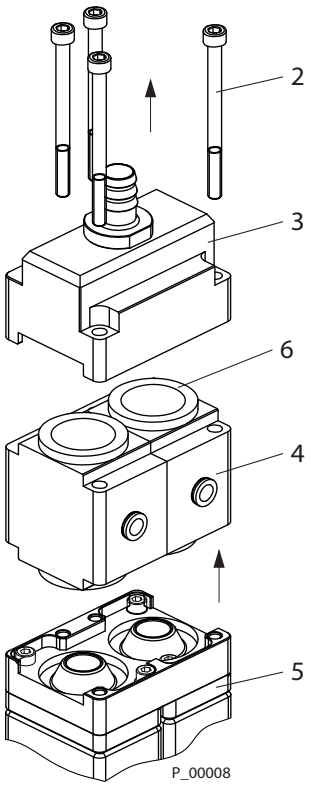


Work steps:

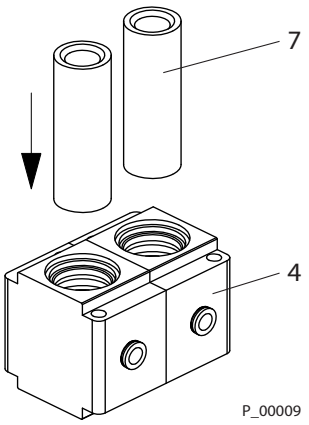
1. Switch off the system.
2. Switch off the main switch and protect against unauthorized restarting.
3. Lock the compressed air supply and decompress the system.
   To facilitate working on the pump, it is advisable to detach the electrical and pneumatic connections at the control cabinet and place the complete pump on a workbench.



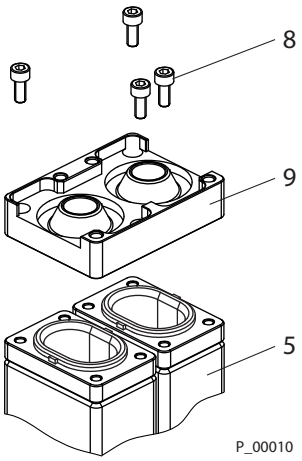
4. Loosen the hose clips and remove the powder hoses at the top and bottom of the pump.
5. Remove air lines at the top and bottom of the valve blocks.
6. Turn back connections 1 on the lower flange.



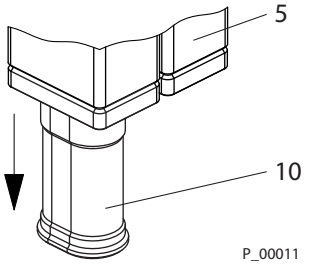
7. Unscrew screws 2 on the upper valve block.
8. Remove Y-piece 3 and valve housing 4 at the top of the pump body 5.
9. Unscrew screws (2) on the lower valve block.
10. Remove Y-piece (3) and valve housing (4) at the bottom of the pump body (5).
11. Remove old valve hoses 6 from the valve housings 4.



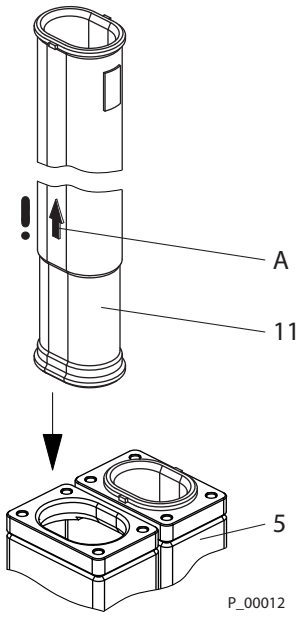
12. Carefully insert new valve hoses 7 (note Chapter 8.3) into the upper and lower valve housing 4.



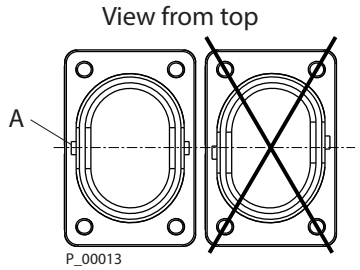
13. Unscrew screws 8 on the upper and lower hose flange 9.
14. Remove hose flanges 9 at the top and bottom of the pump body 5.



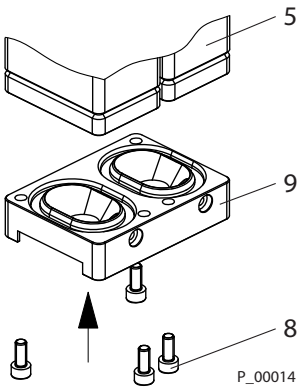
15. Squeeze old pump hoses 10 lightly at the top and remove downwards from the pump body 5.



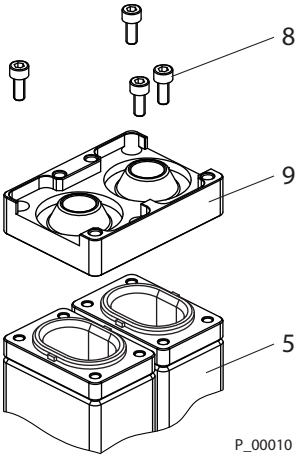
16. Carefully introduce new pump hoses 11 (Chapter 8.3) into the pump body 5 from the top.
    Observe feed direction (arrow A)!
    Do not damage the sealing surfaces!



The pump hoses must not be mounted twisted (observe ridges A).
Press hose collar at the top and bottom against the wall with your fingers.

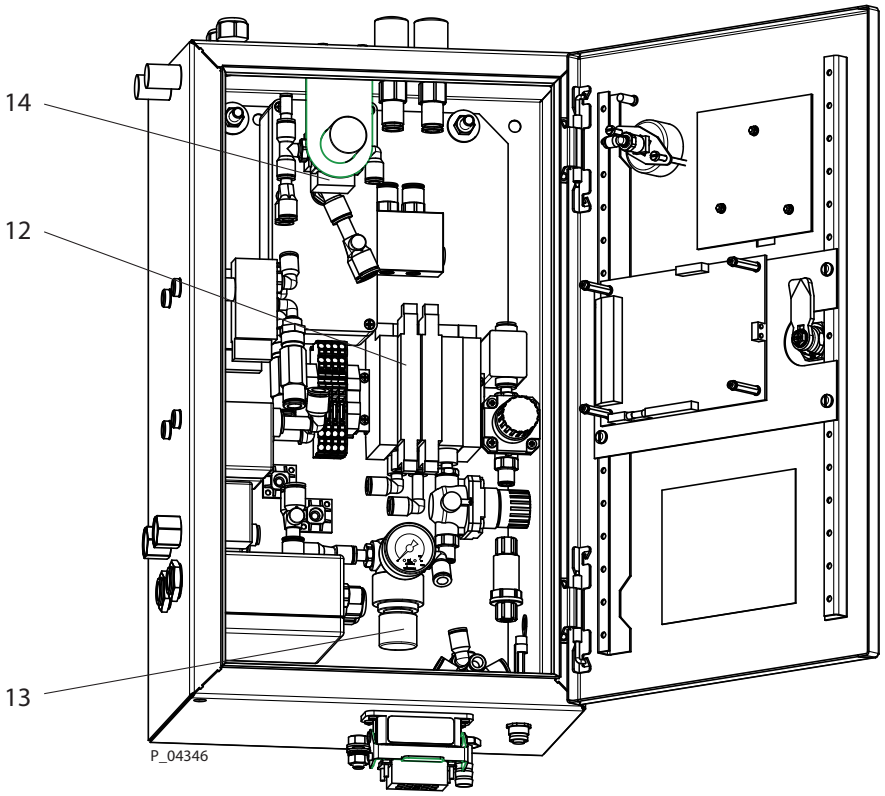


17. Attach hose flange 9 to the bottom of the pump body 5 and fasten with screws 8.
    Do not damage the pump hoses.
    Evenly tighten screws 8 crosswise (5 Nm; 3.7 lb ft).
18. Carefully screw connections 1 into the lower flange.

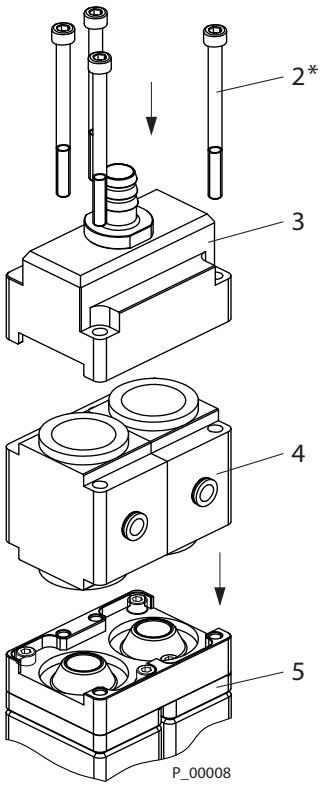


19. Attach hose flange 9 to the top of the pump body 5 (observe hole pattern) and fasten with screws 8.
    Do not damage the pump hoses.
    Evenly tighten screws 8 crosswise (5 Nm; 3.7 lb ft).

Tightness check:
The tightness check is not essential and should be performed only by qualified personnel.

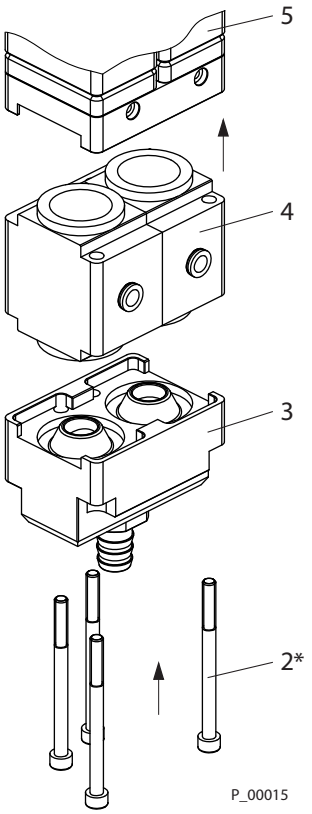


20. Remove plugs (4 pieces) from the valves 12.
21. Open the compressed air supply.
22. Set blow-out air on pressure regulator 13 to 0 MPa; 0 bar; 0 psi.
23. Set piston air KV on pressure regulator 14 to 0.2 MPa; 2 bar; 29 psi.
24. Switch pump on by pressing the START/STOP button.
    No air must leak!
25. Close compressed air supply again and depressurize system.
26. Replace plugs on the valves 12.



27. Fit upper valve housing 4 and Y-piece 3 to the top of the pump body 5 and fasten with screws 2. Evenly tighten screws (2) alternately crosswise. (6 Nm; 4.425 lb ft).

* **To facilitate assembly, two longer screws (order no. 9907014) are provided, which must be replaced with the shorter screws when assembly is complete.**



28. Fit lower valve housing (4) and Y-piece (3) to the bottom of the pump body (5) and fasten with screws (2).
    Evenly tighten screws (2) alternately crosswise. (6 Nm; 4.425 lb ft).

