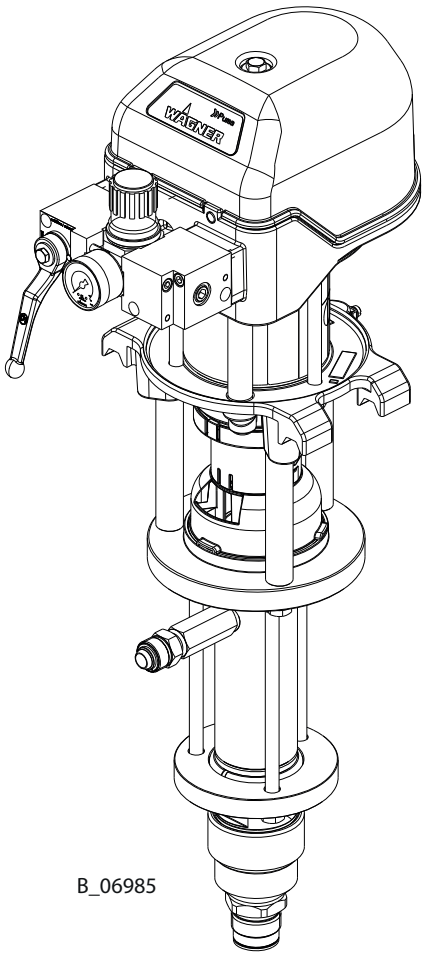


B_06985

Piston pump

IceBreaker 40-200 ccm (Finishing)

Translation of the original operating manual

CE Ex II 2 G Ex h IIB T3/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: 03/2021

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.
ℹ	**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.
German	2333537

Translation of the original operating manual

Language	Order no.	Language	Order no.
English	2333538	French	2333539
Italian	2333540	Spanish	2333541
Russian	2351629	Dutch	2367552
Japanese	2338088	Hungarian	2352104
Finnish	2391472	Swedish	2391469
Romanian	2412198	Czech	2413375
Danish	2414712		

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

1.5 SERVICE MANUAL

This service manual is available in the following languages:

Language	Order no.	Language	Order no.
German	2335993	English	2335994

1.6 ABBREVIATIONS

Order no.	Order number
ET	Spare part
K	Marking in the spare parts lists
Pos	Position
Stk	Number of pieces
DH	Double stroke
DN	Nominal diameter
PN	Nominal pressure
2K	Two components
SSt	Stainless steel
PE	polyethylene
UHMWPE	Ultra-high molecular polyethylene
PTFE	Polytetrafluorethylene
TG	PTFE with graphite

T	PTFE
L	Leather
TC	TwinControl
TC 1.4404	TwinControl for acidic hardeners

1.7 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 in accordance with TRBS 1203 (2010/Revision 2012)	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 CORRECT USE

2.1 DEVICE TYPE

Pneumatic piston pump and its spray packs:

Wildcat	Puma	Leopard
10-70	28-40	35-70
18-40	21-110	35-150
--	--	48-110
--	--	26-200

2.1.1 Special Versions for Acidic Hardeners

Wildcat	Leopard
10-70 (TC 1.4404)	35-70 (TC 1.4404)

2.2 TYPE OF USE

The device is suitable for processing liquid products like paints and lacquers:
- Non-ignitable products.
- Products in accordance with their classification in explosion class IIB.

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 [▸▸ 11]).

2.4 PROCESSIBLE WORKING MATERIALS

Fluid materials like paints and lacquers.

Application	Wildcat 18-40 10-70	Puma 28-40	Puma 21-110	Leopard 35-70	Leopard 35-150 48-110 26-200
Water-dilutable products	↗	↗	↗	↗	↗
Solvent-based lacquers and paints	↗	↗	↗	↗	↗
Primers	→	→	→	↗	↗
Wax-based underside protection	↘	↘	↘	↗	↗
Chemically aggressive products that attack carbide seats	↘	↘	↘	↘	↘
Version for acidic hardeners (only Wildcat 10-70 TC 1.4404 and Leopard 35-70 TC 1.4404)	↗	--	--	↗	--

Signs and definitions:
- ↗ recommended
- → limited suitability
- ↘ not suitable
- -- not compatible with 2K products

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.
- Use suitable device combinations (packings, valves etc.)

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

Info

Contact your local WAGNER dealer and the lacquer manufacturer if you encounter application problems.

Typical applications

Application	Wildcat 18-40 10-70	Puma 28-40	Puma 21-110	Leopard 35-70	Leopard 35-150 48-110	Leopard 26-200
Furniture industry	↗	↗	↗	↗	↗	↗
Kitchen manufacturers	↗	↗	↗	↗	↗	↗
Joinery	↗	↗	↗	→	↘	↗
Window factories	→	→	↗	↗	↗	→
Steel-processing industry	↘	→	↘	↗	↗	→
Construction of vehicles	↗	↗	↗	↗	→	↗
Shipbuilding	↘	↘	↘	→	→	↘

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

2.5 SPECIAL VERSIONS FOR ACIDIC HARDENERS

WARNING

Acidic hardeners!

Risk of burns and injury for skin, tissue and organs.

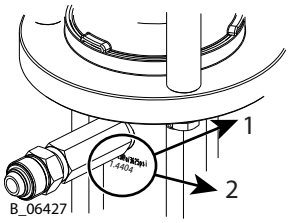
- Observe the lacquer manufacturer's safety data sheets and take prescribed safety measures.

Special versions:

Wildcat 10-70 TC 1.4404 and Leopard 35-70 TC 1.4404

- Check products for compatibility: see Chapter Materials of Paint-wetted Parts for Acidic Hardeners [▸▸ 22]

Parts made of stainless steel 1.4404 are labeled with 1.4404 (see following example).



1	Design pressure of the fluid section	2	Description 1.4404

Further information about operation with acidic hardeners can be found in the operating manual for the entire system.

2.6 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

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

Device type	**IceBreaker piston pump** Wildcat 10-70, Wildcat 18-40 Puma 28-40, Puma 21-110 Leopard 35-70, Leopard 35-150, Leopard 48-110, Leopard 26-200
Manufacturer	Wagner International AG 9450 Altstätten Switzerland

II 2 G Ex h IIB T3/T4 Gb X

CE	European Communities
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
T3	Maximum surface temperature < 200 °C; 392 °F (without drying protection active)
T4	Maximum surface temperature < 135 °C; 275 °F (with drying protection active)
Gb	Zone 1 high safety level
X	Special notices (see chapter Identification "X")

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 piston pump can be reached if it runs dry.

– Ensure that the piston pump is filled with sufficient working or flushing agent.
– Ensure that the separating agent tank is filled with sufficient separating agent.

Ignition temperature of the coating product

- Ensure that the ignition temperature of the surrounding gases (pumping product, cleaning agents) is higher than the maximum permitted surface temperature of the device.

Ambient temperature

The permissible ambient temperature range is: 5 °C to 50 °C; 41 °F to 122 °F.

Medium supporting atomizing

- To atomize the product, use only weakly oxidizing gases, e.g., air.

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 fluid can be caused by damaged packings.

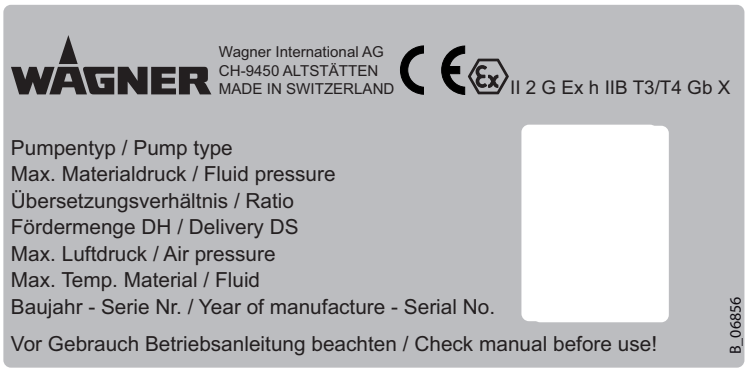
- Avoid operating the pump with damaged packing.
- Ensure that the separating agent tank is filled with sufficient separating agent.
- Periodically check that the pump is working smoothly, paying special attention to the presence of air in the pumped fluid.

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



Example type plate

1	Manufacturer and CE identification	6	Maximum air inlet pressure
2	Pump type	7	Maximum product temperature
3	Maximum product pressure	8	Model year - serial number
4	Pump ratio	9	Read operating manual before use!
5	Flow rate per double stroke		

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 existing regulations 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 EN 61340-4-1 (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.

- Ensure that all persons within the working area wear static dissipative shoes. Footwear must comply with EN 20344. The measured insulation resistance must not exceed 100 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 comply with EN 1149-5. 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. No smoking.
- Ensure that the pipe joints, hoses, equipment parts and connections are permanently, technically leak-proof:
  - Periodic preventative maintenance and service (replacing hoses, checking tightness strength 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 existing regulations 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 according to EMF guideline 2013/35/EU (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.

Danger due to noise pollution!

Hearing damage due to noise pollution.

- Wear ear protection.

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 Troubleshooting chapter
- If needed, the liquid ejection devices must be checked by experts (e.g., WAGNER service technician) at least every 12 months for their work-safe condition in accordance with DGUV regulation 100-500 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 causes 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).

- Ground the work pieces to be coated.
- Ensure that all persons inside the working area are grounded, e.g., that they are wearing static dissipative shoes.
- Wear static dissipative gloves when spraying. The grounding takes place via the spray gun'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.

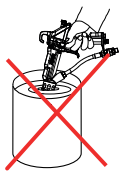
- Non-ignitable cleaning agents and flushing agents should preferably be used.
- When carrying out cleaning work with flammable cleaning agents, make sure that all equipment and resources (e.g., collection tank, funnel, transport cart) are conductive or static dissipative and grounded.

- 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 °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 the accessories and spare parts chapter 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

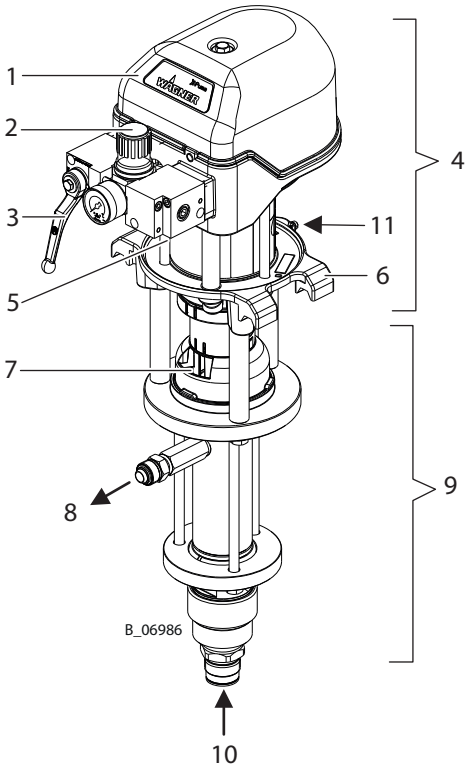
Danger due to removal of protective and monitoring equipment!

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



1	Control housing with integrated silencer	7	Separating agent cup
2	Air pressure regulator	8	Product output
3	Ball valve	9	Fluid section
4	Air motor	10	Product input
5	Compressed air input	11	Grounding connection
6	Mounting flange		

5.2 FUNCTIONING

The piston pump is driven with compressed air (2). This compressed air moves the air piston up and down in the air motor (4) and it also moves the the associated pump piston up and down in the fluid section (9).
In the control housing (1), the air pressure is redirected at the end of each stroke with the help of the reversing valve. The working material is sucked up during the upwards stroke and is continuously conveyed towards the product output (8) in both stroke directions.

5.2.1 Air motor

The air motor (4) with its pneumatic reverse (1) does not require pneumatic oil. The compressed air is fed to the motor via the air pressure regulator (2) and the ball valve (3).

The air motor (4) is fitted with a safety valve in accordance with Chapter Protective and Monitoring Equipment [▸▸ 21].

5.2.2 Fluid section

The fluid section (9) has been designed as a piston pump with exchangeable ball valves. The hard chrome-plated pump piston runs in two fixed packings which are self-adjusting by means of a pressure spring, thus resulting in a long service life.

Between the air motor (4) and the fluid section (9) there is a separating agent cup (7) for holding the separating agent.

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 spring-loaded valve, automatically opens and releases the excess pressure.

The control housing is equipped with noise insulation. Never operate the device without noise insulation.

The connection set is equipped with a coupling cover. Never operate the device without a coupling cover.

5.4 EXTENT OF DELIVERY

Piston pump consisting of:

-	Fluid section
-	Air motor
-	Connection set for air motor - fluid section
-	Air pressure regulator for air motor

The standard equipment includes:

Stk	Order no.	Designation
1	9992504	Separating agent 250 ml; 250 cc
1	2333537	Operating manual, in German
1	See Chapter EU Declaration of Conformity [▸▸ 118]	Declaration of Conformity
1	See chapter Languages [▸▸ 6]	Operating manual in the local language

The delivery note shows the exact scope of delivery. Accessories: see Chapter Accessories [▸▸ 67].

5.5 DATA

5.5.1 Materials of the parts transporting paint

Paint-wetted part	Product
Housing	Stainless steel
Piston	Stainless steel and hard chrome
Valves balls	Stainless steel

Paint-wetted part	Product
Valves seats	Carbide
O-rings	PTFE
Packings	Standard PE / TG

PE = Polyethylene UHMW

TG= PTFE with graphite

Positions of the individual parts: See Chapter Spare Parts [▸▸ 80].

5.5.1.1 Materials of Paint-wetted Parts for Acidic Hardeners

Special versions for working with acidic hardeners

Pumps	Product
Wildcat 10-70 TC 1.4404 and Leopard 35-70 TC 1.4404	1.4301, 1.4404, 1.4408, 1.4571, Fluoroelastomer, carbide, polyethylene, PTFE

5.5.2 Recommended Packings

WAGNER packings for this device:

Code	Product	Color
L	Leather	dark brown
TG	PTFE with graphite	black
PE	Ultra high molecular weight polyethylene	transparent
T	PTFE	white

Each product has the following properties, which influence the packings:

Designation	L	TG	PE	T
Mechanical stability	poor	good	good	poor
Friction coefficient	poor	very good	good	very good
Sealing force	good*	good	good	good
Chemical resistance	poor	good	very good	very good
Temperature resistance	good	poor - good	very good	poor

* for abrasive products

Standard combinations	
Standard pumps	PE / TG
Heavy duty (high-pressure) pumps	PE/L
Hardener pumps in 2K systems	PE/T

5.5.3 Technical Data for Wildcat

Description	Units	Wildcat 10-70	Wildcat 10-70 TC	Wildcat 10-70 TC 1.4404	Wildcat 18-40
Pump ratio		10:1			18:1
Flow volume per double stroke (DS)	cm^3 / cc	70			40
Maximum operating pressure	MPa	8	4		14.4
	bar	80	40		144
	psi	1160	580		2089
Maximum possible strokes in operation	DS/min	60			
Maximum recommended strokes per minute in continuous operation	DS/min	40			
Minimum/maximum air inlet pressure	MPa	0.25 – 0.8	0.25 – 0.4		0.25 – 0.8
	bar	2.5 – 8	2.5 – 4		2.5 – 8
	psi	36 – 116	36 – 58		36 – 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 diameter (internal thread)	inch	G1/2"			
Minimum diameter of the compressed air supply line	mm; inch	9; 0.35			
Air consumption at 0.6 MPa; 6 bar; 87 psi per double stroke	nl; scf	5.3; 0.19			
Air motor piston diameter	mm; inch	80; 3.2			
Air motor piston stroke	mm; inch	75; 3			
Sound pressure level at maximum permissible air pressure*	dB(A)	77			
Sound pressure level at 0.6 MPa; 6 bar; 87 psi air pressure*	dB(A)	74			
Sound pressure level at 0.4 MPa; 4 bar; 58 psi air pressure*	dB(A)	69			
Product input (outside thread)	mm	M36×2			
Product output (outside thread)	inch	M24×1.5			
Weight	kg; lb	17; 38			15; 33
Product pH value	pH	3.5 – 9		**	3.5 – 9
Maximum product pressure at pump inlet	MPa	2			
	bar	20			
	psi	290			
Product temperature	°C	5 – 80			
	°F	41 – 176			
Ambient temperature - Assembly and operation	°C	5 – 50			
	°F	41 – 122			

Description	Units	Wildcat 10-70	Wildcat 10-70 TC	Wildcat 10-70 TC 1.4404	Wildcat 18-40
Ambient temperature - Storage	°C °F	-20 – 60 -4 – 140			
Relative humidity	%	10–95 (without condensation)			
Allowable inclination for operation	∠°	± 10			

** For pumps TC 1.4404 with acidic hardeners: Check products for compatibility (chapter Materials of Paint-wetted Parts for Acidic Hardeners [▸▸ 22]).

* Measured A-rated emission sound pressure level at distance of 1 m, LpA1m in accordance with 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.

5.5.4 Technical Data for Puma

Description	Units	Puma 28-40	Puma 21-110
Pump ratio		28:1	21:1
Flow volume per double stroke (DS)	cm^3 / cc	40	110
Maximum operating pressure	MPa bar psi	22.4 224 3249	16.8 168 2436
Maximum possible strokes in operation	DS/min	60	
Maximum recommended strokes per minute in continuous operation	DS/min	40	
Minimum/maximum air inlet pressure	MPa bar psi	0.25 – 0.8 2.5 – 8 36 – 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 diameter (internal thread)	inch	G1/2"	
Minimum diameter of the compressed air supply line	mm; inch	9; 0.35	
Air consumption at 0.6 MPa; 6 bar; 87 psi per double stroke	nl; scf	8.3; 0.29	16.5; 0.58
Air motor piston diameter	mm; inch	100; 4	

Description	Units	Puma 28-40	Puma 21-110
Air motor piston stroke	mm; inch	75; 3	150; 6
Sound pressure level at maximum permissible air pressure*	dB(A)	78	78
Sound pressure level at 0.6 MPa; 6 bar; 87 psi air pressure*	dB(A)	74	
Sound pressure level at 0.4 MPa; 4 bar; 58 psi air pressure*	dB(A)	69	
Product input (outside thread)	mm	M36×2	
Product output (outside thread)	inch	M24×1.5	
Weight	kg; lb	16; 35	28; 62
Product pH value	pH	3.5 – 9	
Maximum product pressure at pump inlet	MPa bar psi	2 20 290	
Product temperature	°C °F	5 – 80 41 – 176	
Ambient temperature - Assembly and operation	°C °F	5 – 50 41 – 122	
Ambient temperature - Storage	°C °F	-20 – 60 -4 – 140	
Relative humidity	%	10–95 (without condensation)	
Allowable inclination for operation	∠°	± 10	

* Measured A-rated emission sound pressure level at distance of 1 m, LpA1m in accordance with DIN EN 14462: 2015. Reference measurements have been made by Suva (Swiss National Accident Insurance Fund).

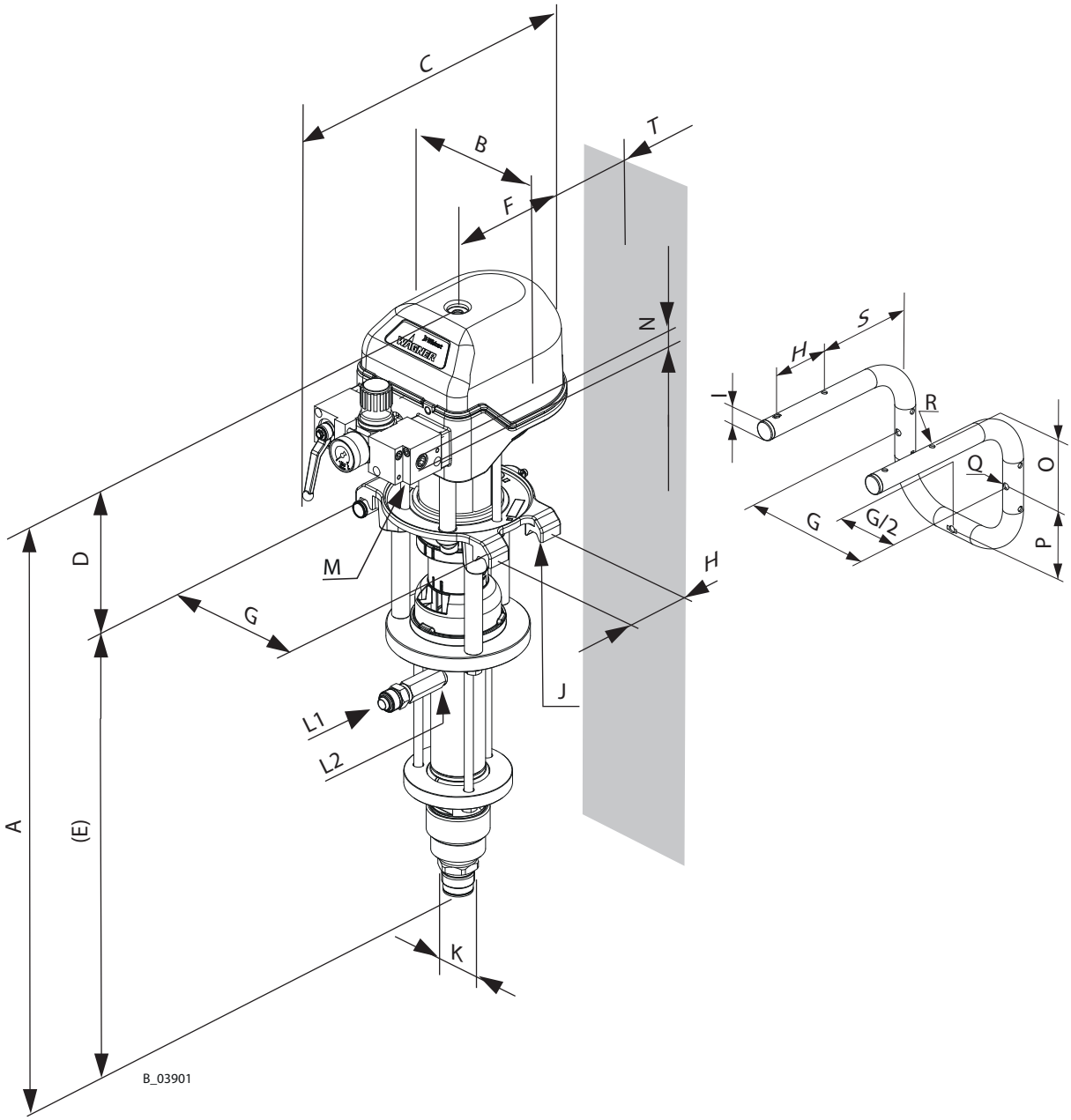
⚠ WARNING

Exhaust air containing oil!

Risk of poisoning if inhaled.

- Provide compressed air free from oil and water.

5.5.5 Dimensions and Connections for Wildcat and Puma



Pos	Wildcat 10-70 mm; inch	Wildcat 18-40 mm; inch	Puma 28-40 mm; inch	Puma 21-110 mm; inch
A	736; 29	722; 28.4		1034; 40.7
B	169; 6.7			
C	≈ 321; 12.6			
D	261.5; 10.3			336; 13.2
E	474.5; 18.7	460.5; 18.1		698; 27.5
F	134; 5.3			
G	182; 7.2			
H	80; 3.2			

Pos	Wildcat 10-70 mm; inch	Wildcat 18-40 mm; inch	Puma 28-40 mm; inch	Puma 21-110 mm; inch
I	⌀ 25; ⌀ 1			
J	M6			
K	M36×2			
L1	M24×1.5			
L2	G3/8"			
M	G1/2"			
N	G1/4"			
O	106; 4.2			
P	96.5; 3.8			
Q	⌀ 9; ⌀ 0.35			
R	⌀ 7; ⌀ 0.28			
S	149; 5.9			
T	55; 2.2			

5.5.6 Technical Data for Leopard

Description	Units	Leopard 35-70	Leopard 48-110	Leopard 35-150	Leopard 26-200
Pump ratio		35:1	48:1	35:1	26:1
Flow volume per double stroke (DS)	cm^3 / cc	70	110	150	200
Maximum operating pressure	MPa	25	37	27	20
	bar	250	370	270	200
	psi	3626	5366	3916	2900
Maximum possible strokes in operation	DS/min	60			
Maximum recommended strokes per minute in continuous operation	DS/min	40			
Minimum/maximum air inlet pressure	MPa	0.25 – 0.71	0.25 – 0.77		
	bar	2.5 – 7.1	2.5 – 7.7		
	psi	36 – 103	36 – 112		
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 diameter (internal thread)	inch	G1/2"			
Minimum diameter of the compressed air supply line	mm; inch	13; 0.51			
Air consumption at 0.6 MPa; 6 bar; 87 psi per double stroke	nl; scf	18.6; 0.66	37.3; 1.32		
Air motor piston diameter	mm; inch	150; 6			
Air motor piston stroke	mm; inch	75; 3	150; 6		
Sound pressure level at maximum permissible air pressure*	dB(A)	77	78	80	

Description	Units	Leopard 35-70	Leopard 48-110	Leopard 35-150	Leopard 26-200
Sound pressure level at 0.6 MPa; 6 bar; 87 psi air pressure*	dB(A)	74		78	
Sound pressure level at 0.4 MPa; 4 bar; 58 psi air pressure*	dB(A)	71	69	74	
Product input (outside thread)	mm	M36×2			
Product output (outside thread)	inch	M24×1.5			
Weight	kg; lb	26; 57	36; 79		43; 95
Product pH value	pH	3.5 – 9			
Product pH value for TC 1.4404 pumps with acidic hardeners	pH	**	/		
Maximum product pressure at pump inlet	MPa bar psi	2 20 290			
Product temperature	°C °F	5 – 80 41 – 176			
Ambient temperature - Assembly and operation	°C °F	5 – 50 41 – 122			
Ambient temperature - Storage	°C °F	-20 – 60 -4 – 140			
Relative humidity	%	10–95 (without condensation)			
Allowable inclination for operation	∠°	± 10			

** Check products for compatibility (Chapter Materials of Paint-wetted Parts for Acidic Hardeners [▸▸ 22]).

* Measured A-rated emission sound pressure level at distance of 1 m, LpA1m in accordance with DIN EN 14462: 2015. Reference measurements have been made by Suva (Swiss National Accident Insurance Fund).

Note: A daily noise exposure level LEX,8h as of 80 dB(A) requires staff to be informed and hearing protection to be provided.

