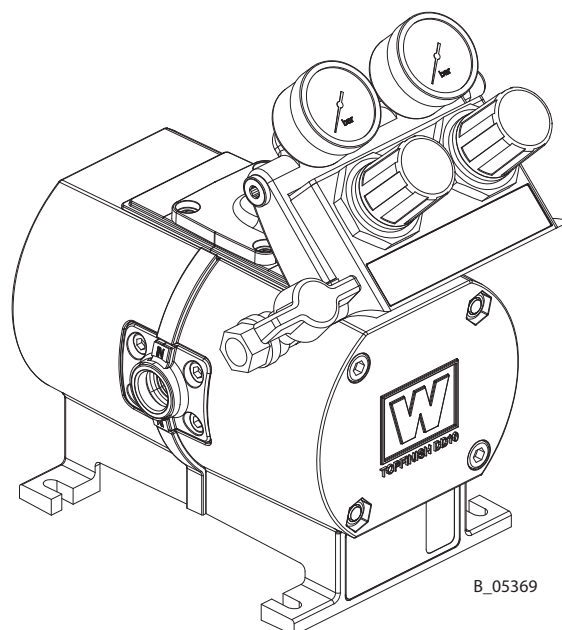
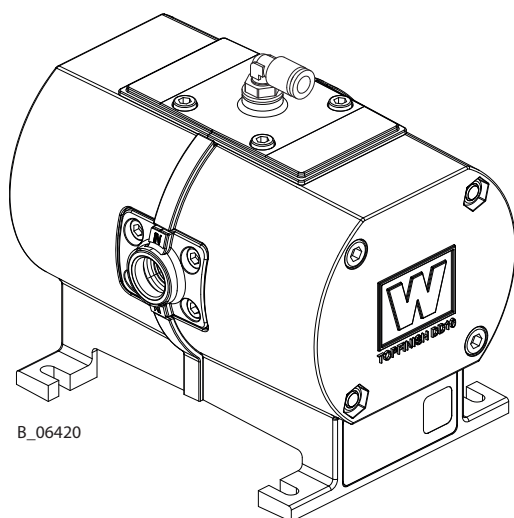




Pneumatic double diaphragm pump

TOPFINISH DD10 Alu NiP

Original Operating Manual

UK CA II 2 G Ex h IIB T4 Gb X

For professional use.

Always observe the information in this manual, particularly the safety instructions and the warning instructions. Store the manual in a safe place.

Edition: 09/2021

TABLE OF CONTENTS

1	About these instructions	5
1.1	Preface	5
1.2	Warnings, Notices and Symbols in these Instructions	5
1.3	General Characters and Symbols	5
1.4	Languages	6
1.5	Abbreviations	6
1.6	Terminology for the Purpose of this Manual	6
2	Using in accordance with the instructions	8
2.1	Device Type	8
2.2	Type of Use	8
2.3	For Use in Potentially Explosive Areas	8
2.4	Processible Working Materials	8
2.5	Misuse	9
3	Identification	10
3.1	Explosion Protection Identification	10
3.2	Identification "X"	10
3.3	Type Plate	11
4	Basic Safety Instructions	12
4.1	Safety Instructions for the Operator	12
4.2	Safety Instructions for the Personnel	13
5	Description	18
5.1	Components	18
5.2	Mode of Operation	18
5.3	Protective and Monitoring Equipment	18
5.4	Scope of Delivery	18
5.5	Data	19
5.6	Pressure Regulator Unit on TOPFINISH DD10	22
6	Assembly and Commissioning	24
6.1	Training of Assembly/Commissioning Personnel	24
6.2	Storage Conditions	24
6.3	Installation Conditions	24
6.4	Transportation	24
6.5	Assembly and Installation	25
6.6	Grounding	27
6.7	Commissioning	29
7	Operation	31
7.1	Training the Operating Personnel	31
7.2	Emergency Stop	31
7.3	Tasks	31
7.4	Pressure Relief / Work Interruption	31
7.5	Basic Flushing	32
8	Cleaning and Maintenance	35
8.1	Cleaning	35
8.2	Maintenance	36
9	Troubleshooting and Rectification	41

10	Repairs	42
10.1	Repair Personnel	42
10.2	Repair Notes	42
10.3	Tools	43
10.4	Cleaning the Parts after Disassembly	43
10.5	Assembly of the Device	43
10.6	Replacing the Diaphragm	44
10.7	Replacing Valves	45
11	Function Test after Repair Work	46
12	Disposal	47
12.1	Device	47
12.2	Consumable products	47
13	Accessories	48
14	Spare Parts	53
14.1	How to order spare parts	53
14.2	Notes on Using Spare Parts	53
14.3	Overview of the Components	54
14.4	Cover, Spare Parts Set	55
14.5	Switching Component, Spare Parts Set	55
14.6	Liquid Body, Spare Parts Set, Al NiP	56
14.7	Diaphragm, Spare Parts Set	56
14.8	Valve, Spare Parts Set, Al NiP	56
14.9	Air Piston, Spare Parts Set	57
14.10	Product Seal, Spare Parts Set, Al NiP	57
14.11	Inlet, Spare Parts Set, Al NiP	57
14.12	Outlet, Spare Parts Set, Al NiP	58
14.13	Air Body, Spare Parts Set	58
14.14	Shaped Packing Seal, Spare Parts Set	58
14.15	Distributor, Spare Parts Set	58
14.16	Regulator Unit, Spare Parts Set	59
14.17	Grounding, Spare Parts Set	59
14.18	Liquid Component Retrofit Set	59
15	Declaration of Conformity	60
15.1	UK Declaration of Conformity	60

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.
	Info	Provides information about particular characteristics and how to proceed.

Explanation of warning notice:

WARNING

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 GENERAL CHARACTERS AND SYMBOLS

The characters and symbols in this operating manual indicate the following:

- ✓ Requirement that must be fulfilled before an action can be performed.

1. Step 1 of an action to be performed with several action steps.

- ▶ Second level action step

2. Step 2

- ⇒ Intermediate result of an action

- ⇒ Result of a complete action

- ▶ Action to be performed with an action step

1. Numbered list, first level

- Numbered list, second level

- Non-numbered list, first level
- Non-numbered list, second level

[▶▶ 8] = cross-reference on page

◆ = wearing parts

* = included in service set

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

1.4 LANGUAGES

The operating manual is available in the following languages:

Original operating manual

Language	Order no.
English	2431507

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

1.5 ABBREVIATIONS

Order no.	Order number
ET	Spare part
K	Marking in the spare parts lists
Pos	Position
Stk	Number of pieces
DH	Double stroke
SSt	Stainless steel
Al NiP	Aluminum, nickel plated
2K	Two components

1.6 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 flushing agent.
Product pressure generator	Pump or pressure tank.

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 areas of explosion protection, protection from pressure hazards and electric hazards (if applicable) 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.

2 USING IN ACCORDANCE WITH THE INSTRUCTIONS

2.1 DEVICE TYPE

Pneumatic double diaphragm pump and spray pack:

TOPFINISH DD10

2.2 TYPE OF USE

The device is suitable for processing liquid materials like paints and lacquers in accordance with their classification into explosion groups IIA or IIB (see Chapter Processible Working Materials [►► 8]).

WAGNER explicitly prohibits any other use!

The device may only be operated under the following conditions:

- ▶ Use the device only to work with the materials 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 can be employed in explosion hazard zones (Zone 1) (see Chapter Identification [►► 10]).



2.4 PROCESSIBLE WORKING MATERIALS

Fluid materials like paints and lacquers.

Application	TOPFINISH DD10
Water-dilutable products	↗
Solvent-based lacquers and paints	↗
Two-component coating products	↗
Emulsions	↗
UV lacquers	→
Primers	↗
Epoxy and polyurethane lacquers, phenolic lacquers	↗
Liquid plastics	→
Wax-based underside protection	↗
Shear-sensitive lacquers	↗

Signs and definitions:

- ↗ recommended
- limited suitability
- ↘ not suitable

! NOTICE

Abrasive working materials and pigments!

Greater wear of product-wetted parts.

- ▶ Use the application-oriented model (flow rate/cycle, product, valves, etc.) as indicated in the Chapter Technical Data.
- ▶ Check if the fluids and solvents being used are compatible with the pump construction materials as indicated in the Chapter Materials of Paint-wetted Parts.

Wear caused by abrasive working materials is not covered by the warranty.

Typical applications

Application	TOPFINISH DD10
Furniture industry	↗
Kitchen manufacturers	↗
Joinery	↗
Window factories	→
Steel-processing industry	→
Construction of vehicles	↗
Shipbuilding	↘

Signs and definitions: ↗ recommended
 → limited suitability
 ↘ not suitable

2.5 MISUSE

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

- ▶ No dry coating products, e.g., powder are processed.
- ▶ No food, medicine or cosmetics are processed. It is important to note that the device's materials are not food-safe.

3 IDENTIFICATION

3.1 EXPLOSION PROTECTION IDENTIFICATION

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

Device Type	Pneumatic double diaphragm pump TOPFINISH DD10
Manufacturer	Wagner International AG 9450 Altstätten Switzerland

**UK
CA**



II 2 G Ex h IIB T4 Gb X

UKCA	UK Conformity Assessed
Ex	Symbol for explosion protection
II	Device class II
2	Category 2 (zone 1)
G	Ex-atmosphere gas
Ex	Ignition protection
h	Ignition protection for non-electrical devices
IIB	Explosion group
T4	Maximum surface temperature < 135 °C; 275 °F
Gb	Zone 1 high safety level
X	Special notes (see Chapter Identification "X" [►► 10])



3.2 IDENTIFICATION "X"

The maximum surface temperature corresponds to the permissible product temperature. This and the permissible ambient temperature can be found in Chapter Technical data.

Safe Handling of WAGNER Spray Devices

Mechanical sparks can form if the device comes into contact with metal.
In an explosive atmosphere:

- Knocking or pushing metal against metal is to be avoided.
- Do not drop the device.

Maximum surface temperature

The maximum surface temperature of the pump depends on the operating conditions (heated product) and not on the device (frictional heat).

Ignition temperature of the coating product

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

Ambient temperature

The permissible ambient temperature range is: 4 °C to 40 °C; 39 °F to 104 °F.

Electrostatic surface spraying

- Do not spray device parts using electrostatic equipment.



Cleaning

If there are deposits on the surfaces, the device may form electrostatic charges. Flames or sparks can form during discharge.

- ▶ Remove deposits from the surfaces to maintain conductivity.
- ▶ Use only a damp cloth to clean the device.



Air in the pump fluid

Ignitable gas mixtures can form if air enters the pump fluid.

- ▶ Prevent the pump from taking in air and running dry.
- ▶ If air has been taken in, fix the leak. Then, fill slowly and in a controlled manner until the air has escaped.

Air in the pumped liquid can be caused by damaged diaphragms.

- ▶ Avoid operating the pump with damaged diaphragms.
- ▶ Periodically check that the pump is working smoothly, paying special attention to the presence of air in the pumped fluid.

Filling and emptying

Ignitable gas mixtures can form in the fluid section or product hoses if the pump must be emptied for maintenance and/or repair purposes.

- ▶ Empty and fill the device slowly and in a controlled manner.
- ▶ Avoid potentially explosive atmosphere in the surroundings.

3.3 TYPE PLATE

1	WAGNER	Wagner International AG, CH-9450 Altstätten Made in Switzerland.	CE UK CA
8	Patents: https://go.wagner-group.com/patents		
2	max. Air Pressure	0.8MPa; 116 psi	II 2 G Ex h IIB T4 Gb X
3	max. Fluid Pressure	0.8MPa; 116 psi	
4	Tamb °C/°F	4-40/39-104	
5	Article No.		
6	Year of manufacture - Serial No.		
7	Check user manual before use!		