* **To facilitate assembly, two longer screws (order no. 9907014) are provided, which must be replaced with the shorter screws when assembly is complete.**

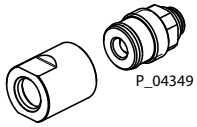
29. Push powder hoses onto the upper and lower hose fitting and fasten with hose clips.
30. Insert air lines into the upper and lower valve blocks.
31. After successful execution of the tightness check and resetting of the cycle counter (see Chapter 7.6), the powder pump can be recommissioned.

8.3 STORAGE CONDITIONS FOR PUMP AND VALVE HOSES

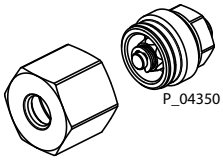
The materials of pump and valve hoses are not resistant to ageing.
Therefore, dry pump and valve hoses and store at room temperature, protected from light.
The hoses are labeled with the date of manufacture. The hoses should no longer be used after a period of 24 months!

8.4 REPLACING THE NON-RETURN VALVES

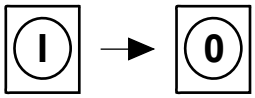
Non-return valve 241237
(up to serial number 1847)

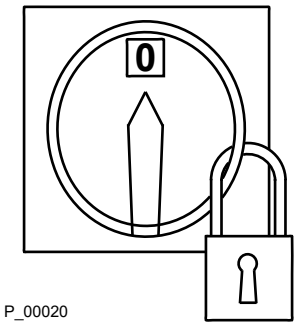


Non-return valve 2409407
(up to serial number 1848)



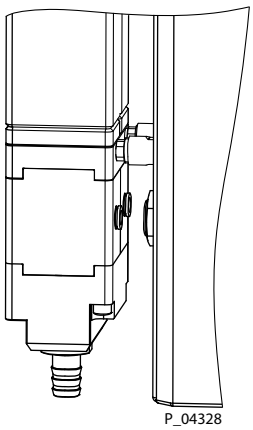
8.4.1 DISASSEMBLY



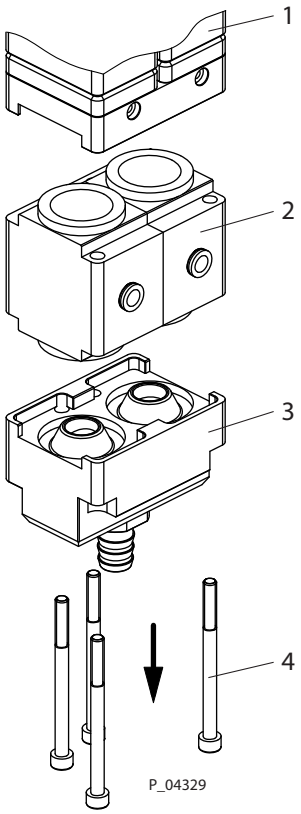


Work steps:

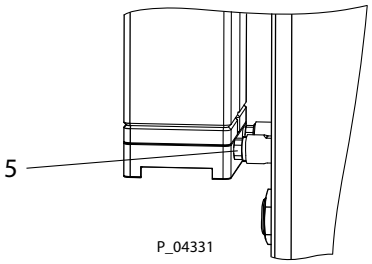
1. Switch off the system.
2. Switch off the main switch and protect against unauthorized restarting.
3. Lock the compressed air supply and decompress the system.



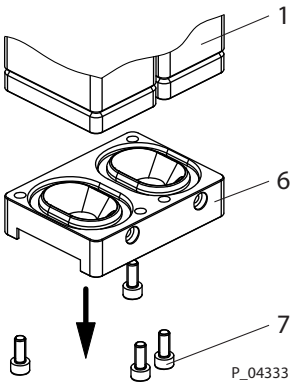
4. Loosen the hose clips and remove the powder hoses at the bottom of the pump.
5. Remove air lines at the bottom of the valve blocks.



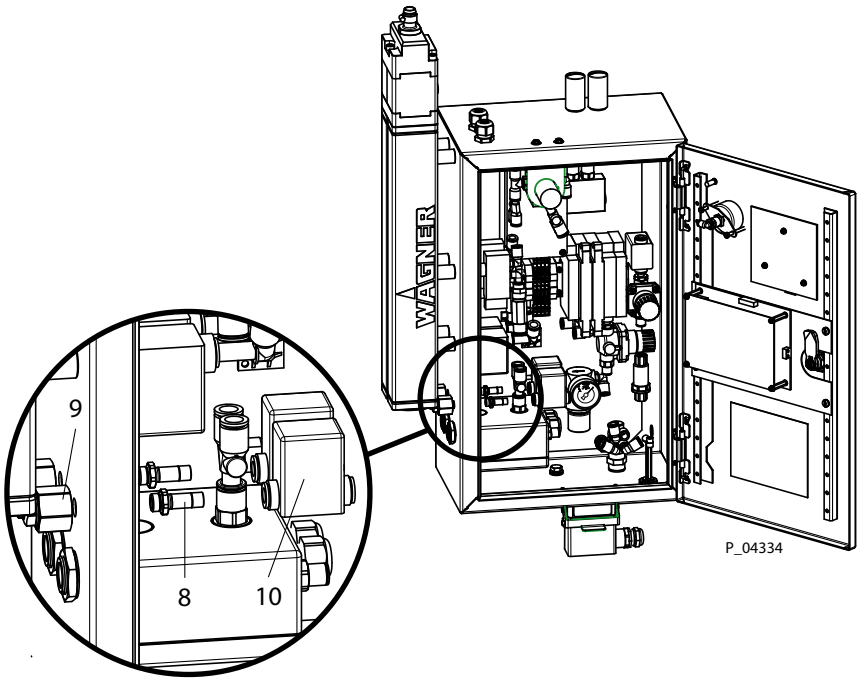
6. Unscrew screws (4) on the lower valve block.
7. Remove Y-piece (3) and valve housing (2) at the bottom of the pump body (1).



8. Turn back connections (5) on the non-return valves up to stop.

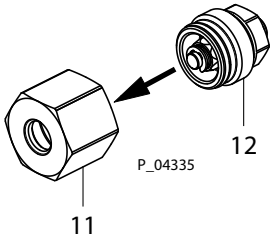


9. Unscrew screws (7) on the lower valve block and remove hose flange (6) from pump body (1).



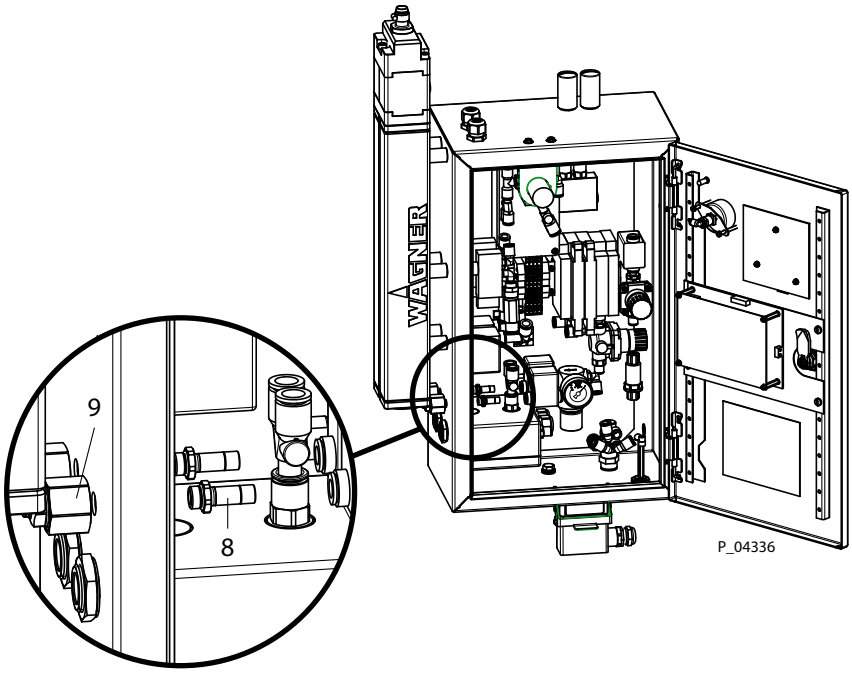
10. Remove valves (10) (AL1 and AL2) from the air connections.
11. Unscrew air connections (8) out of the non-return valve units (9) and dismount non-return valves.
12. Unscrew non-return valve out of the bushings.

8.4.2 ASSEMBLY

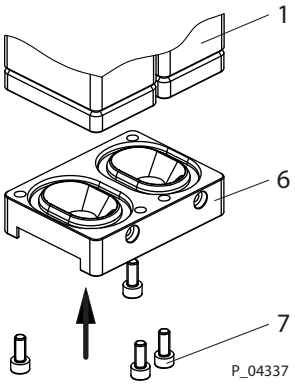


Work steps:

1. Screw in non-return valve (12) up to stop in bushing (11).

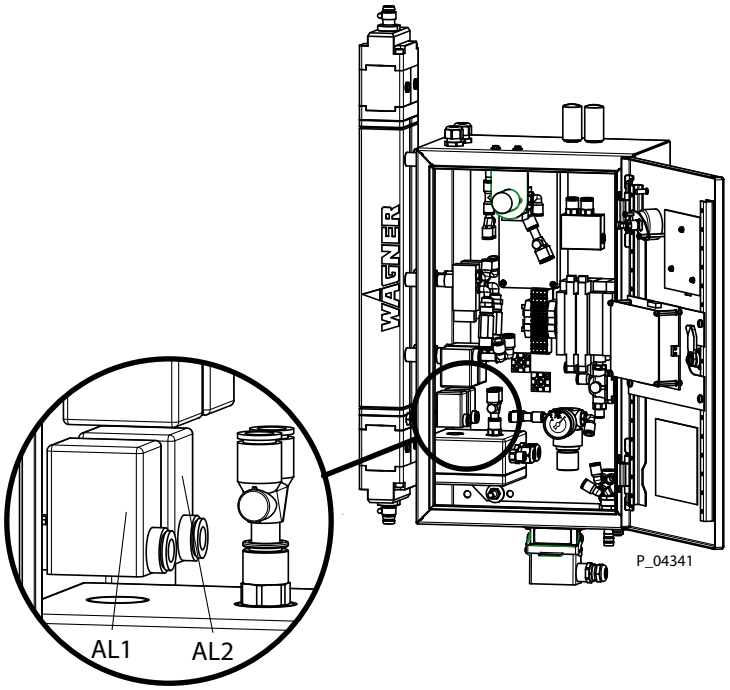


2. Mount non-return valve (9) with air connection (8) in control cabinet and screw them loosely together.

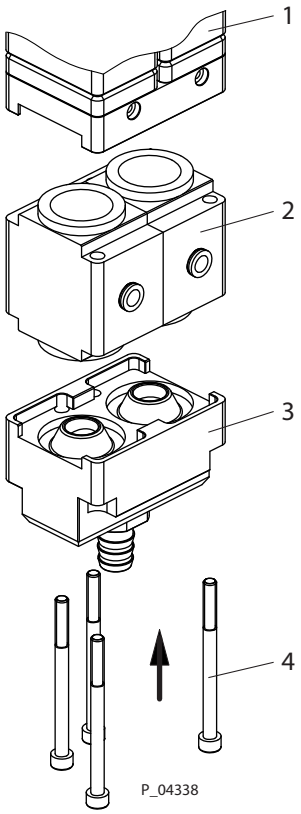


3. Attach hose flange (6) to the pump body (1) and fasten with screws (7).
   Do not damage the pump hoses!

4. Loosely screw the non-return valve connections into the air connections in the hose bushing (6) with care.
5. Evenly tighten screws 7 crosswise (5 Nm; 3.7 lb ft).
6. Screw the non-return valve connections completely into the air connections in the hose bushing (6).