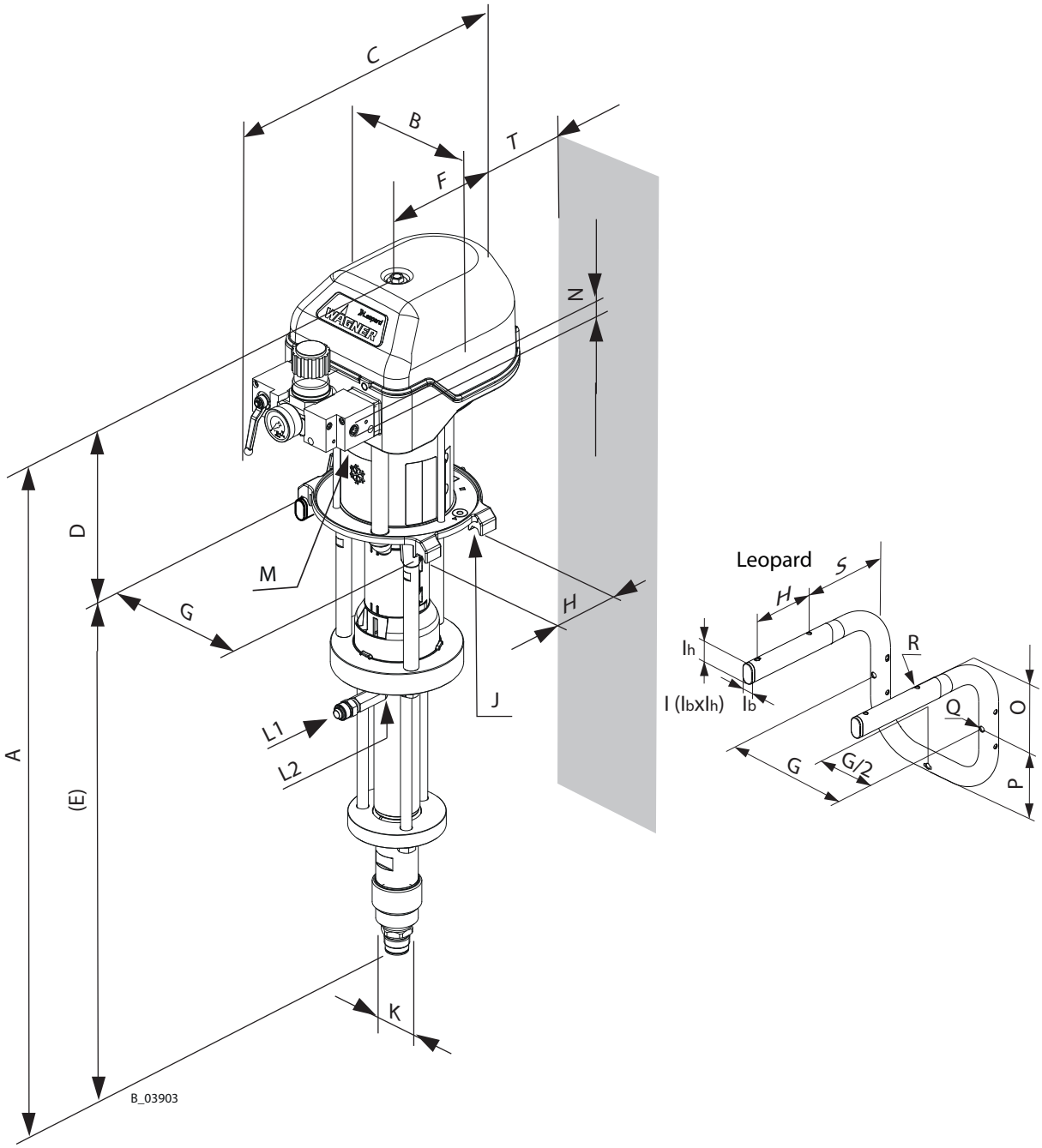
⚠ WARNING

Exhaust air containing oil!

Risk of poisoning if inhaled.

- Provide compressed air free from oil and water.

5.5.7 Measurements and Connections for Leopard



Pos	Leopard 35-70 mm; inch	Leopard 48-110 mm; inch	Leopard 35-150 mm; inch	Leopard 26-200 mm; inch
A	799; 31.5	1080; 42.5		
B	240; 9.4			
C	≈ 434; 17.1			
D	305; 12	380; 15		
E	490; 19.3	705; 27.6		
F	192; 7.6			
G	230; 9.1			

Pos	Leopard 35-70 mm; inch	Leopard 48-110 mm; inch	Leopard 35-150 mm; inch	Leopard 26-200 mm; inch
H	110; 4.3			
I	20×35; 0.8×1.4			
J	M6			
K	M36×2			
L1	M24×1.5			
L2	G3/8"			
M	G1/2"			
N	G1/4"			
O	129; 5.1			
P	111.5; 4.4			
Q	⌀ 9; ⌀ 0.35			
R	⌀ 7; ⌀ 0.28			
S	167; 6.6			
T	30; 1.2			

5.5.8 Volume Flow

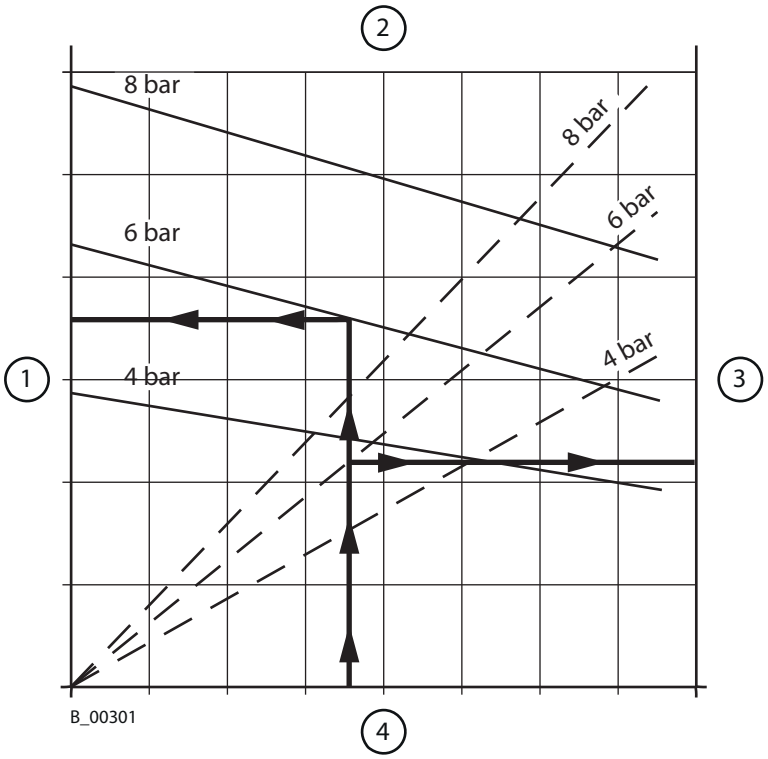
WAGNER AL nozzles			Volume flow* in l/min				
** inch	** mm	Spray angle	7 MPa 70 bar 1015 psi	10 MPa 100 bar 1450 psi	15 MPa 150 bar 2175 psi	20 MPa 200 bar 2900 psi	Maximum ranges for continuous operation at 40 double strokes/min
0.007	0.18	40°	0.17	0.20	0.21	0.22	Wildcat 18-40 Puma 28-40
0.009	0.23	20-30-40-50-60°	0.21	0.25	0.31	0.36	
0.011	0.28	10-20-30-40-50-60°	0.30	0.35	0.43	0.50	
0.013	0.33	10-20-30-40-50-60-80°	0.45	0.53	0.62	0.68	
0.015	0.38	10-20-30-40-50-60-80°	0.58	0.67	0.81	0.91	
0.017	0.43	20-30-40-50-60-70°	0.73	0.79	1.06	1.23	
0.019	0.48	20-30-40-50-60-70-80°	0.93	1.09	1.37	1.47	
0.021	0.53	20-40-50-60-80°	1.14	1.36	1.69	1.78	Wildcat 10-70 Leopard 35-70
0.023	0.58	20-40-50-60-70-80°	1.37	1.59	2.01	2.24	
0.025	0.64	20-40-50-60-80°	1.62	1.91	2.40	2.60	
0.027	0.69	20-40-50-60-80°	1.83	2.13	2.68	3.12	Puma 21-110 Leopard 48-110
0.029	0.75	60°	2.19	2.51	3.17	3.63	
0.031	0.79	20-40-50-60°	2.40	2.77	3.49	4.00	
0.035	0.90	20-40-50-60°	3.22	3.74	4.69	5.14	Leopard 35-150
0.043	1.10	20-50°	5.07	6.04	7.46	7.84	
0.052	1.30	50°	5.12	6.10	7.52	8.06	

* Volume flow refers to water.

** Diameter

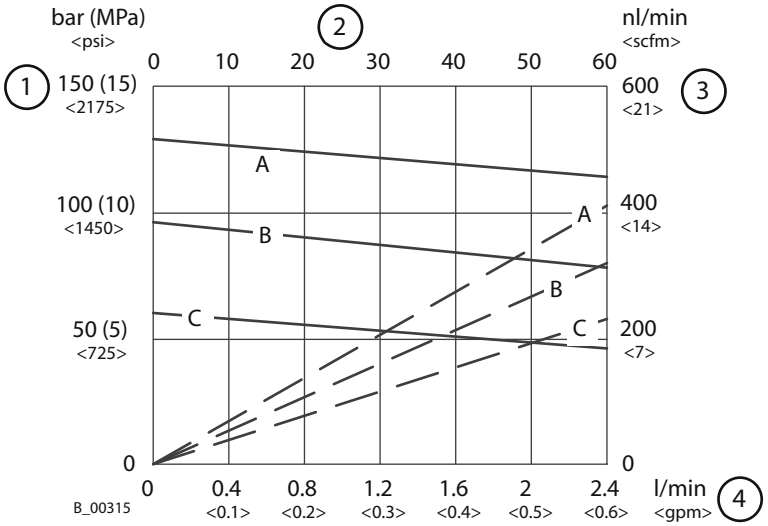
5.5.9 Performance Diagrams

Example



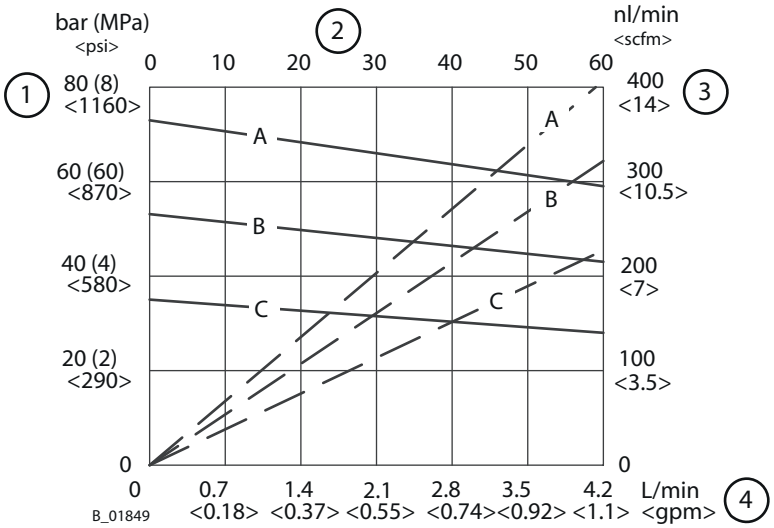
1	Product pressure in bar; (MPa); <psi>	3	Air consumption in nl/min.; <scfm>
2	Stroke frequency in DH/min.	4	Flow rate of water in l/min.; <gpm>

Wildcat 18-40



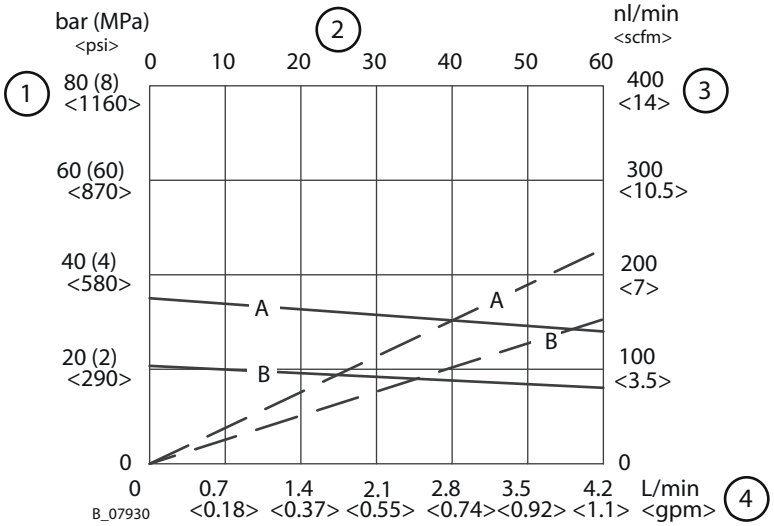
1	Product pressure in bar; (MPa); <psi>	A	Characteristic curve for air pressure 8 bar; 0.8 MPa; 116 psi
2	Stroke frequency in DH/min.	--	--
3	Air consumption in nl/min.; <scfm>	B	Characteristic curve for air pressure 6 bar; 0.6 MPa; 87 psi
4	Flow rate of water in l/min.; <gpm>	C	Characteristic curve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

Wildcat 10-70



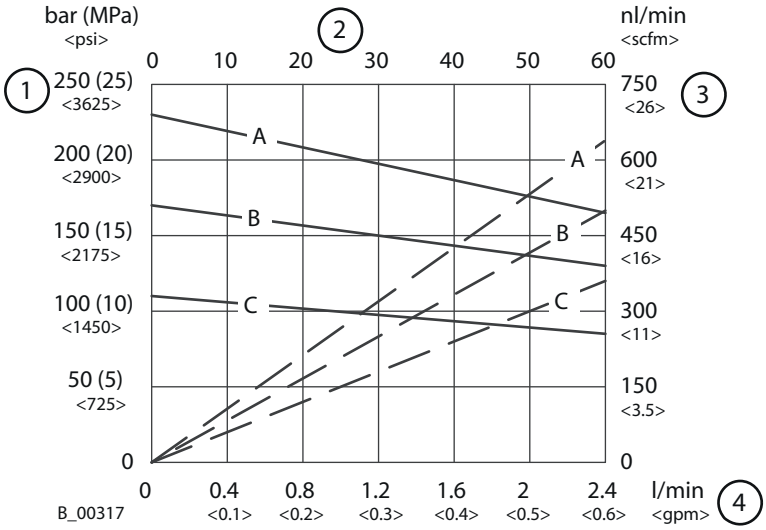
1	Product pressure in bar; (MPa); <psi>	A	Characteristic curve for air pressure 8 bar; 0.8 MPa; 116 psi
2	Stroke frequency in DH/min.	--	--
3	Air consumption in nl/min.; <scfm>	B	Characteristic curve for air pressure 6 bar; 0.6 MPa; 87 psi
4	Flow rate of water in l/min.; <gpm>	C	Characteristic curve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

Wildcat 10-70 TC



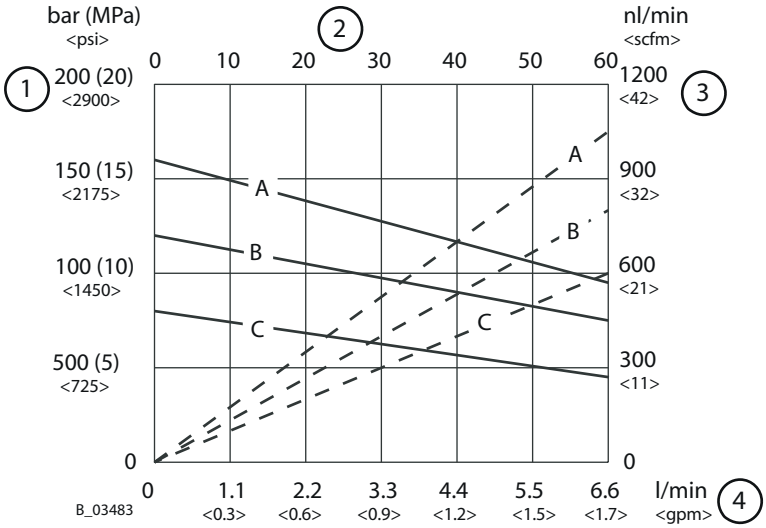
1	Product pressure in bar; (MPa); <psi>	A	Characteristic curve for air pressure 4 bar; 0.4 MPa; 58 psi
2	Stroke frequency in DH/min.	B	Characteristic curve for air pressure 2.5 bar; 0.25 MPa; 36 psi
3	Air consumption in nl/min.; <scfm>	--	--
4	Flow rate of water in l/min.; <gpm>	--	--

Puma 28-40



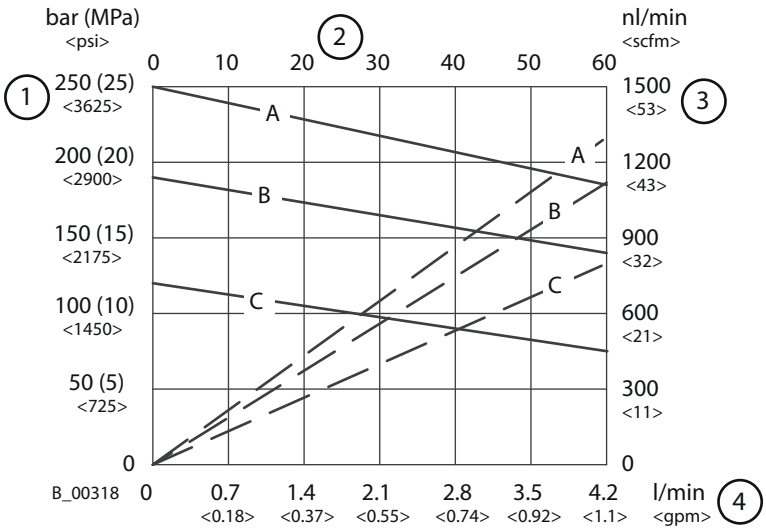
1	Product pressure in bar; (MPa); <psi>	A	Characteristic curve for air pressure 8 bar; 0.8 MPa; 116 psi
2	Stroke frequency in DH/min.	--	--
3	Air consumption in nl/min.; <scfm>	B	Characteristic curve for air pressure 6 bar; 0.6 MPa; 87 psi
4	Flow rate of water in l/min.; <gpm>	C	Characteristic curve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

Puma 21-110



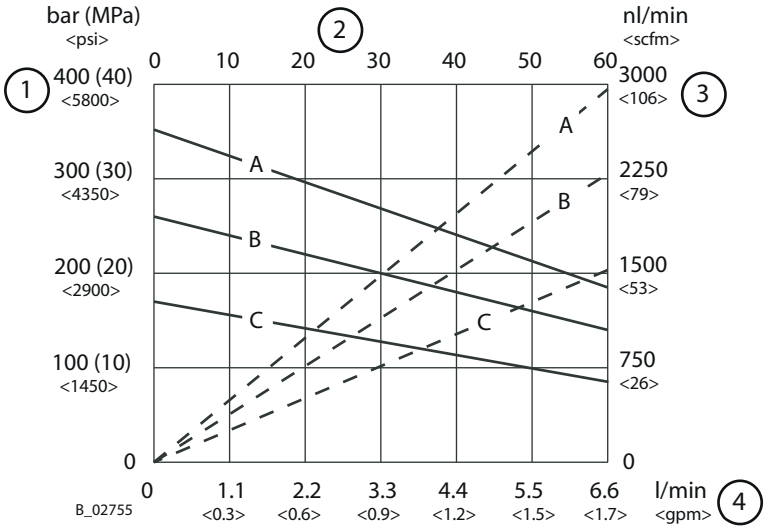
1	Product pressure in bar; (MPa); <psi>	A	Characteristic curve for air pressure 8 bar; 0.8 MPa; 116 psi
2	Stroke frequency in DH/min.	--	--
3	Air consumption in nl/min.; <scfm>	B	Characteristic curve for air pressure 6 bar; 0.6 MPa; 87 psi
4	Flow rate of water in l/min.; <gpm>	C	Characteristic curve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

Leopard 35-70



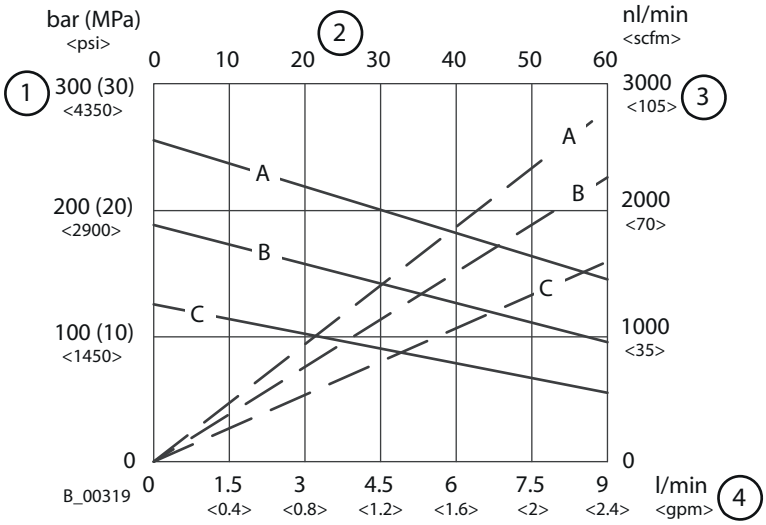
1	Product pressure in bar; (MPa); <psi>	A	Characteristic curve for air pressure 7.1 bar; 0.71 MPa; 103 psi
2	Stroke frequency in DH/min.	--	--
3	Air consumption in nl/min.; <scfm>	B	Characteristic curve for air pressure 6 bar; 0.6 MPa; 87 psi
4	Flow rate of water in l/min.; <gpm>	C	Characteristic curve for air pressure 4 bar; 0.4 MPa; 58 psi

Leopard 48-110



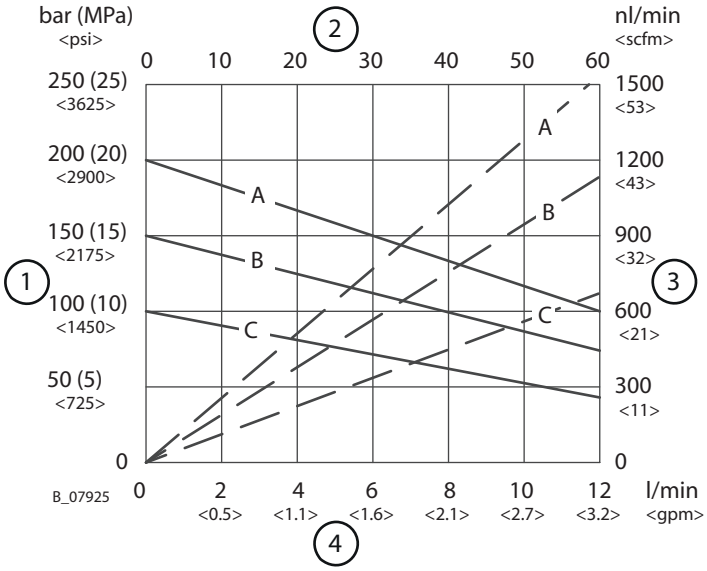
1	Product pressure in bar; (MPa); <psi>	A	Characteristic curve for air pressure 8 bar; 0.8 MPa; 116 psi
2	Stroke frequency in DH/min.	--	--
3	Air consumption in nl/min.; <scfm>	B	Characteristic curve for air pressure 6 bar; 0.6 MPa; 87 psi
4	Flow rate of water in l/min.; <gpm>	C	Characteristic curve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

Leopard 35-150



1	Product pressure in bar; (MPa); <psi>	A	Characteristic curve for air pressure 7.7 bar; 0.77 MPa; 111 psi
2	Stroke frequency in DH/min.	--	--
3	Air consumption in nl/min.; <scfm>	B	Characteristic curve for air pressure 6 bar; 0.6 MPa; 87 psi
4	Flow rate of water in l/min.; <gpm>	C	Characteristic curve for air pressure 4 bar; 0.4 MPa; 58 psi

Leopard 26-200



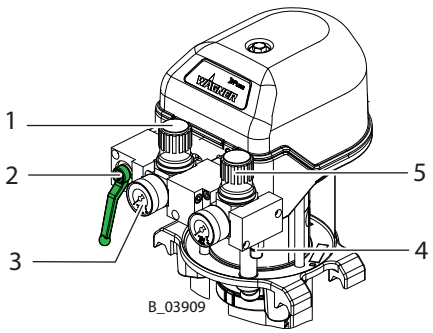
1	Product pressure in bar; (MPa); <psi>	A	Characteristic curve for air pressure 7.7 bar; 0.77 MPa; 111 psi
2	Stroke frequency in DH/min.	--	--
3	Air consumption in nl/min.; <scfm>	B	Characteristic curve for air pressure 6 bar; 0.6 MPa; 87 psi
4	Flow rate of water in l/min.; <gpm>	C	Characteristic curve for air pressure 4 bar; 0.4 MPa; 58 psi

5.6 OPERATING ELEMENTS

5.6.1 Pressure Regulator Unit

Designation

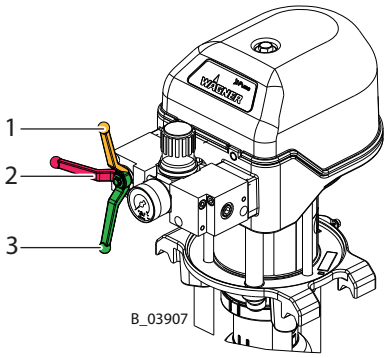
Example: Puma 28-40 AirCoat pneumatic pump



1	Pressure regulator	4	Compressed air input
2	Ball valve	5	AirCoat regulator (option)
3	Pressure gauge		

Positions of the ball valve

Example: Puma 28-40 Airless pneumatic pump



1	Closed: working pressure in the air motor will be relieved (control pressure is still present).	3	Open: working position
2	Closed: The air motor may still be under pressure.		

5.7 PRODUCT FILTER AND RETURN LINE

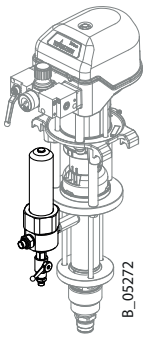
So that complete pressure relief of the pump can be performed (see Chapter Pressure Relief / Work Interruption [▸▸ 49]), a high-pressure filter with a return line or a relief combination, is mandatory.

5.7.1 High-pressure filter (Option)

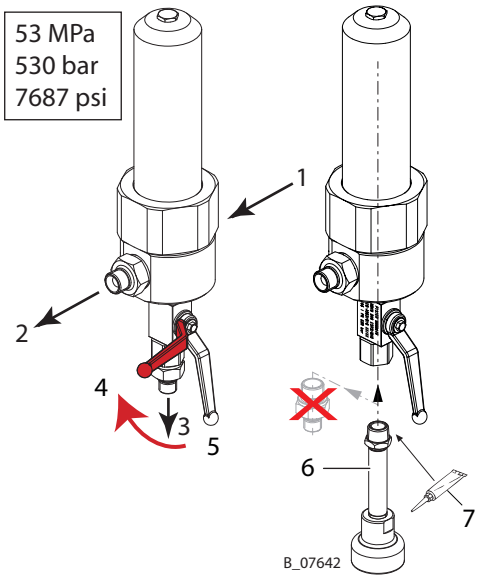
To ensure problem-free operation it is recommended that a WAGNER high-pressure filter be used. These have been developed especially for WAGNER pneumatic pumps.

The filter inserts can be exchanged depending on the product to be used.

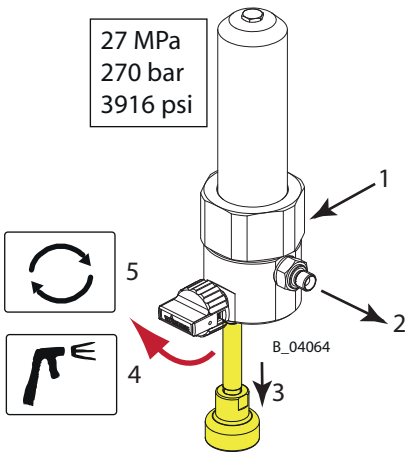
The high-pressure filter, which corresponds to the device, can be found in Chapter Accessories [▸▸ 67]. The compatible filter inserts can be found in Chapter Spare Parts [▸▸ 80].



Preferred filter installation position



1	Fluid section connection	5	Open
2	Product output	6	Pressure relief (Relex)
3	Return line	7	Loctite® 542
4	Closed		

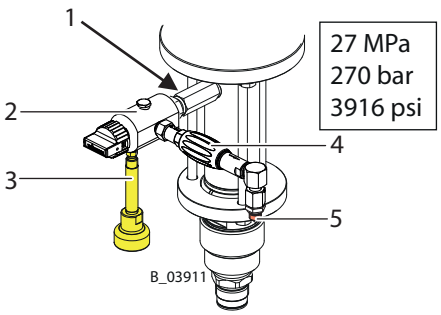


1	Fluid section connection	4	Closed (spraying)
2	Product output	5	Open (pressure relief)
3	Pressure relief (Relex)		

5.7.2 Relief Combination and Inline Filter up to 270 Bar (Option)

Instead of the standard high-pressure filter the lower-cost filter-relief combination and an inline filter can be used if only a small volume of product will be processed.

Application: in pumps with a maximum product pressure of 270 bar; 3916 psi. Relief combination and inline filter (see Chapter Accessories [▸▸ 67]).

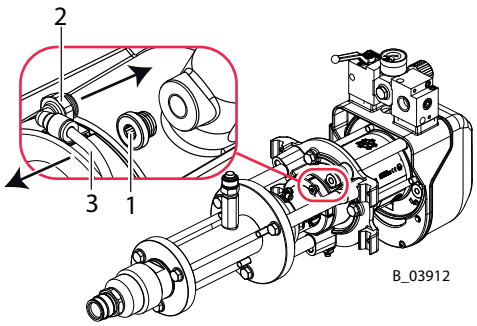


1	Fluid section connection	4	Inline filter
2	Relief combination	5	Product output
3	Pressure relief (Relex)		

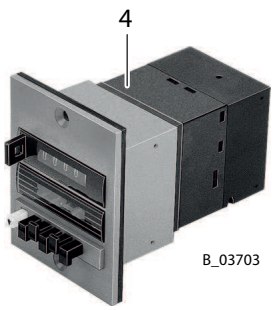
5.8 STROKE COUNT (OPTION)

Each air motor has a 1/8" air connection with which the air pressure in the lower air motor chamber can be measured. This signal can be used for counting the strokes in an external controller, for example.