B_06916

Pos	Designation
1	Manufacturer and CE and UKCA identification
2	Max. air pressure
3	Max. product pressure
4	Permissible ambient temperature
5	Article number
6	Model year - serial number
7	Read the operating manual before use
8	Link to the list of patents

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:

- ▶ Place and operate device in accordance with the existing 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 when energized".
- ▶ 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 dangerous fluids or vapors!

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

- ▶ Ensure that the floor in the working area is static dissipative in accordance with BS EN 61340-4-1:2004+A1:2015 (resistance must not exceed 100 MΩ).
- ▶ Paint mist extraction systems/ventilation systems must be fitted on site according to local regulations.
- ▶ 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 product hoses/air hoses adapted to the working pressure are used.
- ▶ Ensure that personal protective equipment is available and is used.



- ▶ Make sure that all people within the work area wear static dissipative shoes. The footwear must correspond to BS EN ISO 20344:2011. The measured insulation resistance must not exceed 100 MΩ.
- ▶ Ensure that during spraying, persons wear static dissipative gloves. The grounding takes place via the spray gun's handle or its trigger.
- ▶ Protective clothing including gloves, must correspond to 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.
- ▶ 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 of 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.
- ▶ Ensure that maintenance and safety checks are performed regularly.
- ▶ In the event of defects, immediately bring the device or system to a stop and arrange to have repairs carried out immediately.

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.

Danger due to high-voltage field!

Danger to life from malfunction of active implants.

- ▶ 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 dangerous fluids or vapors!

Serious or fatal injuries due to inhalation, swallowing or contact with the skin or eyes.

- ▶ 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.
- ▶ Implement the prescribed safety measures, in particular the wearing of safety glasses, safety clothing and protective gloves as well as the use of protective hand cream.
- ▶ 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.

4.2.2 Safe Handling of WAGNER Spray Devices

Danger due to injection of lacquer or flushing agent into the skin!

The spray jet is under pressure and can cause dangerous injuries.

Avoid injection of lacquer or flushing agents:

- ▶ Never point the spray gun at people.
- ▶ Never reach into the spray jet.
- ▶ Perform the following measures 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 device
 - ▶ Securing the Spray Gun Against Actuation
 - ▶ Disconnect the control unit from the mains
- ▶ In the event of functional faults, remedy the fault as described in the chapter on troubleshooting and rectification.
- ▶ 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 Chapter 2.29 and Chapter 2.36.
 - ▶ For shut down devices, the examination can be suspended until the next start-up.



In the event of skin injuries caused by lacquer or flushing agents:

- ▶ Note the lacquer or flushing agent that you have been using.
- ▶ Consult a doctor immediately.

Danger due to recoil forces!

Actuating the trigger can cause strong recoil forces. Thereby, the user can lose his balance and injure himself when falling.

Avoid risk of injury from recoil forces:

- ▶ Ensure that you have firm footing when operating the spray gun.



4.2.3 Grounding the Device

Danger due to electrostatic charge!

Risk of injury, explosion hazard and damage to the device.

Friction, flowing liquids and air or electrostatic coating processes create charges. Flames or sparks can form during discharge. Correct grounding of the entire spraying system prevents electrostatic charges.

- ▶ Ensure that all devices and tanks are grounded before each spraying process.
- ▶ 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).
- ▶ Earth the workpieces being painted.
- ▶ 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's handle or its trigger.

4.2.4 Product Hoses

Danger due to bursting of product hose!

The product hose is under pressure and may cause dangerous injuries.

- ▶ Ensure that the hose material is chemically resistant to the sprayed products and the flushing agents used.
- ▶ Ensure that the product hoses and the fittings are 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
 - ▶ 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.
- ▶ The electrical resistance of the product hose, measured at both valves, must be less than 1 MΩ.
- ▶ 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. In this way 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 can be a multiple of the input air pressure.

4.2.5 Cleaning and Flushing

Danger due to cleaning and flushing!

Explosion hazard and damage to the device.

- ▶ Non-ignitable cleaning agents and flushing agents should preferably be used.
- ▶ 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.



- ▶ Never use chloride or halogenated solvents (such as trichloroethane and methylene chloride) with devices containing aluminium or galvanized/zinc-plated parts. They may react chemically thus producing an explosion danger.
- ▶ Take measures for workplace safety.
- ▶ It should be noted that when the device is put into operation or emptied: depending on the coating product used, depending on the rinsing agent (solvent) used, there may briefly be a mixture inside the pipes and equipment which can ignite.
- ▶ Only use electrically conductive tanks for cleaning and flushing agents.
- ▶ The tanks must be grounded.

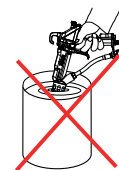
An explosive gas/air mixture forms in closed tanks.

- ▶ 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:

- ▶ Relieve the pressure from the device.
- ▶ De-energize the device electrically.
- ▶ 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.



4.2.6 Touching Hot Surfaces

Danger due to hot surfaces because of hot coating products!

Risk of burn injuries

- ▶ Only touch hot surfaces if you are wearing protective gloves.
- ▶ When operating the device with a coating product with a temperature of $> 43^{\circ}\text{C}$; 109°F , apply a warning label to the device that says "Warning - Hot Surface."

Instruction label: Order no. 9998910

Protection label: Order no. 9998911



Info

Order the two labels together.



4.2.7 Maintenance and Repair

Danger due to improper maintenance and repair!

Danger to life and equipment damage.

- ▶ Only a WAGNER service center or a suitably trained person may carry out repairs and replace parts.
- ▶ 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.
- ▶ Do not change or modify the device; if change is necessary, contact WAGNER.
- ▶ Only repair and replace parts that are listed in Chapters Accessories and Spare Parts [▶ 53] 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:
 - ▶ Relieve the pressure from the spray gun, product hoses and all devices.
 - ▶ Secure the spray gun against actuation.
 - ▶ Switch off the energy and compressed air supply.
 - ▶ Disconnect the control unit from the mains.
- ▶ Observe the operating and service manual for all work.

4.2.8 Protective and Monitoring Equipment

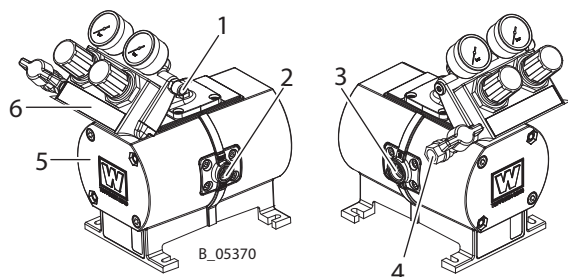
Danger due to removal of protective and monitoring equipment!

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 COMPONENTS



Pos	Designation
1	Air output for gun air
2	Product output
3	Product input
4	Air input
5	Pump housing
6	Pressure regulator unit

5.2 MODE OF OPERATION

The double diaphragm pump is driven with compressed air. A pneumatic manifold alternates in supplying two diaphragms with compressed air. Diaphragm motion is created in this manner. The product is thus sucked in and displaced again. A series of four non-return valves prevents the liquid from flowing back, thus producing the suction and delivery phases in each pumping chamber, and generating the pumping effect.

5.3 PROTECTIVE AND MONITORING EQUIPMENT

WARNING

Overpressure!

Danger to life from bursting device components.

- Never change the safety valve setting.



The air motor is fitted with a safety valve. The safety valve has been set and sealed at the factory. In case of pressures over and above the permissible operating pressure, the valve, which is held with a spring, automatically opens and releases the excess pressure.

5.4 SCOPE OF DELIVERY

Stk	Order no.	Designation
1	—	TOPFINISH DD10 diaphragm pump
The standard equipment includes:		
1	See Chapter Declaration of Conformity [► 60]	Declaration of Conformity
1	2366669	Operating manual, in German
1	See Chapter Languages [► 6]	Operating manual in the local language

The delivery note shows the exact scope of delivery. Accessories: see Chapter Accessories [►► 48].

5.5 DATA

5.5.1 Materials of Paint-wetted Parts

Paint-wetted part	Product
Diaphragm	PA (polyamide)
Remaining material-wetted parts	Aluminum, nickel plated

Positions of the individual parts: See Chapter Spare Parts [►► 53].

5.5.2 Technical Data

Description	Units	TOPFINISH DD10
Pump ratio	—	1 : 1
Volume flow per double stroke (DH)	cm ³	42.2
	cu inch	25.75
Maximum operating pressure	MPa	0.8
	bar	8
	psi	116
Compressed air quality: free from oil and water	—	Quality standard 7.5.4 according to ISO 8573.1: 2010 7: Particle concentration 5–10 mg/m ³ 5: Humidity: Pressure dew point: ≤ +7 °C 4: Oil content: ≤ 5 mg/m ³
Air inlet pressure	MPa	0.15 – 0.8
	bar	1.5 – 8
	psi	22 – 116
Air inlet (inside thread)	inch	1/4"
Sound pressure level at 0.4 MPa; 4 bar; 58 psi air pressure*	dB(A)	58.4
Sound pressure level at 0.6 MPa; 6 bar; 87 psi air pressure*	dB(A)	61.6
Sound pressure level at 0.8 MPa; 8 bar; 116 psi air pressure*	dB(A)	64.0
Product inlet (inside thread)	inch	1/2"
Product output (inside thread)	inch	3/8"
Weight of diaphragm pump without pressure regulator unit	kg	3.2
	lb	7
Weight of diaphragm pump with pressure regulator unit	kg	4.1
	lb	9
Product pH value	pH	3.5 – 9

Description	Units	TOPFINISH DD10
Product viscosity	DIN 4 sec.	15 – 60
Product temperature	°C	4 – 60
	°F	39.2 – 140
Ambient temperature	°C	4 – 40
	°F	39.2 – 104

* A-rated emission sound pressure level measured at 1-m distance, LpA1m, according to DIN EN 14462: 2015.

Reference measurements have been made by SUVA (Swiss National Accident Insurance Fund).

WARNING

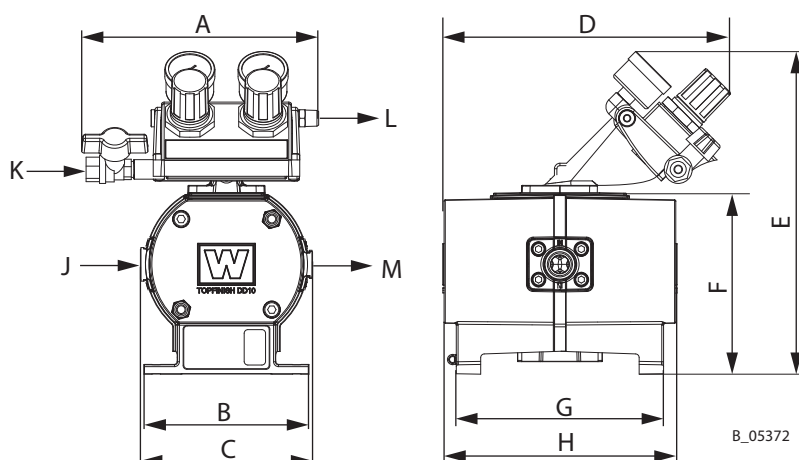
Exhaust air containing oil!

Risk of poisoning if inhaled.

- Provide compressed air free from oil and water.