7. Tighten non-return valve unit (9) with air connections and put valves AL1 and AL2 back onto the air connections.



8. Fit lower valve housing (2) and Y-piece (3) to the bottom of the pump body (1) and fasten with screws (4).
9. Evenly tighten screws (4) alternately crosswise. (6 Nm; 4.43 lb ft).
   Installation instructions:
   To facilitate assembly, two longer screws (order no. 9907014) can be used, which must be replaced with the shorter screws when assembly is complete.
10. Push powder hoses onto the lower hose fitting and fasten with hose clips.
11. Insert air lines into the lower valve blocks.
12. After successful execution of the tightness check, the powder pump can be recommissioned.

9 TROUBLE SHOOTING AND SOLUTION

⚠ DANGER

Incorrect maintenance/repair!
Danger to life and equipment damage.
→ The maintenance/repair of WAGNER devices, protective systems, safety, monitoring and control equipment, as defined by UK statutory requirement SI 2016 No. 1107, is only permitted by trained WAGNER service personnel or skilled persons!
Note national regulations!
→ Service, repair or replacement of devices or parts of devices may only be performed outside the hazard area!

Malfunction	Cause	Solution
Powder pump does not deliver	– No release by powder center	– Switch on ventilator in powder center
	– Pump or valve hose defective	– Replace the hose
Fault LED lights up	– Maximum number of pump cycles reached	– Replace pump and valve hoses – Reset cycle counter (see Chapter 7.6)
Inadequate powder discharge	– Cratering in the suction system	– Top up powder and check powder feed
	– Hoses kinked	– Lay hoses rounded, not bent
		– Check piston air pressure
		– Check service indicator
	– Check fluidization	– Set correct fluid air quantity

10 DISASSEMBLY AND DISPOSAL

10.1 DISASSEMBLY

⚠ WARNING

Incorrect disassembly!

Risk of injury and damage to the device.

→ Before starting disassembly:
- Switch off the energy and compressed air supply.
- Ensure that all system components are grounded.
- Secure system against being switched back on without authorization.

→ Observe the operating manuals when carrying out all work.

10.2 DISPOSAL

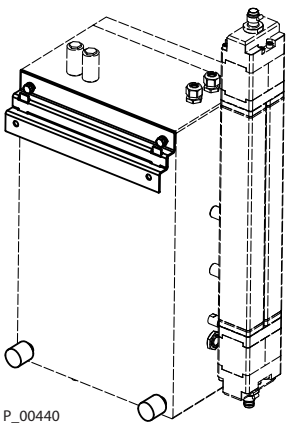
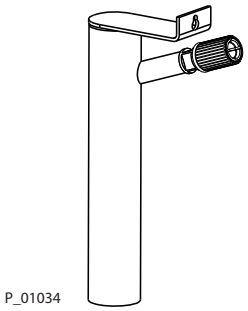
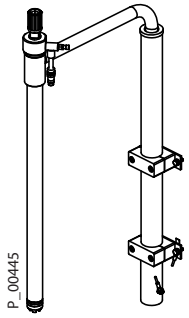
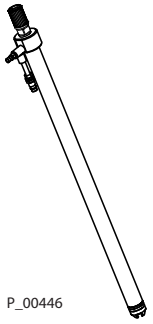
NOTICE

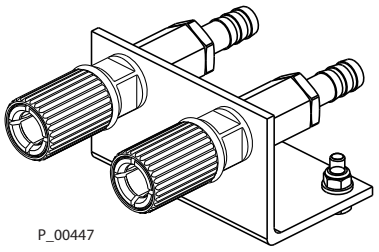
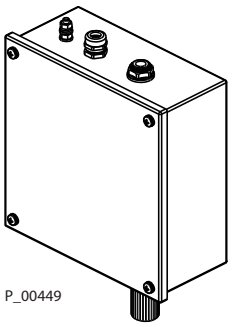
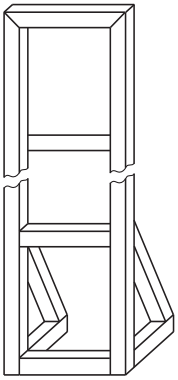
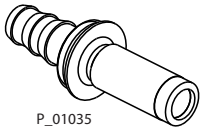
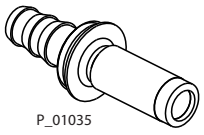
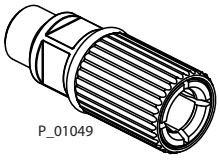
Do not dispose of used electrical equipment with household refuse!

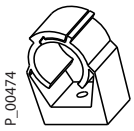
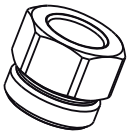
This product may not be disposed of with the household refuse, but must be recycled in an environmentally correct manner.

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. To arrange this, please contact one of our service centers, one of our representatives or us directly.

11 ACCESSORIES

Order no.	Designation	
241550	Fastening set Consists of: – suspension bracket for wall mounting – 2 rubber buffers	
241555	Surge damper – for use in the WAGNER circulating powder center – reduced dust formation	
265110	Suction device, IP 5000	
2301550 2301548	Suction lance, SN600/14 for powder center Suction lance, SN1500/14 for BigBag	

Order no.	Designation	
241565	Parking station	 P_00447
241570	External cleaning box	 P_00449
3313075	Pump rack, IP 5000	 P_00499
390955	Hose take-up, D10-D12, not electrically conductive	 P_01035
2305866	Hose take-up, D10-D12, electrically conductive	 P_01035
2353080	Coupling piece, electrically conductive	 P_01049
3304988	Hose clamp for POE 12 powder hose	 P_00473

Order no.	Designation	
9987135	Hose holder for POE 12 and POE 14 powder hoses	 P_00474
2301253 2305865	Thread adapter – for the seating of a complete coupling	 P_00924
2310700	Powder hose, POE 12	
2312126	Powder hose, POE 14	
9956263	Electrical supply cable, 12-pin	

12 SPARE PARTS

12.1 HOW TO ORDER SPARE PARTS

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:

- billing address
- delivery address
- 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. Wearing parts are not included in the warranty terms.
★ Included in service set

Note:
These parts are not covered by warranty terms.

● Not part of standard equipment, however, available as special accessory.

Explanation of order no. column

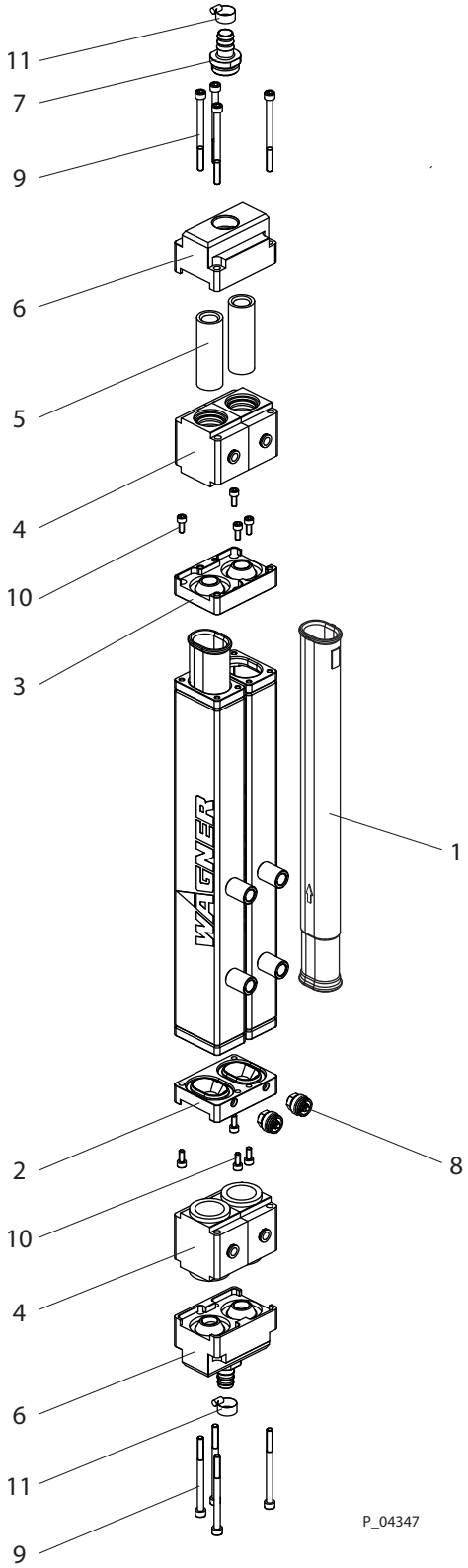
-- Item not available as spare part.
/ Position does not exist.