The pressure signal corresponds to the set working air pressure and is available during the complete upwards stroke of the pump. If both of the signal edges are evaluated, the upper and lower reversal point can be determined. An air hose (4/2-mm; 0.16/0.08-inch) is used as an air signal line.



Pneumatic pumps: Wildcat, Puma and Leopard

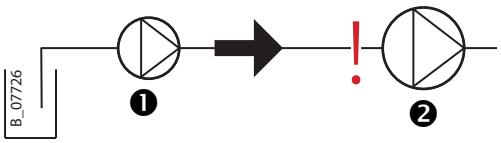


Pos	Order no.	Designation
1	9998675	Threaded plug
2	9999066	Male stud elbow
3	9982072	Air hose (per meter)
4	9943049	Pneumatic pre-selection counter

5.9 FEED PUMP (OPTION)

A feed pump can be used with high-viscosity products or longer feed lines.

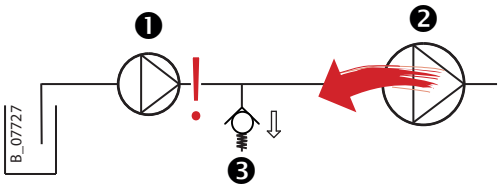
Dimensioning of the feed pump



1	Feed pump	2	Main pump

1. The IceBreaker piston pumps pump the working product to the product output with up and down strokes but only draw in new product on the up stroke. The feed pump therefore has to pump twice the volumetric flow.
2. The maximum product pressure at the pump inlet of the IceBreaker pump may not be exceeded.

Protection of feed pump



1	Feed pump	2	Main pump
3	Pressure relief valve		

1. If the maximum pressure of the feed pump is lower than that of the main pump, the maximum pressure could be exceeded if the main pump malfunctions. The feed pump and connection line must therefore be protected from excessive overpressure. To do so, an overpressure valve must be installed between the feed pump and main pump. During installation, note that the flow direction is from the feed pump to the main pump.
2. The pressure-relief valve must be cleaned regularly and after each activation: Flush with solvent.

Installation sets and compatible feed pumps

- See assembly manual "Feed pump installation sets", order no. 2357584.

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).

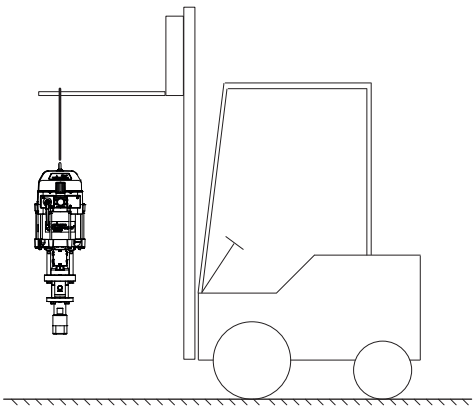
6.3 INSTALLATION CONDITIONS

The air temperature at the installation site must be in a range between 5 °C and 50 °C; 41 °F and 122 °F.

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

6.4 TRANSPORTATION

Only the pump, without trolleys, may be lifted by the lifting eye nut or lifting eye bolt (see accessories) and transported short distances.



B_04065

Wildcat, Puma and Leopard: 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.

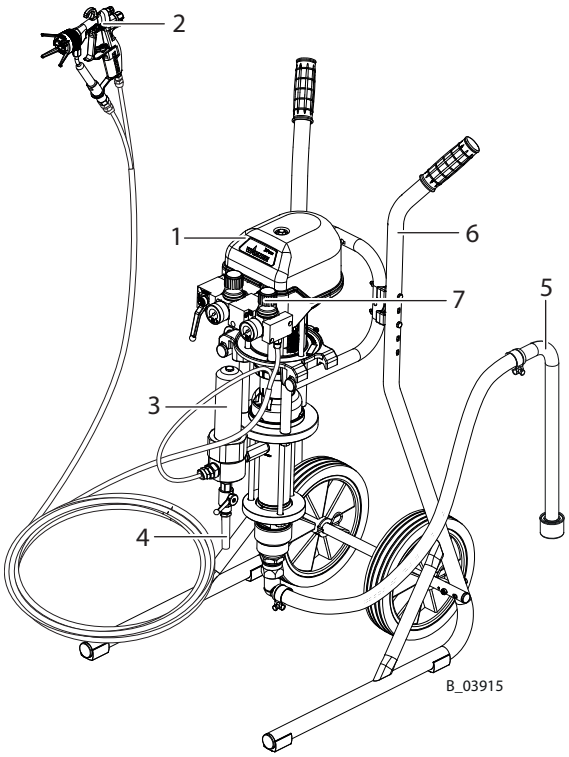
- Place device on level ground and secure it.
- If the floor is inclined, position the feet of the trolley towards the gradient.
- Secure the trolley.

Info

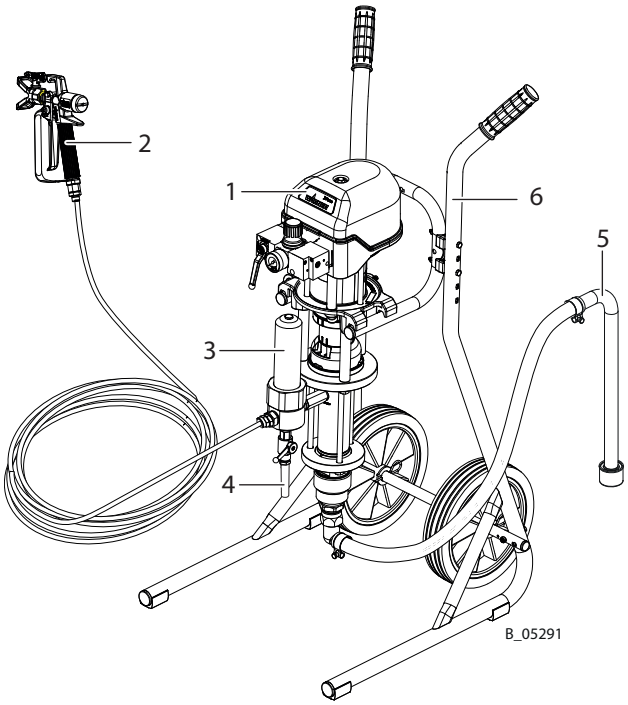
Ensure that the national explosion prevention rules and regulations are observed when setting up the device.

This pump can be used as part of a spraying system for Airless or AirCoat applications. The individual components are shown in the accessories, or can be arranged with a spraypack configurator. The nozzles must be selected according to the spray gun operating manual. In the case of spraypack orders, the pumps (1) are already pre-mounted on a trolley (6) or on a frame at the factory.

1. Mount pump (1) on frame, trolley (6) or wall mount.
2. Mount the AirCoat regulator (7) with an AirCoat system.
3. Mount high-pressure filter (3) or filter relief combination and inline filter.
4. Fit suction system (5).
5. Mount return tube (4) or return hose.
6. Connect high-pressure hose and spray gun (2) according to the operating manual for the spray gun.



AirCoat system



Airless system

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.

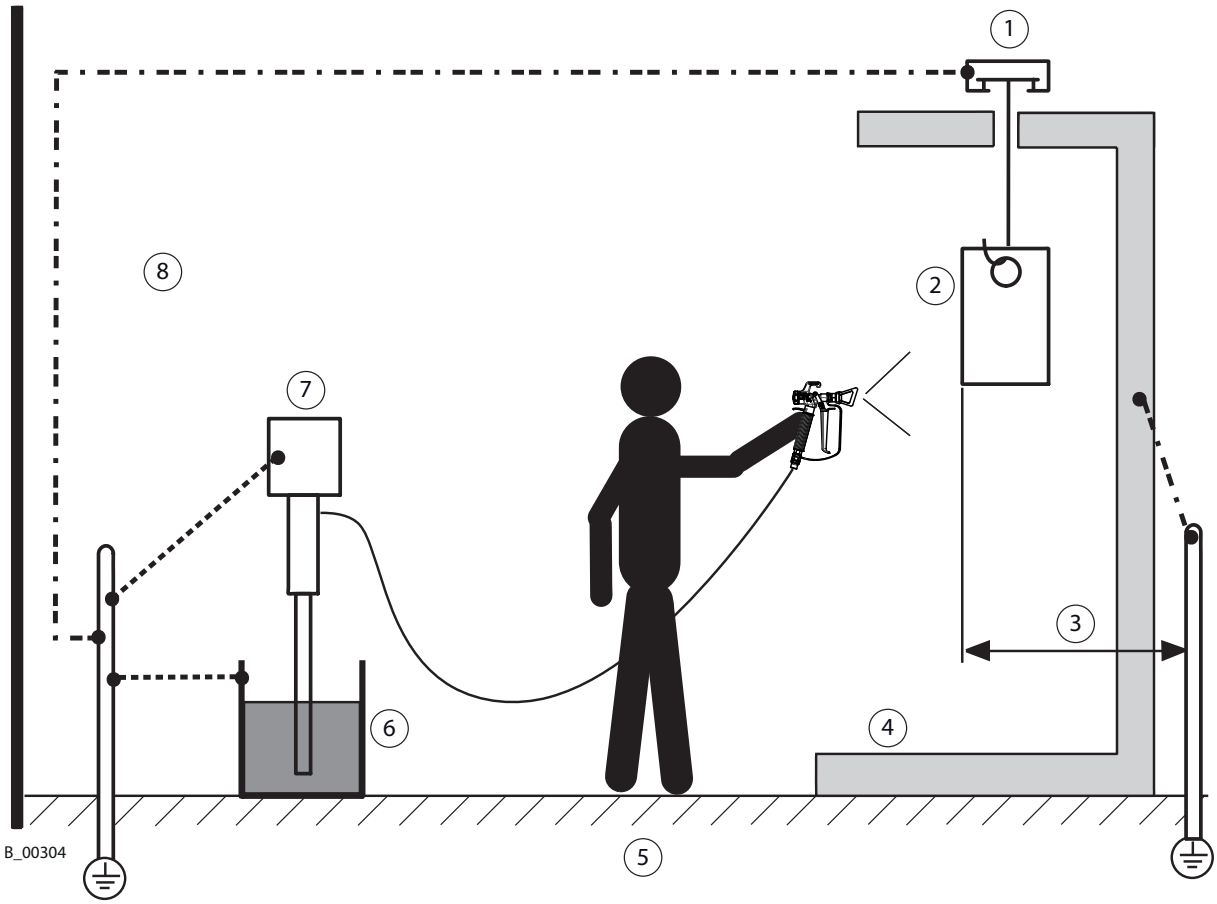
⚠ WARNING

Heavy paint mist if grounding is insufficient!

Risk of poisoning.

Insufficient paint application quality

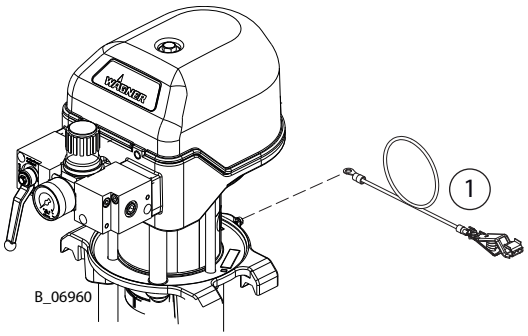
- Ground all device components.
- Ground the work pieces to be coated.



Earthing schema (example)

Pos	Part / workstation	Cable cross section
1	Conveyor	16 mm²; AWG6
2	Work piece	--
3	R_{max} < 1 MΩ	--
4	Spraying stand Alternative: Spray booth	16 mm²; AWG6
5	Floor, static dissipative	--
6	Product tank	6 mm²; AWG10
7	Pump	4 mm²; AWG12
8	Ex zone	--

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



1	Grounding cable

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 (16 mm2; AWG 6).

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 START UP

⚠ 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 [▸▸ 48].

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 [▸▸ 53].
5. Fill the separating agent in accordance with Chapter Filling with Separating Agent [▸▸ 54].

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 [▸▸ 57].

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 [▸▸ 49].

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 [▸▸ 53].

6.7.5 Filling with working material

- Proceed in accordance with Chapter Filling the Empty Pump [▸▸ 57].

7 OPERATION

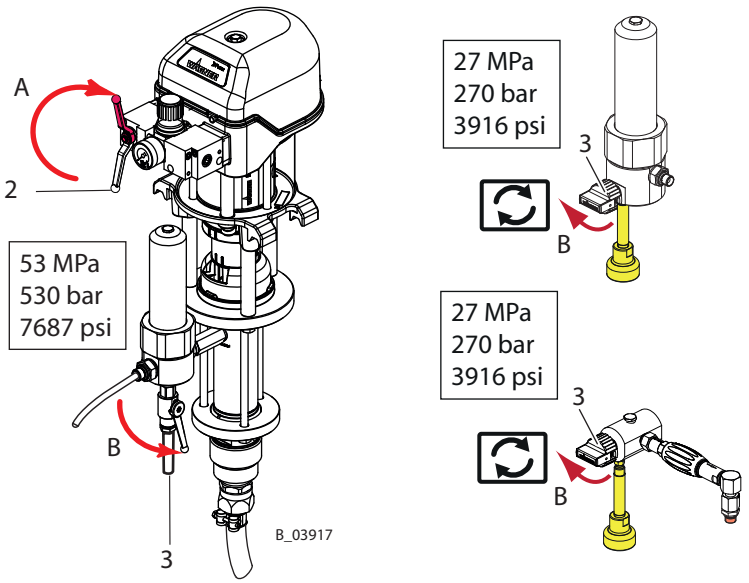
7.1 TRAINING THE OPERATING PERSONNEL

- 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 immediately:

1. Close ball valve (2).
2. Open return valve (3).



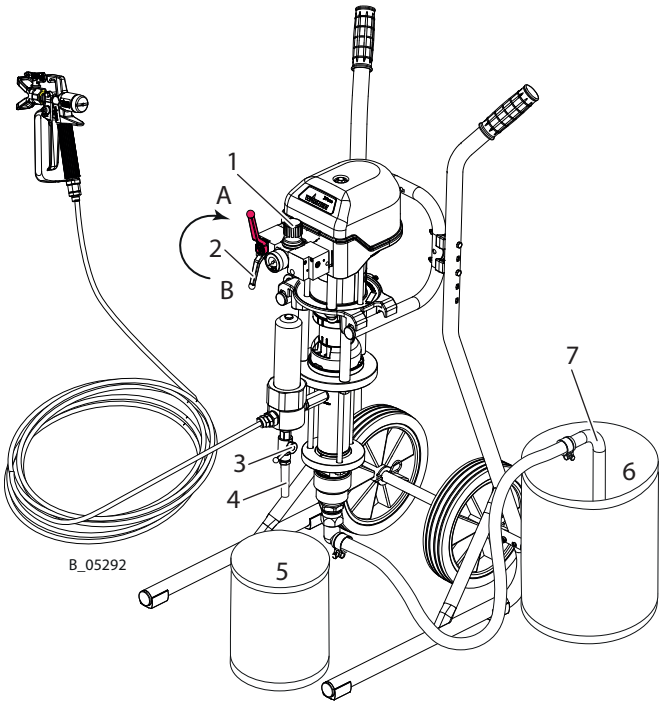
A	Close	B	Open

7.3 TASKS

Ensure that:

commissioning is carried out in accordance with Chapter Start up [▸▸ 46].

1. Carry out a visual inspection: Personal protective equipment, grounding and all devices ready for use.
2. Secure spray gun and insert nozzle into the spray gun.
3. Close return valve (3).
4. Slowly open the ball valve (2).
5. Set required working pressure on the pressure regulator (1).
6. Optimize spray pattern in accordance with the spray gun's operating manual.
7. Start work process.



A	closed	B	open

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:
- Air cock with pressure relief valve mounted between the compressed air source and the pneumatic pump.
- Outlet equipment (return valve) mounted between pump and spray gun.

Process for relieving pressure

1. Close the spray gun.
2. Close ball valve (2).
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 (3) slowly to completely depressurize the system.

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

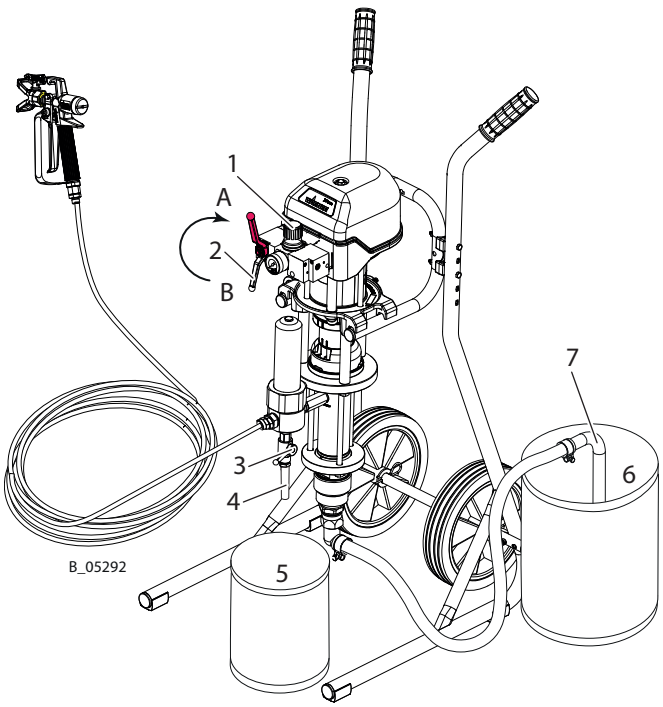
– Regular flushing, cleaning and maintenance ensures the pump's high conveying and suction capacity.
– The cleaning and flushing agents used must be compatible with the working material.
– Do not flush hardener pumps with water. Only flush them using suitable flushing agents (solvents).

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.



A	Closed	B	Open

Before each basic flushing, the nozzle must be removed from the spray gun. Here, the specifications in the spray gun operating manual must be followed. With AirSpray systems, carry out the basic flushing of the system without atomizing air.

Preparation

1. Visual check: personal safety equipment, grounding and all devices ready to use.
2. Relieve the pump's pressure according to Chapter Pressure Relief / Work Interruption [▸▸ 49].
3. Place an empty, grounded collection tank (5) under the return tube (4).
4. Place the suction hose (7) in the grounded tank with flushing agent (6).
5. Adjust the pressure regulator (1) to approx. 0.05 MPa; 0.5 bar; 7.25 psi.

Flushing via the return valve

1. Open return valve (3).
2. Slowly open the ball valve (2).
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 (5).
5. Close ball valve (2).
6. As soon as there is no pressure remaining in the system, close the return valve (3).

Flushing via spray gun

1. In case of AirCoat systems, carry out the basic flushing without atomizing air.
2. Point the spray gun (3), without nozzle, into the tank (5) and pull the trigger.
3. Slowly open the ball valve (2).
4. Rinse until clean flushing agent flows from the spray gun.
5. Close ball valve (2).
6. As soon as there is no pressure remaining in the system, close the spray gun and/or return valve (8). Secure the spray gun.

External Cleaning

1. Clean the outside of the system.
2. Fully assemble the system.
3. Relieve the pump's pressure according to Chapter Pressure Relief / Work Interruption [▸▸ 49].
4. Dispose of the contents of the tank (5) according to the local regulations.

7.6 FILLING WITH WORKING MATERIAL

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

- Proceed according to Chapter Filling the Empty Pump [▸▸ 57], 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 must be cleaned to change products and for maintenance purposes. Ensure that no remaining product dries on and sticks to the device.

1. Interrupt the work sequence in accordance with Chapter Pressure Relief / Work Interruption [▸▸ 49].
2. Carry out basic flushing in accordance with Chapter Basic Flushing [▸▸ 50].
3. Empty system in a controlled manner according to Chapter Emptying Pump [▸▸ 56].
4. Service spray gun in accordance to its operating manual.
5. Clean and check the suction system and the suction filter.
6. Remove product filter (option): check and clean or replace filter insert and filter housing in accordance with chapter Cleaning and Replacing the Filter [▸▸ 58].
7. Product change: If necessary, remove, clean and check the pump inlet housing. If necessary, also remove, clean and check the fluid section.
8. Clean the outside of the system.
9. Fully assemble the system.
10. Check fill level of the separating agent in accordance with Chapter Filling with Separating Agent [▸▸ 54].
11. Fill the system with flushing agent in accordance with Chapter Filling the Empty Pump [▸▸ 57].

8.1.3 Storing for longer periods of time

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 agent and fill the separating agent tank with separating agent.

1. Carry out decommissioning and cleaning (steps 1 to 8) in accordance with Chapter Decommissioning and Cleaning [▸▸ 52].
2. Fill the system with preservation agent in accordance with Chapter Filling the Empty Pump [▸▸ 57].
3. Empty the system in a controlled manner in accordance with Chapter Emptying Pump [▸▸ 56] 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 unit is in the following state before carrying out any work on it:
- Flush and clean the system according to Chapter Decommissioning and Cleaning [▸▸ 52].
- Interrupt the air supply.

After maintenance
- Carry out safety checks in accordance with Chapter Safety Checks and Maintenance Intervals [▸▸ 53].
- Put the system into operation and check for leaks as described in Chapter Start up [▸▸ 46].
- Have the system checked for safe condition by a skilled person.
- Carry out functional check in accordance with Chapter Function Test after Repair Work [▸▸ 65].

8.2.3 Safety Checks and Maintenance Intervals

Every day

1. Check grounding: see Chapter Grounding [▸▸ 44].
2. Check hoses, tubes and couplings: see Chapter Product Hoses, Pipes and Couplings [▸▸ 54]
3. Check the level of separating agent in the separating agent tank and top up, if necessary, in accordance with chapter Filling with Separating Agent [▸▸ 54].
4. For each decommissioning, the process according to Chapter Decommissioning and Cleaning [▸▸ 52] must be followed.

5. If the pump has to be emptied for maintenance work, proceed according to Chapter Basic Flushing [▸▸ 50] and Chapter Emptying Pump [▸▸ 56].

Weekly

1. Check system for damage.
2. Check that the safety fixtures function properly (see Chapter Protective and Monitoring Equipment [▸▸ 21]).

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 Filling with Separating Agent

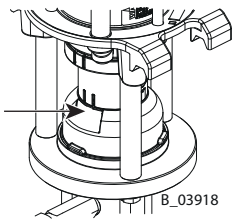
NOTICE

Piston pump dry run

High wear/damage to the packings.

Paint or solvent can escape if the seals are dry.

- Ensure that the separating agent tank is filled with sufficient separating agent.



Pour the supplied separating agent into the intended opening.

Separating agent: order no. 9992504

Filling level: 1 cm; 0.4 inches below the cup edge.

Inclination angle of the pump

Maximum permissible inclination of pump for moving, transportation etc. after filling with separating agent is ± 30°. The pump must be vertical during operation.

8.2.5 Condensate Drain from the AirCoat Filter Regulator

1. Frequently drain the condensate that may accumulate in the pneumatic filter.
   - Make sure the water level in the filter cup never reaches the max. level marked on the cup.

8.2.6 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

8.2.7 Emptying Pump

⚠ WARNING

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

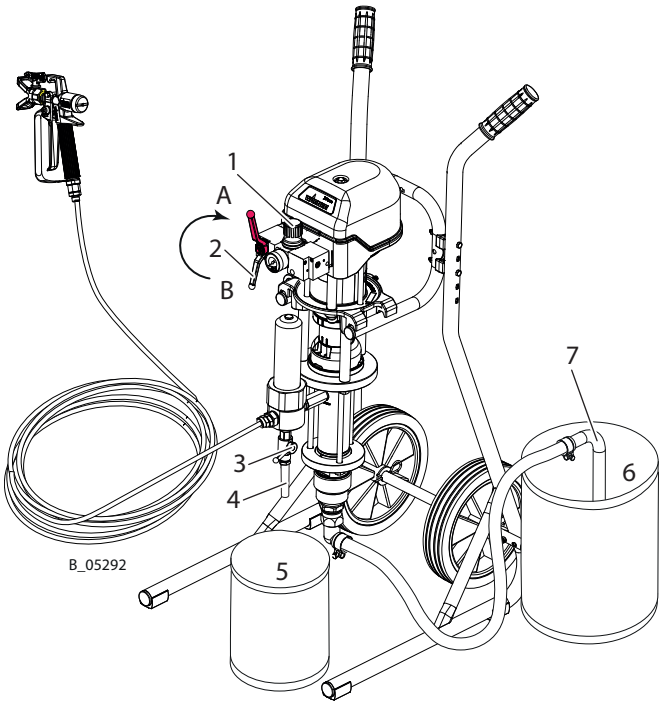
Danger to life from flying parts.

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.



A	Closed	B	Open

1. Visual check: personal safety equipment, grounding and all devices ready to use.
2. Place an empty, grounded collection tank (5) under the return tube (4).
3. Place the suction hose (7) in an empty, grounded tank (6).
4. Close pressure regulator (1) (0 MPa; 0 bar; 0 psi).

Emptying via return line

1. Open return valve (3).
2. Slowly open the ball valve (2).
3. Slowly dial up the air pressure at the pressure regulator (1) until the pump operates smoothly (approx. 0.05 MPa; 0.5 bar; 7.25 psi).
4. Be ready for the switch from working product to air. Turn down pressure regulator (1) far enough that the pump is still running normally (approx. 0–0.05 MPa; 0–0.5 bar; 0–7.25 psi).

5. As soon as working product is no longer flowing from the return tube (4), close the ball valve (2).
6. Close return valve (3).

Emptying via the spray gun

1. Point the spray gun (3), without nozzle, into the tank (5) and pull the trigger.
2. Slowly open the ball valve (2). Be ready for the switch from working product to air.
3. As soon as no more working product is flowing, close the ball valve (2).
4. Close and secure the spray gun.
5. Carry out pressure relief in accordance with Chapter Pressure Relief / Work Interruption [▸▸ 49].
6. Dispose of the contents of the tank (5) according to the local regulations.

8.2.8 Filling the Empty Pump

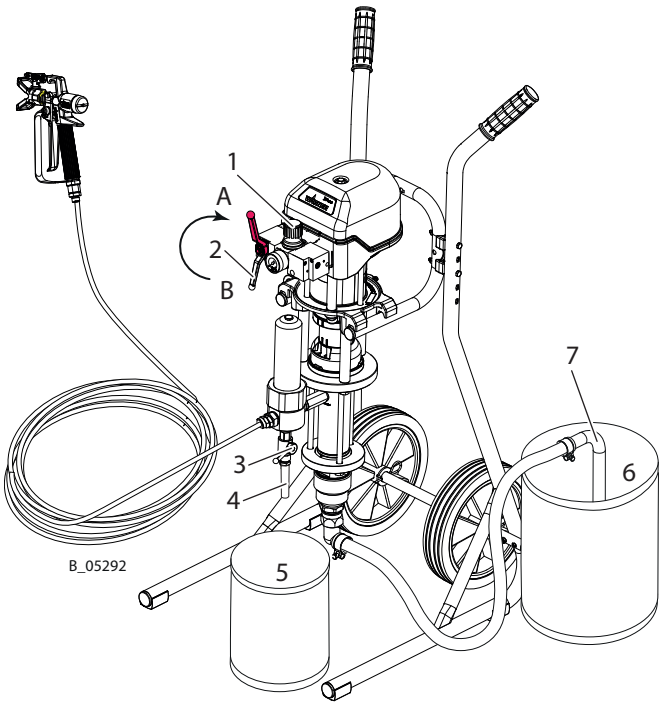
⚠ WARNING

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.



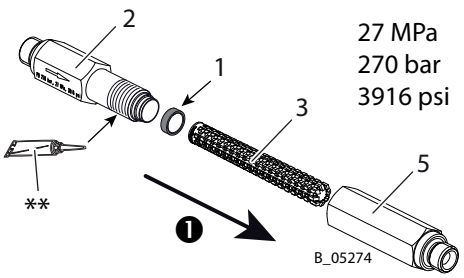
A	Closed	B	Open

Before each filling, the nozzle must be removed from the spray gun. Here, the specifications in the spray gun operating manual must be followed. In case of AirCoat systems, carry out the filling of the system without atomizing air (8).