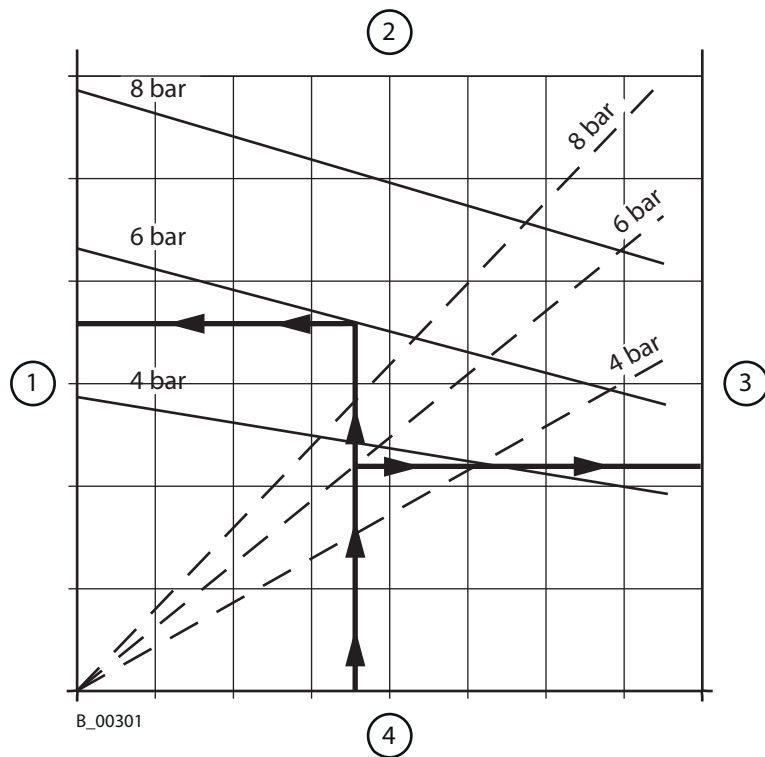
5.5.3 Dimensions and Connections



Pos	mm; inch
A	191; 7.52
B	135; 5.31
C	141; 5.55
D	236; 9.29
E	264; 10.39
F	149; 5.87
G	170; 6.69
H	192; 7.56
J	G1/2" internal thread
K	G1/4" internal thread
L	G1/4" external thread
M	G3/8" internal thread

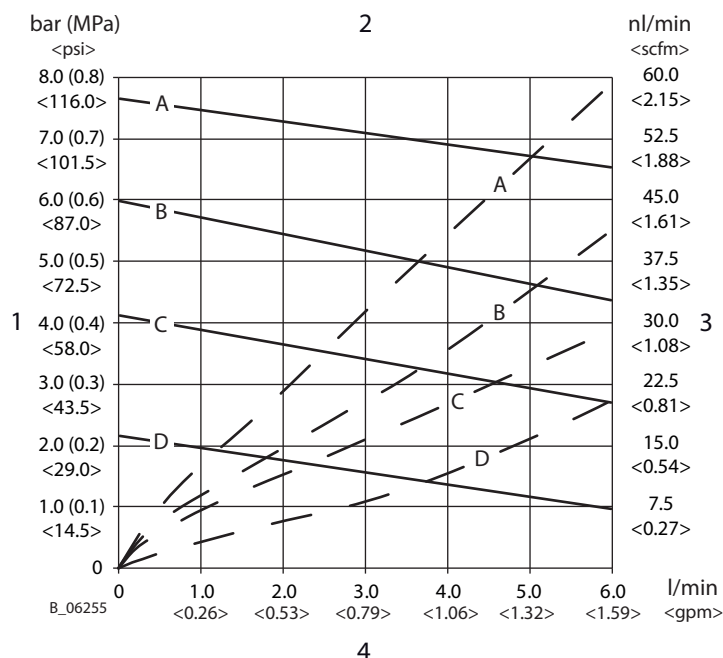
5.5.4 Performance Diagrams

Example



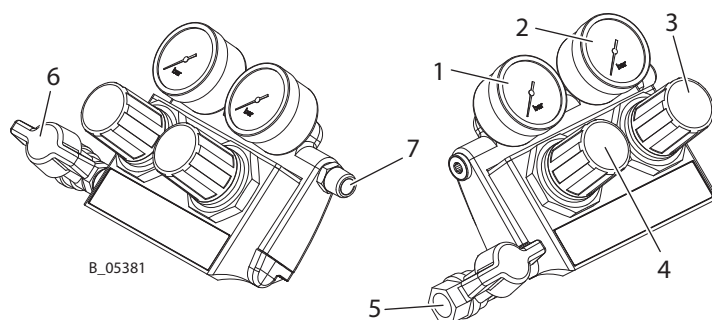
Pos	Designation
1	Product pressure in bar; (MPa); <psi>
2	Stroke frequency in DH/min.
3	Air consumption in nl/min.; <scfm>
4	Flow rate of water in l/min.; <gpm>

TOPFINISH DD10



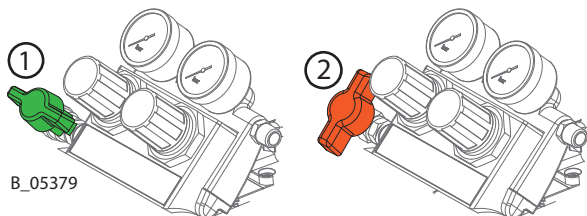
Pos	Designation
1	Product pressure in bar; (MPa); <psi>
2	Stroke frequency in DH/min.
3	Air consumption in nl/min.; <scfm>
4	Flow rate of water in l/min.; <gpm>
A	Characteristic curve for air pressure 8 bar; 0.8 MPa; 116 psi
B	Characteristic curve for air pressure 6 bar; 0.6 MPa; 87 psi
C	Characteristic curve for air pressure 4 bar; 0.4 MPa; 58 psi
D	Characteristic curve for air pressure 2 bar; 0.2 MPa; 29 psi

5.6 PRESSURE REGULATOR UNIT ON TOPFINISH DD10



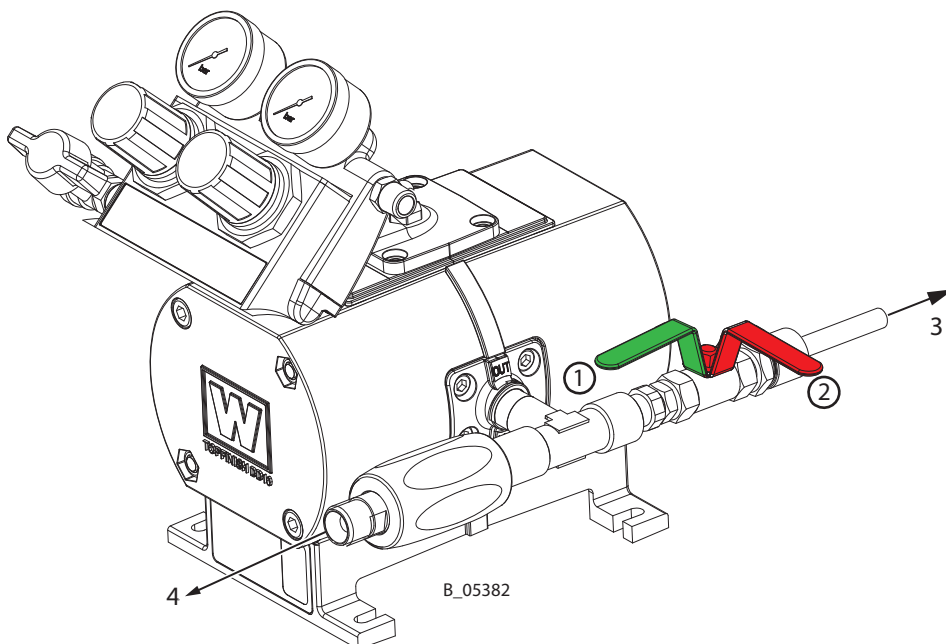
Pos	Designation
1	Pressure gauge – pump
2	Pressure gauge – atomizing air
3	Pressure regulator – atomizing air
4	Pressure regulator – pump

Pos	Designation
5	Compressed air input
6	Ball valve
7	Air output for gun air



Pos	Positions of the ball valve
1	Open: Working position
2	Closed: The air motor may still be under pressure.

5.6.1 Return Valve



Pos	Positions of the ball valve
1	Open: Working position
2	Closed: The air motor may still be under pressure.

Pos	Designation
3	Material return line
4	Product output

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 TRANSPORTATION

The pump can be moved on a trolley or manually without lifting equipment or a crane.

6.5 ASSEMBLY AND INSTALLATION

WARNING

Inclined ground!

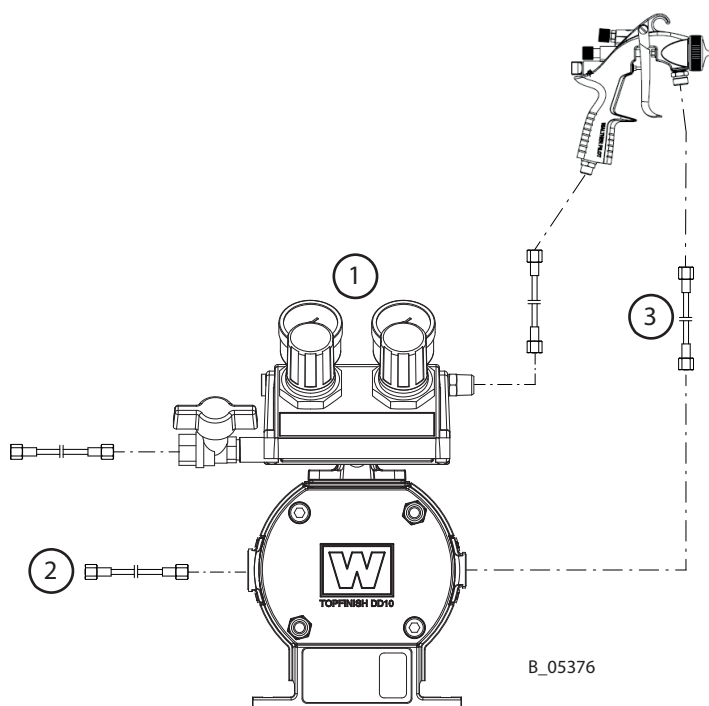
Risk of accidents if the device rolls away/falls.

- ▶ Position the trolley with the double diaphragm pump horizontally.
- ▶ If the floor is inclined, position the feet of the trolley towards the gradient.
- ▶ Secure the trolley.



Info

Ensure that the national explosion prevention rules and regulations are observed when setting up the device.



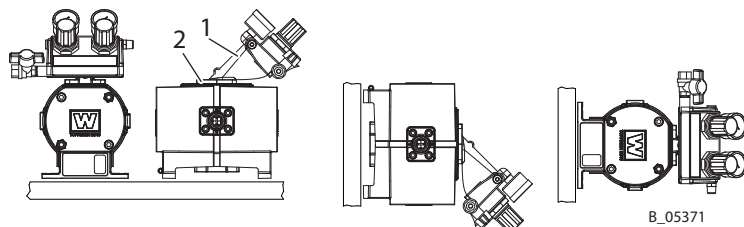
1. Mount the pump on a frame, trolley or wall mount.
2. Connect the suction system and air supply.
3. Connect the material and air supply of the gun in accordance with the operating manual.

This pump can be used as part of a spraying system for AirSpray applications. The components can be found in the accessories list, provided that the system was not obtained as a spray pack. The nozzles must be selected according to the spray gun instructions.

Positioning

The pump can be mounted in any position. Ensure that all fastening screws are properly tightened.

Tighten the fastening screws regularly depending on the application conditions of the pump. In the case of continuous or prolonged operation, it is advisable to check at least once a week that there are no air and/or liquid leaks. The entire pressure regulator unit (1) can be rotated 90 degrees to align the operating elements. For this purpose, the four screws (2) must be removed.



6.5.1 Ventilation of the Spray Booth

- Operate the device in a spray booth approved for the respective 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.

6.5.2 Air Supply Lines

WARNING

Hose connections!

Risk of injury and damage to the device.

- ▶ Do not mix up hose connections of product hose and air hose.
- ▶ 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.



6.5.3 Product Supply Lines

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, fittings and product hose between the device and the spray gun are suitable for the pressure generated in the device.
- ▶ Ensure that the following information can be seen on the high-pressure hose:
 - ▶ Manufacturer
 - ▶ Permissible operating pressure
 - ▶ Date of manufacture.



6.6 GROUNDING

WARNING

Discharge of electrostatically charged components in atmospheres containing solvents!

Explosion hazard from electrostatic sparks.