⚠ DANGER

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

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

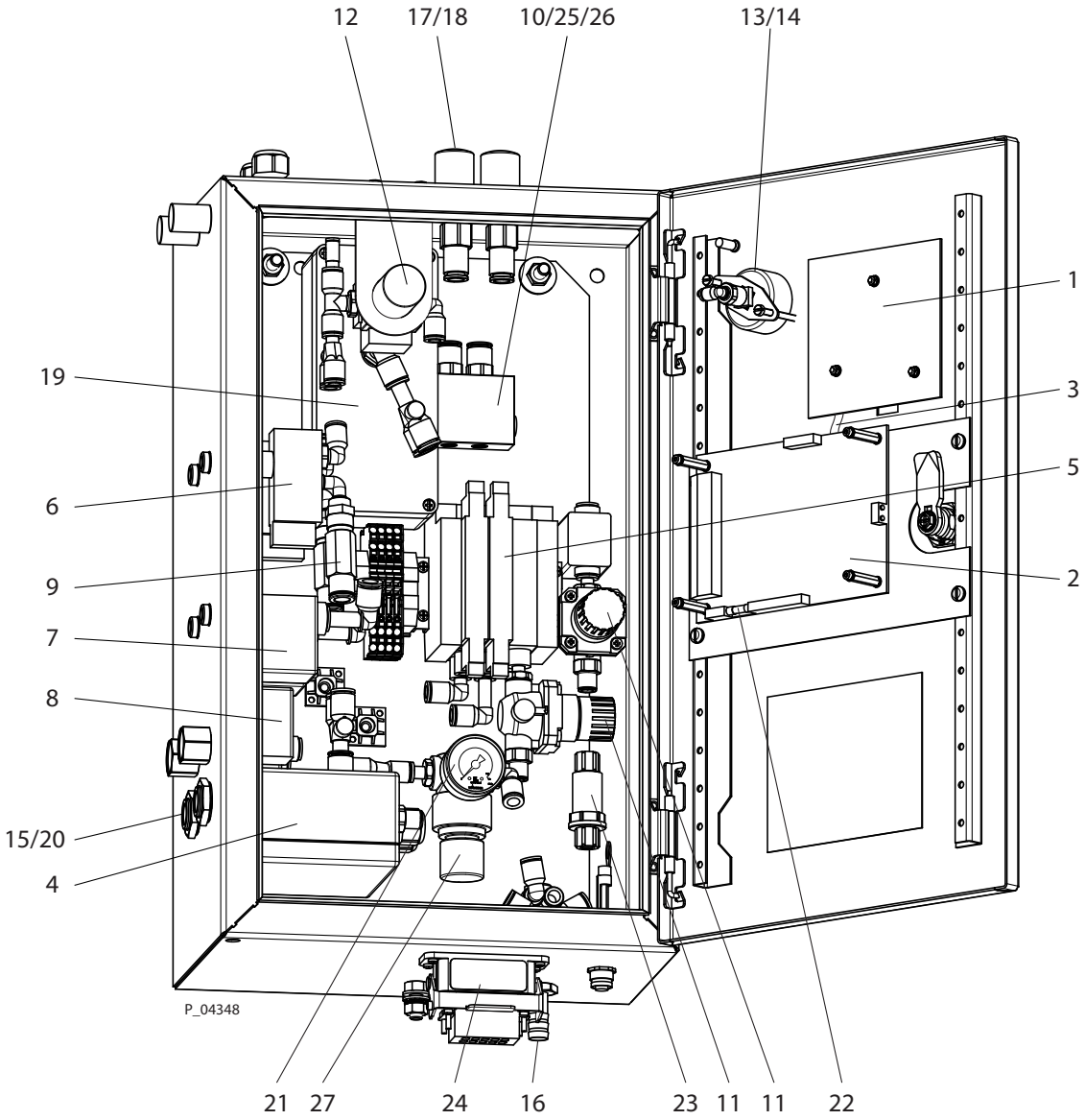
12.2 POWDER PUMP SPARE PARTS LIST



Pos	K	Stk	Order no.	Designation
1	◆	1	2312057	Service set pump hose D33 x 401 (2 hoses)
2	◆	1	2301442	Hose flange inlet valve
3	◆	1	241486	Hose flange outlet valve
4		2	2301449	Valve housing
5	◆	2	2312058	Service set valve hose D15 x 25 x 74 (2 hoses)
6		2	241489	Y block
7		2	241541	Hose fitting, D30 x 41
8		2	241237	Non-return valve (up to serial number 1847)
8	◆	2	2409407	Non-return valve (from serial number 1848)
9		8	3107593	M6 socket cap screw
10		8	9907191	M5 socket cap screw
11		2	9990404	Hose clamp

◆ Wearing parts

12.3 CONTROL CABINET SPARE PARTS LIST

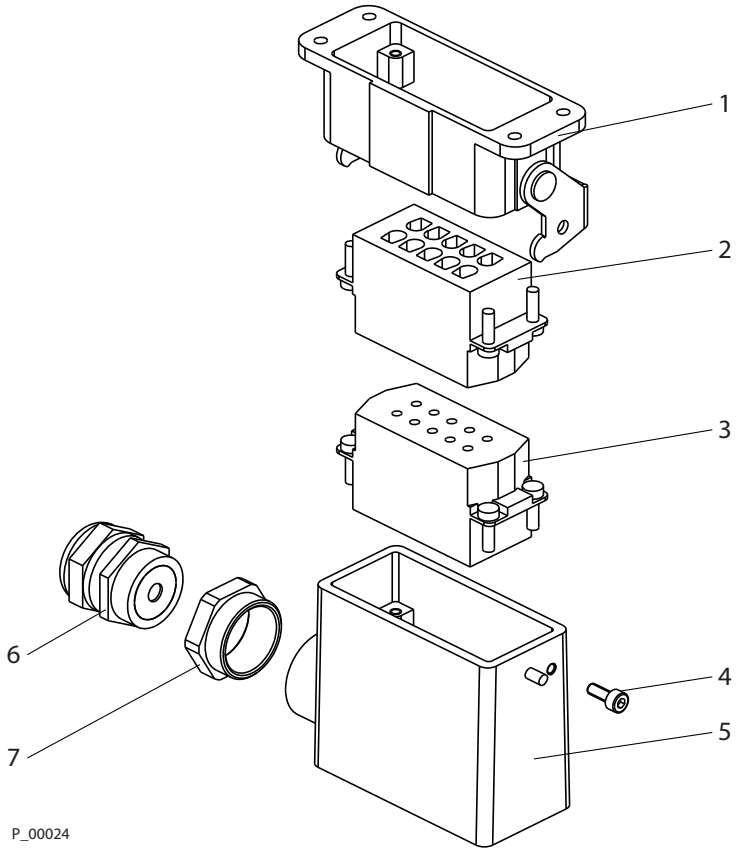


Note:
With the IP 5000-USD, the control cabinet is arranged rotated by 180°.

Pos	K	Stk	Order no.	Designation
1		1	360931	PCB display, complete ET (Note installation direction for USD variant)
2		1	2305520	Print, complete IP 5000 ET
3		1	360458	Ribbon cable, Flex-Flat 8-pin
4		1	241526	Blowing out box
5	◆	2	9943152	Double 3/2-way valve
6	◆	2	9943157	3/2-way valve
7	◆	2	9943156	2/2-way valve
8	◆	3	9943155	2/2-way valve
9	◆	2	9943158	Non-return valve
10		1	241234	Double ejector
11		2	2334272	Pressure regulator
12		1	9943159	Pressure regulator
13		1	9943160	Pressure gauge
14		1	9974242	O-ring
15		4	9910903	Hexagon nut
16		1	9999473	Hose fitting, G3/8
17	◆	2	9999479	Silencer
18	◆	4	9974241	Sealing ring
19		1	241516	Vacuum box
20	◆	2	9970148	Sealing ring
21		1	9998677	Pressure gauge
22	◆	1	9951116	Slow-acting fuse
23		1	9999148	Vacuum filter
24		1	241542	Plug, 10-pin
25	◆	1	9970149	Sealing ring
26		1	9985559	Reducing fitting
27		1	9999572	Pressure regulator with turning handle

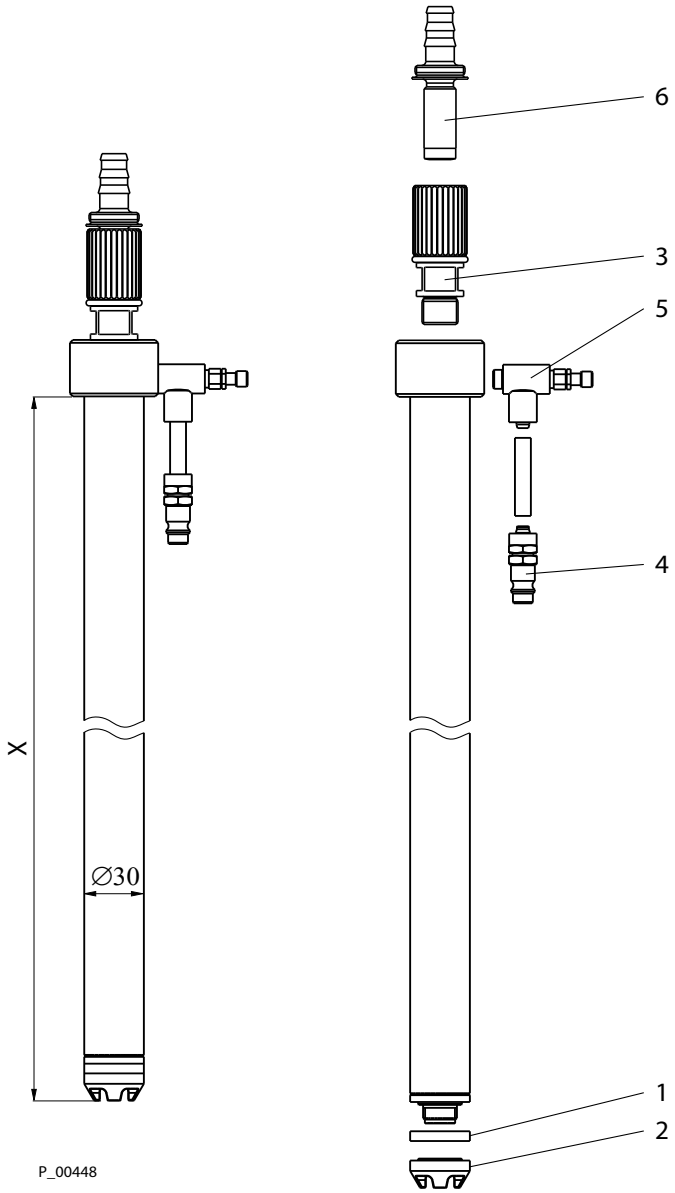
◆ Wearing parts

12.4 CONNECTING PLUG SPARE PARTS LIST



Pos	K	Stk	Order no.	Designation
1		1	9956254	Externally-mounted housing
2		1	9956253	Pin insert, 10-pin
3		1	9956252	Bushing insert, 10-pin
4		1	9906029	Socket cap screw
5		1	241545	Grommet housing, 10-pin
6		1	3156891	Cable connection
7		1	9956273	Adapter, PG16-M20x1.5

12.5 SN 600/14 SUCTION LANCE SPARE PARTS LIST

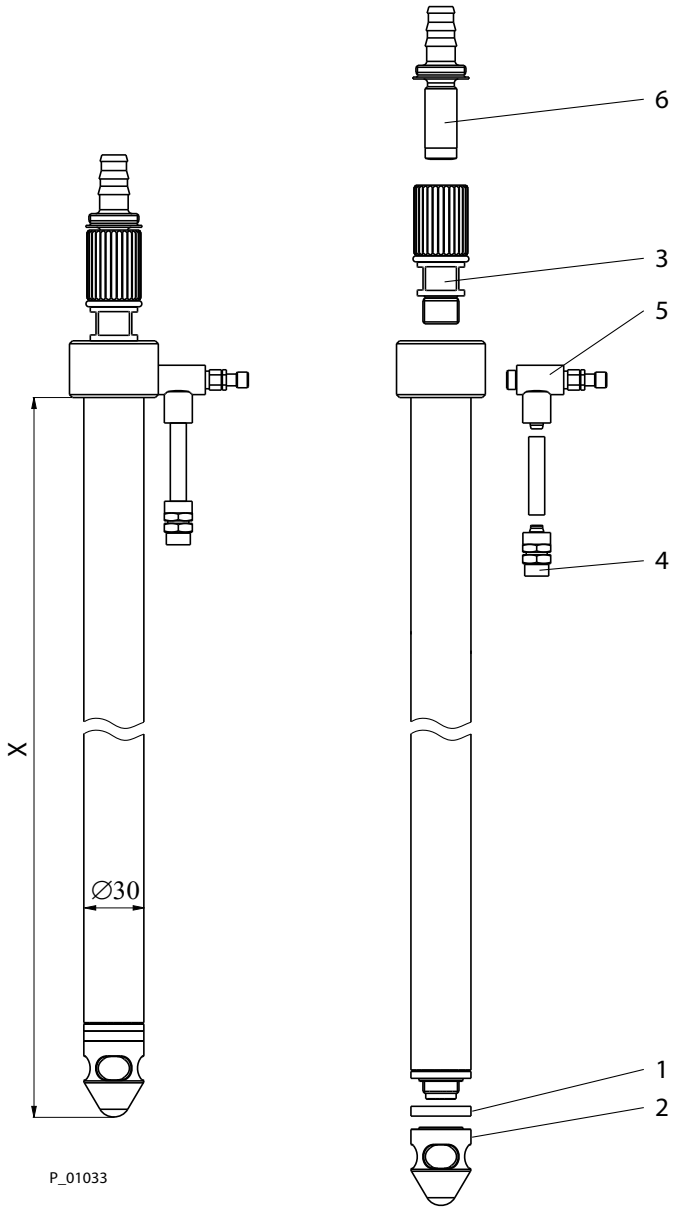


Measurement X order no. 2301550 582 mm

Pos	K	Stk	Order no.	Designation
1	◆	1	265412	Fluid ring
2		1	2301098	Crown, M18x1.5
3		1	2353080	Coupling piece, complete
4		1	9992260	Coupling plug
5		1	9999391	Throttle, all-position
6		1	390955	Hose take-up, D10-12, complete