1. Carry out a visual inspection: Personal protective equipment, grounding and all devices ready for use.
2. Place an empty, grounded collection tank (5) under the return tube (4).
3. Place suction hose (7) in grounded tank with working product (6).
   Note:
   If the pump is equipped with a rigid suction system, it should only be dipped into the working product up to the middle of the inlet housing at the maximum!
4. Close the pressure regulator (1) (0 MPa; 0 bar; 0 psi)
5. Open return valve (3).
6. Slowly open the ball valve (2).
7. Slowly turn the air pressure up on the pressure regulator (1) and only until the pump is running normally (approx. 0–0.05 MPa; 0–0.5 bar; 0–7.25 psi).
   Be prepared for the switch from air to working product and avoid backspray.
8. Close ball valve (2) as soon as pure working product starts coming from the return tube (4).
9. Close return valve (3).
10. Point the spray gun, without nozzle, into the tank (5) and open it.
11. Slowly open the ball valve (2).
    Be prepared for the switch from air to working product and avoid backspray.
12. As soon as pure working product without air bubbles is flowing, close the ball valve (2).
13. Close and secure the spray gun.
14. Carry out pressure relief in accordance with Chapter Pressure Relief / Work Interruption [▸▸ 49].
15. Dispose of the contents of the tank (5) according to the local regulations.

8.2.9 Cleaning and Replacing the Filter

8.2.9.1 Straight Inline Filter



1	Flow direction

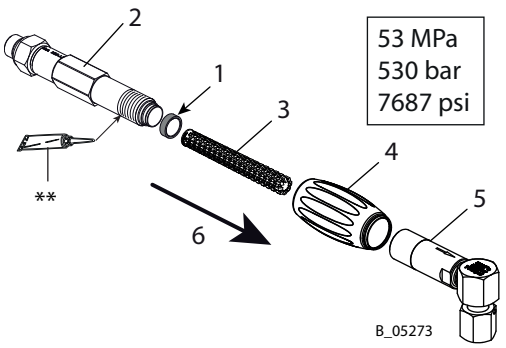
1. Flush the pump and inline filter in accordance with Chapter Basic Flushing [▸▸ 50].
   Flush using the spray gun so that the flushing agent flows through the inline filter.
   Maximize the flow (remove the nozzle, open the dosing valve if necessary).
2. Empty the pump in a controlled manner in accordance with Chapter Emptying Pump [▸▸ 56].
3. Place the grounded collection tank under the inline filter.
4. If no swivel joint is mounted, remove the hose.
5. Unscrew the inlet housing (2) and outlet housing (5) with two size 19 wrenches.
6. Remove the filter insert (3).

7. If the inline filter has any leaks, replace the seal* (1).
8. Insert the new filter insert* (3). Note the installation position: closed end in direction of flow.
9. If necessary, coat the thread with anti-seize paste**.
10. Screw together the inlet housing (2) and outlet housing (5) with two size 19 wrenches.
11. If necessary, screw the hose back on.
12. Fill the pump in accordance with Chapter Filling the Empty Pump [▸▸ 57].

* Order no., see Chapter Accessories [▸▸ 67].

** Order no., see Chapter Assembly of the Device [▸▸ 64].

8.2.9.2 Angled Inline Filter



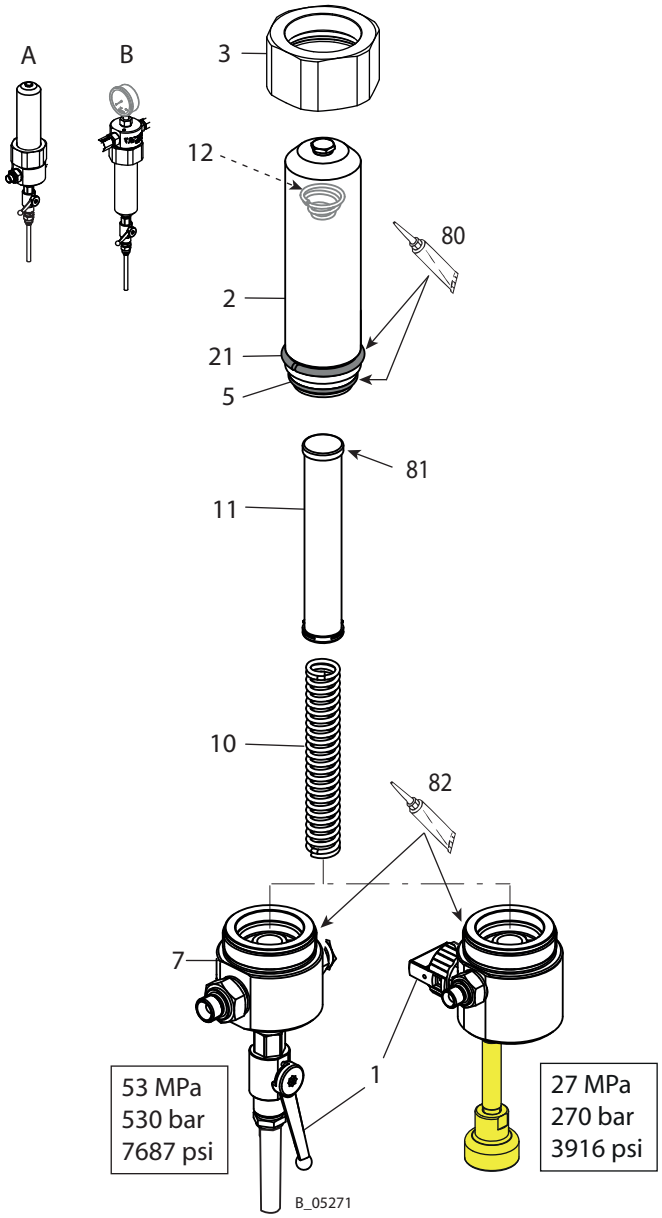
1	Flow direction

1. Flush the pump and inline filter in accordance with Chapter Basic Flushing [▸▸ 50]. Flush using the spray gun so that the flushing agent flows through the inline filter. Maximize the flow (remove the nozzle, open the dosing valve if necessary).
2. Empty the pump in a controlled manner in accordance with Chapter Emptying Pump [▸▸ 56].
3. Place the grounded collection tank under the inline filter.
4. Unscrew the filter by turning the handle (4).
5. Remove the filter insert (3).
6. If the inline filter has any leaks, replace the seal* (1).
7. Insert the new filter insert* (3). Note the installation position: closed end in direction of flow.
8. If necessary, coat the thread with anti-seize paste**.
9. Assemble the turning handle (4), inlet housing (2) and outlet housing (5) and tighten by turning the handle.
10. If necessary, screw the hose back on.
11. Fill the pump in accordance with Chapter Filling the Empty Pump [▸▸ 57].

* Order no., see Chapter Accessories [▸▸ 67].

** Order no., see Chapter Assembly of the Device [▸▸ 64].

8.2.9.3 High-pressure filter



A	Preferred filter installation position	B	Reversed filter installation position
80	Mobilux EP2**	82	Anti-seize paste**
81	Filter identification		

1. Flush the pump and HP filter in accordance with Chapter Basic Flushing [▸▸ 50], and while doing so:
   - At the preferred filter installation position: Flush via the return valve (1). This produces a large flow. As a result, the flushing agent also flows through the upper part of the filter cartridge (11). Pressure regulator approx. 0.15 MPa; 1.5 bar; 22 psi.
   - With a reversed filter installation position: Flush using the spray gun. This is required in the case of a reversed installation position so that the flushing agent flows through the filter cartridge (11). Maximize the flow (remove the nozzle, open the dosing valve if necessary).

2. Empty the pump in a controlled manner in accordance with Chapter Emptying Pump [▸▸ 56].
3. Place the grounded collection tank under the high-pressure filter.
4. Open ball valve (1).
5. Loosen union nut (3) with a size 70 wrench.
6. Unscrew the union nut (3) and lift slightly so that it does not get dirty in the next step.
7. Remove the filter housing (2) with the union nut (3). The cone spring (12) remains in the filter housing (2). If the O-ring (5) is not damaged, it remains on the filter housing (2).
8. Remove the filter cartridge (11) and filter socket (10) from the filter housing (2).
9. Clean all parts:
   - Place the filter cartridge (11) and filter support (10) in solvent. Clean using brush.
   - Fill the filter housing (2) approx. 1/3 full with solvent. Close, wearing a glove, and shake well.
   - Clean the distribution housing (7) using a brush.
10. If necessary, replace the O-ring (5) and/or filter cartridge (11). Order no., see Chapter High-pressure Filter, 530 Bar [▸▸ 113].
11. Assemble all parts in reverse order.
    While doing so:
    - Coat the thread of the distribution housing (7) with anti-seize paste**.
    - Coat the O-ring (5) and pressure ring (21) with Mobilux® EP2**.
    - Observe the installation position of the filter cartridge (11): Push the closed end with the filter identification ahead into the filter housing (2).
    - Make sure that the cone spring (12) is in the filter housing (note the installation position). Press on the cone spring after inserting the filter cartridge (11) and filter support (10); the spring action must be noticeable.
    - Tighten the union nut (3) by hand.
12. Close ball valve (1).
13. Fill the pump in accordance with Chapter Filling the Empty Pump [▸▸ 57].

** Order no., see Chapter Assembly of the Device [▸▸ 64]

9 TROUBLESHOOTING AND RECTIFICATION

Malfunction	Cause	Solution
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 supply of compressed air	Check compressed air supply.
	Filter insert in spray gun or high-pressure filter is clogged.	Clean the parts and use a suitable working product.
	Fluid section or high-pressure hose is blocked (e.g., 2K product hardened).	Dismount and clean fluid section, replace high-pressure hose.
	Grease in spool and sleeve assembly.	Degrease spool and sleeve assembly.
	Occasionally, the pump stops at the reversal point.	Check detent element (see service manual).
Poor spray pattern	Please refer to the gun manual.	
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.
	Valves are clogged.	Clean pump. If necessary, leave it to soak in cleaning agent.
	Foreign body in suction valve.	Dismantle suction valve housing, clean and check valve seat.
	Diameter of compressed air line too small.	Assemble a larger supply line -> chapter Data [▸▸ 21]
	Valves, packings, or pistons are worn out.	Replace the parts.
	Control air filter or work air filter is clogged.	Check and clean it if necessary.
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 union nut.
	Suction filter is clogged.	Clean filter.
	Ball in suction or piston valve is stuck.	Clean balls and valve seats.
Pump is working with a closed spray gun.	Packings, valves, or pistons are worn out.	Replace the parts.
Air motor is iced up.	There is a lot of condensation water in the air supply.	Install a water separator.

If the problem is not listed above consult your 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 unit is in the following state before carrying out any work on it:

1. Flush and clean the system according to Chapter Decommissioning and Cleaning [▸▸ 52].
2. Interrupt the air supply.

After Repair Work

1. Carry out safety checks in accordance with Chapter Safety Checks and Maintenance Intervals [▸▸ 53].
2. Put the system into operation in accordance with Chapter Start up [▸▸ 46] and check for leaks in accordance with Chapter Function Test after Repair Work [▸▸ 65].
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 [▸▸ 65].

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 2-3 Nm; 2 lbft
- Torque wrench 10–15 Nm; 7–11 lbft and 20–25 Nm; 15–19 lbft
- Torque wrench 40 Nm; 30 lbft and 50-55 Nm; 37–40 lbft
- Torque wrench 65 Nm; 48 lbft and 70 Nm; 52 lbft
- Torque wrench 90 Nm; 66 lbft and 100 Nm; 74 lbft
- Torque wrench 140 Nm; 103 lbft and 160 Nm; 118 lbft
- Torque wrench 200 Nm; 148 lbft
- Allen wrench, wrench size (SW) 4, 5, 6, 8, 10, 14, 17
- Allen wrench, wrench size (SW) 6, 12, 13, 17, 19, 22, 32
- Torx® wrench size (SW) 4.5, 5.5

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 [▸▸ 80] 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 [▸▸ 80].
3. Observe torque specifications in Chapter Spare Parts [▸▸ 80].

Assembly Aids

Order no.	Quantity	Designation	Smaller tanks
9992590	1 pc ≙ 50 ml	Loctite® 222	
9992511	1 pc ≙ 50 ml	Loctite® 243	
9992831	1 pc ≙ 50 ml	Loctite® 542	
9998808	1 pc ≙ 18 Kg!	Mobilux® EP 2 grease	400 g tube ≙ order no. 2355418
9992616	1 pc ≙ 1 kg can	Molykote® DX grease	50 g tube ≙ order no. 2355419
9992609	1 pc ≙ 100 g	Anti-seize paste	
9992816	1 pc ≙ 70 g	Miranit contact adhesive	

Brand notice

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

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
1.1 Filling with separating agent	
▸ See Chapter Filling with Separating Agent [▸▸ 54].	
1.2 EX-relevant inspections	
1. 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 kΩ 2. Check conductivity between the piston and the grounding connection: <100 kΩ **These tests are Ex-relevant!**	Ohmmeter (Measurement voltage 500...1000 VDC)
1.3 Testing for leaks	
1. Connect the air motor to the air supply (7 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. In each position (with upstroke and downstroke), let sit for 0.5-1 minute(s) and listen for audible blowing off. 5. When the air supply is turned off, a drop in pressure must be watched for. 6. Check seal of following modules: - fluid section - mounted valves and regulators	Air motor: Test medium: Compressed air Leak spray Fluid section: Test medium: Suitable flushing agent
1.4 General inspections	
1. Check the tightening torques of various screws; see Chapter Spare Parts [▸▸ 80]. 2. Check all fittings. 3. Empty device in a controlled manner (Chapter Emptying Pump [▸▸ 56]) and depressurize (Chapter Pressure Relief / Work Interruption [▸▸ 49]). 4. Check the functionality of the frame or transport trolley.	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
- Carbide

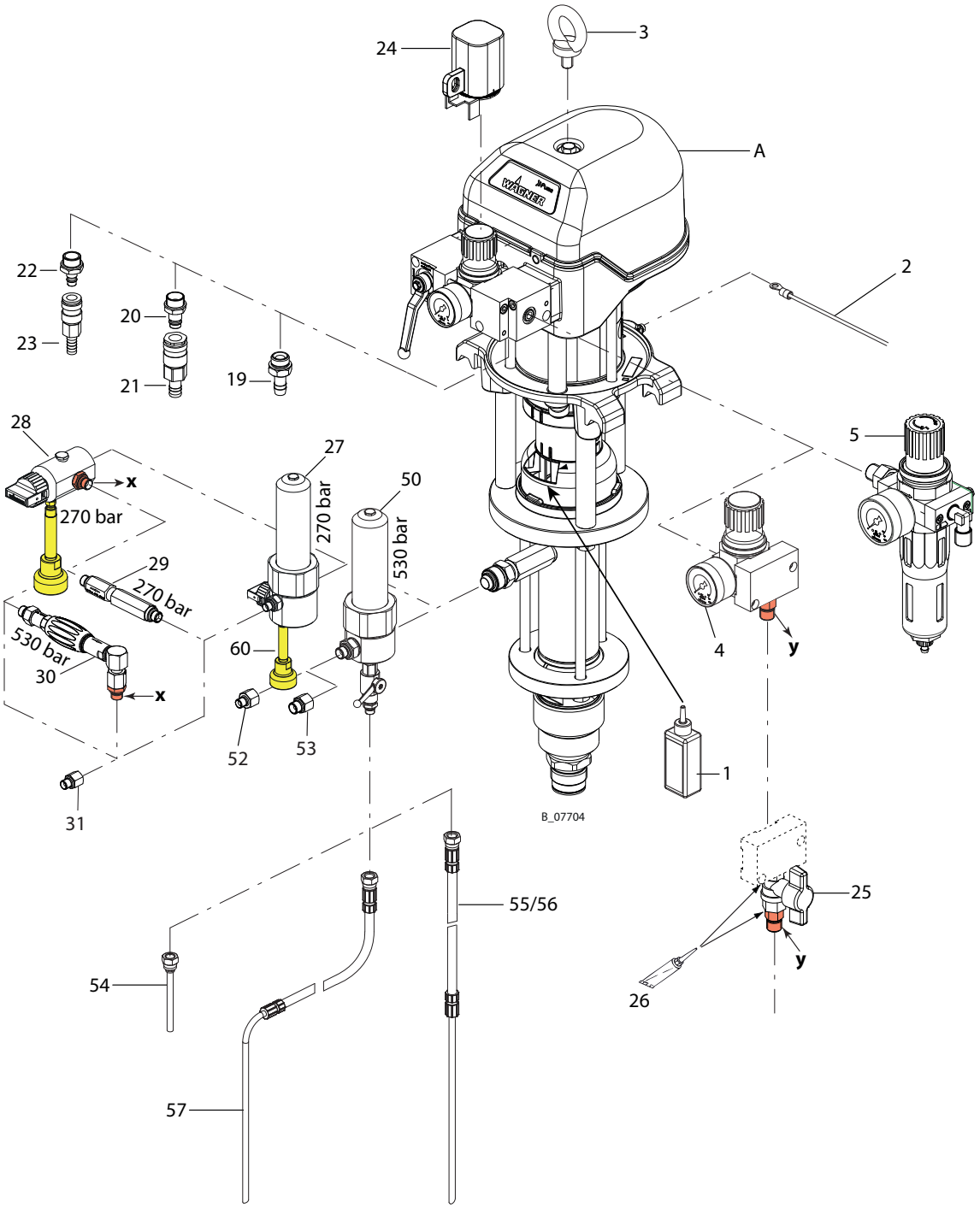
12.2 CONSUMABLE PRODUCTS

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

13 ACCESSORIES

13.1 WILDCAT AND PUMA PUMPS

13.1.1 Product Output and Miscellaneous



Mount fittings **x** and **y** at the correct position, depending on the system's characteristics.

Pos	K	Order no.				Designation
		Wildcat 10-70 **	Wildcat 18-40	Puma 28-40	Puma 21-110	
A		2329460 2337529	2329456	2329467	2329517	Piston pump PE/TG
A		2329462 2337530	2329458	2329469	2330614	Piston pump PE/T
A		2366704	/	/	/	Piston pump PE/T TC 1.4404 **
1		9992504				Separating agent 250 ml; 250 cc
2		236219				Grounding cable 3 m; 9.8 ft
3		9907133				Lifting eye bolt
4		2328611				AirCoat regulator set (Chapter Aircoat Regulator and Aircoat Filter Regulator [▸▸ 114])
5		2382997				AirCoat filter regulator set (Chapter Aircoat Regulator and Aircoat Filter Regulator [▸▸ 114])
19		9985619				Plug-in fitting with hose fitting DN13
20		9998813				Plug-in fitting with quick-release coupling DN13
21		9998812				Quick release coupling with hose fitting DN 13
22		9998810				Plug-in fitting with quick-release coupling DN10
23		9998811				Quick release coupling with hose fitting DN 10
24		2334956				Regulator lock
25		2335815				Ball valve DN7-PN10-G1/4-R1/4-CB
26		9992831				Loctite® 542, 50 ml; 50 cc
Product output up to 27 MPa; 270 bar; 3916 psi (**)						
27		2329024				HP filter DN10-PN270-SSt, complete For details and filter cartridges: see chapter High-pressure Filter, 270 Bar [▸▸ 111]
28		2329023				Relief combination, complete For details, see chapterRelief Combination, 270 Bar [▸▸ 109]
29		2324558				Inline filter, DN6-PN270-G1/4"-SSt For details and filter inserts: see chapter Straight In-line Filter, 270 bar [▸▸ 109]
30		2329026				Inline filter HL DN6-PN530-G1/4"-SSt For details and filter inserts: see chapter Angled In-line Filter, 530 Bar [▸▸ 110]
31		2332619				Adapter G1/4"-NPS1/4"
Product output up to 53 MPa; 530 bar; 7687 psi (**)						
50		2329025				HP filter DN12-PN530-SSt, complete For details and filter cartridges: see chapter High-pressure Filter, 530 Bar [▸▸ 113]
52		2332621				Adapter G3/8"-NPS1/4"
53		2332620				Adapter G3/8“-NPS 3/8“
54	♦	2331752				Return tube, DN6-G1/4"-100mm-PA
55	♦	2331017				Circulation hose DN6-G1/4"-1.8m-PA
56	♦	2331014				Circulation hose DN6-G1/4"-2.8m-PA

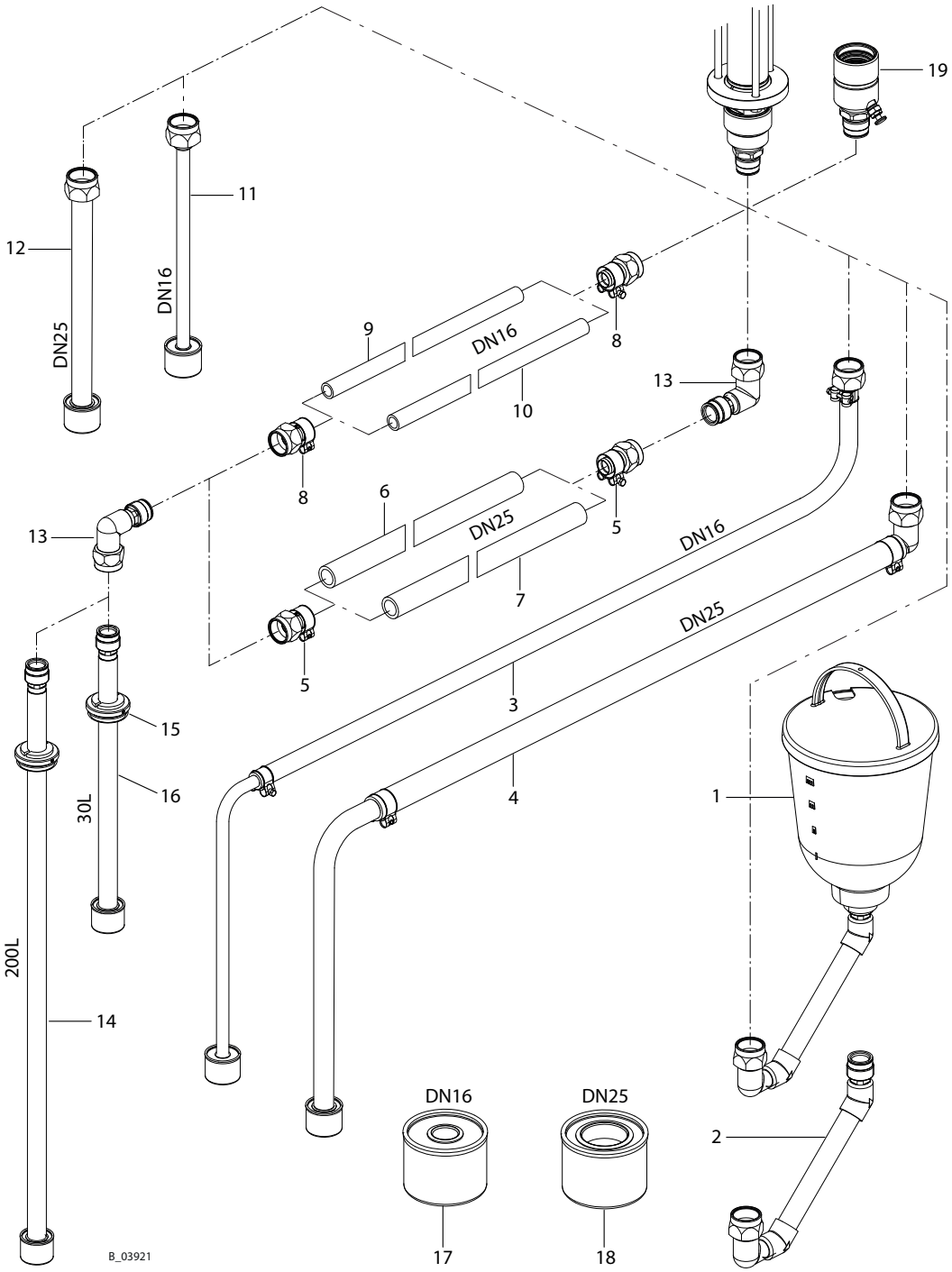
Pos	K	Order no.				Designation
		Wildcat 10-70 **	Wildcat 18-40	Puma 28-40	Puma 21-110	
57	♦	2329046				Return hose DN6-PN310-G1/4"-PA
Pressure relief Relex						
60		--				Pressure relief Relex (see supplement, order no. 2409685)

♦ = wearing parts

/ = Item does not exist

** The listed accesories for the product output is not suitable for Wildcat 10-70 TC 1.4404. For accesories for the product output for Wildcat 10-70 TC 1.4404, see chapter Product Output for TC 1.4404 Pumps [▸▸ 79].

13.1.2 Product input



For trouble-free suction, use hoses which are as short as possible. The maximum hose length is dependent upon the viscosity of the product, the suction height, and the nominal diameter of the hose.

Pos	K	Order no.				Designation
		Wildcat 10-70 **	Wildcat 18-40	Puma 28-40	Puma 21-110	
A		2329460 2337529	2329456	2329467	2329517	Piston pump PE/TG
A		2329462 2337530	2329458	2329469	2330614	Piston pump PE/T
1		2332169			--	Hopper set, 5 l for piston pump
2		2323225			--	Suction elbow for hopper SSt
3	♦	2324110				Suction hose, DN16-SSt, complete
4	♦	2324116				Suction hose, DN25-SSt, complete
5		2325408				LP hose-fitting DN25-M36-SSt
6*	♦	2323474				LP hose, DN25-PN10-EPDM (per meter)
7*	♦	2323595				LP hose DN25-PN10-PE (per meter)
8		2325390				LP hose-fitting DN16-M36-SSt
9*	♦	2323329				LP hose, DN16-PN10-EPDM (per meter)
10*	♦	2323597				LP hose DN16-PN10-PE (per meter)
11		2324158			--	Suction tube DN16-SSt, complete
12		2323239				Suction tube DN25-SSt, complete
13		2324247				Suction elbow, DN25-SSt
14		2324238				Suction tube DN25-200L-SSt, complete
15		2315163				Bung adapter DN25-G2"
16		2324241				Suction tube DN25-30L-SSt, complete
17	♦	2323396				Suction filter, DN16-18 mesh-SSt
18	♦	2323325				Suction filter, DN25-18mesh-SSt
19		2329688	2329689		--	Inlet valve with valve depressor For details, see chapter Inlet Valve with Valve Depressor [▸▸ 108]

♦ = wearing parts

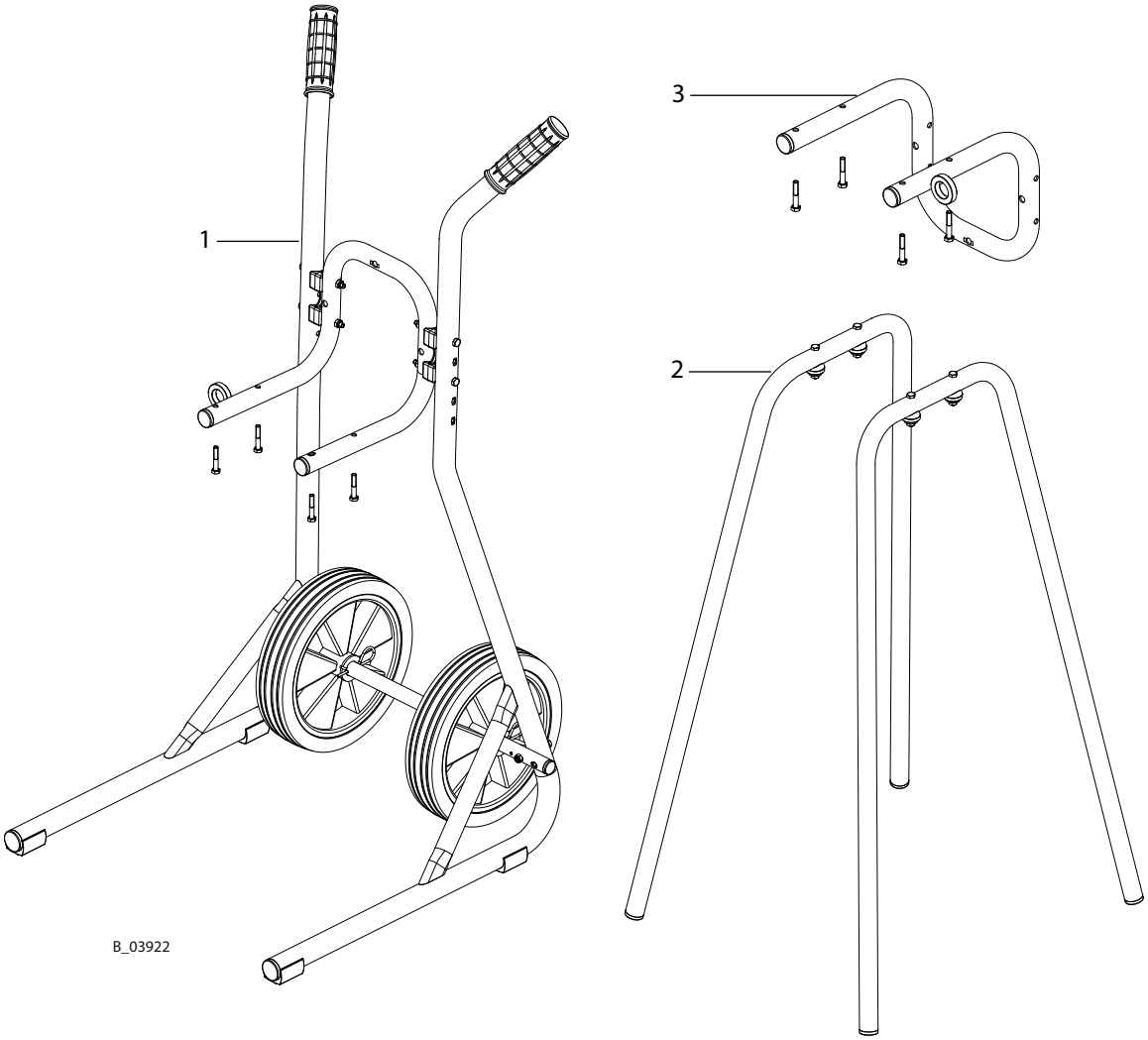
-- = Item not available as a spare part

/ = Item does not exist

* Pos 6, 7, 9, 10: max. 10 bar:
If a feed pump (>10 bar) is used, do not use downstream of the feed pump.