- ▶ Clean the pump only with a damp cloth.



WARNING

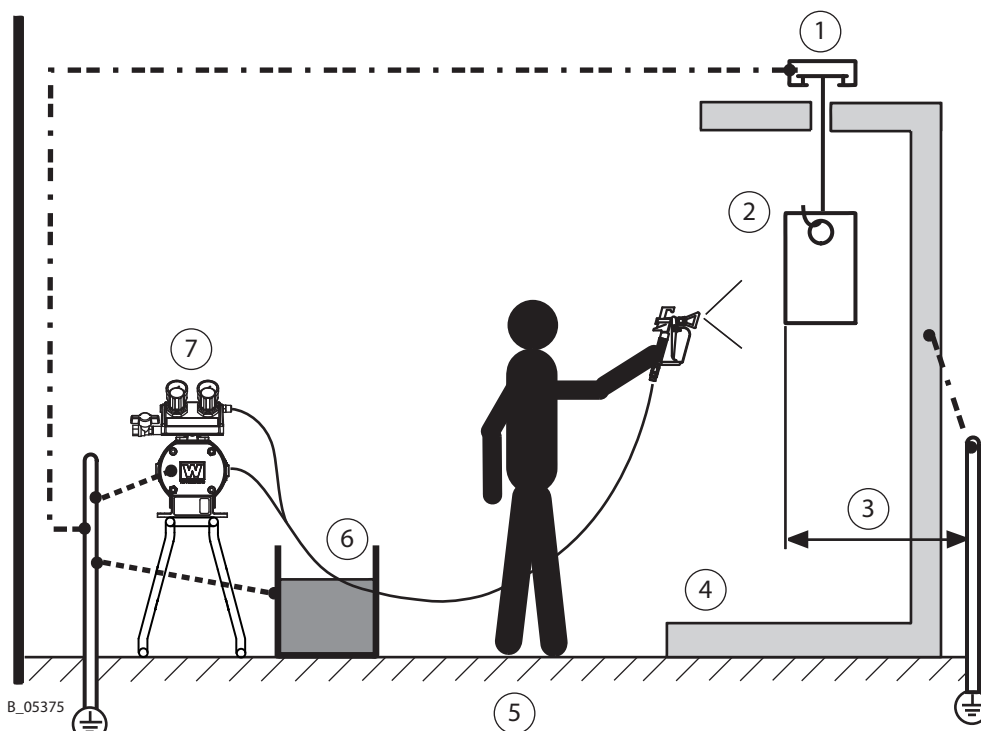
Heavy paint mist if grounding is insufficient!

Risk of poisoning.

Insufficient paint application quality

- ▶ Ground all device components.
- ▶ Ground the work pieces to be coated.



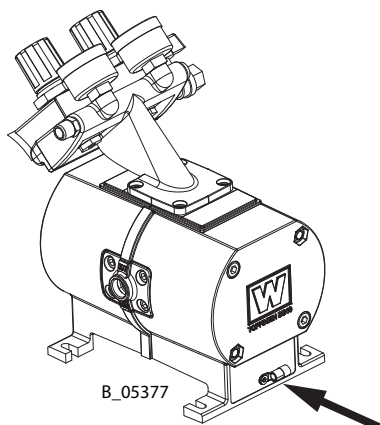


Grounding scheme (example)

Pos	Part / workstation	Cable cross section
1	Conveyor	16 mm ² ; AWG6
2	Work piece	—
3	$R_{\max} < 1 \text{ M}\Omega$	—
4	Spraying stand Alternative: Spray booth	16 mm ² ; AWG6
5	Floor, static dissipative	—
6	Product tank	6 mm ² ; AWG10
7	Pump	4 mm ² ; AWG12

Info

Safe operation of the pump is only guaranteed with a grounding connection. Connect all grounding cables using a short and direct route.



1. Screw on grounding cable with eyelet.
2. Clamp the grounding cable clip to a grounding connection on site.
3. Ground the product tank to an on-site grounding connection.
4. Ground the other parts of the system to an on-site grounding connection.

Ex zone

All devices and equipment must be suitable for use in potentially explosive areas.

- All paints, flushing agents and waste tanks have to be electrically conductive.
- All tanks must be grounded.

6.7 COMMISSIONING

WARNING

Gas mixtures can explode if there is an incompletely filled pump!

Danger to life from flying parts.

- ▶ Ensure that the pump and suction system are always completely filled with flushing agent or working medium.
- ▶ Do not spray the device empty after cleaning.



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 before commissioning.

Emergency stop, see Chapter Emergency Stop [▶▶ 31].

6.7.1 Preparation

Before every commissioning, the following points should be observed as laid down in the operating manual:

1. Secure spray gun with safety lever.
2. Check the permissible pressures.
3. Check all connections for leaks.
4. Check hoses for damage in accordance with chapter Safety Checks and Maintenance Intervals [▶▶ 37].

6.7.2 Fill the Pump 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.

- ▶ Fill the empty device with flushing agent in accordance with Chapter Filling the Empty Pump [▶▶ 39].

6.7.3 Pressure Tightness Test

WARNING

Overpressure!

Risk of injury from bursting components.

- ▶ The operating pressure must not exceed the value shown on the type plate.



1. Gradually increase the pressure in pump with the pressure regulator until maximum pressure is reached. Maintain the pressure for 3 minutes and check all connection points for leaks.
2. Carry out pressure relief in accordance with Chapter Pressure Relief / Work Interruption [▶▶ 31].

6.7.4 Verifying a Safe Operational Condition

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

- ▶ Carry out safety checks in accordance with Chapter Safety Checks and Maintenance Intervals [▶▶ 37].



6.7.5 Filling with Working Product

- ▶ Proceed in accordance with Chapter Filling the Empty Pump [▶▶ 39].

7 OPERATION

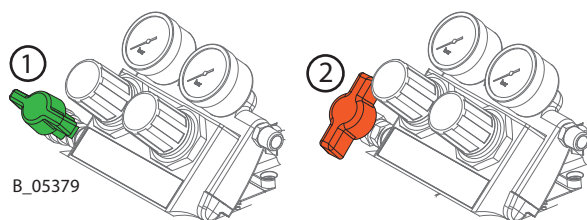
7.1 TRAINING THE OPERATING PERSONNEL

- 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 EMERGENCY STOP

In the case of unforeseen occurrences:

1. Close the ball valve.
2. Interrupt the air supply.



Pos	Designation
1	Open
2	Closed

7.3 TASKS

1. Ensure that:
 - ▶ commissioning is carried out in accordance with Chapter Commissioning [▶▶ 29].
 - ▶ the regular safety checks are carried out in accordance with Chapter Safety Checks and Maintenance Intervals [▶▶ 37],
2. Carry out a visual inspection: Personal protective equipment, grounding and all devices ready for use.
3. Secure spray gun and insert nozzle into the spray gun.
4. Slowly open the ball valve.
5. Set the required working pressure on the pressure regulator.
6. Optimize the spray pattern as laid down in the spray gun instructions.
7. Start work process.

7.4 PRESSURE RELIEF / WORK INTERRUPTION

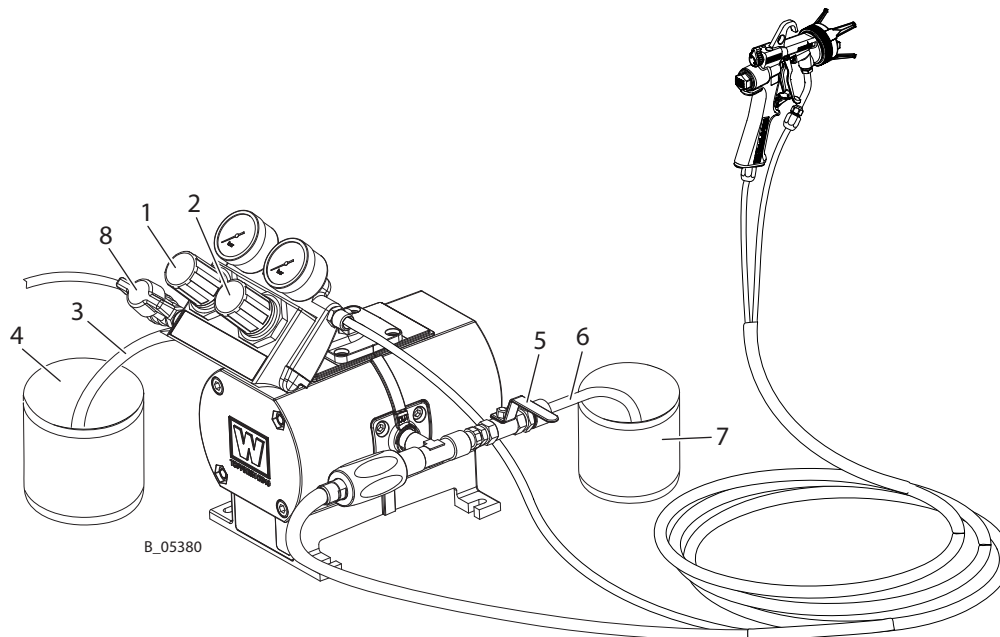
The pressure must always be relieved:

- after the spraying tasks are finished,
- before servicing or repairing the system,
- before carrying out cleaning tasks on the system,
- before moving the system to another location,
- before something needs to be checked on the system,
- before the nozzle or the filter is removed from the spray gun.

The components for pressure relief on a CE-compliant spraying system include:

- Outlet equipment (return valve) mounted between pump and spray gun.

Process for relieving pressure



1. Close the spray gun.
2. Close ball valve (8).
3. Release the system of pressure by opening the spray gun.
⇒ Attention: If a blocked nozzle is preventing relief, first carry out the additional steps 4 and 5, then clean the nozzle.
4. Close and secure the spray gun.
5. Open and close the return valve (5) slowly to completely depressurize the system.

Info

Control air pressure is still present.



! NOTICE

Hardened working product in the spraying system when 2K product is processed!

Using 2K materials can destroy the pump and spraying system.

- ▶ Observe the manufacturer's processing rules, particularly in regards to the pot life.
- ▶ Flush thoroughly before the end of the pot life.
- ▶ The pot life is decreased by warmth.

7.5 BASIC FLUSHING

Regular flushing

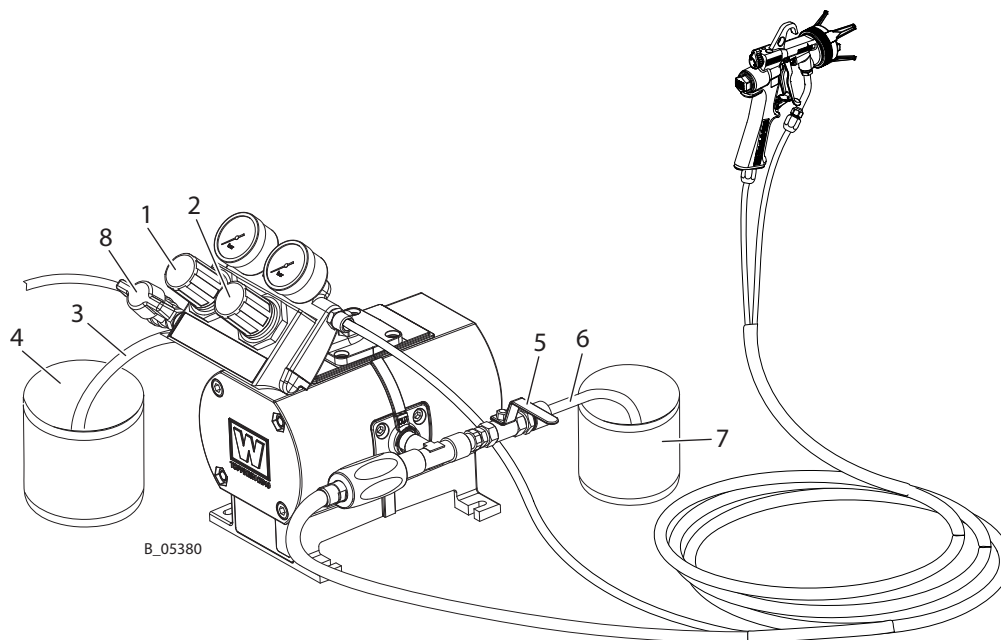
- Regular flushing, cleaning and maintenance ensures the pump's high conveying and suction capacity.
- The cleaning and flushing agents used must be compatible with the working material.