◆ Wearing parts

12.6 SN 1500/14 SUCTION LANCE SPARE PARTS LIST

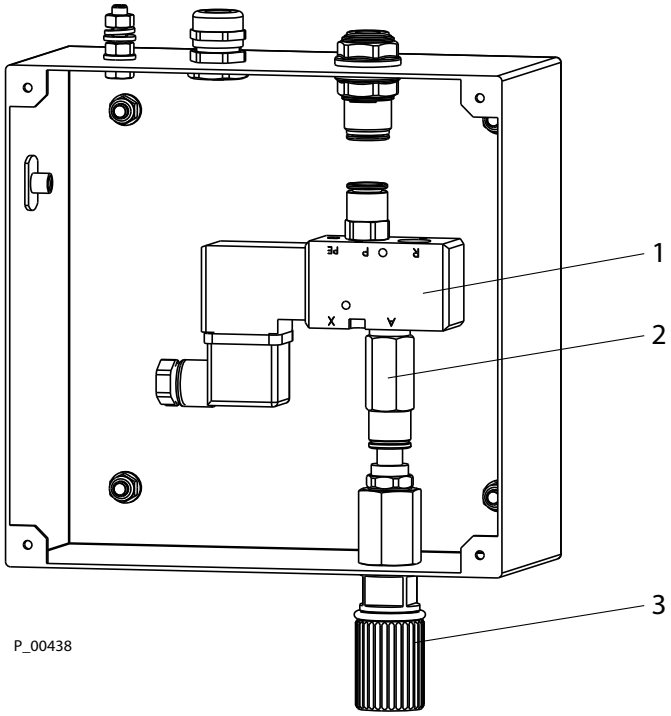


Measurement X order no. 2301548 1518 mm

Pos	K	Stk	Order no.	Designation
1	◆	1	265412	Fluid ring
2		1	2304065	Suction head
3		1	2353080	Coupling piece, complete
4		1	9992260	Coupling plug
5		1	9999391	Throttle, all-position
6		1	390955	Hose take-up, D10-12, complete

◆ Wearing parts

12.7 EXTERNAL CLEANING BOX SPARE PARTS LIST

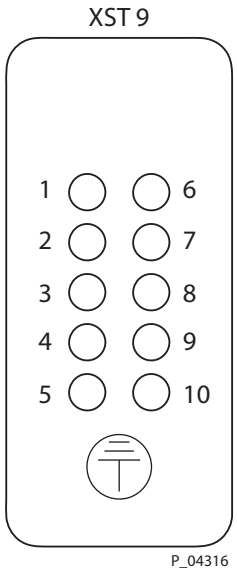


Pos	K	Stk	Order no.	Designation
1		1	9956234	Solenoid valve, EVP 342
2	◆	1	9943158	Non-return valve, d10
3		1	390954	Coupling piece, complete

◆ Wearing parts

13 CIRCUIT DIAGRAMS

13.1 PLUG ASSIGNMENT

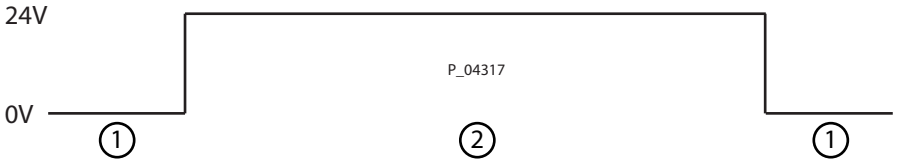


PIN	Assignment	Function	Plug
1	+24 V	Device voltage supply	XST 4
2	GND	Device grounding	
3	EN	Release (+24 V signal)	
4	I1	Powder pump START/STOP +24 V = ON; 0 V = OFF	XST 5
5	I2	Cleaning ON/OFF	
6		Level controller output, +24V	
7	I4	Level controller input/ Cleaning type selection	
8	O1	Pump is running/not running	XST 5
9	O2	Cleaning in process	
10	O3	Operational	

13.2 SIGNAL SEQUENCE

13.2.1 SIGNAL SEQUENCE "FEEDING OPERATION"

Signal I1/O1

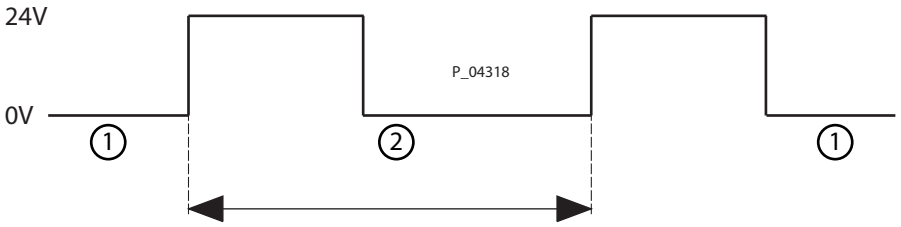


Pos	State
1	OFF
2	ON

13.2.2 SIGNAL SEQUENCE "KPZ 2008 CLEANING"

DIP switch 7 is set to "off".

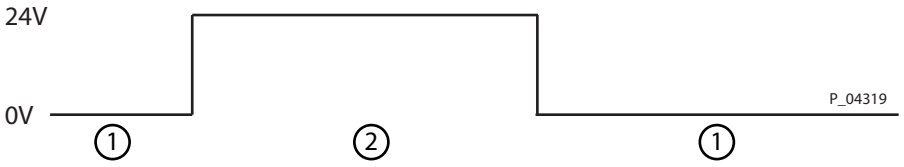
Signal I2



Cleaning ends automatically

Pos	State
1	OFF
2	ON

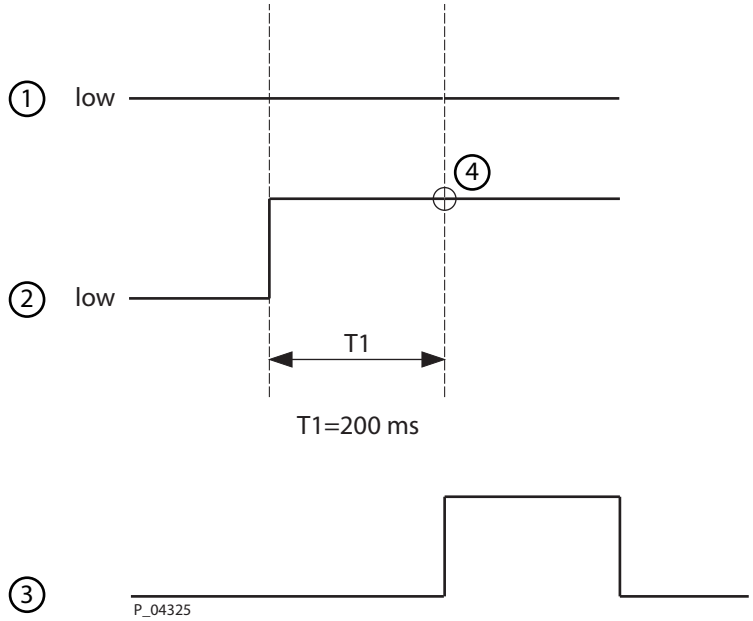
Signal O2



Pos	State
1	OFF
2	ON

13.2.3 SIGNAL SEQUENCE "PXM/PXS STANDARD CLEANING"

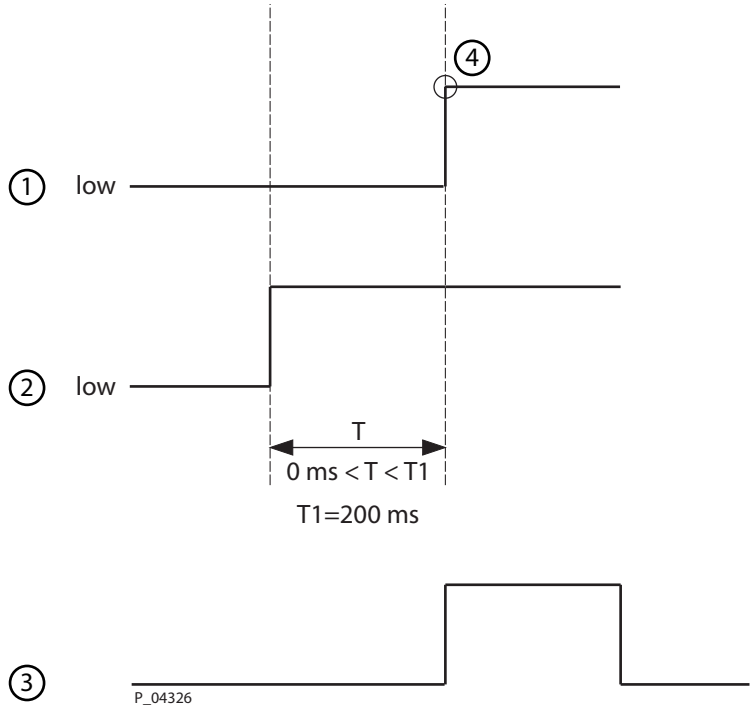
DIP switch 7 is set to "on".



Pos	Description
1	I2 Cleaning on/off
2	I4 Level controller input
3	O2 Cleaning in process
4	Start

13.2.4 SIGNAL SEQUENCE "PXM/PXS INTENSIVE CLEANING"

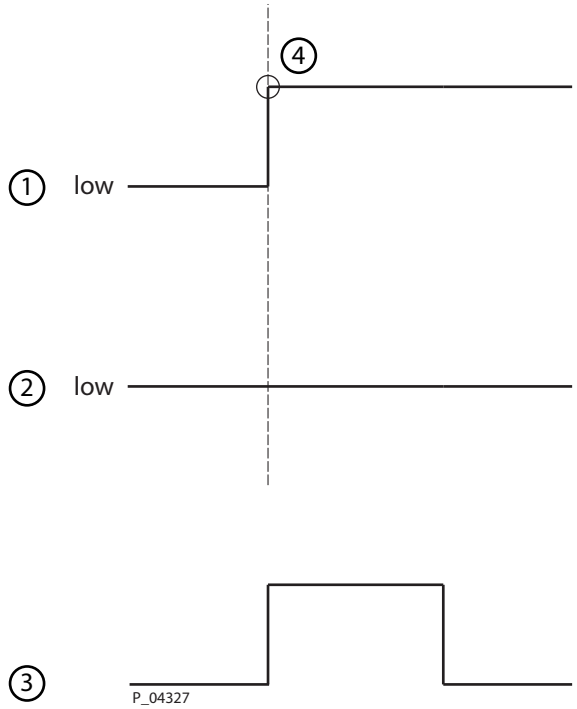
DIP switch 7 is set to "on".