** The accessories listed for the product input are not suitable for the Wildcat 10-70 TC 1.4404.

13.1.3 Trolley, Frame and Wall Mount Accessories



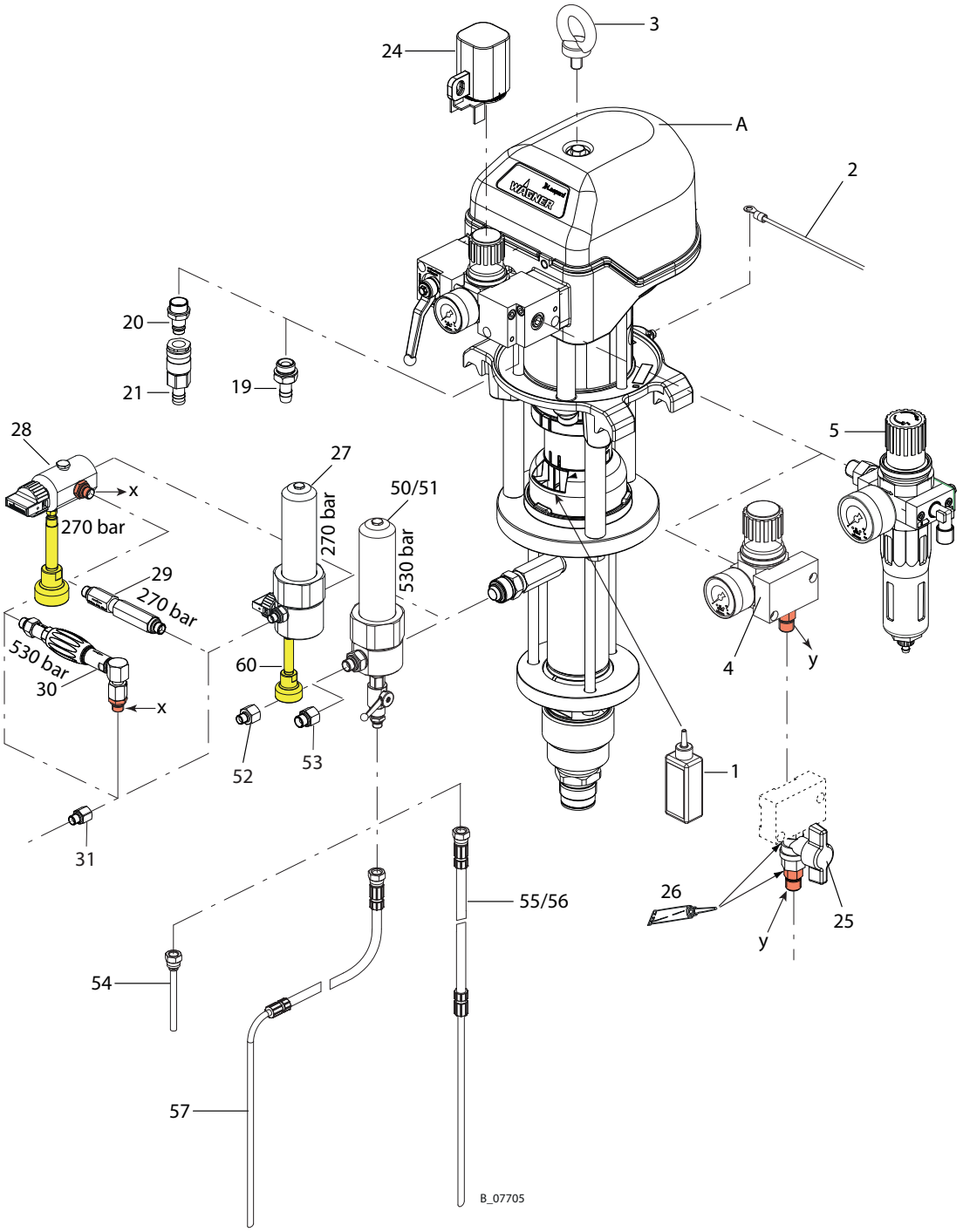
Pos	K	Order no.				Designation
		Wildcat 10-70	Wildcat 18-40	Puma 28-40	Puma 21-110	
A		2329460 2337529	2329456	2329467	2329517	Piston pump PE/TG
A		2329462 2337530	2329458	2329469	2330614	Piston pump PE/T
A		2366704	/	/	/	Piston pump PE/T TC 1.4404
1		2325901				Trolley, 4", complete For details, see chapter Complete Trolley [▸▸ 116]
2		2332374				Frame 4", complete
3	♦	2332143				Wall mount 4“, complete

♦ = wearing parts

/ = Item does not exist

13.2 LEOPARD PUMPS

13.2.1 Product Output and Miscellaneous



Mount fittings **x** and **y** at the correct position, depending on the system's characteristics.

Pos	K	Order no.				Designation
		Leopard 35-70 **	Leopard 35-150	Leopard 48-110	Leopard 26-200	
A		2329479	2329484	2329490	2417044	Piston pump PE/TG
A		2329481	2329486	2329493	2417043	Piston pump PE/T
A		--	--	2329495	/	Piston pump PE/L
A		2366702	/	/	/	Piston pump PE/T TC 1.4404 **
1		9992504				Separating agent 250 ml; 250 cc
2		236219				Grounding cable 3 m; 9.8 ft
3		9907133				Lifting eye bolt
4		2328611			--	AirCoat regulator set (see chapter Aircoat Regulator and Aircoat Filter Regulator [▸▸ 114])
5		2382997			--	AirCoat filter regulator set (see chapter Aircoat Regulator and Aircoat Filter Regulator [▸▸ 114])
19		9985619				Plug-in fitting with hose fitting DN13
20		9998813				Plug-in fitting with quick-release coupling DN13
21		9998812				Quick release coupling with hose fitting DN 13
24		2334957				Regulator lock
25		2335815			--	Ball valve DN7-PN10-G1/4-R1/4-CB
26		9992831			--	Loctite® 542, 50 ml; 50 cc
Product output up to 27 MPa; 270 bar; 3916 psi (**)						
27		2329024		--	2329024	HP filter, DN10-PN270-SSt, complete For details and filter cartridges: see chapter High-pressure Filter, 270 Bar [▸▸ 111]
28		2329023		--	2329023	Relief combination, complete For details, see chapterRelief Combination, 270 Bar [▸▸ 109]
29		2324558		--	2324558	Inline filter, DN6-PN270-G1/4"-SSt For details and filter insert: see chapter Straight Inline Filter, 270 bar [▸▸ 109]
30		2329026		--	2329026	Inline-Filter, HL DN6-PN530-G1/4"-SSt For details and filter insert: see chapterAngled Inline Filter, 530 Bar [▸▸ 110]
31		2332619		--	2332619	Adapter G1/4"-NPS1/4"
Product output up to 53 MPa; 530 bar; 7687 psi (**)						
50		2329025				HP filter DN12-PN530-SSt with stainless steel ball valve For details and filter cartridges: see chapterHigh-pressure Filter, 530 Bar [▸▸ 113]
51		--		2335334	--	HP filter DN12-PN530-SSt with carbon steel ball valve For details and filter cartridges: see chapterHigh-pressure Filter, 530 Bar [▸▸ 113]
52		2332621				Adapter G3/8"-NPS1/4"
53		2332620				Adapter G3/8"-NPS3/8"
54	♦	2331752				Return tube DN6-G1/4"-100mm-PE
55	♦	2331017				Circulation hose DN6-G1/4"-1.8m-PA

Pos	K	Order no.				Designation
		Leopard 35-70 **	Leopard 35-150	Leopard 48-110	Leopard 26-200	
56	♦	2331014				Circulation hose DN6-G1/4"-2.8m-PA
57	♦	2329046				Return hose DN6-PN310-G1/4"-PA
Pressure relief Relex						
60		--				Pressure relief Relex (see supplement, order no. 2409685)

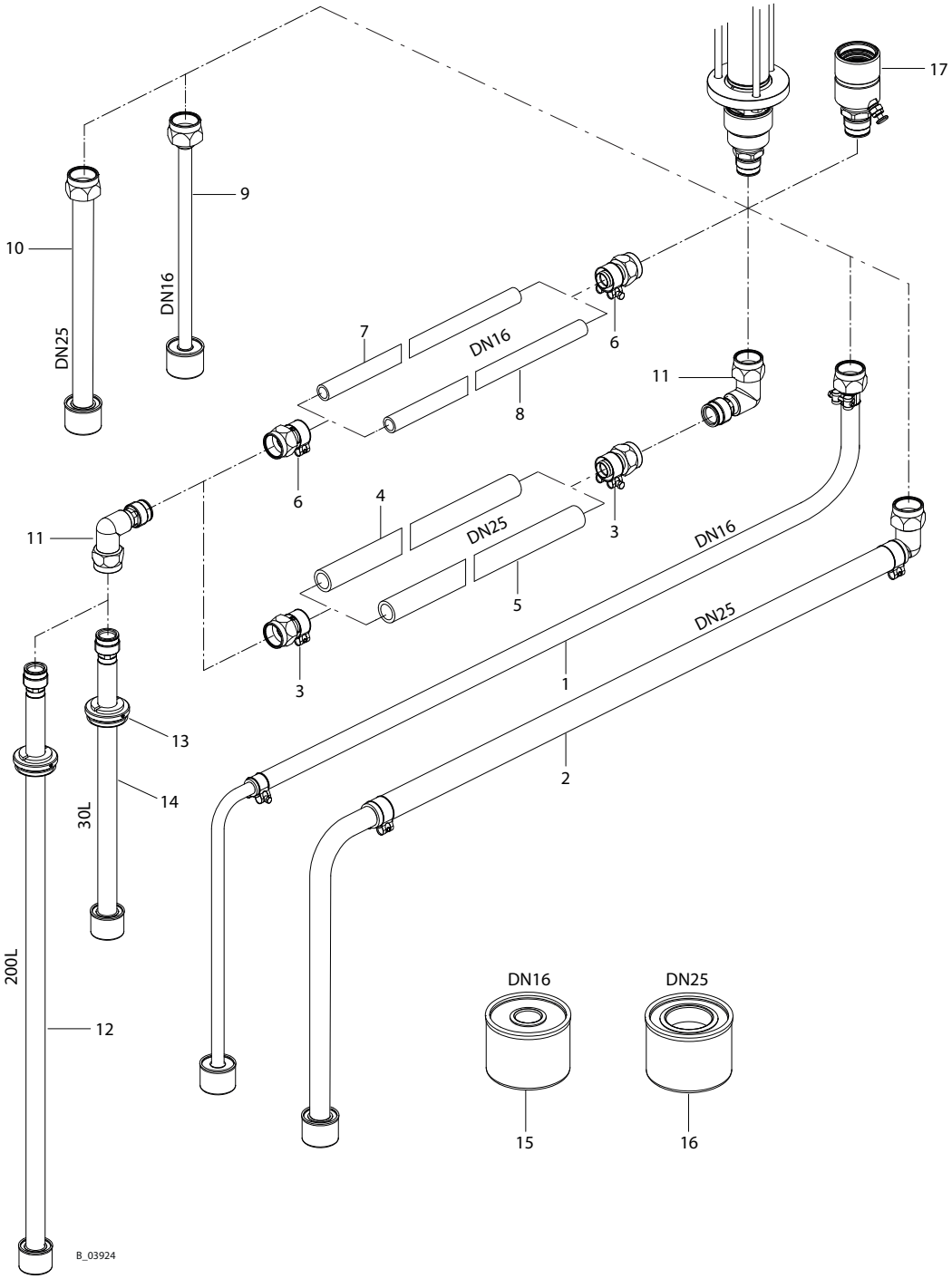
♦ = wearing parts

-- = Item not available as a spare part

/ = Item does not exist

** The accesories listed for the product output are not suitable for the Leopard 35-70 TC 1.4404. For accessories for the product output for the Leopard 35-70 TC 1.4404, see chapter Product Output for TC 1.4404 Pumps [▸▸ 79].

13.2.2 Product input



For trouble-free suction, use hoses which are as short as possible. The maximum hose length is dependent upon the viscosity of the product, the suction height, and the nominal diameter of the hose.

Pos	K	Order no.				Designation
		Leopard 35-70 **	Leopard 35-150	Leopard 48-110	Leopard 26-200	
A		2329479	2329484	2329490	2417044	Piston pump PE/TG
A		2329481	2329486	2329493	2417043	Piston pump PE/T
A		--	--	2329495	/	Piston pump PE/L
1	♦	2324110	--		2324110	Suction hose, DN16-SSt, complete
2	♦	2324116				Suction hose, DN25-SSt, complete
3		2325408				LP hose-fitting DN25-M36-SSt
4*	♦	2323474				LP hose, DN25-PN10-EPDM (per meter)
5*	♦	2323595				LP hose DN25-PN10-PE (per meter)
6		2325390	--		2325390	LP hose-fitting DN16-M36-SSt
7*	♦	2323329	--		2323329	LP hose, DN16-PN10-EPDM (per meter)
8*	♦	2323597	--		2323597	LP hose DN16-PN10-PE (per meter)
9		2324158	--		2324158	Suction tube DN16-SSt, complete
10		2323239				Suction tube DN25-SSt, complete
11		2324247				Suction elbow, DN25-SSt
12		2324238				Suction tube DN25-200L-SSt, complete
13		2315163				Bung adapter DN25-G2"
14		2324241				Suction tube DN25-30L-SSt, complete
15	♦	2323396	--		2323396	Suction filter, DN16-18 mesh-SSt
16	♦	2323325				Suction filter, DN25-18mesh-SSt
17		2329688	--			Inlet valve with valve depressor For details, see chapter Inlet Valve with Valve Depressor [▸▸ 108]

♦ = wearing parts

-- = Item not available as a spare part

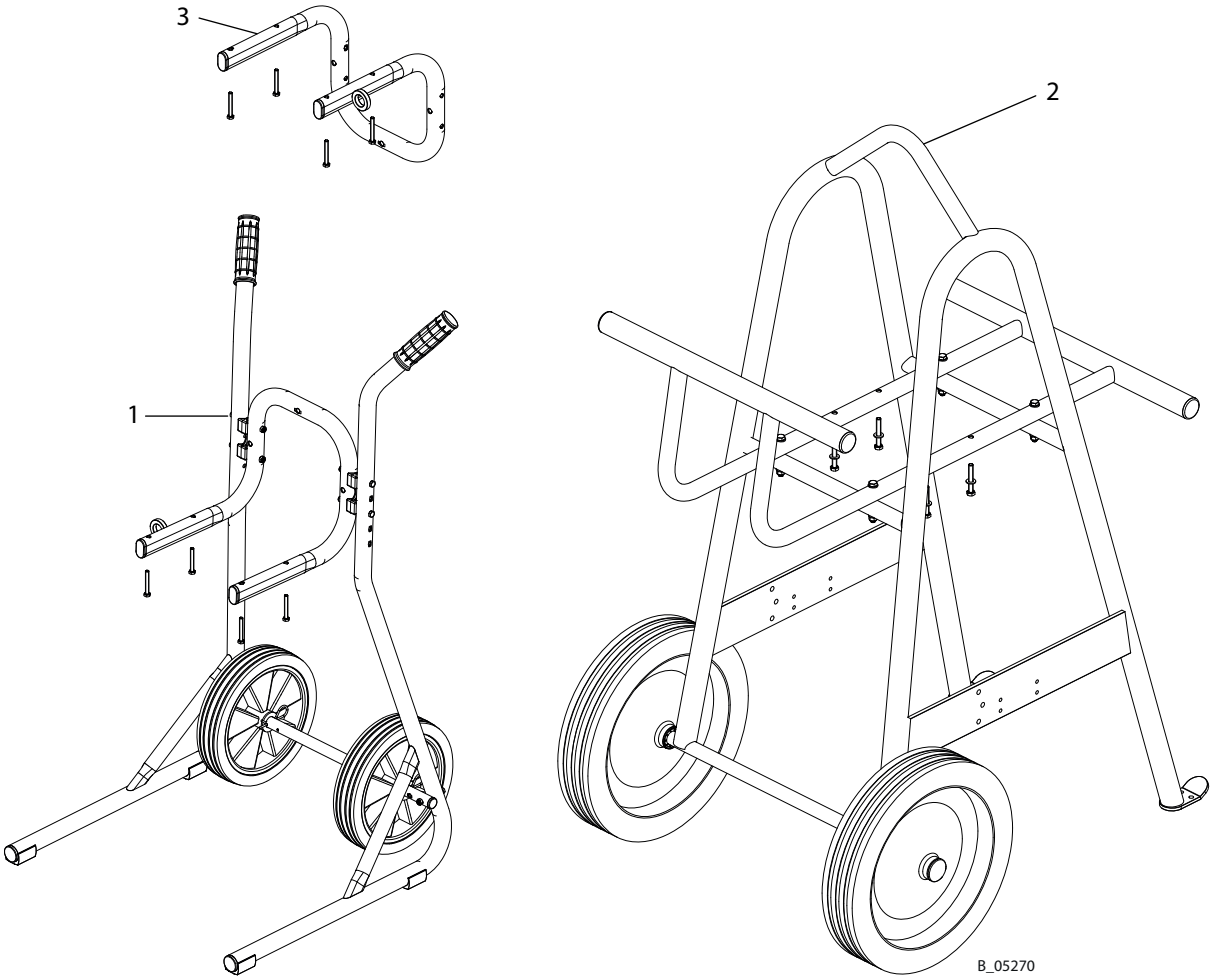
/ = Item does not exist

* Pos 4, 5, 7, 8: max. 10 bar

If a feed pump (>10 bar) is used, do not use downstream of the feed pump.

** The accesories listed for the product input are not suitable for the Leopard 35-70 TC 1.4404.

13.2.3 Trolley and Wall Mount

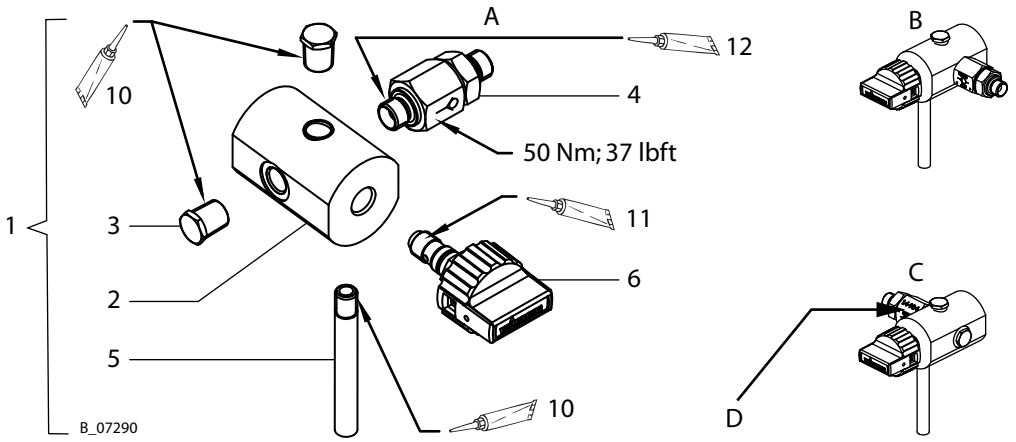


Pos	K	Order no.				Designation
		Leopard 35-70	Leopard 35-150	Leopard 48-110	Leopard 26-200	
A		2329479	2329484	2329490	2417044	Piston pump PE/TG
A		2329481	2329486	2329493	2417043	Piston pump PE/T
A		--	--	2329495	/	Piston pump PE/L
A		2366702	/	/	/	Piston pump PE/T TC 1.4404
1		2325916				Trolley 6", complete For details, see Chapter Complete Trolley [▸▸ 116]
2		--		2339705		Heavy-duty PC trolley, complete For details, see Chapter PC heavy duty trolley [▸▸ 117]
3		2332145				Wall mount 6“, complete

-- = Item not available as a spare part

/ = Item does not exist

13.3 PRODUCT OUTPUT FOR TC 1.4404 PUMPS



A	(Thread and sealing surface)	B	**Left**
C	**Right**	D	Designation "1.4404" for relief combination TC 1.4404

Pos	K	Stk	TC 1.4404	Designation
			Order no.	
1		1	2370693	Relief combination, left
2		1	2370190	Relief housing
3		2	2323718	Fitting PF-M-R1/4-530 bar-SSt
4	♦	1	2370695	Non-return valve, G1/4-G1/4-530 bar
5		1	2324552	Outlet pipe
6	♦	1	2370609	Relief valve, complete
10		1	9992831	Loctite® 542
11		1	9992616	Molykote® DX grease
12		1	9992609	Anti-seize paste tube OKS 240

♦ = wearing parts

14 SPARE PARTS

14.1 HOW CAN SPARE PARTS BE ORDERED?

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

Order number, designation and quantity

The quantity need not be the same as the number given in the "Stk" column in the lists. 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

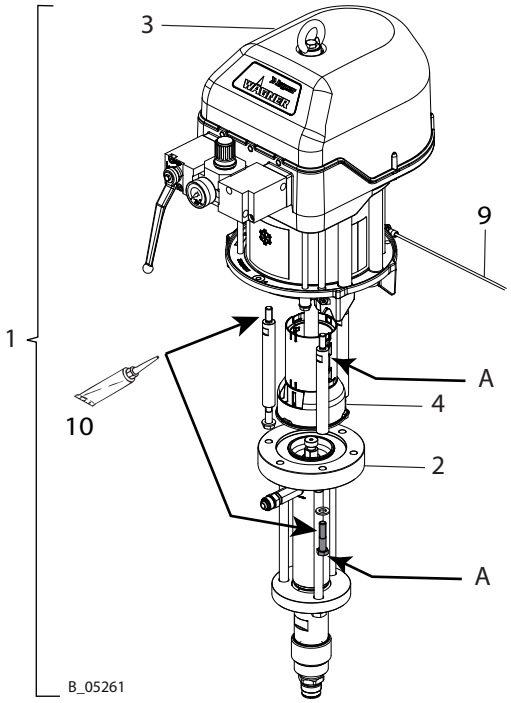
⚠ DANGER

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.