⚠ WARNING

Incompatibility of cleaning/flushing agent and working medium!

Risk of explosion and danger of poisoning by toxic gases.

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



Preparation

1. Carry out a visual inspection: Personal protective equipment, grounding and all devices ready for use.
2. Place empty, grounded tank (7) under the return tube (6).
3. Place the suction hose (3) in the grounded tank with flushing agent (4).
4. Adjust the pressure regulator (1) to approx. 0.2 MPa; 2 bar; 29 psi.

Flushing via the return valve

1. Open return valve (5).
2. Slowly open the ball valve (8).
3. Adjust the air pressure on the pressure regulator (1) so that the pump runs smoothly.
4. Flush the system until clean flushing agent flows into the tank (7).
5. Close ball valve (8).
6. As soon as there is no pressure remaining in the system, close the return valve (5).

Flushing via the gun

1. Point the spray gun, without nozzle, into the tank (7) and open it.
2. Slowly open the ball valve (8).
3. Flush until clean cleaning agent flows from the spray gun.
4. Close ball valve (8).
5. When there is no pressure remaining in the system, close the spray gun.
6. Secure the spray gun.

7. Dispose of the contents of the tank (7) according to the local regulations.

7.5.1 Filling with Working Product

After basic flushing, the pump can be filled with working material.

- ▶ Proceed according to Chapter Filling the Empty Pump [▶▶ 39], but use working product instead of flushing agent.

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:

- risk to health from inhaling solvent vapors,
- use of unsuitable cleaning tools and aids.

8.1.2 Decommissioning and Cleaning

The device should be cleaned for maintenance purposes, etc. Ensure that no remaining product dries on and sticks to the device.

WARNING

Brittle pressure regulator with filter!

The tank on the pressure regulator with filter becomes brittle through contact with solvents and can burst. Flying parts can cause injury.

- ▶ Do not clean the tank on the pressure regulator with filter using solvent.



1. Interrupt the work sequence in accordance with Chapter Pressure Relief / Work Interruption [▶▶ 31].
2. Carry out basic flushing in accordance with Chapter Basic Flushing [▶▶ 32].
3. Empty system in a controlled manner according to Chapter Emptying Pump [▶▶ 38].
4. Service spray gun in accordance to its operating manual.
5. Clean and check the suction system and the suction filter.
6. Clean the outside of the system.
7. Fully assemble the system.
8. Fill the system with flushing agent in accordance with Chapter Filling the Empty Pump [▶▶ 39].

8.1.3 Long-term Storage

If storing the system for a prolonged period of time, thorough cleaning and corrosion protection are necessary. Replace the water or solvent in the product pump with a suitable preserving oil.

1. Carry out decommissioning and cleaning (steps 1 to 7) in accordance with Chapter Decommissioning and Cleaning [▶▶ 35].
2. Fill the system with preservation agent in accordance with Chapter Filling the Empty Pump [▶▶ 39].
3. Empty the system in a controlled manner in accordance with Chapter Emptying Pump [▶▶ 38] and seal the openings.

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:

- risk to health from inhaling solvent vapors,
- 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 suitably 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:
 - ▶ Relieve the pressure from the spray gun, product hoses and all devices.
 - ▶ Secure the spray gun against actuation.
 - ▶ Switch off the energy and compressed air supply.
 - ▶ Disconnect the control unit from the mains.
- ▶ Observe the operating and service manual for all work.



Prior to maintenance

It should be ensured that the device is in the following state before carrying out any work on it:

- Flush and clean the system according to Chapter Decommissioning and Cleaning [▶▶ 35].
- Relieve the pressure from the pump, product hose and spray gun.
- Secure spray gun with safety lever.
- Interrupt the air supply.

After maintenance

- Carry out safety checks in accordance with Chapter Safety Checks and Maintenance Intervals [▶▶ 37].
- Put the system into operation and check for leaks as described in Chapter Commissioning [▶▶ 29].
- Have the system checked for safe condition by a skilled person.
- Carry out functional check in accordance with Chapter Function Test after Repair Work [▶▶ 46].

8.2.3 Safety Checks and Maintenance Intervals

Every day

1. Check grounding: see Chapter Grounding [▶▶ 27].
2. Check hoses, tubes and couplings: see Chapter Product Hoses, Pipes and Couplings [▶▶ 37]
3. For each decommissioning, the process according to Chapter Decommissioning and Cleaning [▶▶ 35] must be followed.
4. If the pump has to be emptied for maintenance work, proceed according to Chapter Emptying Pump [▶▶ 38].

Weekly

1. Check system for damage.
2. Check that the safety fixtures function properly (see Chapter Protective and Monitoring Equipment [▶▶ 18]).

Yearly or as required

1. In accordance with DGUV regulation 100-500, Chapters 2.29 and 2.36:
 - ▶ Have the liquid ejection devices checked by an expert (e.g. WAGNER service technician) as required, but no later than every 12 months to ensure that they are in safe working order.
 - ▶ For shut down devices, the examination can be suspended until the next start-up.

8.2.4 Product Hoses, Pipes and Couplings

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

1. Check hoses, pipes, and couplings every day and replace if necessary.
2. Before every commissioning, check all connections for leaks.
3. 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.
4. Replace the complete hose if one of the following two periods is exceeded:
 - ▶ 6 years from the date of the hose crimping (see fitting embossing).
 - ▶ 10 years from the date of the hose imprinting.

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

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

8.2.5 Emptying Pump

WARNING

Gas mixtures can explode if there is an incompletely filled pump!

Danger to life from flying parts.

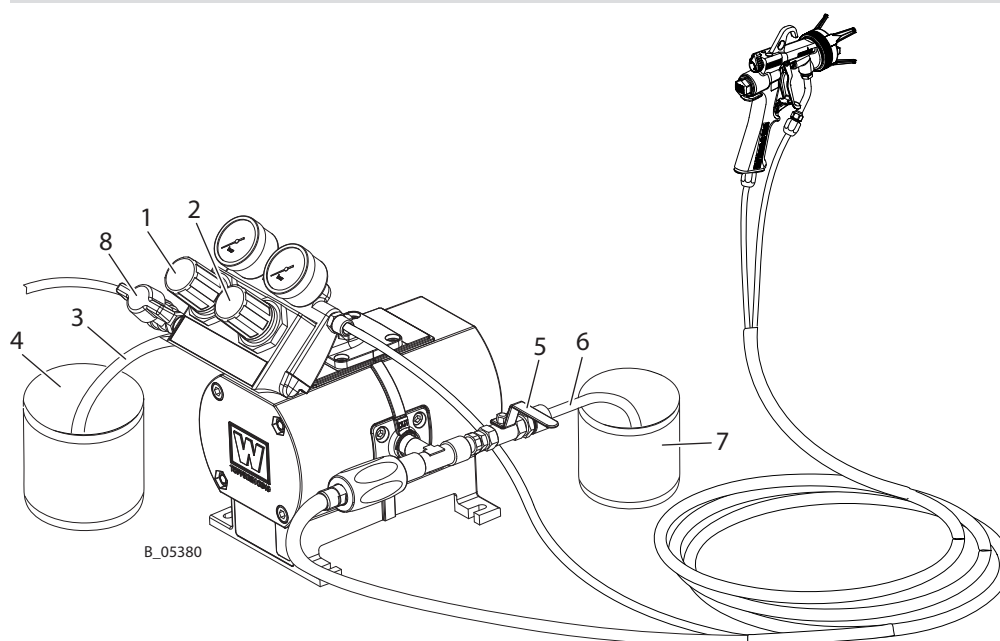
Ignition of potentially explosive surrounding atmosphere.

- ▶ Empty and fill the device slowly and in a controlled manner.
- ▶ Avoid potentially explosive atmosphere in the surroundings.



Info

If the pumping product becomes heated, switch off all heaters and let the product cool off.



1. Visual check: personal safety equipment, grounding and all devices ready to use.
2. Place an empty, grounded collection tank (7) under the return tube (6).
3. Place the suction hose (3) in an empty, grounded tank (4).
4. Close pressure regulator (1) (0 MPa; 0 bar; 0 psi).

Emptying via return line

1. Open return valve (5).
2. Slowly open the ball valve (8).
3. Slowly dial up the air pressure at the pressure regulator (1) until the pump operates smoothly (approx. 0.15 MPa; 1.5 bar; 21.75 psi).
4. Be ready for the switch from working product to air.
5. As soon as working product is no longer flowing from the return tube (6), close the ball valve (8).
6. Close return valve (5).

Emptying up to the gun

1. Point the spray gun, without nozzle, into the tank (7) and open it.
2. Slowly open the ball valve (8). Be ready for the switch from working product to air.
3. As soon as no more working product is flowing, close the ball valve (8).
4. Close and secure the spray gun.
5. Carry out pressure relief in accordance with Chapter Pressure Relief / Work Interruption [►► 31].
6. Dispose of the contents of the tank (7) according to the local regulations.

8.2.6 Filling the Empty Pump

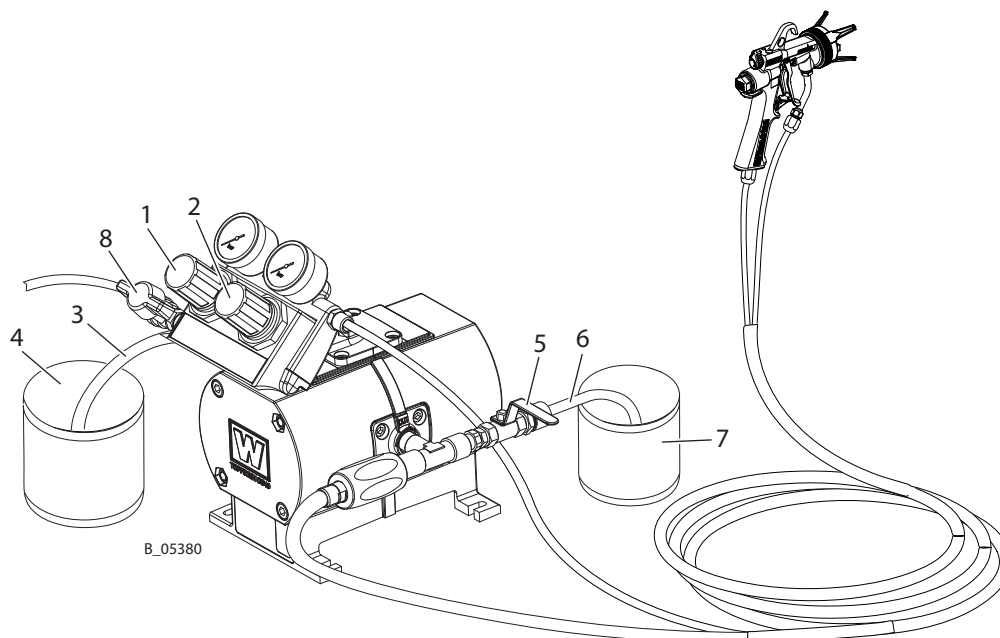
WARNING

Gas mixtures can explode if there is an incompletely filled pump!

Danger to life from flying parts.

Ignition of potentially explosive surrounding atmosphere.

- Empty and fill the device slowly and in a controlled manner.
- Avoid potentially explosive atmosphere in the surroundings.