Pos	Description
1	I2 Cleaning on/off
2	I4 Level controller input
3	O2 Cleaning in process
4	Start preliminary cleaning

13.2.5 SIGNAL SEQUENCE "SUPERCENTER CLEANING"

DIP switch 7 is set to "on".

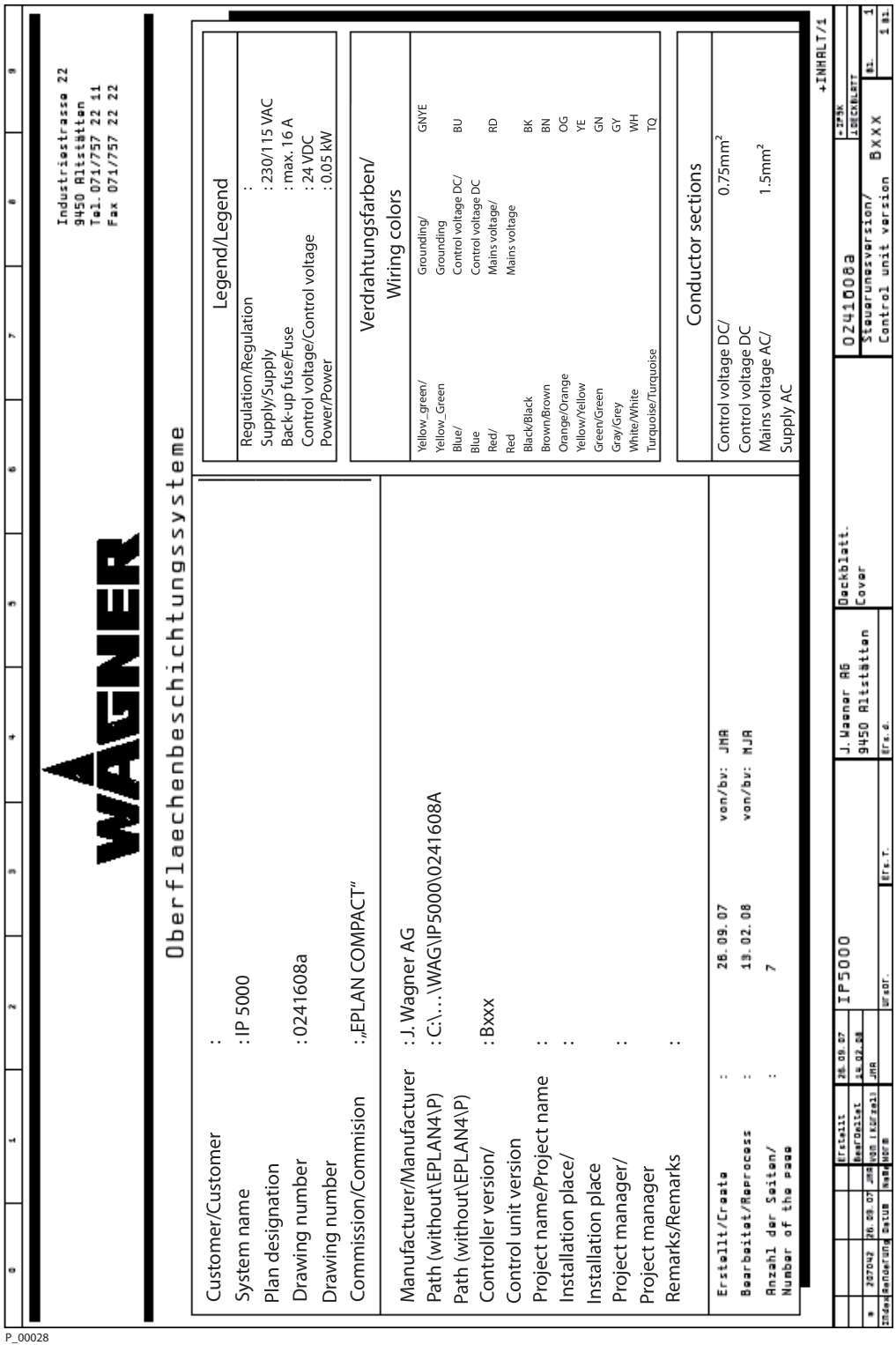


Pos	Description
1	I2 Cleaning on/off
2	I4 Level controller input
3	O2 Cleaning in process
4	Start cleaning

13.3 VALVE ASSIGNMENT

+24V EV1	Inlet valve 1	Pump tube 1	XST 1
+24V KV1	Piston valve 1		
+24V VK1	Vacuum valve 1		
+24V AL1	Blow-out valve 1		
+24V AV1	Outlet valve 1		
+24V EV2	Inlet valve 2	Pump tube 2	XST 2
+24V KV2	Piston valve 2		
+24V VK2	Vacuum valve 2		
+24V AL2	Blow-out valve 2		
+24V AV2	Outlet valve 2		
+24V V11	Ejector valve		XST 3
+24V V12	Valve flushing		
+24V V13			
+24V V14			
+24V V15			

13.4 ELECTRICAL CIRCUIT DIAGRAMS



P_00028

0	1	2	3	4	5	6	7	8	9

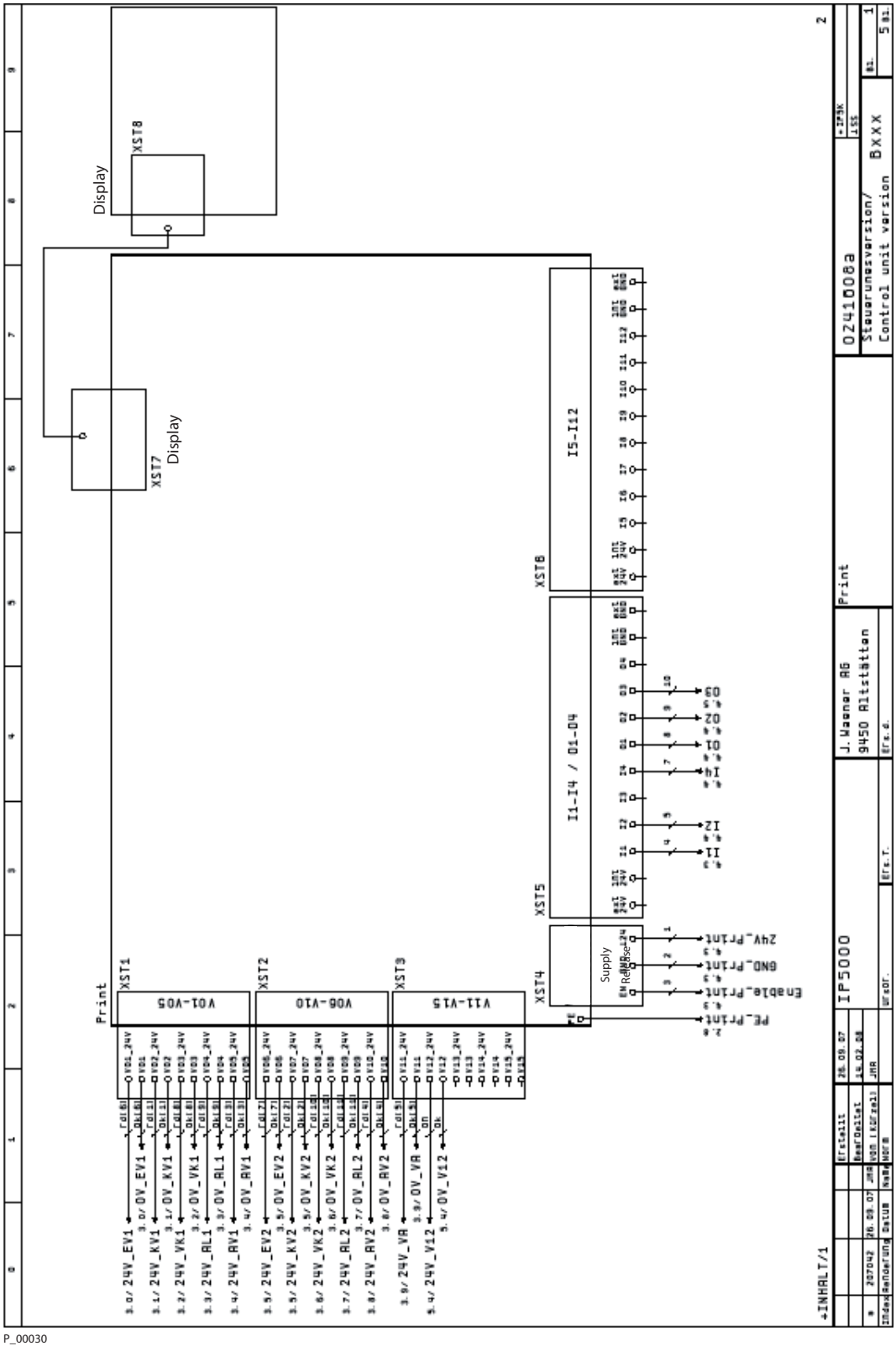
Cause Location

		Cover Volume	Side		Datum	Bearb.
	IP5K		1	Side name	26.09.07	JMA
	IP5K		1		01.10.07	JMA
	IP5K	SS	1	Cover, Cover	01.10.07	JMA
	IP5K	SS	2	Table of Contents	01.10.07	JMA
	IP5K	SS	3	Print	01.10.07	JMA
	IP5K	SS	4	Grounding	01.10.07	JMA
	IP5K	SS	5	Valves	01.10.07	JMA
				Powder center connection, connection powder center		
				Cleaning box connection, connection flushing box		