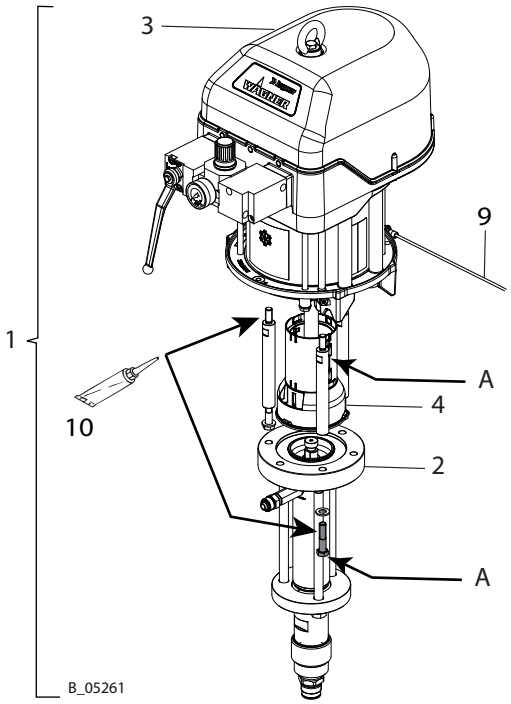
14.3 OVERVIEW OF THE COMPONENTS



Wildcat 10-70, Wildcat 18-40

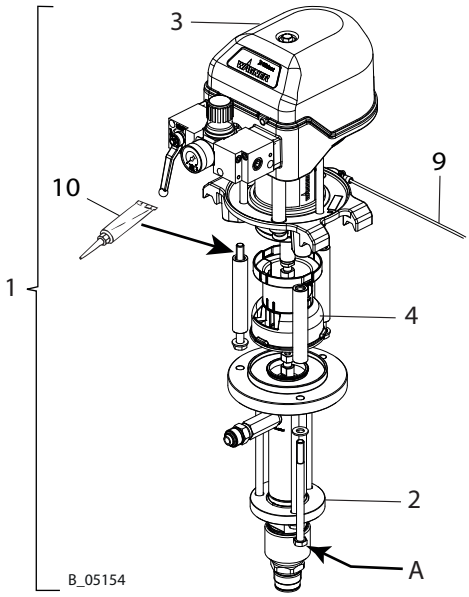
Pos	Wildcat 10-70		Wildcat 18-40		Designation
	PE/TG Order no.	PE/T Order no.	PE/TG Order no.	PE/T Order no.	
1	2329460	2329462	2329456	2329458	Piston pump
2	2329645	2329647	2329641	2329643	Fluid section
3	2329613				Air motor 3/75
4	2350030		2350028		Connection set for air motor - fluid section
9	236219				Grounding cable, complete
10	9992616				Molykote® DX grease
A	25 Nm; 18 lbft				Tightening torque for air motor/fluid section

Pos	Wildcat 10-70 TC		Wildcat 10-70 TC 1.4404	
	PE/TG Order no.	PE/T Order no.	PE/TG Order no.	Designation
1	2337529	2337530	2366704	Piston pump
2	2329645	2329647	2366710	Fluid section
3	2334375			Air motor 3 Wildcat-M
4	2350030			Connection set for air motor - fluid section
9	236219			Grounding cable, complete
10	9992616			Molykote® DX grease
A	25 Nm; 18 lbft			Tightening torque for air motor/fluid section



Puma 28-40; Puma 21-110

Pos	Puma 28-40		Puma 21-110		Designation
	PE/TG Order no.	PE/T Order no.	PE/TG Order no.	PE/T Order no.	
1	2329467	2329469	2329517	2330614	Piston pump
2	2329641	2329643	2329654	2329656	Fluid section
3	2329617		2329619		Air motor 4/75 and 4/150
4	2350028		2350031		Connection set for air motor - fluid section
9	236219				Grounding cable, complete
10	9992616				Molykote® DX grease
A	25 Nm; 18 lbft		50 Nm; 37 lbft		Tightening torque for air motor/fluid section



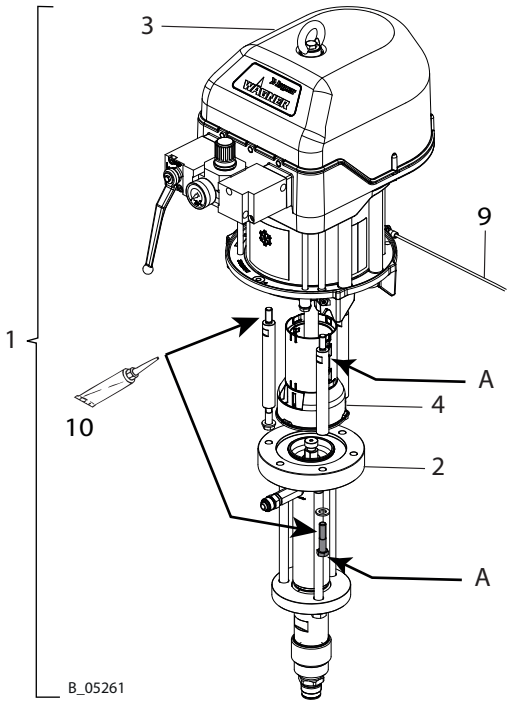
Leopard 35-70

Pos	Leopard 35-70		Leopard 35-150		Designation
	PE/TG Order no.	PE/T Order no.	PE/TG Order no.	PE/T Order no.	
1	2329479	2329481	2329484	2329486	Piston pump
2	2329645	2329647	2329650	2329652	Fluid section
3	2329621		2329623		Air motor 6/75 and 6/150
4	2350032		2350033		Connection set for air motor - fluid section
9	236219				Grounding cable, complete
10	9992616				Molykote® DX grease
A	25 Nm; 18 lbft		50 Nm; 37 lbft		Tightening torque for air motor/fluid section

Pos	Leopard 35-70 PE/TG TC 1.4404 Order no.	Designation
1	2366702	Piston pump
2	2366710	Fluid section
3	2329621	Air motor 6/75
4	2350032	Connection set for air motor - fluid section
9	236219	Grounding cable, complete
10	9992616	Molykote® DX grease
A	25 Nm; 18 lbft	Tightening torque for air motor/fluid section

Pos	Leopard 48-110			Designation
	PE/TG Order no.	PE/T Order no.	PE/L Order no.	
1	2329490	2329493	2329495	Piston pump
2	2329654	2329656	2329658	Fluid section
3	2329623			Air motor 6/150
4	2350033			Connection set for air motor - fluid section

Pos	Leopard 48-110			Designation
	PE/TG Order no.	PE/T Order no.	PE/L Order no.	
9	236219			Grounding cable, complete
10	9992616			Molykote® DX grease
A	50 Nm; 37 lbft			Tightening torque for air motor/fluid section

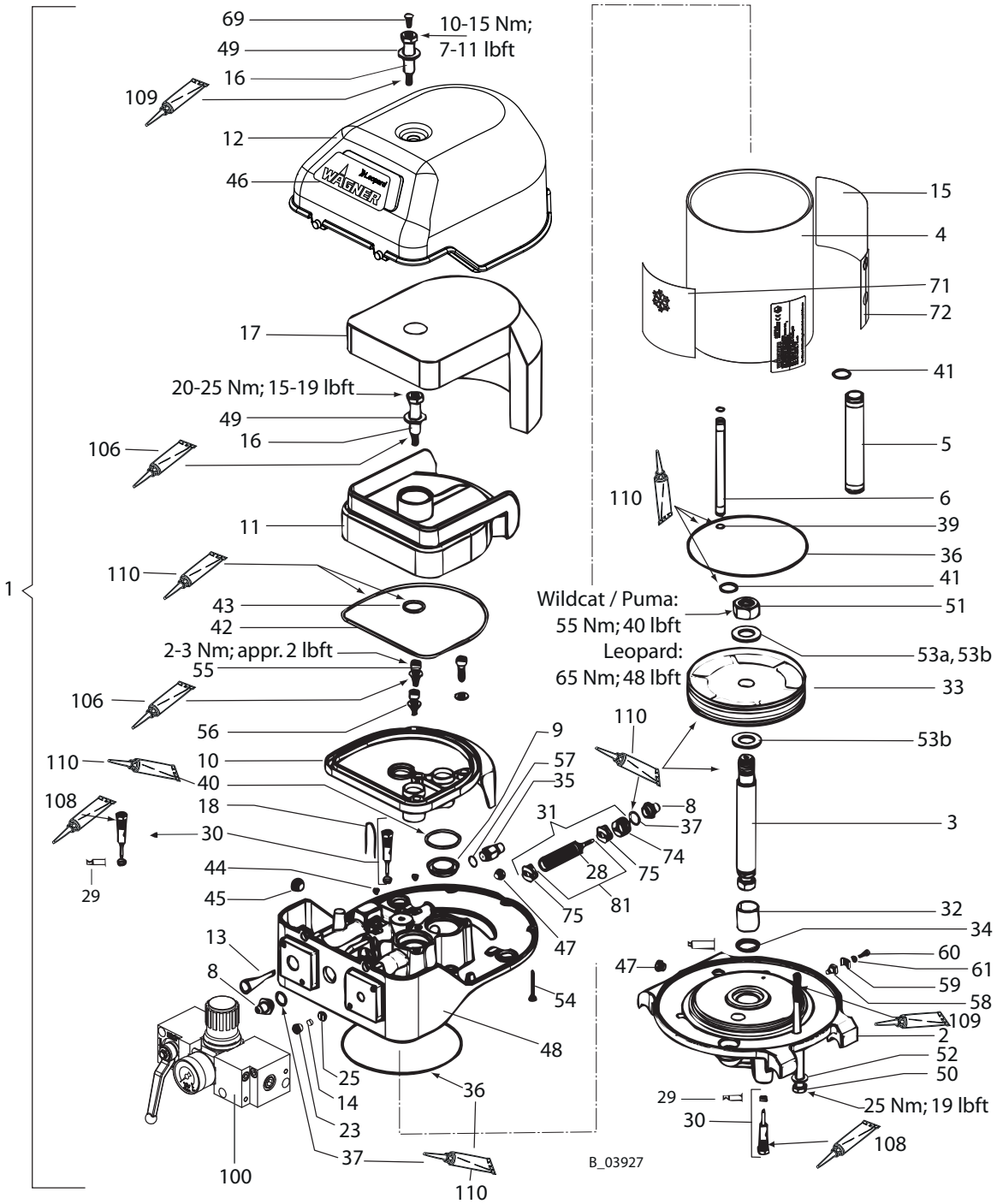


Leopard 35-150; 48-110; 26-200

Pos	Leopard 26-200		Designation
	PE/TG Order no.	PE/T Order no.	
1	2417044	2417043	Piston pump, 26-200
2	2417041	2417042	Fluid section, 200 ccm
3	2329623		Air motor 6/150
4	2350036		Connection set for air motor - fluid section 8
9	236219		Grounding cable, complete
10	9992616		Molykote® DX grease
A	50 Nm; 37 lbft		Tightening torque for air motor/fluid section

14.4 AIR MOTORS

14.4.1 Wildcat Air Motor



Pressure regulator (pos. 100): For details, see chapter Wildcat and Puma Air Motor Regulators [▸▸ 91]

Do not dismount the piston (pos. 81).

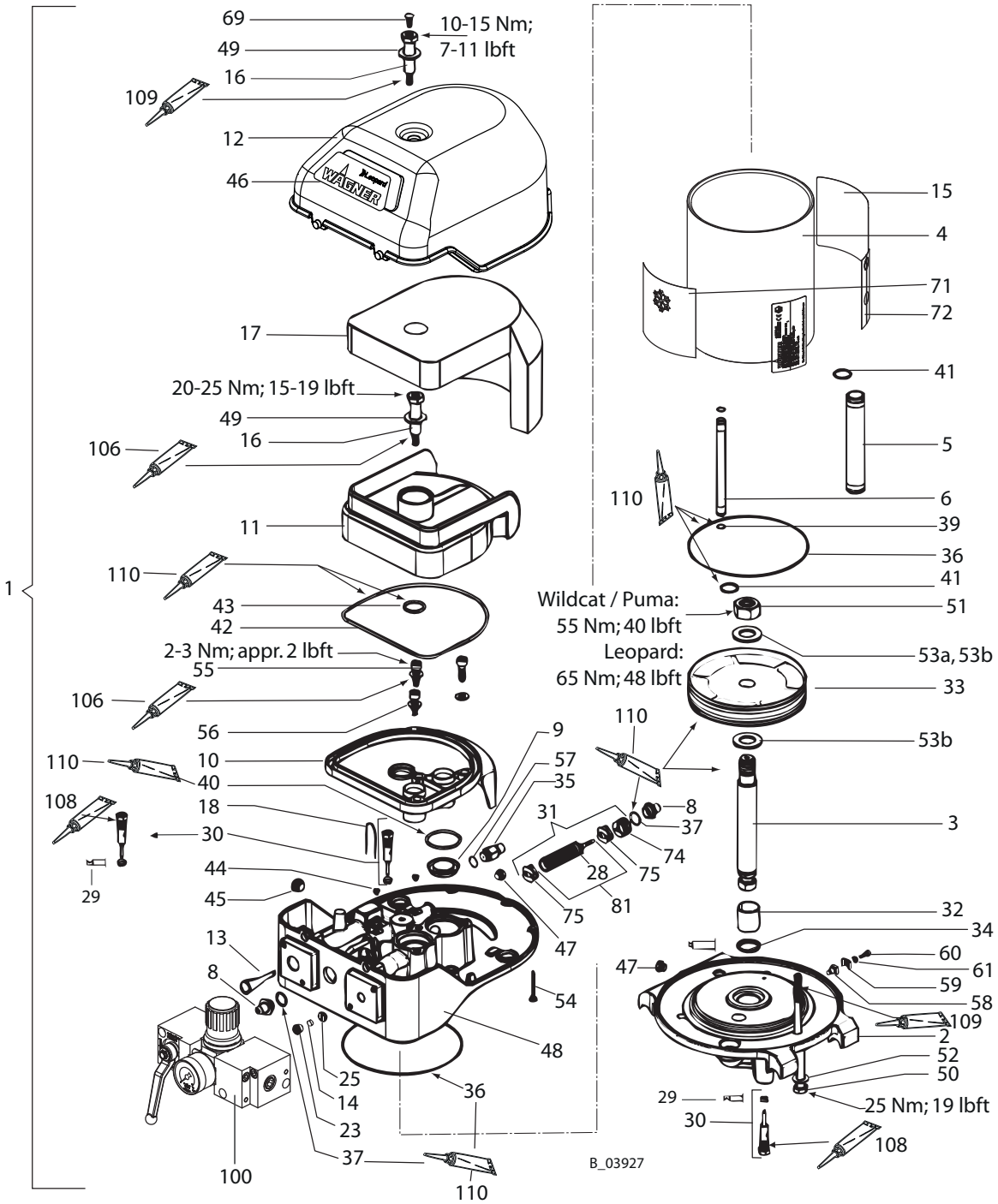
Pos	K	Stk	Order no.		Designation
			Wildcat 10-70 TC	Wildcat 10-70 Wildcat 18-40	
1		1	2334375	2329613	Air motor
2		1	2349900	2344071	Flange
3		1	367302		Piston rod
4		1	366303		Cylinder pipe
5		1	367304		Compressed air pipe
6		1	367305		Control air pipe
8		2	367307		Plug
9	♦ ⋆	2	L414.06C		Outlet seal
10		1	367309		Connecting part
11		1	367310		Silencer
12		1	367311		Hood
13	♦ ⋆	1	367313		Compressed air filter
14	♦ ⋆	1	367314		Control air filter
15		1	2332082		Fluid warning label
16		2	367318		Shoulder screw
17	♦	1	367319		Sound deadening pad
18		2	367320		Cotter pin
23		1	367324		Filter holder
25		1	/		Throttle
28	♦	6	9971123		O-ring
29	♦	2	9974217		Rod seal
30	♦	2	369290		Pilot valve
31	♦	1	9943080		Spool and sleeve assembly, complete
32	♦	1	9962018		Permaglide bushing
33	♦	1	9998663		Complete piston
34	♦ ⋆	1	9974090		Seal wiper ring
35		1	/	368288	Safety valve, 8.4 bar
		1	2336178	/	Safety valve, 4.4 bar
36	♦ ⋆	2	9974115		O-ring
37	♦ ⋆	2	9974085		O-ring
39	♦ ⋆	2	9974089		O-ring
40	♦ ⋆	2	9974095		O-ring
41	♦ ⋆	2	9971448		O-ring
42	♦ ⋆	1	9974097		O-ring
43	♦ ⋆	1	9974098		O-ring
44		2	9998674		Threaded plug
45		1	9998274		Threaded plug
46		1	2330369		Label, WAGNER
47		2	9998675		Threaded plug

Pos	K	Stk	Order no.		Designation
			Wildcat 10-70 TC	Wildcat 10-70 Wildcat 18-40	
48		1	2359170	2359165	Control housing
49		2	9925033		Washer
50		3	9900225		Hexagon screw
51		1	2386160		Self-locking hexagon nut (new)
		1	(9910101)		Hexagon nut Secured with Loctite 243 (old)
52		3	9920106		Washer
53a		1	9920107		Washer
54		2	9907126		SFS screw
55		3	9900325		Socket cap screw, M6x16
56		3	9920103		Washer
57	♦ ⋆	1	9970149		Sealing ring
58		1	9952668		Base
59		1	9952667		Clamping bracket
60		1	9900701		Socket cap screw
61		1	9921505		Spring washer
69		1	9998718		Drive fastener
71		1	2330382		IceBreaker label
72		1	2332077		Warning label
74	♦	1	368038		Detent element, complete ISO 1/2
75	♦	2	368313		Damper ISO 1/2
81	♦	1	9943097		Spool and sleeve assembly ISO1 or ISO2
100		1	2384849		Pressure regulator unit, 4", complete For details, see chapter Wildcat and Puma Air Motor Regulators [▸▸ 91]
106		1	9992590		Loctite® 222, 50 ml; 50 cc
108		1	9992831		Loctite® 542, 50 ml; 50 cc
109		1	9992616		Molykote® DX grease
110		1	9998808		Mobilux® EP 2 grease
		1	366995		Service set
		1	9992511		Loctite® 243, 50 ml; 50 cc

♦ = wearing parts

⋆ = Included in service set

14.4.2 Puma and Leopard Air Motors



Pressure regulator (pos. 100): For details, see chapter Wildcat and Puma Air Motor Regulators [▸▸ 91] and Leopard Air Motor Regulator [▸▸ 92]

Do not dismount the piston (pos. 81).

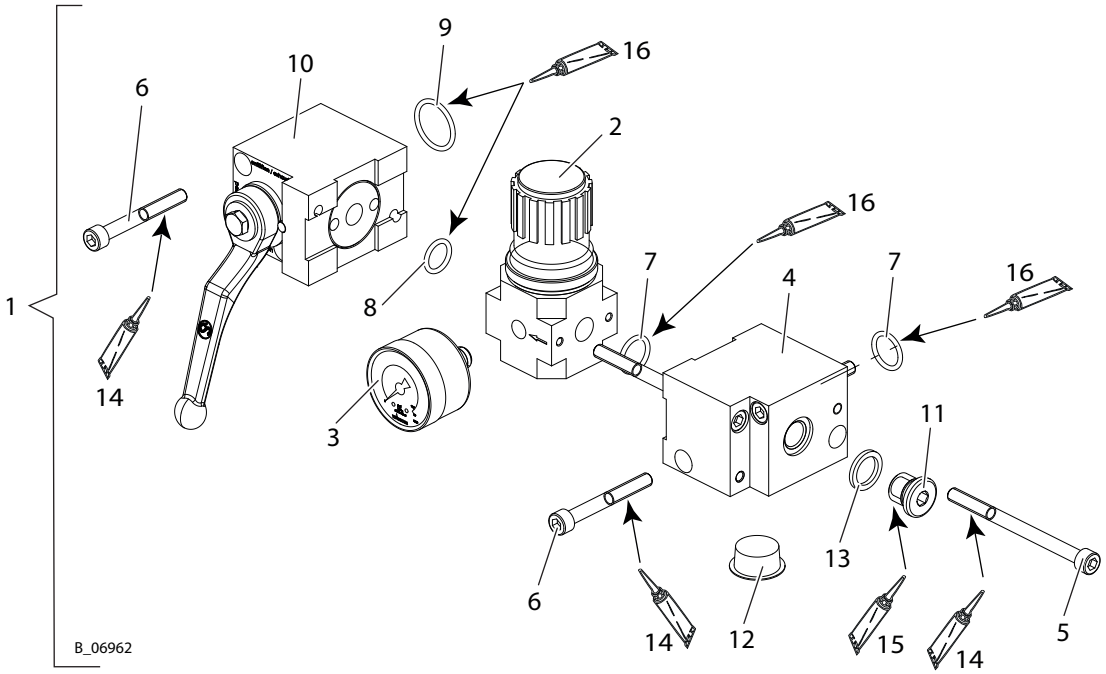
Pos	K	Stk	Order no.				Designation
			Puma 28-40	Puma 21-110	Leopard 35-70	Leopard 48-110 35-150 26-200	
1		1	2329617	2329619	2329621	2329623	Air motor
2		1	2344071		2344075		Flange
3		1	367302	367402	368302	368402	Piston rod
4		1	367303	367403	368303	368403	Cylinder pipe
5		1	367304	367404	368304	368404	Compressed air pipe
6		1	367305	367405	367305	367405	Control air pipe
8		2	367307				Plug
9	♦ ⋆	2	L414.06C		L423.06		Outlet seal
10		1	367309		368309		Connecting part
11		1	367310		368310		Silencer
12		1	367311		368311		Hood
13	♦ ⋆	1	367313				Compressed air filter
14	♦ ⋆	1	367314				Control air filter
15		1	2332082				Fluid warning label
16		2	367318		368324		Shoulder screw
17	♦	1	367319		368319		Sound deadening pad
18		2	367320		368320		Cotter pin
23		1	367324				Filter holder
25		1	/		367325		Throttle
28	♦	6	9971123		9974142		O-ring
29	♦	2	9974217				Rod seal
30	♦	2	369290				Pilot valve
31	♦	1	9943080		9943081		Spool and sleeve assembly, complete
32	♦	1	9962018		9962019		Permaglide bushing
33	♦	1	9998661		9998662		Complete piston
34	♦ ⋆	1	9974090		9974091		Seal wiper ring
35		1	368288		/		Safety valve, 8.4 bar
		1	/		368286	/	Safety valve, 7.5 bar
		1	/			368287	Safety valve, 8.1 bar
36	♦ ⋆	2	9974084		9974087		O-ring
37	♦ ⋆	2	9974085				O-ring
39	♦ ⋆	2	9974089				O-ring
40	♦ ⋆	2	9974095		9974096		O-ring
41	♦ ⋆	2	9971448		9971137		O-ring
42	♦ ⋆	1	9974097		9974100		O-ring
43	♦ ⋆	1	9974098		9974101		O-ring
44		2	9998674				Threaded plug
45		1	9998274				Threaded plug

Pos	K	Stk	Order no.				Designation
			Puma 28-40	Puma 21-110	Leopard 35-70	Leopard 48-110 35-150 26-200	
46		1	2330370		2330371		Label, WAGNER
47		2	9998675				Threaded plug
48		1	2359165		2359171		Control housing
49		2	9925033	9920106	9925026		Washer
50		3	9900225	9907121	9900225		Hexagon screw
51		1	2386160		2386161		Self-locking hexagon nut (new)
		1	(9910101)		(9910605)		Hexagon nut Secured with Loctite 243 (old)
52		3	9920106				Washer
53a		1	9920107		/		Washer
53b		2	/		9920110		Washer
54		2	9907126		/		SFS screw
		3	/		9907125		SFS screw
55		3	9900325		9900313		Socket cap screw, M6x16
56		3	9920103		9920102		Washer
57	♦ ⋆	1	9970149				Sealing ring
58		1	9952668				Base
59		1	9952667				Clamping bracket
60		1	9900701				Socket cap screw
61		1	9921505				Spring washer
69		1	9998718				Drive fastener
71		1	2330382				IceBreaker label
72		1	2332077				Warning label
74	♦	1	368038				Detent element, complete ISO 1/2
75	♦	2	368313				Damper ISO 1/2
81	♦	1	9943097		9943098		Spool and sleeve assembly ISO1 or ISO2
100		1	2384849		/		Pressure regulator unit, 4", complete For details, see chapter Wildcat and Puma Air Motor Regulators [▸▸ 91]
		1	/		2328607		Pressure regulator unit, 6", complete For details, see chapter Leopard Air Motor Regulator [▸▸ 92]
106		1	9992590				Loctite® 222, 50 ml; 50 cc
108		1	9992831				Loctite® 542, 50 ml; 50 cc
109		1	9992616				Molykote® DX grease
110		1	9998808				Mobilux® EP 2 grease
		1	367995		368995		Service set
		1	9992511				Loctite® 243, 50 ml; 50 cc

♦ = wearing parts

⋆ = Included in service set

14.4.3 Wildcat and Puma Air Motor Regulators

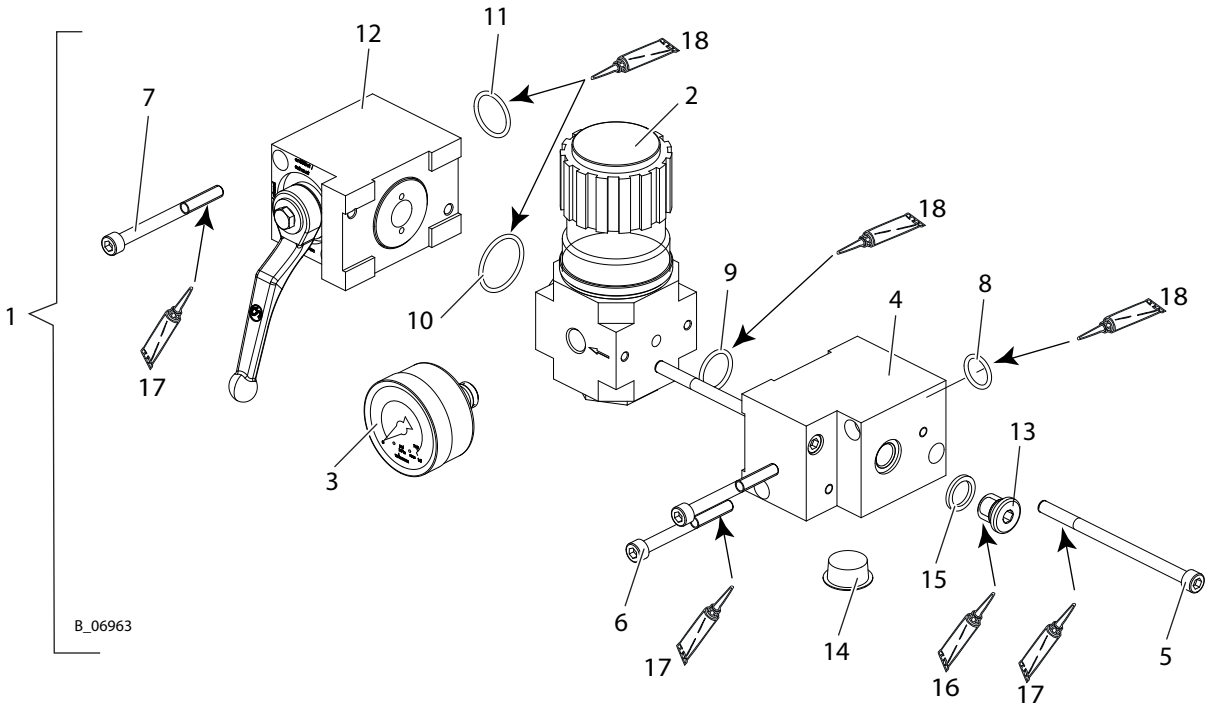


Pos 3: Screw in the pressure gauge until the white sealing ring is completely in the filter control valve. Thereafter continue turning the pressure gauge only to align the display scale.

Pos	K	Stk	Order no.	Designation
1		1	2384849	Pressure regulator unit 4", complete
2	♦	1	2309972	Pressure regulator valve 4"
3	♦	1	9998677	Pressure gauge 0-10 bar (d40)
4		1	2309744	Distribution piece, 4"
5		2	9907039	Hexagon socket head cap screw
6		4	9900316	Hexagon socket head cap screw
7	♦	2	9974166	O-ring
8	♦	1	9971313	O-ring
9	♦	1	9971137	O-ring
10	♦	1	2360756	Edge ball valve, 4“
11		1	9904307	Screw plug
12		1	9990506	Cone plug, GPN 600
13		1	9970154	Sealing ring
14		1	9992616	Molykote® DX grease
15		1	9992831	Loctite® 542, 50 ml; 50 cc
16		1	9998808	Mobilux® EP 2 grease

♦ = wearing parts

14.4.4 Leopard Air Motor Regulator



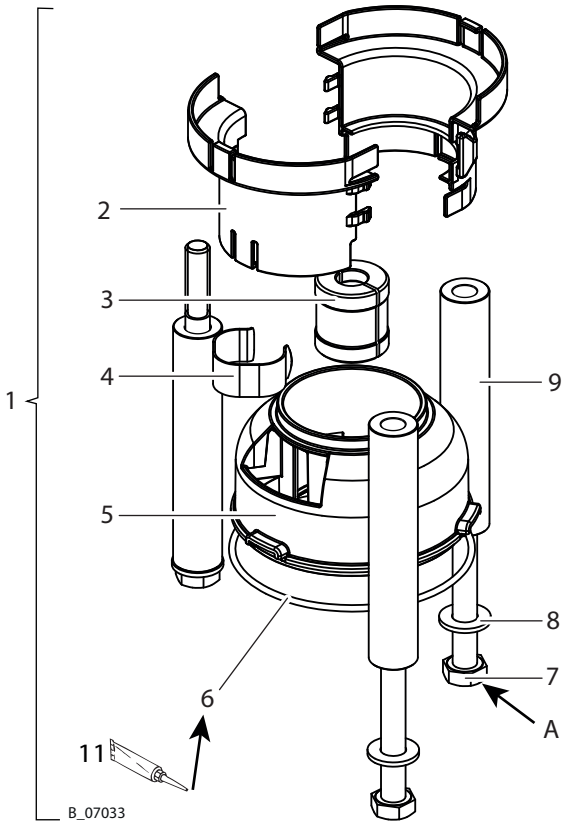
Pos 3: Screw in the pressure gauge until the white sealing ring is completely in the filter control valve. Thereafter continue turning the pressure gauge only to align the display scale.

Pos	K	Stk	Order no.	Designation
1		1	2328607	Pressure regulator unit 6", complete
2	♦	1	2309973	Pressure regulator valve 6"
3	♦	1	9998725	Pressure gauge 0-10 bar (d50)
4		1	2309783	Distribution piece, 6"
5		2	3050699	Hexagon socket head cap screw
6		2	9907024	Hexagon socket head cap screw
7		2	9906020	Hexagon socket head cap screw
8	♦	1	9974166	O-ring
9	♦	1	9971018	O-ring
10	♦	1	3105540	O-ring
11	♦	1	9971137	O-ring
12	♦	1	2370107	Edge ball valve, 6“
13		1	9904307	Screw plug
14		1	9990506	Cone plug, GPN 600
15		1	9970154	Sealing ring
16		1	9992831	Loctite® 542
17		1	9992616	Molykote® DX grease
18		1	9998808	Mobilux® EP 2 grease

♦ = wearing parts

14.5 CONNECTION SETS

14.5.1 Connection Sets for 40-70 ccm



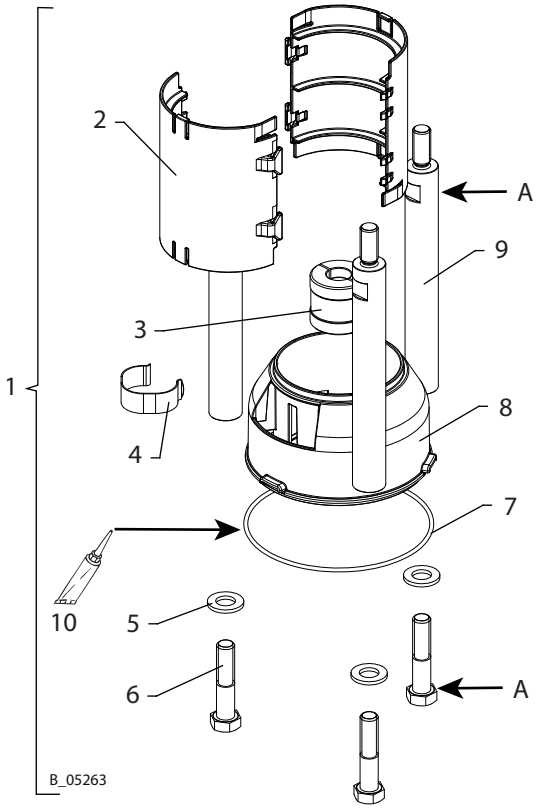
Assembly with air motor and fluid section: see Chapter Overview of the Components [▸▸ 81]

Pos	K	Stk	Order no.			Designation
			LM-FS 1 Wildcat 18-40 Puma 28-40	LM-FS 2 Wildcat 10-70	LM-FS 4 Leopard 35-70	
1		1	2350028	2350030	2350032	Connection set LM-FS …
2		2	367532			Coupling cover stroke 75
3		1	367529	367579	368529	Coupling
4		1	367530		368530	Spring
5		1	367531			Separating agent cup, stroke 75
6	♦ ⋆	1	9974093			O-ring
7		3	9900225			Hexagon screws
8		3	9920106			Washer
9		3	367306			Connecting tube stroke 75
11		1	9998808			Mobilux® EP 2 grease
A			25 Nm; 18 lbft			Tightening torque for pos. 7

♦ = wearing parts

⋆ = Included in the service set of the fluid section PE/TG or PE/T (see chapter Fluid Sections [▸▸ 95]).