1. Carry out a visual inspection: Personal protective equipment, grounding and all devices ready for use.
2. Place grounded collection tank (7) under the return tube (6).
3. Place the suction hose (3) in a grounded tank with working product (4).
4. Close the pressure regulator (1) (0 MPa; 0 bar; 0 psi)
5. Open return valve (5).
6. Slowly open the ball valve (8).
7. Slowly turn the air pressure up on the pressure regulator (1) and only until the pump is running normally (approx. 0–0.2 MPa; 0–2 bar; 0–29 psi). Be ready to switch from air to working product and prevent back spray.

8. Close ball valve (8) as soon as pure working material starts coming from the return tube (6).
9. Close return valve (5).
10. Point the spray gun, without nozzle, into the tank (7) and open it.
11. Slowly open the ball valve (8).
Be ready to switch from air to working product and prevent back spray.
12. As soon as pure working product without air bubbles is flowing, close the ball valve (8).
13. Close and secure the spray gun.
14. Carry out pressure relief in accordance with Chapter Pressure Relief / Work Interruption [►► 31].
15. Dispose of the contents of the tank (7) according to the local regulations.

9 TROUBLESHOOTING AND RECTIFICATION

Malfunction	Cause	Remedy
The pump does not work.	The pump does not start or stops.	Open and close ball valve on the pressure regulator unit or briefly disconnect compressed air supply.
	No pressure indication on the pressure gauge (air pressure regulator defective).	Disconnect compressed air supply briefly or repair or change pressure regulator.
	Spray nozzle is clogged.	Clean the nozzle according to the instructions.
	Insufficient compressed air supply.	Check compressed air supply.
	Filter insert in spray gun is clogged.	Clean the parts and use a suitable working material.
	Clogging in the fluid section or hose (e.g. 2K material cured).	Dismount and clean fluid section, replace hose.
	Grease in spool and sleeve assembly. Occasionally, the pump stops at the reversal point.	Degrease spool and sleeve assembly. Check detent body.
Poor spray pattern.	See the gun instructions.	
Irregular operation of product pump: Spray jet collapses (pulsation).	Viscosity is too high.	Thin spraying product.
	Spraying pressure is too low.	Increase incoming air pressure. Use a smaller nozzle.
	Foreign body in suction valve.	Dismantle suction valve housing, clean and check valve seat.
	Diameter of compressed air line too small.	Provide a larger supply line. See Chapter Technical Data [►► 19] for technical specifications.
	Worn out valves.	Replace the parts.
	Control air filter or work air filter is clogged.	Check and clean it if necessary.
Highly irregular operation of product pump.	Diaphragms "blocked" because suction is too fast.	Operate pump temporarily with ball valve opened a minimal amount.
The pump runs evenly, but does not suck up any product.	The suction system's union nut is loose; the pump is taking in air.	Tighten.
	Suction filter is clogged.	Clean filter.
Pump runs fast when the spray gun is closed.	Valves worn.	Replace the parts.
Loss of power due to severe icing.	There is a lot of condensation water in the air supply.	Install a water separator.

If none of the causes of malfunction mentioned are present, the defect can be remedied by a WAGNER service center.

10 REPAIRS

10.1 REPAIR PERSONNEL

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:

- risk to health 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. A function test should be performed.

10.2 REPAIR NOTES

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.
- ▶ 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:
 - ▶ Relieve the pressure from the spray gun, product hoses and all devices.
 - ▶ Secure the spray gun against actuation.
 - ▶ Switch off the energy and compressed air supply.
 - ▶ Disconnect the control unit from the mains.
- ▶ Observe the operating and service manual for all work.



Before Repair Work

It should be ensured that the device is in the following state before carrying out any work on it:

1. Flush and clean the system according to Chapter Decommissioning and Cleaning [▶▶ 35].
2. Interrupt the air supply.

After Repair Work

1. Carry out safety checks in accordance with Chapter Safety Checks and Maintenance Intervals [▶▶ 37].
2. Put the system into operation in accordance with Chapter Commissioning [▶▶ 29] and check for leaks in accordance with Chapter Function Test after Repair Work [▶▶ 46].
3. Have the system checked for safe condition by a skilled person.
4. Carry out functional check in accordance with Chapter Function Test after Repair Work [▶▶ 46].

10.3 TOOLS

The following tools are required for assembling and disassembling the device (if possible, always bring entire tool sets with you):

Torque wrench with:

- | | | |
|-------------|------|-------------------|
| – Allen key | SW 4 | 5 Nm; 3.68 lbft |
| – Allen key | SW 5 | 7 Nm; 5.16 lbft |
| | | 10 Nm; 7.36 lbft |
| – Torx | X20 | 1.5 Nm; 1.11 lbft |

10.4 CLEANING THE PARTS AFTER DISASSEMBLY

⚠ 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.



Please note:

1. Thoroughly clean all reusable parts with a suitable cleaning agent.
2. All dismantled parts have to 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). Perform cleaning and mounting tasks wearing gloves.

10.5 ASSEMBLY OF THE DEVICE

In Chapter Spare Parts [►► 53] the order numbers for device spare parts can be found, as well as for wearing parts such as seals.

1. Defective parts, O-rings and seal sets must always be replaced.
2. Use greases and glues in accordance with Chapter Spare Parts [►► 53].
3. Observe torque specifications in Chapter Spare Parts [►► 53].

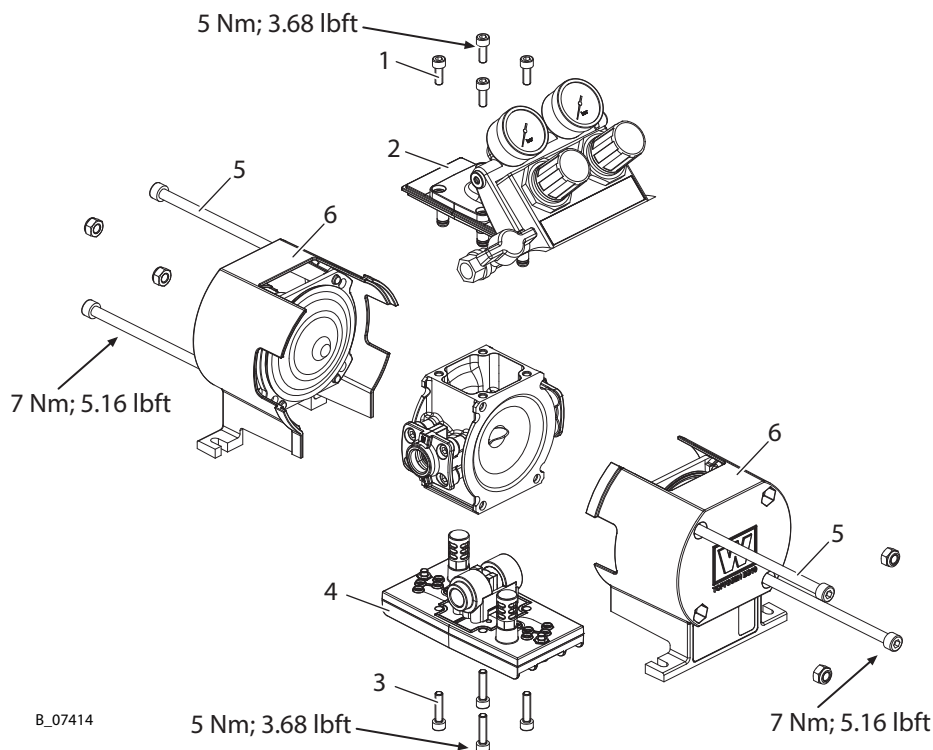
Assembly Aids

Order no.	Quantity	Designation	Smaller tanks
9992590	1 pc $\triangleq$ 50 ml	Loctite® 222	
9992831	1 pc $\triangleq$ 50 ml	Loctite® 542	
2396031	1 pc $\triangleq$ 10 gr	Grease	
322912	1 pc $\triangleq$ 250 ml	Hydraulic oil - Wagner	

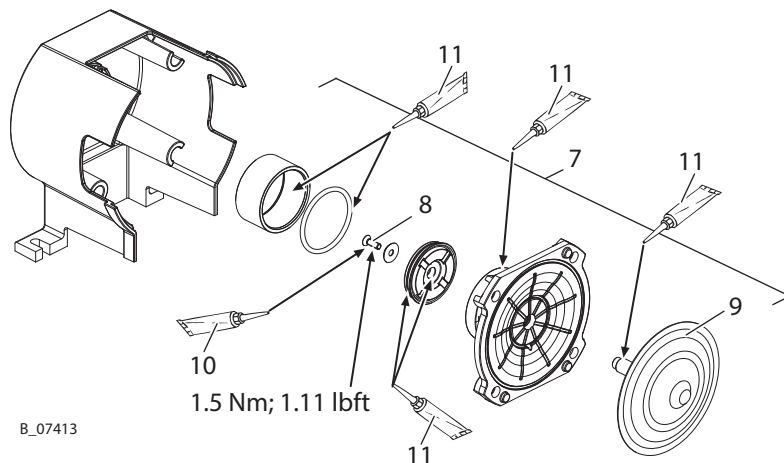
Brand notice

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

10.6 REPLACING THE DIAPHRAGM



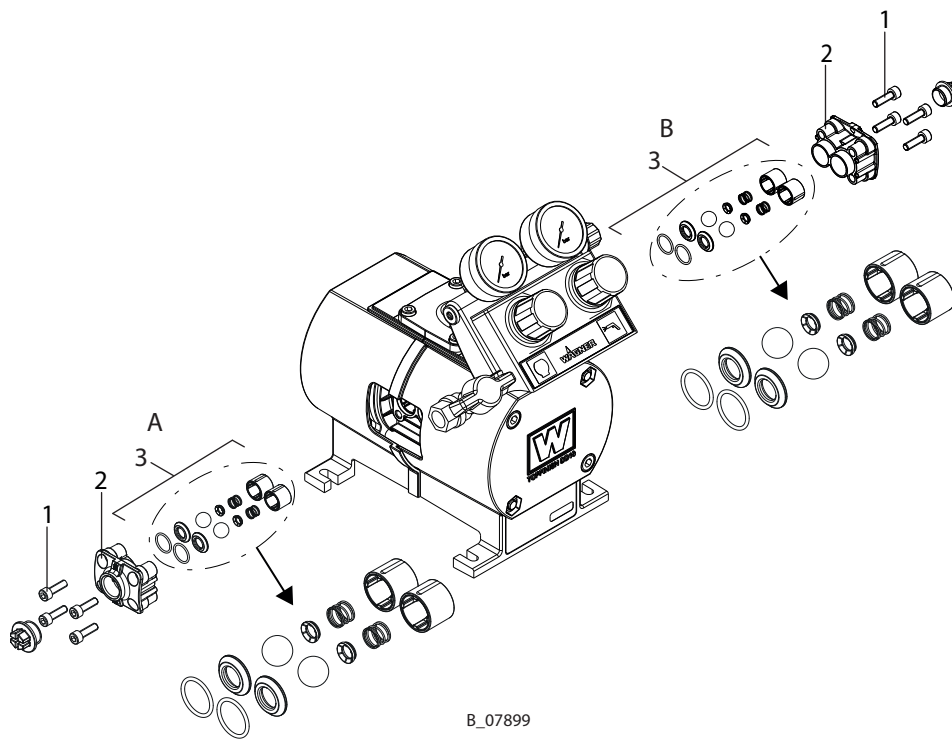
1. Unscrew the four screws (1) and remove the plate (2) from the pump.
2. Unscrew the four screws (3) and remove the plate (4) from the pump.
3. Unscrew the Allen screws (5) on both halves of the pump housing.
4. Pull the pump housing (6) apart.
5. The components (7) can be removed from the two housing halves with gentle movements.



6. Unscrew the screws (8) on both components.
7. The diaphragms (9) can now be removed from the component and replaced.
8. Re-assemble the pump in reverse order.
 - ▶ Lubricate the parts in the corresponding areas using 2396031 (11).
 - ▶ Apply Loctite 222 (10) to screws (8).

- Observe tightening torque.