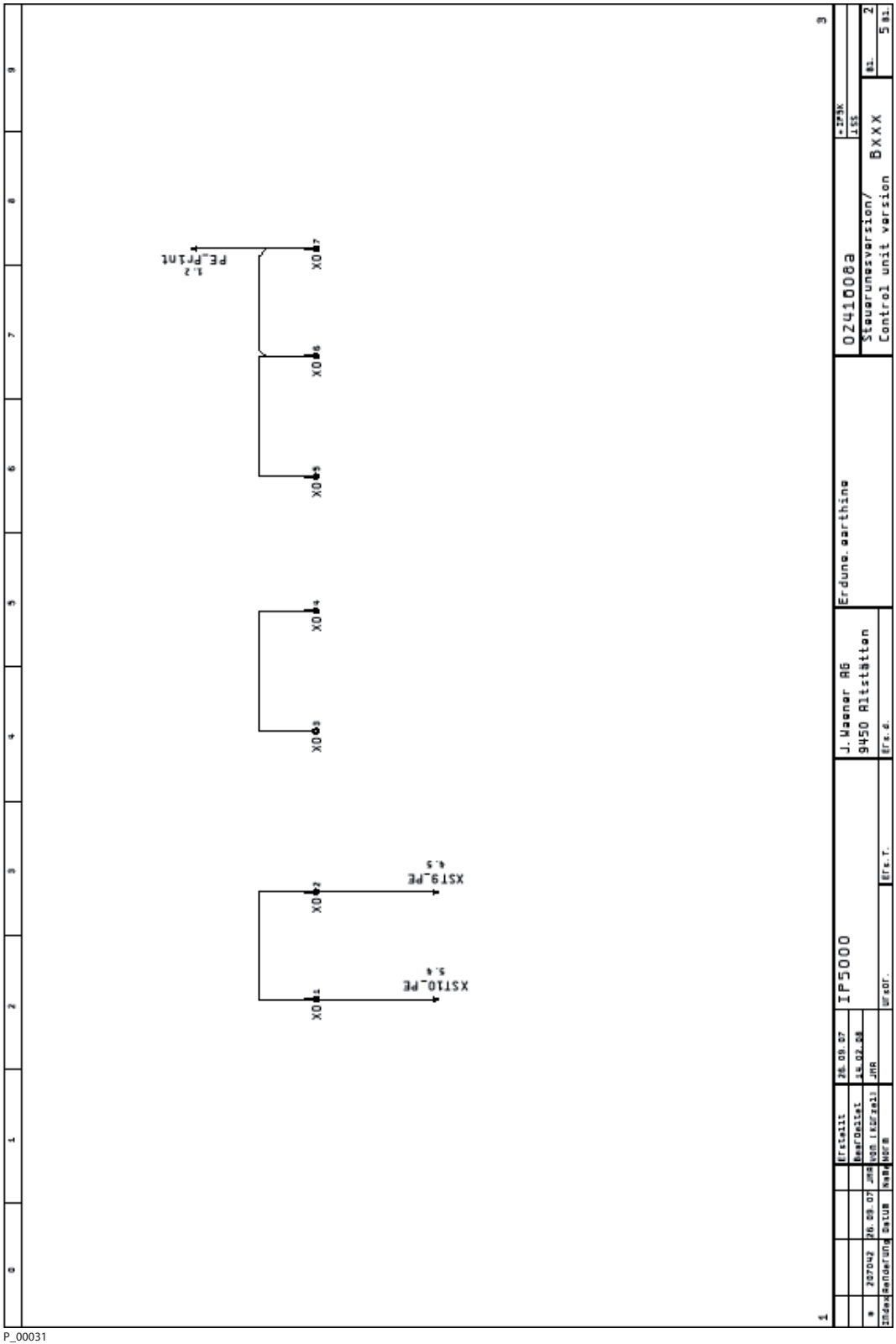
+DECKBLATT/1 +SS/1

				Erstellt	26.09.07	IP5000	J. Wagner AG 9450 Altstätten	Inhaltsverzeichnis	0241008a / +IP5K / ±INHALT
				Bearbeitet	14.02.08				Steuerungsversion/ Control unit version BXXX
a	207042	26.09.07	JMA	von (Kürzel)	JMA				Bl. 1
Index	Aenderung	Datum	Name	Norm		Urspr. / Ers. f.	Ers. d.		1 Bl.

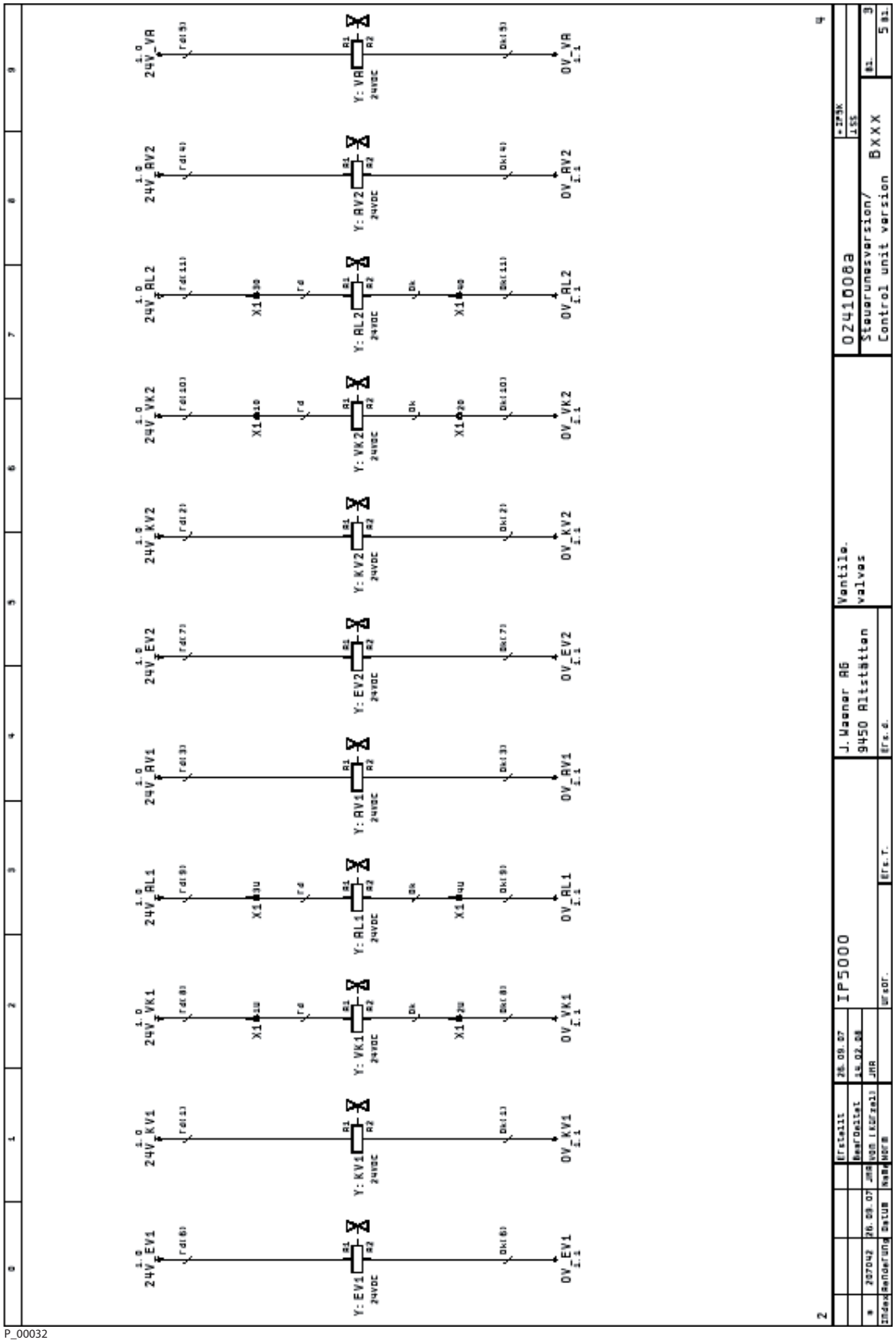
P_00029


Display
XST8
XST7
Display
Print
XST1
XST2
XST3
XST4
XST5
XST6
V01-V05
V06-V10
V11-V15
I1-I4 / O1-O4
I5-I12
Supply
24V_Print
GND_Print
Enable_Print
PE_Print
09
02
01
I4
I2
I1
0241008a
Steuerungsversion/
Control unit version
BXXX
J. Wagner AG
9450 Altstätten
IP5000
Print
INHALT/1

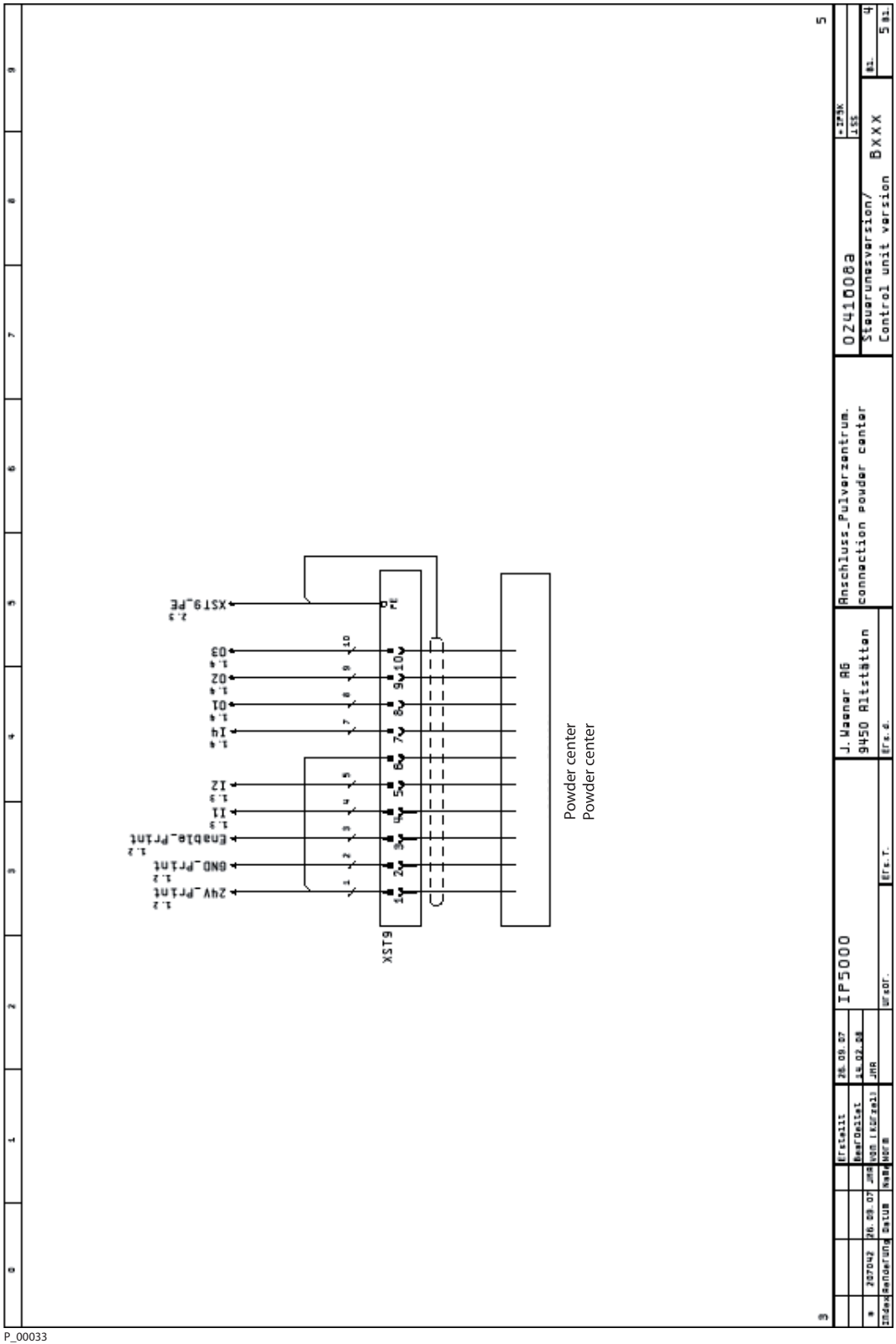
P_00030


PE_Pf1N1
5.2
XST9_PE
4.5
XST10_PE
5.4
IP5000
J. Wagner AG
9450 Altstätten
Erdung. earthing
0241008a
Steuerungsversion/
Control unit version
BXXX