14.5.2 Connection Sets for 110-200 ccm



Assembly with air motor and fluid section: see Chapter Overview of the Components [▸▸ 81]

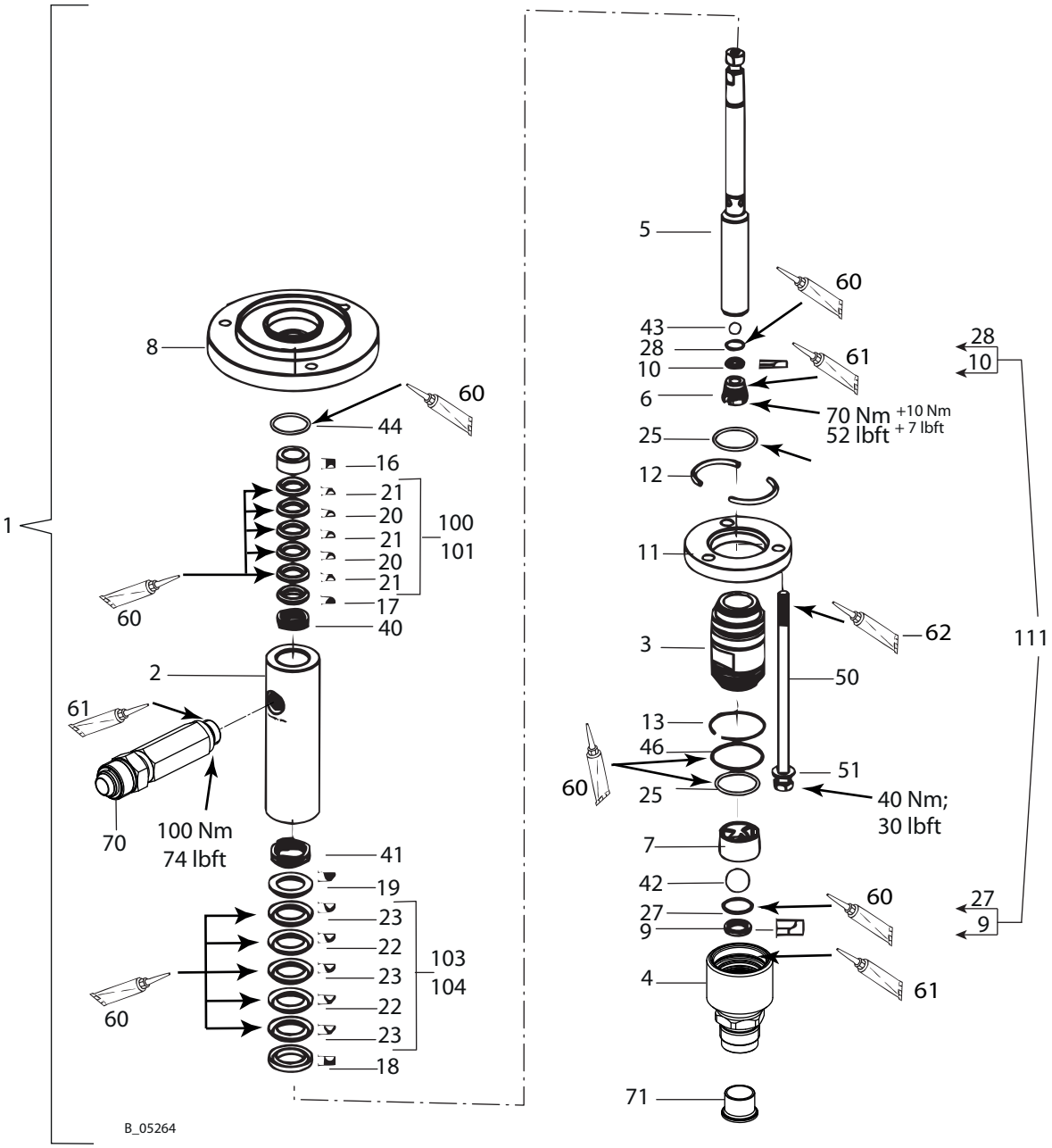
Pos	K	Stk	Order no.			Designation
			LM-FS 3 Puma 21-110	LM-FS 5 Leopard 35-150 Leopard 48-110	LM-FS 8 Leopard 26-200	
1		1	2350031	2350033	2350036	Connection set LM-FS …
2		2	368532			Coupling cover stroke 150
3		1	367579	368529	2337924	Coupling
4		1	367530	368530		Spring
5		3	9920107			Washer, A12, DIN 125-1
6		3	9900157			Hexagon screws
7	♦ ⋆	1	9974116			O-ring
8		1	368531			Separating agent cup, stroke 150
9		3	368533			Threaded bolt
10		1	9998808			Mobilux® EP 2 grease
A			50 Nm; 37 lbft			Tightening torque for pos. 6 and 9

♦ = wearing parts

⋆ = Included in the service set of the fluid section PE/TG or PE/T or PE/L (see chapter Fluid Sections [▸▸ 95]).

14.6 FLUID SECTIONS

14.6.1 Fluid Section, 40 ccm



Tighten pos. 4 by hand on block. Use a standard wrench only if necessary. In this case, use a wrench to counterhold pos. 3.

* Notice regarding pos. 111: Stainless steel valve seat set 40, consisting of: pos. 28, 10, 27 and 9, but in stainless steel version.

Pos	K	Stk	Order no.		Designation
			PE / TG	PE/T	
1		1	2329641	2329643	Fluid section, 40 ccm
2		1	367502		Pipe
3		1	367503		Cylinder

Pos	K	Stk	Order no.		Designation
			PE / TG	PE/T	
4		1	2322467		Inlet housing 40
5	♦	1	367505		Piston
6		1	367506		Valve screw
7	♦ ⋆	1	367507		Ball guide, inlet
8		1	367501		Connecting flange
9	♦	1	367509		Valve seat, inlet
10	♦	1	367510		Valve seat, outlet
11		1	367511		Snap ring flange
12		2	367512		Snap ring half
13		1	367513		Securing ring
16		1	367516		Support ring
17		1	367517		Pressure ring
18		1	367518		Support ring
19		1	367519		Pressure ring
100	♦	1	115805	/	Packing PE/TG, complete (small)
101	♦	1	/	123219	Packing PE/T, complete (small)
20	♦ ⋆	2	123398	/	Sealing collar TG (small)
20	♦ ⋆	2	/	123426	Sealing collar T (small)
21	♦ ⋆	3	123427		Sealing collar PE (small)
103	♦	1	367991	/	Packing PE/TG, complete (large)
104	♦	1	/	367992	Packing PE/T, complete (large)
22	♦ ⋆	2	367522	/	Sealing collar TG (large)
22	♦ ⋆	2	/	367900	Sealing collar T (large)
23	♦ ⋆	3	367523		Sealing collar PE (large)
25	♦ ⋆	2	367525		O-ring
27	♦ ⋆	1	367527		O-ring
28	♦ ⋆	1	367528		O-ring
40	♦ ⋆	1	9998669		Wave spring (small)
41	♦ ⋆	1	9998670		Wave spring (large)
42	♦ ⋆	1	9941513		Ball (large)
43	♦ ⋆	1	9941518		Ball (small)
44	♦ ⋆	1	9974094		O-ring
46	♦ ⋆	1	9974106		O-ring
50		3	9907124		Hexagon screw
60		1	9998808		Mobilux® EP 2 grease
61		1	9992609		Anti-seize paste tube
62		1	9992616		Molykote® DX grease
70		1	2329922		Fitting SF-MM-G3/8"-M24x1.5-PN530-SSt
71		1	2329898		Sealing sleeve

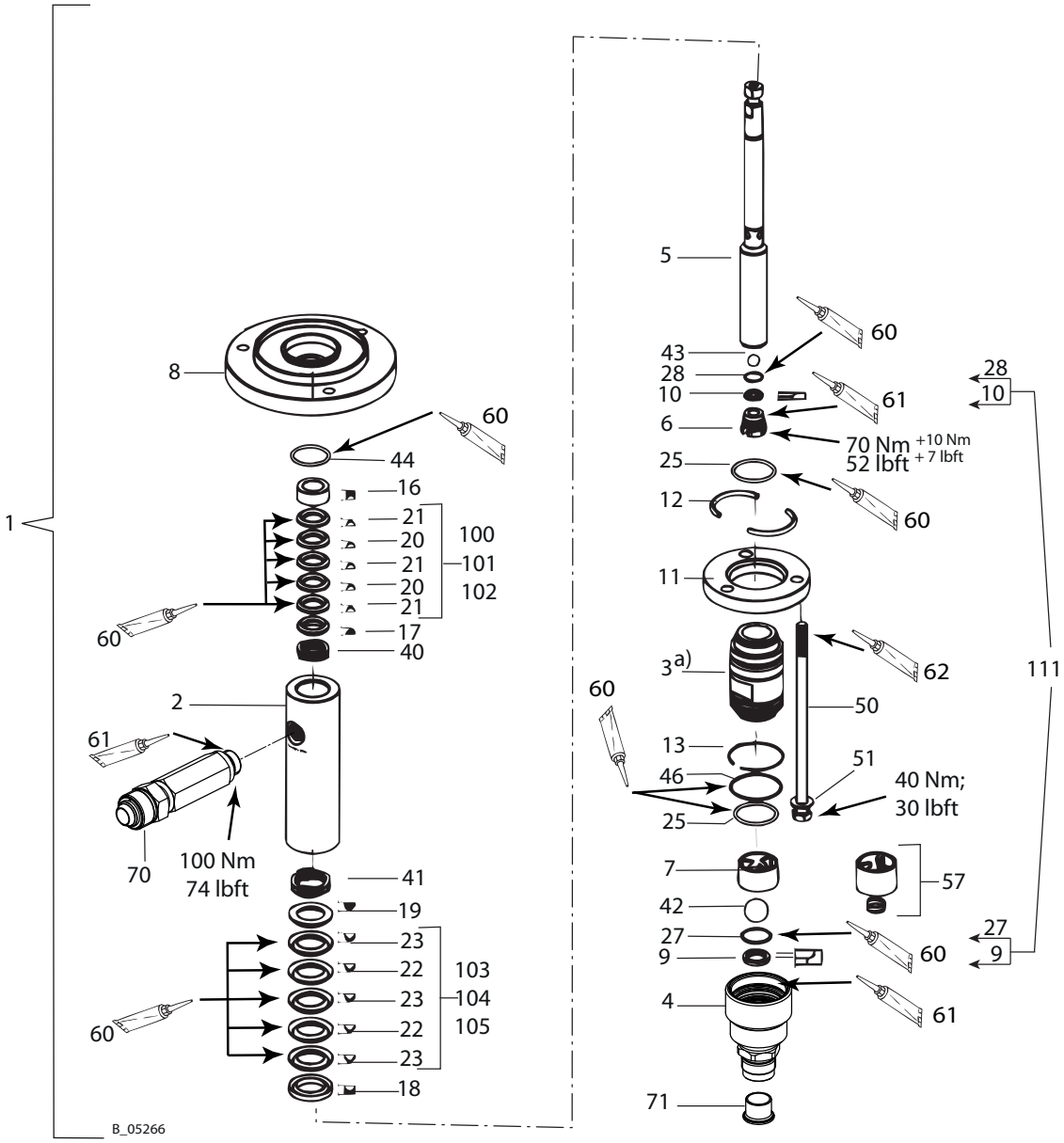
Pos	K	Stk	Order no.		Designation
			PE / TG	PE/T	
111	●	1	2331582		Valve seat set 40, stainless steel*
		1	367990	/	Service set PE/TG
		1	/	367994	Service set PE/T

♦ = wearing parts

⋆ = Included in the service set (For more parts, see chapter Connection Sets for 40-70 ccm [▸▸ 93].)

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

14.6.2 Fluid Section, 70 ccm



Tighten pos. 4 by hand on block. Use a standard wrench only if necessary. In this case, use a wrench to counterhold pos. 3.

* Notice regarding pos. 111: Stainless steel valve seat set 70, consisting of: pos. 28, 10, 27 and 9, but in stainless steel version.

			Order no.				
			PE / TG	PE/L	PE/T	PE/T TC 1.4401	
1		1	2329645	-	2329647	2366710	Fluid section
2		1	368502			2370141	Pipe
3		1	368503			2370139	Cylinder
4		1	2322465			2370138	Inlet housing 70
5	♦	1	368505			2370129	Piston
6		1	368506			2370137	Valve screw
7	♦ ⋆	1	368507			2338788	Ball guide, inlet
8		1	368501				Connecting flange
9	♦	1	368509				Valve seat, inlet
10	♦	1	368510				Valve seat, outlet
11		1	368511				Snap ring flange
12		2	368512				Snap ring half
13		1	368513				Securing ring
16		1	368516			2370142	Support ring
17		1	367519			2366649	Pressure ring
18		1	368518			2370140	Support ring
19		1	368519			2366647	Pressure ring
100	♦	1	367991	/	/	--	Packing PE/TG, complete (small)
101	♦	1	/	/	367992		Packing PE/T, complete (small)
102	♦	1	/	367993	/	--	Packing PE/L, complete (small)
20	♦ ⋆	2	367522	/	/	--	Sealing collar TG (small)
	♦ ⋆	2	/	/	367900		Sealing collar T (small)
	♦	2	/	367922	/	--	Sealing collar L (small)
21	♦ ⋆	3	367523			--	Sealing collar PE (small)
103	♦	1	368991	/	/	--	Packing PE/TG, complete (large)
104	♦	1	/	/	368992		Packing PE/T, complete (large)
105	♦	1	/	368993	/	--	Packing PE/L, complete (large)
22	♦ ⋆	2	368522	/	/	--	Sealing collar TG (large)
	♦ ⋆	2	/	/	368900		Sealing collar T (large)
	♦	2	/	368922	/	--	Sealing collar L (large)
23	♦ ⋆	3	368523			--	Sealing collar PE (large)
25	♦ ⋆	2	368525				O-ring
27	♦ ⋆	1	368527				O-ring
28	♦ ⋆	1	368528				O-ring

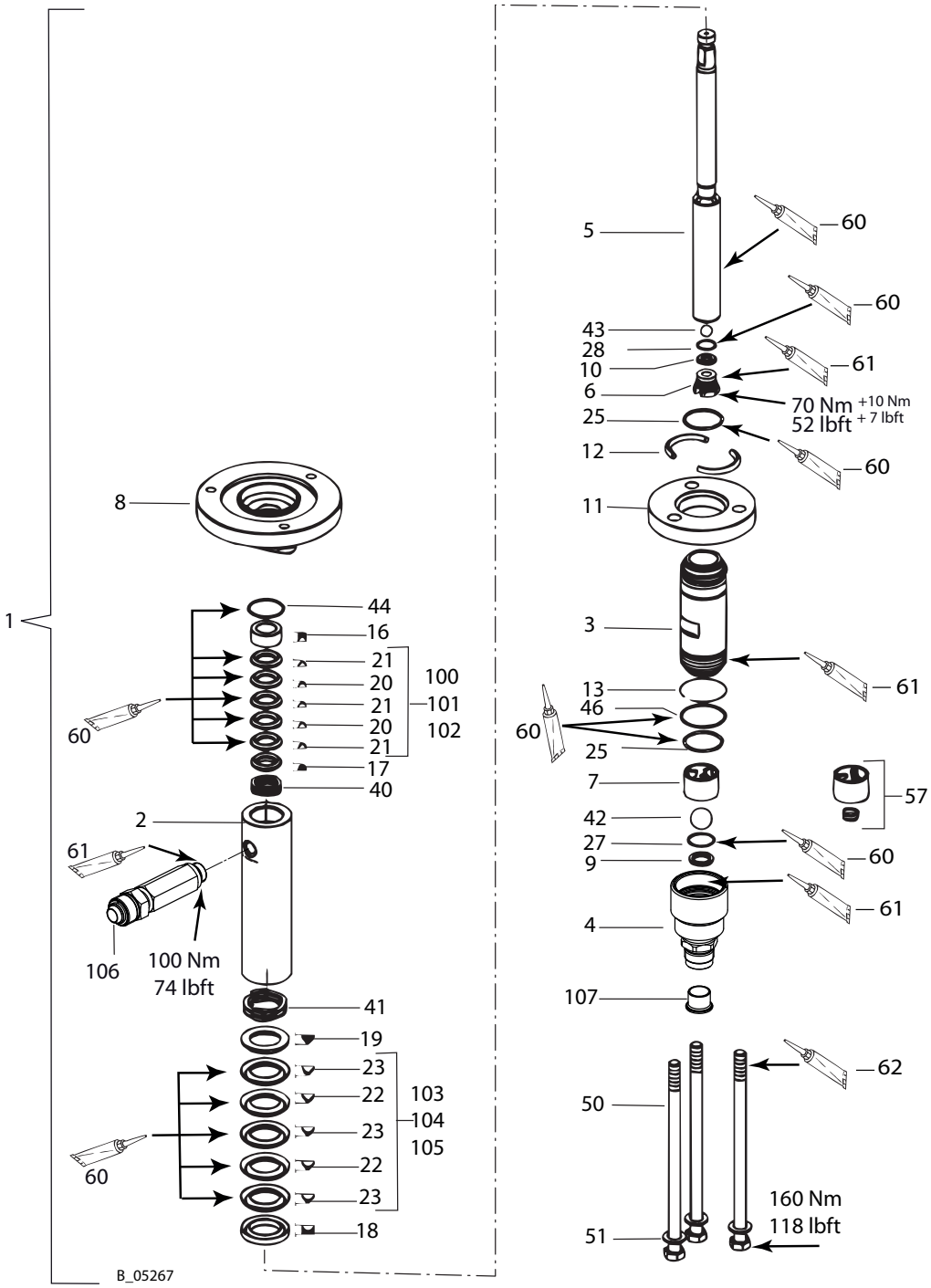
			Order no.				
			PE / TG	PE/L	PE/T	PE/T TC 1.4401	
40	♦ ⋆	1	9998670			2366668	Wave spring (small)
41	♦ ⋆	1	9998671			2366673	Wave spring (large)
42	♦ ⋆	1	9943082			9943103	Ball (large)
43	♦ ⋆	1	9941512			9943017	Ball (small)
44	♦ ⋆	1	9974092				O-ring
46	♦ ⋆	1	9974107				O-ring
50		3	9907124				Hexagon screw
57	●	1	369926			/	Ball guide for high-viscosity products
60		1	9998808				Mobilux® EP 2 grease
61		1	9992609				Anti-seize paste tube
62		1	9992616				Molykote® DX grease
70		1	2329922			2370580	Fitting SF-MM-G3/8"-M24x1.5-PN530-SSt
71		1	2329898			2367066	Sealing sleeve
		1	368990	/	/	/	Service set PE/TG
		1	/	/	368994	/	Service set PE/T
		1	/	/	/	2371972	Service set PE/T TC 1.4404
		1	/	2342071	/	/	Service set PE/L
111	●	1	2331585			/	Valve seat set 70, stainless steel*

♦ = wearing parts

⋆ = Included in the service set (For more parts, see chapter Connection Sets for 40-70 ccm [▸▸ 93].)

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

14.6.3 Fluid Section, 110 ccm



Tighten pos. 4 by hand on block. Use a standard wrench only if necessary. In this case, use a wrench to counterhold pos. 3.

Pos	K	Stk	Order no.			Designation
			PE / TG	PE/L	PE/T	
1		1	2329654	2329658	2329656	Fluid section
2		1	368434			Pipe
3		1	368435			Cylinder

Pos	K	Stk	Order no.			Designation
			PE / TG	PE/L	PE/T	
4		1	2327888			Inlet housing 150
5	♦	1	368433			Piston
6		1	367506			Valve screw
7	♦ ⋆	1	368507			Ball guide, inlet
8		1	368551			Connecting flange
9	♦	1	368509			Valve seat, inlet
10	♦	1	367510			Valve seat, outlet
11		1	368561			Snap ring flange
12		2	368512			Snap ring half
13		1	368513			Securing ring
16		1	368428			Support ring
17		1	368425			Pressure ring
18		1	368430			Support ring
19		1	368432			Pressure ring
100	♦	1	368253	/	/	Packing PE/TG, complete (small)
101	♦	1	/	/	368297	Packing PE/T, complete (small)
102	♦	1	/	368295	/	Packing PE/L, complete (small)
20	♦ ⋆	2	368426	/	/	Sealing collar TG (small)
	♦ ⋆	2	/	/	368436	Sealing collar T (small)
	♦ ⋆	2	/	368437	/	Sealing collar L (small)
21	♦ ⋆	3	368427			Sealing collar PE (small)
103	♦	1	368299	/	/	Packing PE/TG, complete (large)
104	♦	1	/	/	368296	Packing PE/T, complete (large)
105	♦	1	/	368294	/	Packing PE/L, complete (large)
22	♦ ⋆	2	368429	/	/	Sealing collar TG (large)
	♦ ⋆	2	/	/	368438	Sealing collar T (large)
	♦ ⋆	2	/	368439	/	Sealing collar L (large)
23	♦ ⋆	3	368431			Sealing collar PE (large)
25	♦ ⋆	2	368525			O-ring
27	♦ ⋆	1	368527			O-ring
28	♦ ⋆	1	367528			O-ring
40	♦ ⋆	1	9998670			Wave spring (small)
41	♦ ⋆	1	9998671			Wave spring (large)
42	♦ ⋆	1	9943082			Ball (large)
43	♦ ⋆	1	9941518			Ball (small)
44	♦ ⋆	1	9974092			O-ring
46	♦ ⋆	1	9974107			O-ring
50		3	9907142			Hexagon screw
51		3	9925011			Washer
57	●	1	369926			Ball guide for high-viscosity products

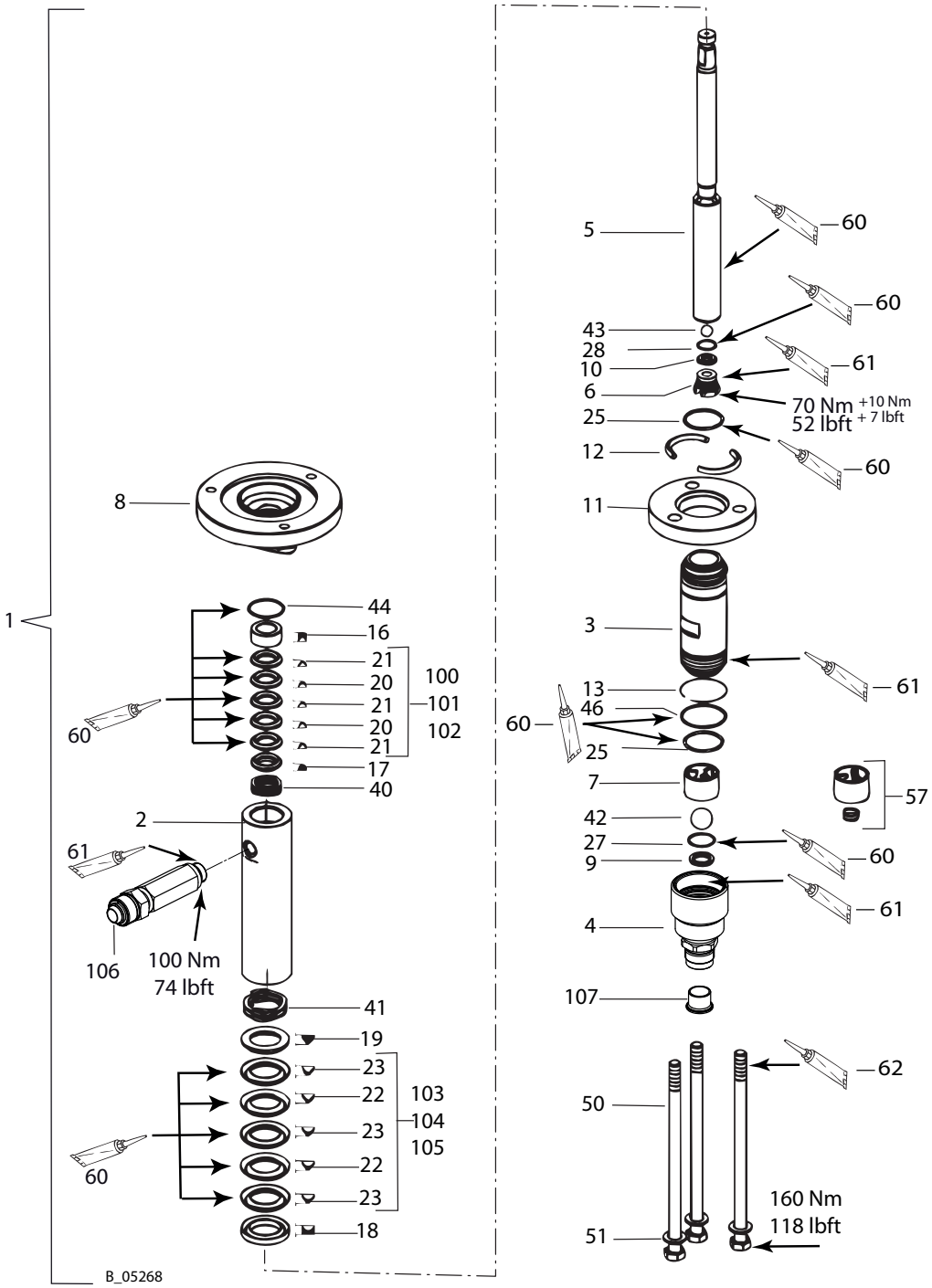
Pos	K	Stk	Order no.			Designation
			PE / TG	PE/L	PE/T	
60		1	9998808			Mobilux® EP 2 grease
61		1	9992609			Anti-seize paste tube
62		1	9992616			Molykote® DX grease
106		1	2329922			Fitting SF-MM-G3/8"-M24x1.5-PN530-SSt
107		1	2329898			Sealing sleeve
		1	368997	/	/	Service set PE/TG
		1	/	/	2304930	Service set PE/T
		1	/	2319924	/	Service set PE/L

♦ = wearing parts

⋆ = Included in the service set (For more parts, see chapter Connection Sets for 110-200 ccm [▸▸ 94].)

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

14.6.4 Fluid Section, 150 ccm



Tighten pos. 4 by hand on block. Use a standard wrench only if necessary. In this case, use a wrench to counterhold pos. 3.