10.7 REPLACING VALVES



Pos	Designation
A	Product input
B	Product output

1. Unscrew the screws (1).
2. Remove the valve housing (2).
3. Replace the component (3).
4. Re-assemble the pump in reverse order.

11 FUNCTION TEST AFTER REPAIR WORK

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

Activity	Aid tools
1. EX-relevant tests	
► Check the ground connection between the corresponding ground connection of the pump and the frame/trolley, and between the individual parts of the frame/trolley: $<100 \text{ k}\Omega$ These tests are -relevant!	Ohmmeter
2. Leaktightness check	
1. Connect the pump to the air supply (6 bar). 2. To perform a tightness check on the device, the product pressure with the flushing agent is slowly increased in increments until the maximum pressure indicated on the type plate is reached. 3. Close pump outlet. 4. Allow to stand in this position for 0.5-1 minute and listen for audible blowing off. 5. When the air supply is turned off, a drop in pressure must be watched for.	Air motor: Test medium: Compressed air Leak spray Fluid section: Test medium: Suitable flushing agent
3. General checks	
1. Check the tightening torques of various screws; see Chapter Spare Parts [► 53]. 2. Check all fittings. 3. Empty device (Chapter Emptying Pump [► 38]) and relieve pressure (Chapter Pressure Relief / Work Interruption [► 31]). 4. Check the functionality of the frame or transport trolley. Check whether the pump is mounted horizontally on the frame.	Torque wrench Visual check

12 DISPOSAL

12.1 DEVICE

When the devices must be scrapped, please differentiate the disposal of the waste materials.

The following materials have been used:

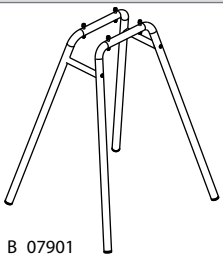
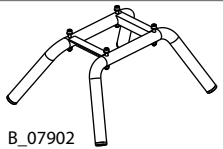
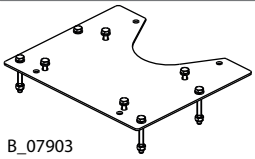
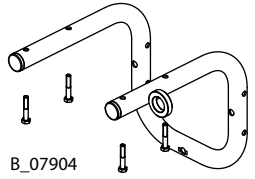
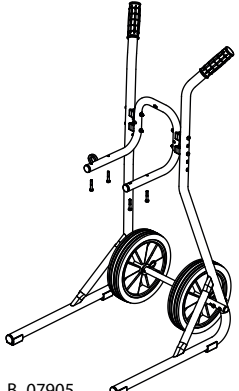
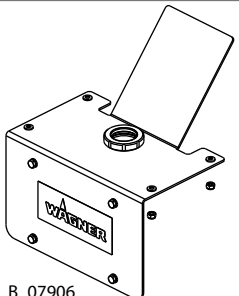
- Stainless steel
- Aluminum
- Elastomers
- Plastics
- Ceramic

12.2 CONSUMABLE PRODUCTS

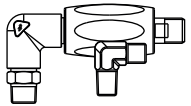
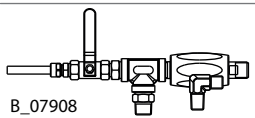
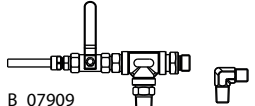
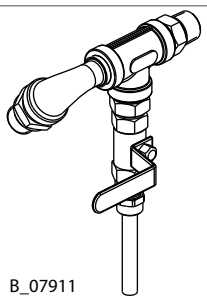
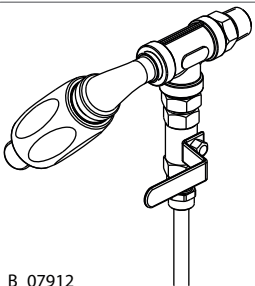
Consumable products (lacquers, adhesives, flushing and cleaning agents) must be disposed of in accordance with all applicable legal requirements.

13 ACCESSORIES

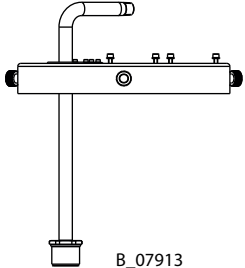
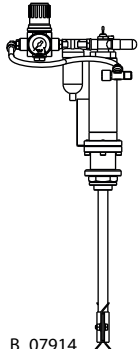
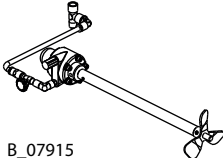
Mounting accessories

Designation	Order no.	Illustration
Stand, large	2368206	 B_07901
Stand, small	2368231	 B_07902
Mounting plate, complete For connecting the DD10 to the 6" wall mount and mounting on the 6" trolley.	2405531	 B_07903
Wall mount 6, complete Requires mounting plate 2405531 for mounting the DD10.	2332145	 B_07904
Trolley 6, complete Requires mounting plate 2405531 for mounting the DD10.	2325916	 B_07905
Front panel, complete For upright mounting (product input, top) of the pump on wall mount or trolley. Note: Use appropriate air regulator unit 2404679 for this purpose.	2405557	 B_07906

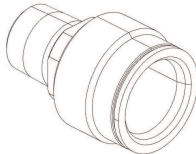
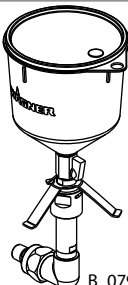
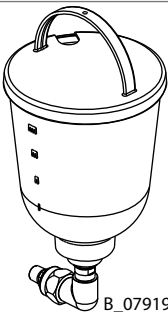
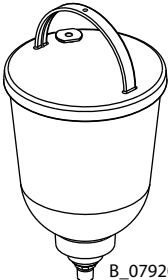
Filters and Circulation

Designation	Order no.	Illustration
Inline filter with 90° bend Filter housing for the common Wagner cage filter. Stainless steel parts that come into contact with product.	2368427	 B_07907
Circulation with inline filter Ball valve for relief and circulation. Filter housing for the common Wagner cage filter. Stainless steel parts that come into contact with product.	2368434	 B_07908
Circulation Ball valve for relief and circulation. Stainless steel parts that come into contact with product.	2368428	 B_07909
Fitting-DF-MM-R3/8"-G3/8"-PN530-SSt	3676419	 B_07910
Circulation For use when the pump is mounted upright with product output at the bottom.	2404923	 B_07911
Circulation with inline filter For use when the pump is mounted upright with product output at the bottom.	2404930	 B_07912

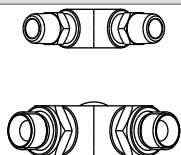
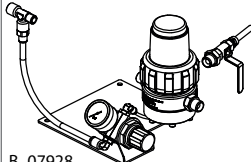
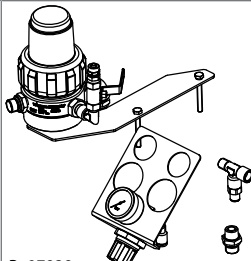
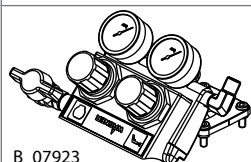
Drum cover and agitator

Designation	Order no.	Illustration
Drum cover Mounting option for pump and agitator incl. suction tube.	2368238	 B_07913
Agitator, Ex Compressed-air agitator for mounting on drum cover 2368238 (for EX area).	2370629	 B_07914
Agitator, non-Ex Compressed-air agitator for mounting on drum cover 2368238 (for non-EX area).	T600.1457	 B_07915

Suction Systems

Designation	Order no.	Illustration
Fitting, DF-MM-R1/2"-M36-PN15-SSt For connecting the Wagner suction systems to the DD10.	2329560	 B_07916
Suction hose Requires fitting 2329560 for the DD10 connection.	2324110	 B_07917
2 liter hopper for horizontal pump mounting	2368788	 B_07918
5 liter hopper for horizontal pump mounting	2397216	 B_07919
5 liter hopper for upright pump mounting	2405309	 B_07920

Application Accessories

Designation	Order no.	Illustration
Distributor for 2 guns Air and product distributor. Stainless steel parts that come into contact with product.	2368439	 B_07921
FFC - Fine Flow Control Product pressure regulator with integrated filter and connection and mounting material. For horizontal pump assembly with product output at the side.	2368735	 B_07928
FFC - Fine Flow Control Product pressure regulator with integrated filter and connection and mounting material. For vertical (product output at bottom, see figure) or horizontal assembly (product output at side) of the pump on a wall mount or trolley. The details for the corresponding assembly are explained in the assembly manual.	2405230	 B_07929
Regulator unit SP For use with vertical assembly of the pump (product input at top or bottom)	2404679	 B_07923
Fitting-EF-MM-G1/4-R1/4-530 bar	2389277	 B_07924

Note on assembly instructions of the spray packs (examples of accessory combinations)

Designation	Spray Pack No.	Assembly Manual No.
Spray pack with 5 l hopper	2405304	2409050
Spray pack with suction hose	2405363	2409051
FFC - Fine Flow Control for spray pack	2405230	2409052

14 SPARE PARTS

14.1 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“ (marking) in the following spare parts lists:

♦ Wearing parts. Wearing parts are not included in the warranty.

★ = included in service set

● not part of the standard equipment but available as a special accessory

Explanation of order no. column:

-- Item not available as spare part.

/ Position does not exist.

14.2 NOTES ON USING SPARE PARTS

DANGER

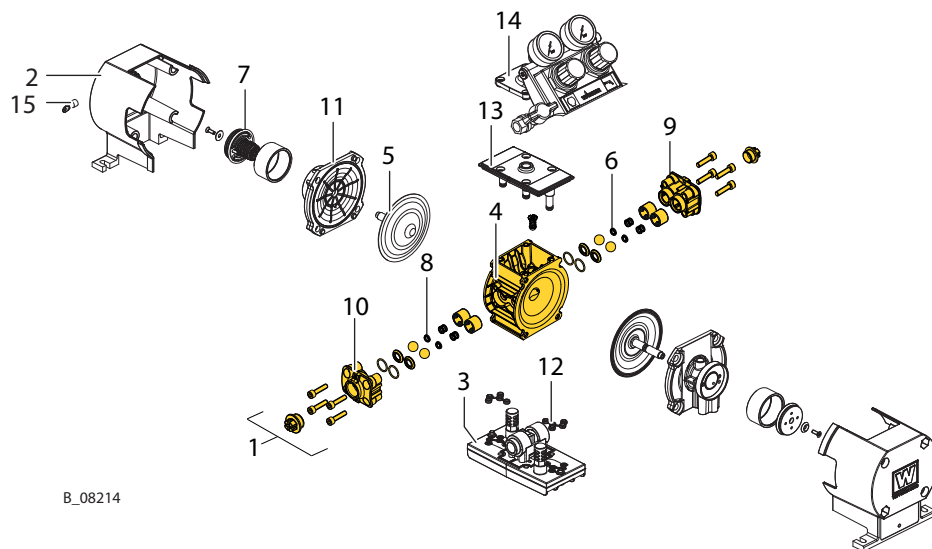
Incorrect maintenance/repair!

Danger to life and equipment damage.

- ▶ Only a WAGNER service center or a suitably trained person may carry out repairs and replace parts.
- ▶ 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:
 - ▶ Relieve the pressure from the spray gun, product hoses and all devices.
 - ▶ Secure the spray gun against actuation.
 - ▶ Switch off the energy and compressed air supply.
 - ▶ Disconnect the control unit from the mains.
- ▶ Observe the operating and service manual for all work.