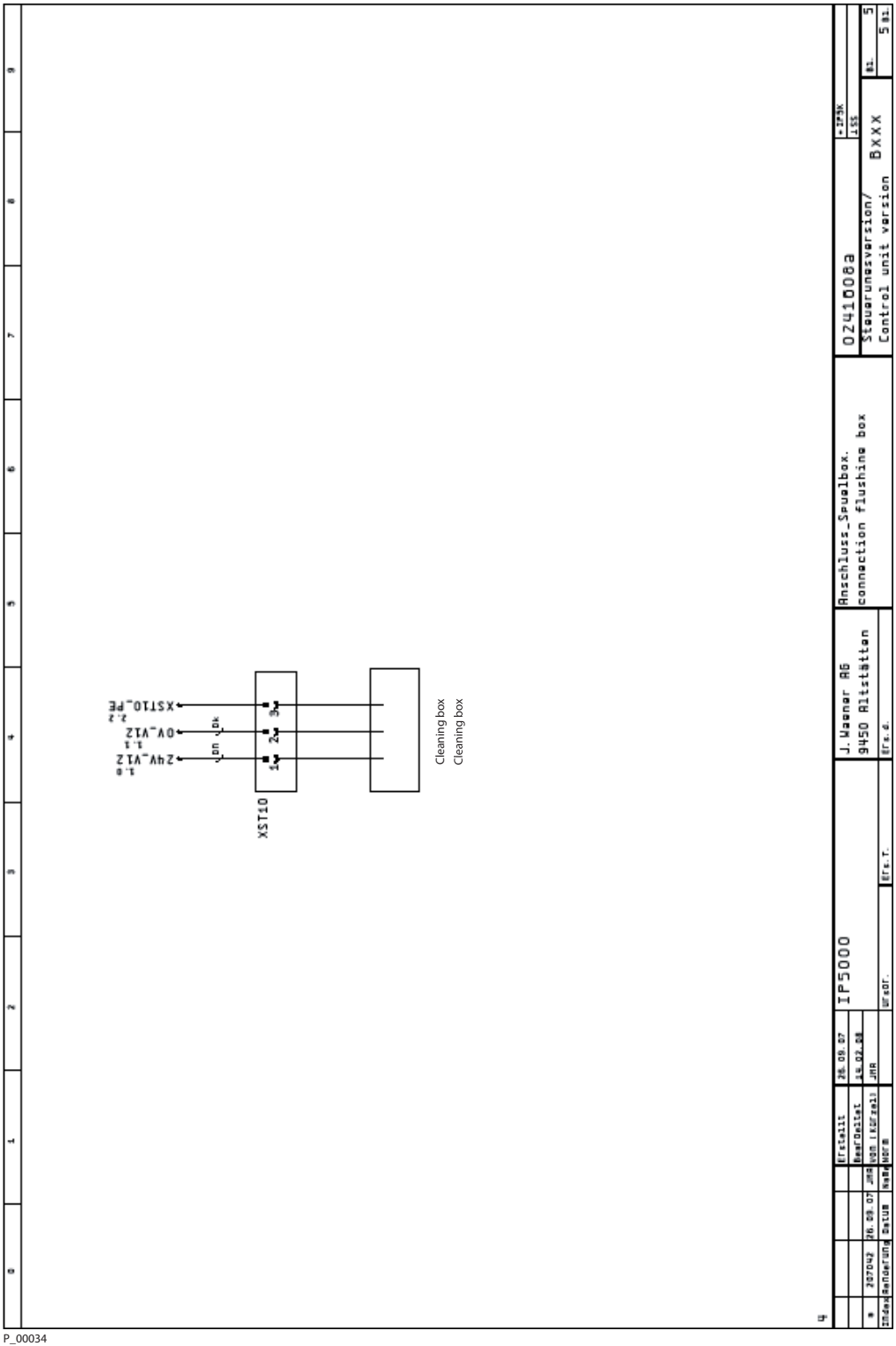
P_00031


24V_EV1
24V_KV1
24V_VK1
24V_RL1
24V_AV1
24V_EV2
24V_KV2
24V_VK2
24V_RL2
24V_AV2
24V_VA
OV_EV1
OV_KV1
OV_VK1
OV_RL1
OV_AV1
OV_EV2
OV_KV2
OV_VK2
OV_RL2
OV_AV2
OV_VA
Y: EV1
Y: KV1
Y: VK1
Y: RL1
Y: AV1
Y: EV2
Y: KV2
Y: VK2
Y: RL2
Y: AV2
Y: VA
24VDC
IP5000
J. Wagner AG
9450 Altstätten
Ventile.
valves
0241008a
Steuerungsversion/
Control unit version
BXXX

P_00032

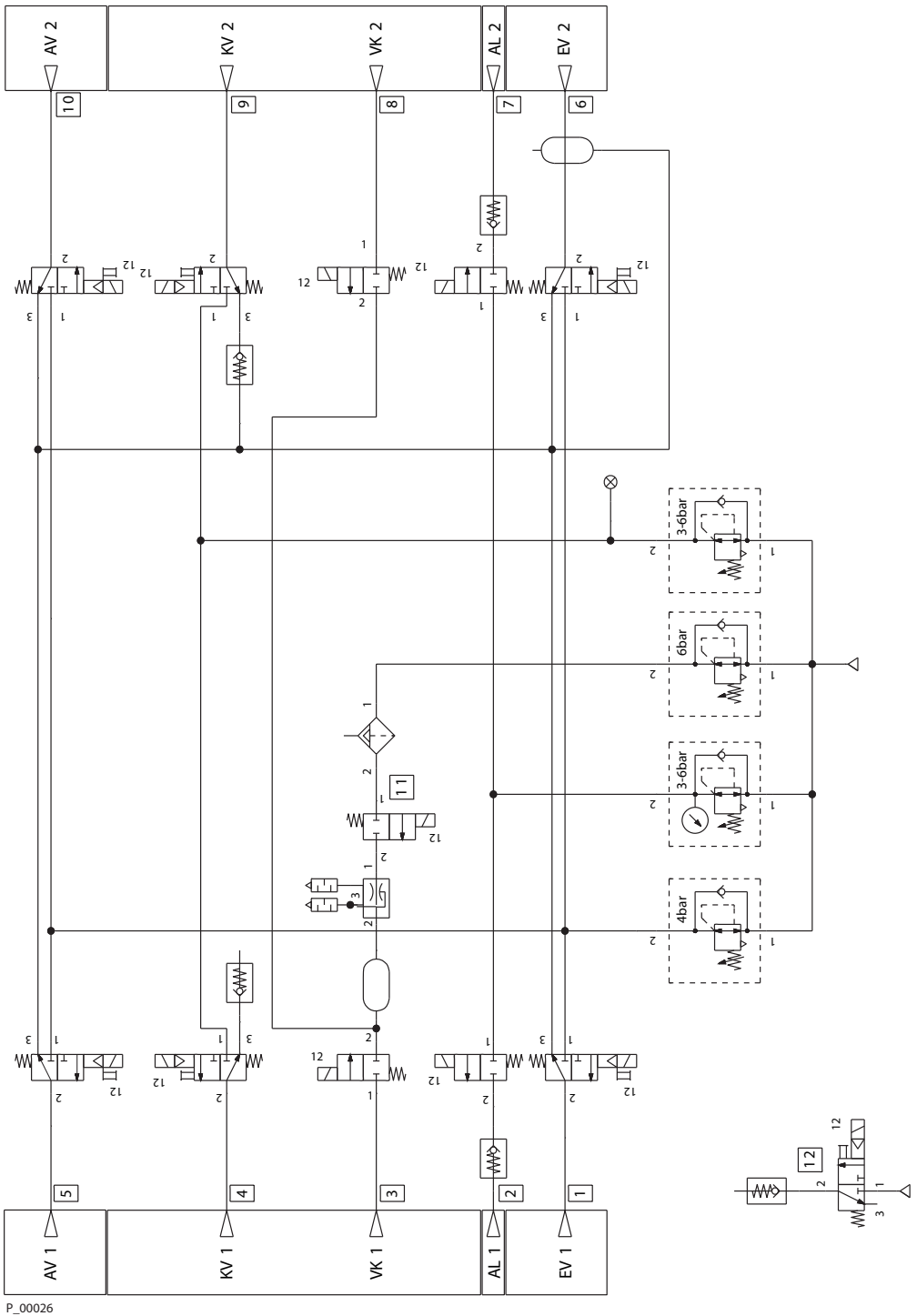

XST9_PE
03
02
01
Iy
I2
I1
enable_Print
GND_Print
24V_Print
XST9
Powder center
Powder center
J. Wagner AG
9450 Altstätten
Anschluss_Pulverzentrum.
connaction powder center
0241008a
Steuerungsversion/
Control unit version
BXXX
IP5000

P_00033


XST10_PE
0V_V12
Zhy_V12
XST10
Cleaning box
Cleaning box
IP5000
J. Wagner AG
9450 Altstätten
Anschluss_Spulbox.
connection flushing box
0241008a
Steuerungsversion/
Control unit version
BXXX

P_00034

13.5 PNEUMATIC DIAGRAM



P_00026

Number	Description
1	EV1 inlet valve 1
2	AL1 blow-out valve 1
3	VK1 vacuum valve 1
4	KV1 piston valve 1
5	AV 1 outlet valve 1
6	EV 2 inlet valve 2
7	AL2 blow-out valve 2
8	VK2 vacuum valve 2
9	KV2 piston valve 2
10	AV2 outlet valve 2
11	Ejector
12	External flushing

14 UK DECLARATION OF CONFORMITY

Herewith we declare that the supplied version of:

IP 5000, IP 5000-USD powder pump

complies with the following provisions:

SI 2008/1597
SI 2016/1107
SI 2016/1091

Applied standards, in particular:

BS EN ISO 12100:2010	BS EN ISO 80079-36:2016
BS EN ISO 4414:2010	BS EN IEC 60079-0:2018
BS EN ISO 13732-1:2008	BS EN 60079-31:2014
BS EN 14462:2015	BS EN IEC 61000-6-2:2019
BS EN 1127-1:2019	BS EN IEC 61000-6-4:2019

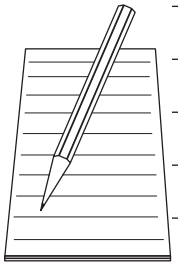
Applied national technical standards and specifications, in particular:

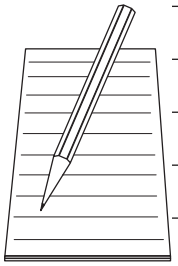
Identification: UK CA Ex II 3D Ex tc IIIB T85°C Dc

UK Declaration of Conformity

The UK 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: 241942





Order no. 2428973
Edition 08/2021

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Subject to changes without notice

Document No. 11423376
Version G