14.3 OVERVIEW OF THE COMPONENTS

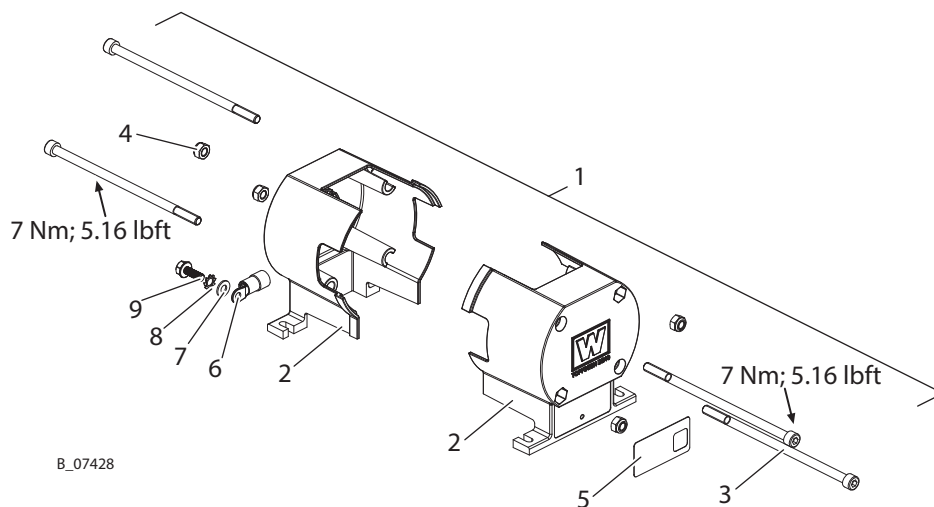


B_08214

Pos	K	Stk	Order no.	Designation
--		1	2414298	DD10 Al NiP pump (without position 14)
--		1	2414299	DD10 Al NiP pump with regulator (with position 14)
1		1	2414405*	Retro liquid component (for conversion from SSt to Al NiP)
2		1	2370189	Cover, spare parts set
3		1	2370193	Switching component, spare parts set
4		1	2414409	Liquid Body, Spare Parts Set, Al NiP
5		1	2370200	Diaphragm, spare parts set
6		1	2414410	Valve, spare parts set, Al NiP
7		1	2370203	Air piston, spare parts set
8		1	2414412	Product seal, spare parts set, Al NiP
9		1	2414407	Inlet, spare parts set, Al NiP
10		1	2414408	Outlet, spare parts set, Al NiP
11		1	2370215	Air body, spare parts set
12		1	2370219	Shaped packing seal, spare parts set
13		1	2370220	Distributor, spare parts set
14		1	2370221	Regulator unit, spare parts set
15		1	2370222	Grounding, spare parts set

* Note: Since the product-carrying parts of the stainless steel version (previous version!) are not compatible with the product-carrying parts of the nickel-plated aluminum version (Al NiP), please have the article and serial number ready if possible. The liquid body spare part (4) may need to be replaced with the conversion set (1).

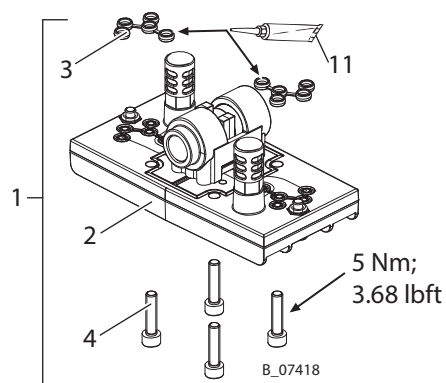
14.4 COVER, SPARE PARTS SET



Pos	K	Stk	Order no.	Designation
1		1	2370189	Cover, spare parts set
2		2	--	Cover
3		4	--	Screw, M8x180
4		4	--	Nut, M8
5		1	--	Type plate*
6		1	--	Cable lug
7		1	--	Washer
8		1	--	Toothed lock washer
9		1	--	Screw for cable lug

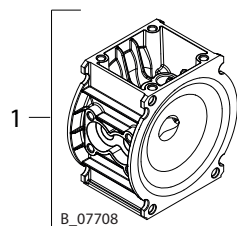
* Transfer the article no. and serial no. from the previous type plate to the new one using a waterproof felt-tip pen!

14.5 SWITCHING COMPONENT, SPARE PARTS SET



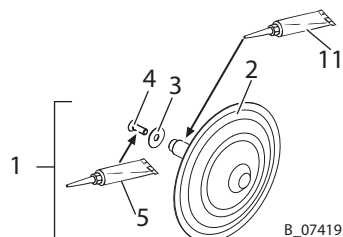
Pos	K	Stk	Order no.	Designation
1		1	2370193	Switching component, spare parts set
2		1	--	Switching unit, preassembled
3		2	--	Shaped packing seal
4		4	--	Screw
11		1	2396031	Grease

14.6 LIQUID BODY, SPARE PARTS SET, AL NIP



Pos	K	Stk	Order no.	Designation
1		1	2414409	Liquid body incl. safety valve, Al NiP

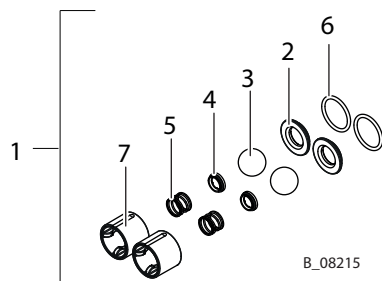
14.7 DIAPHRAGM, SPARE PARTS SET



Pos	K	Stk	Order no.	Designation
1		1	2370200	Diaphragm, spare parts set
2	◆	2	--	Diaphragm
3		2	--	Washer
4		2	--	Screw
5		1	--	Loctite® 222
11		1	2396031	Grease

◆ = wearing parts

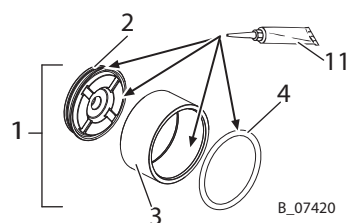
14.8 VALVE, SPARE PARTS SET, AL NIP



Pos	K	Stk	Order no.	Designation
1	♦	1	2414410	Valve, spare parts set, Al NiP
2		4	--	Valve seat
3		4	--	Ball
4		4	--	Spring support ring
5		4	--	Spring
6		4	--	O-ring
7		4	--	ball cage

♦ = wearing parts

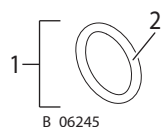
14.9 AIR PISTON, SPARE PARTS SET



Pos	K	Stk	Order no.	Designation
1	♦	1	2370203	Air piston, spare parts set
2		2	--	Air piston
3		2	--	Air cylinder
4		2	--	O-ring, 42x3
11		1	2396031	Grease

♦ = wearing parts

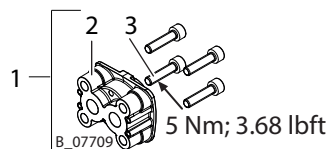
14.10 PRODUCT SEAL, SPARE PARTS SET, AL NIP



Pos	K	Stk	Order no.	Designation
1		1	2414412	Product seal, spare parts set, Al NiP
2	♦	4	--	O-ring

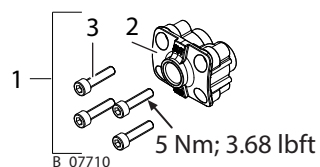
♦ = wearing parts

14.11 INLET, SPARE PARTS SET, AL NIP



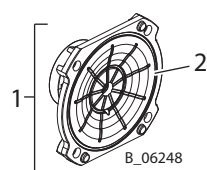
Pos	K	Stk	Order no.	Designation
1		1	2414407	Inlet, spare parts set, Al NiP
2		1	--	Inlet distributor
3		4	--	Screw

14.12 OUTLET, SPARE PARTS SET, AL NIP



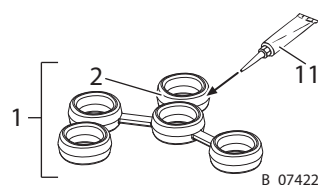
Pos	K	Stk	Order no.	Designation
1		1	2414408	Outlet, spare parts set, Al NiP
2		1	--	Outlet distributor
3		4	--	Screw

14.13 AIR BODY, SPARE PARTS SET



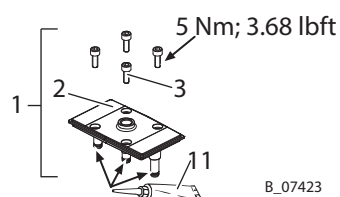
Pos	K	Stk	Order no.	Designation
1		1	2370215	Air body, spare parts set
2		2	--	Air body, preassembled

14.14 SHAPED PACKING SEAL, SPARE PARTS SET



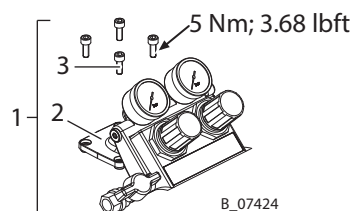
Pos	K	Stk	Order no.	Designation
1		1	2370219	Shaped packing seal, spare parts set
2		2	--	Shaped packing seal
11		1	2396031	Grease

14.15 DISTRIBUTOR, SPARE PARTS SET



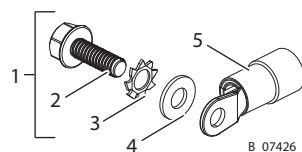
Pos	K	Stk	Order no.	Designation
1		1	2370220	Distributor, spare parts set
2		1	--	Distributor unit, complete
3		4	--	Screw
11		1	2396031	Grease

14.16 REGULATOR UNIT, SPARE PARTS SET



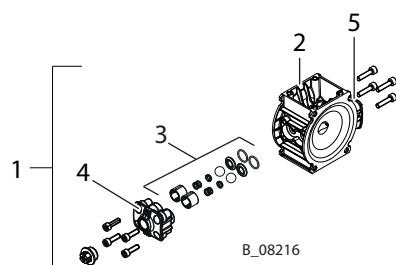
Pos	K	Stk	Order no.	Designation
1		1	2370221	Regulator unit, spare parts set
2		1	--	Regulator unit, preassembled
3		4	--	Screw

14.17 GROUNDING, SPARE PARTS SET



Pos	K	Stk	Order no.	Designation
1		1	2370222	Grounding, spare parts set
2		1	--	Screw for cable lug
3		1	--	Toothed lock washer
4		1	--	Washer
5		1	--	Cable lug

14.18 LIQUID COMPONENT RETROFIT SET



Pos	K	Stk	Order no.	Designation
1		1	2414405	Liquid component retrofit set (conversion set from SSt to Al NiP)
2		1	--	Liquid body, spare parts set
3		1	--	Valve, spare parts set
4		1	--	Outlet, spare parts set
5		1	--	Inlet, spare parts set

15 DECLARATION OF CONFORMITY

15.1 UK DECLARATION OF CONFORMITY

We hereby declare that the supplied version of diaphragm pumps and spray packs:

TOPFINISH DD10

complies with the following guidelines:

SI 2008/1597
SI 2016/1107

Applied standards, in particular:

BS EN ISO 12100:2010	BS EN 14462:2015
BS EN 809:1998+A1:2009	BS EN 12621:2006+A1:2010
BS EN ISO 4413:2010	BS EN 1127-1:2019
BS EN ISO 4414:2010	BS EN ISO 80079-36:2016
BS EN ISO 13732-1:2008	BS EN ISO 80079-37:2016

Applied national technical standards and specifications, in particular:

--

Identification:



II 2 G Ex h IIB T4 Gb X

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:

2367686



Order number DOC 2431507
Edition 09/2021

United Kingdom

Wagner Spraytech (UK) Ltd.
Innovation Centre
Silverstone Park Silverstone
NN12 8GX Northants
Telephone: +44 (0) 1327 368 410
E-mail: enquiries@wagner-group.com

Germany

J. Wagner GmbH
Otto-Lilienthal-Strasse 18
Postfach 1120
D-88677 Markdorf
Telephone: +49 (0)7544 5050
Fax: +49 (0)7544 505200
E-mail: ts-liquid@wagner-group.com

Switzerland

Wagner International AG
Industriestrasse 22
CH-9450 Altstätten
Telephone: +41 (0)71 757 2211
Fax: +41 (0)71 757 2222

Document number 11432189
Version F



More contact addresses on the internet at:
www.wagner-group.com

Subject to changes without notice