Pos	K	Stk	Order no.			Designation
			PE / TG	PE/L	PE/T	
1		1	2329650	2329664	2329652	Fluid section
2		1	368552			Pipe
3		1	368553			Cylinder

Pos	K	Stk	Order no.			Designation
			PE / TG	PE/L	PE/T	
4		1	2327888			Inlet housing 150
5	♦	1	368555			Piston
6		1	368506			Valve screw
7	♦ ⋆	1	368507			Ball guide, inlet
8		1	368551			Connecting flange
9	♦	1	368509			Valve seat, inlet
10	♦	1	368510			Valve seat, outlet
11		1	368561			Snap ring flange
12		2	368512			Snap ring half
13		1	368513			Securing ring
16		1	368516			Support ring
17		1	367519			Pressure ring
18		1	368518			Support ring
19		1	368519			Pressure ring
100	♦	1	367991	/	/	Packing PE/TG, complete (small)
101	♦	1	/	/	367992	Packing PE/T, complete (small)
102	♦	1	/	367993	/	Packing PE/L, complete (small)
20	♦ ⋆	2	367522	/	/	Sealing collar TG (small)
	♦ ⋆	2	/	/	367900	Sealing collar T (small)
	♦	2	/	367922	/	Sealing collar L (small)
21	♦ ⋆	3	367523			Sealing collar PE (small)
103	♦	1	368991	/	/	Packing PE/TG, complete (large)
104	♦	1	/	/	368992	Packing PE/T, complete (large)
105	♦	1	/	368993	/	Packing PE/L, complete (large)
22	♦ ⋆	2	368522	/	/	Sealing collar TG (large)
	♦ ⋆	2	/	/	368900	Sealing collar T (large)
	♦	2	/	368922	/	Sealing collar L (large)
23	♦ ⋆	3	368523			Sealing collar PE (large)
25	♦ ⋆	2	368525			O-ring
27	♦ ⋆	1	368527			O-ring
28	♦ ⋆	1	368528			O-ring
40	♦ ⋆	1	9998670			Wave spring (small)
41	♦ ⋆	1	9998671			Wave spring (large)
42	♦ ⋆	1	9943082			Ball (large)
43	♦ ⋆	1	9941512			Ball (small)
44	♦ ⋆	1	9974092			O-ring
46	♦ ⋆	1	9974107			O-ring
50		3	9907142			Hexagon screw
51		3	9925011			Washer
57	●	1	369926			Ball guide for high-viscosity products

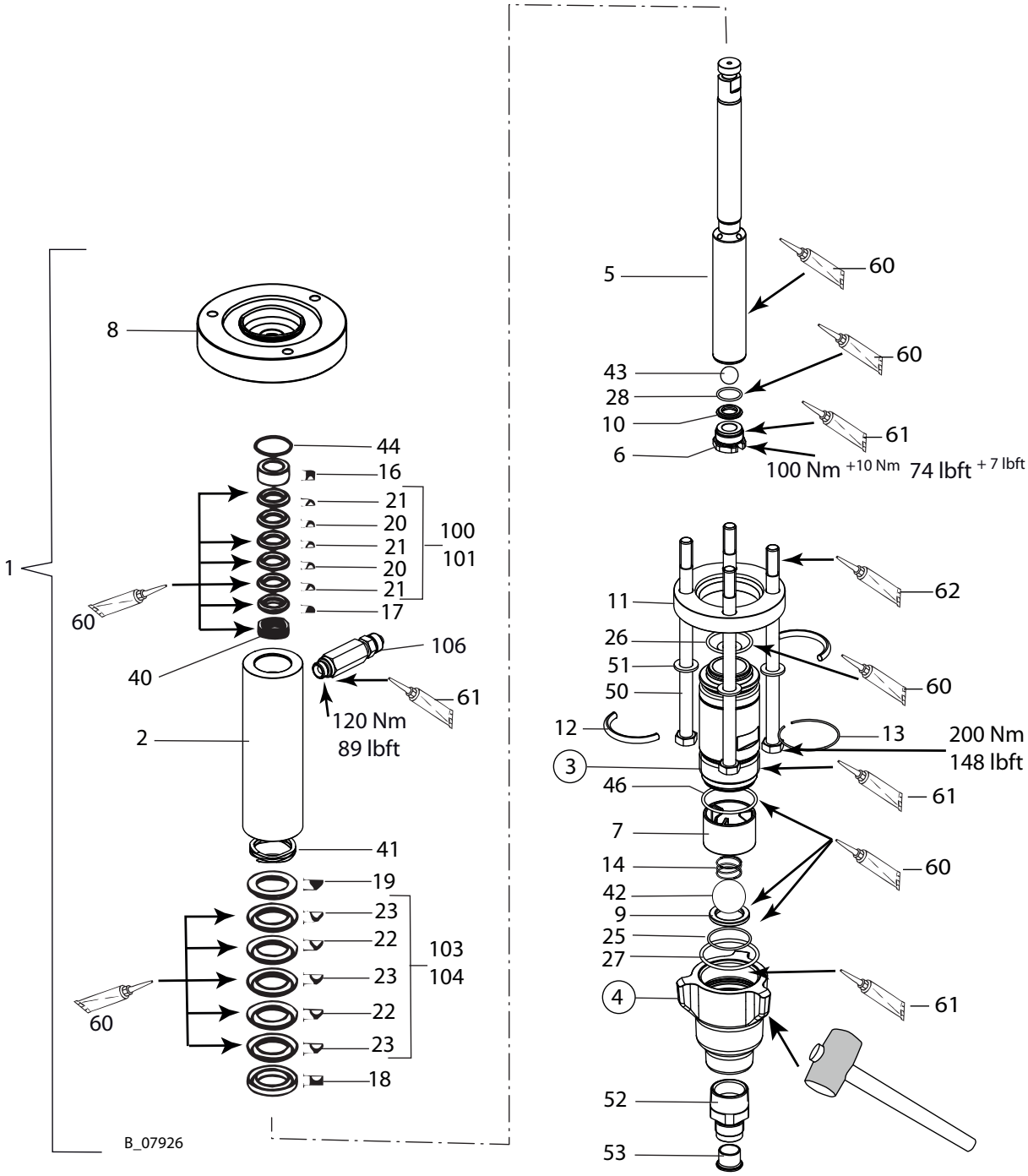
Pos	K	Stk	Order no.			Designation
			PE / TG	PE/L	PE/T	
60		1	9998808			Mobilux® EP 2 grease
61		1	9992609			Anti-seize paste tube
62		1	9992616			Molykote® DX grease
106		1	2329922			Fitting SF-MM-G3/8"-M24x1.5-PN530-SSt
107		1	2329898			Sealing sleeve
		1	368990	/		Service set PE/TG
		1	/		368994	Service set PE/T
		1	/	2342071	/	Service set PE/L

♦ = wearing parts

⋆ = Included in the service set (For more parts, see chapter Connection Sets for 110-200 ccm [▸▸ 94].)

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

14.6.5 Fluid section, 200 ccm



Pos	K	Stk	Order no.		Designation
			PE / TG	PE/T	
1		1	2417041	2417042	Fluid section, 200 ccm
2		1	2336658		Pipe
3		1	2336669		Cylinder
4		1	2338107		Inlet housing
5	♦	1	2336666		Piston

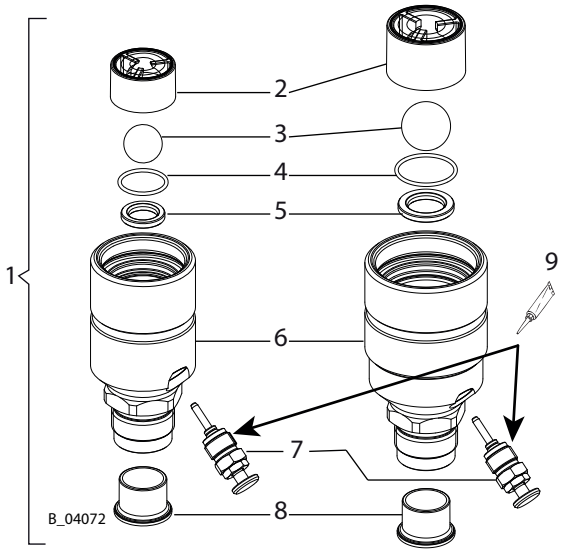
Pos	K	Stk	Order no.		Designation
			PE / TG	PE/T	
6		1	2336692		Valve screw
7		1	2386282		Ball guide, inlet
8		1	2336661		Connecting flange
9	♦	1	369509		Valve seat, inlet
10	♦	1	2336695		Valve seat, outlet
11		1	2336689		Snap ring flange
12		2	2336785		Snap ring half
13		1	2336690		Securing ring
14	♦ ⋆	1	2386283		Pressure spring
16		1	2336670		Support ring
17		1	2336680		Pressure ring
18		1	2336686		Support ring
19		1	2336694		Pressure ring
100	♦	1	2341473	/	Packing PE/TG, complete (small)
101	♦	1	/	2345985	Packing PE/T, complete (small)
20	♦ ⋆	2	2336679	/	Sealing collar TG (small)
	♦ ⋆	2	/	2343776	Sealing collar T (small)
21	♦ ⋆	3	2336674		Sealing collar PE (small)
103	♦	1	2341474	/	Packing PE/TG, complete (large)
104	♦	1	/	2345986	Packing PE/T, complete (large)
22	♦ ⋆	2	2336688	/	Sealing collar TG (large)
	♦ ⋆	2	/	2343775	Sealing collar T (large)
23	♦ ⋆	3	2336687		Sealing collar PE (large)
25	♦ ⋆	1	369527		O-ring
26	♦ ⋆	1	2336684		O-ring
27	♦ ⋆	1	9974194		O-ring
28	♦ ⋆	1	2338256		O-ring
40	♦ ⋆	1	2338091		Wave spring (small)
41	♦ ⋆	1	2338092		Wave spring (large)
42	♦ ⋆	1	9943086		Ball (large)
43	♦ ⋆	1	9941513		Ball (small)
44	♦ ⋆	1	9974132		O-ring
46	♦ ⋆	1	2336683		O-ring
50		3	9907142		Hexagon screw
51		3	9925011		Washer
52		1	2328465		Fitting, DF-MM-R1 1/2"-M36x2-SSt
53	♦	1	2329898		Sealing sleeve
60		1	9998808		Mobilux® EP 2 grease
61		1	9992609		Anti-seize paste
62		1	9992616		Molykote® DX grease

Pos	K	Stk	Order no.		Designation
			PE / TG	PE/T	
106		1	2337413		Fitting SF-MM-G1/2"-M24-PN530-SSt
		1	2341476	/	Service set PE/TG
		1	/	2345981	Service set PE/T

♦ = wearing parts

⋆ = Included in service set

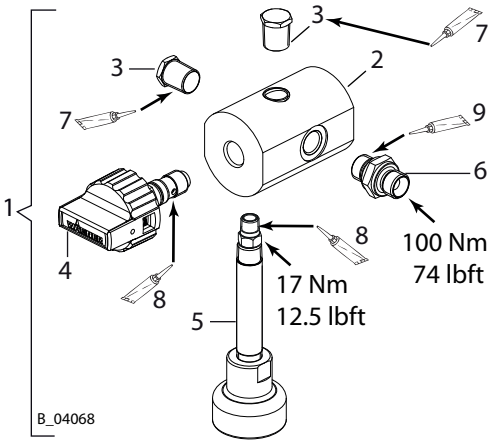
14.7 INLET VALVE WITH VALVE DEPRESSOR



Pos	K	Stk	Order no.		Designation
			Fluid section, 40 ccm	Fluid section, 70 ccm	
1		1	2329689	2329688	Inlet Valve with Valve Depressor
2	♦	1	367507	368507	Ball guide, inlet
3	♦	1	9941513	9943082	Ball
4	♦	1	367527	368527	O-ring
5	♦	1	367509	368509	Valve seat, inlet
6		1	2329412	2329413	Inlet housing
7		1	368037		Valve tappet, complete
8		1	2329898		Sealing sleeve
9		1	9992528		Loctite® 270

♦ = wearing parts

14.8 RELIEF COMBINATION, 270 BAR

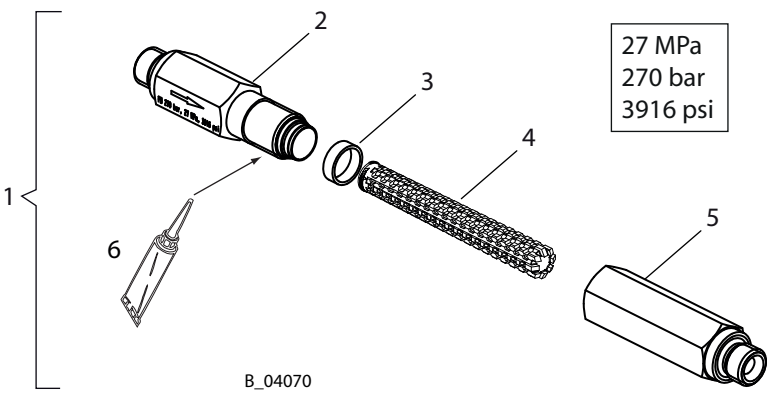


Pos	K	Stk	Order no.	Designation
1		1	2329023	Relief combination, 270 bar
2		1	2324549	Relief housing
3		2	2323718	Hexagon plug
4	♦	1	169248	Relief valve, complete
	●	1	2356467	Ball valve set (option)
5		1	2349761	Relex set, cpl, 1/8"
6		1	3204611	Fitting, DF-MM-G1/4"-G1/4"-PN530-SSt
7		1	9992831	Loctite® 542, 50 ml; 50 cc
8		1	9992616	Molykote® DX grease
9		1	9992609	Anti-seize paste tube

♦ = wearing parts

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

14.9 STRAIGHT INLINE FILTER, 270 BAR



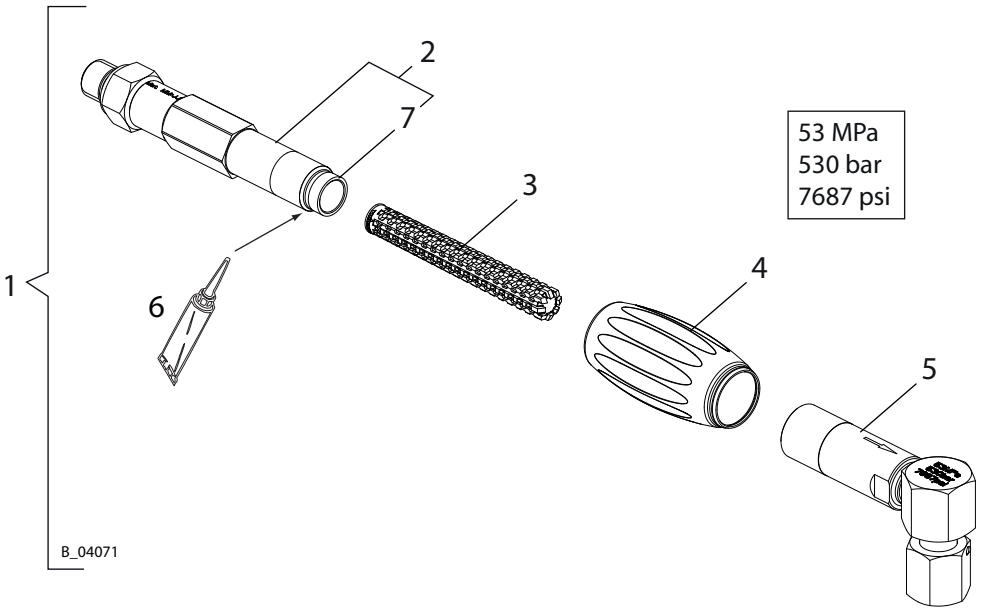
Pos	K	Stk	Order no.	Designation
1		1	2324558	Inline filter DN6-PN270-G1/4"-SSt
2		1	2324550	Filter inlet housing
3	♦	1	128389	Gasket
4	♦ ●	1	2315723	* Filter insert, red (fine), 200 mesh per inch – 10 pieces

Pos	K	Stk	Order no.	Designation
	♦ ●	1	2315724	* Filter insert, blue (middle), 150 mesh per inch – 10 pieces
	♦ ●	1	2315725	* Filter insert, yellow (middle), 100 mesh per inch – 10 pieces
	♦ ●	1	2365429	* Filter insert, green (coarse), 30 mesh per inch – 10 pieces
	♦ ●	1	2315726	* Filter insert, white (coarse), 50 mesh per inch – 10 pieces
5		1	2324551	Filter outlet housing
6		1	9992609	Anti-seize paste tube

♦ = wearing parts

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

14.10 ANGLED INLINE FILTER, 530 BAR

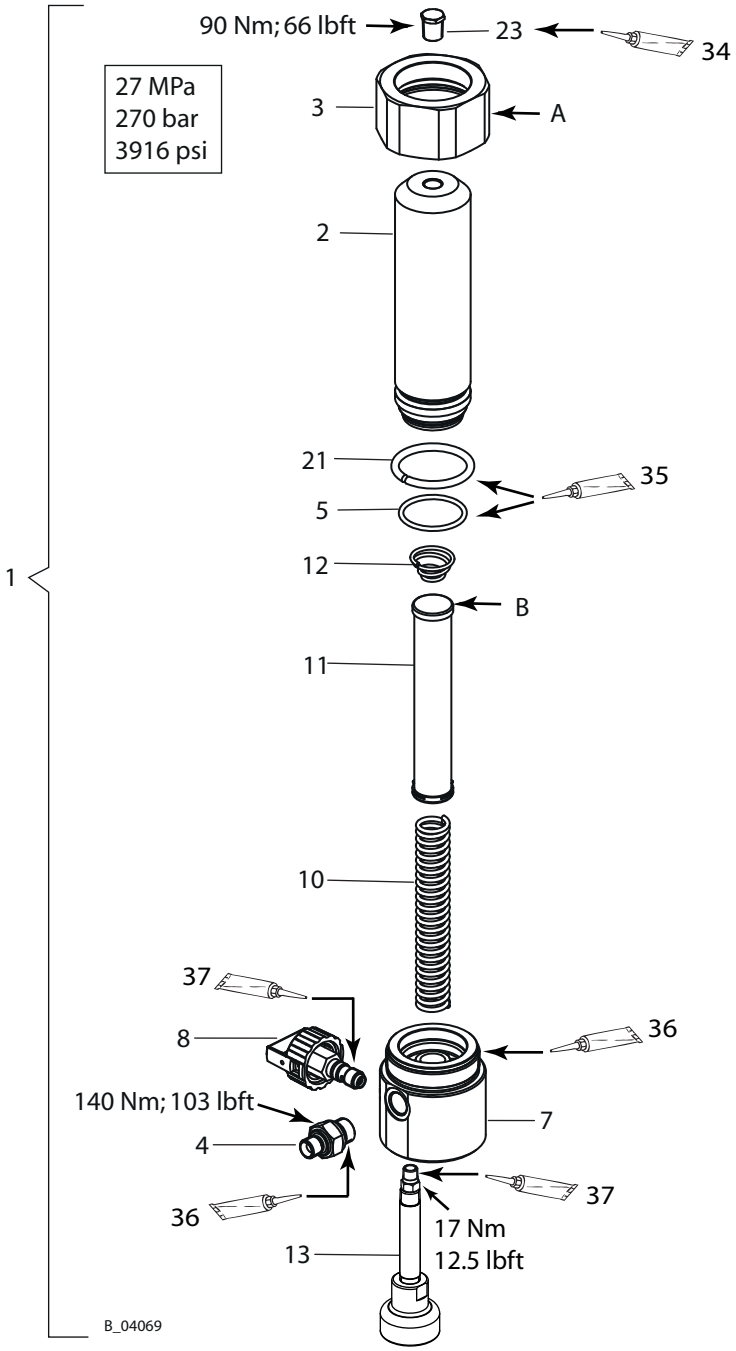


Pos	K	Stk	Order no.	Designation
1		1	2329026	Inline filter HL DN6-PN530-G1/4"-SSt
2		1	2326045	Filter inlet housing, pre-assembled
3	♦ ●	1	2315723	* Filter insert, red (fine), 200 mesh per inch – 10 pieces
	♦ ●	1	2315724	* Filter insert, blue (middle), 150 mesh per inch – 10 pieces
	♦ ●	1	2315725	* Filter insert, yellow (middle), 100 mesh per inch – 10 pieces
	♦ ●	1	2365429	* Filter insert, green (coarse), 30 mesh per inch – 10 pieces
	♦ ●	1	2315726	* Filter insert, white (coarse), 50 mesh per inch – 10 pieces
4		1	2311491	Turning handle
5		1	2325950	Filter outlet housing 90°, pre-assembled
6		1	9992609	Anti-seize paste tube
7	♦	1	128389	Gasket

♦ = wearing parts

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

14.11 HIGH-PRESSURE FILTER, 270 BAR



A	Tighten pos. 3 by hand	B	Identification of the filter

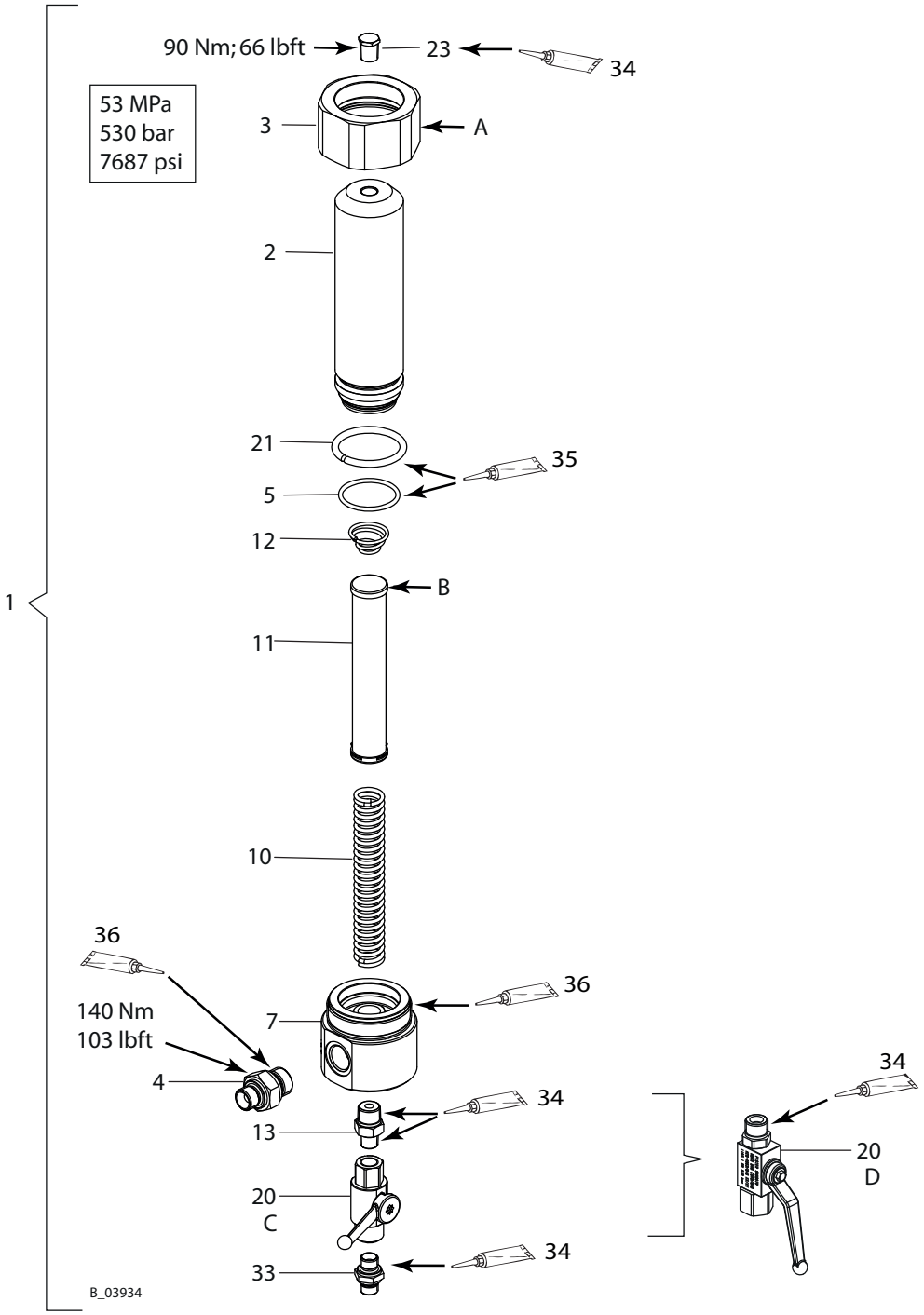
Pos	K	Stk	Order no.	Designation
1		1	2329024	HP filter DN10-PN270 SSt, complete
2		1	2324542	Filter housing
3		1	2324543	Union nut
4		1	2325826	Reducing double fitting with 2x60°
5	♦	1	9955863	O-ring
7		1	2324544	Distribution housing

Pos	K	Stk	Order no.	Designation
8	♦	1	169248	Relief valve
	●	1	2356467	Ball valve set (option)
10		1	9894245	Filter support
11		1	--	Filter cartridge *
	♦ ●		295721	* Filter sieve, 200 mesh per inch (fine)
	♦		14068	* Filter sieve, 100 mesh per inch (medium), mesh width 0.16 mm
	♦ ●		3514069	* Filter sieve, 50 mesh per inch (rough)
	♦ ●		291564	* Filter sieve, 20 mesh per inch (rough)
12	♦	1	3514058	Cone spring
13		1	2349761	Relex set, cpl, 1/8"
21		1	2325562	Pressure ring d45
23		1	2323718	Hexagon plug
34		1	9992831	Loctite® 542, 50 ml; 50 cc
35		1	9998808	Mobilux® EP 2 grease
36		1	9992609	Anti-seize paste tube
37		1	9992616	Molykote® DX grease

♦ = wearing parts

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

14.12 HIGH-PRESSURE FILTER, 530 BAR



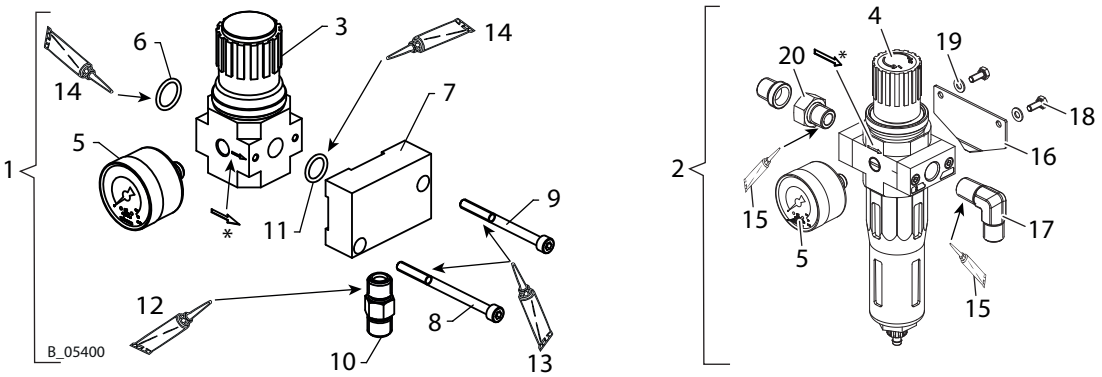
A	Tighten pos. 3 by hand	C	Stainless steel
B	Identification of the filter	D	Carbon steel

Pos	K	Stk	Order no.		Designation
			Stainless steel	Carbon steel	
1		1	2329025	2335334	HP filter DN12-PN530, complete
2		1	2324542		Filter housing
3		1	2324543		Union nut
4		1	2330780		Fitting, DF-MM-G1/2-G3/8-PN530-SSt
5	♦	1	9955863		O-ring
7		1	2324670		Distribution housing for ball valve
10		1	9894245		Filter support
11		1	--		Filter cartridge *
	♦ ●		295721		* Filter sieve, 200 mesh per inch (fine)
	♦		14068		* Filter sieve, 100 mesh per inch (medium), mesh width 0.16 mm
	♦ ●		3514069		* Filter sieve, 50 mesh per inch (rough)
	♦ ●		291564		* Filter sieve, 20 mesh per inch (rough)
12	♦	1	3514058		Cone spring
13		1	2328291	/	Fitting-DF-MM-R3/8-R1/4-PN530-SSt
20	♦	1	2330156	9998679	Ball valve
21		1	2325562		Pressure ring d45
23		1	2323718		Hexagon plug
33		1	3204611	2325826	Double connector
34		1	9992831		Loctite® 542, 50 ml; 50 cc
35		1	9998808		Mobilux® EP 2 grease
36		1	9992609		Anti-seize paste tube

♦ = wearing parts

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

14.13 AIRCOAT REGULATOR AND AIRCOAT FILTER REGULATOR



Aircoat Regulator and Aircoat Filter Regulator

Pos. 3 and/or 4: *Observe the flow direction (direction of arrow on the housing)

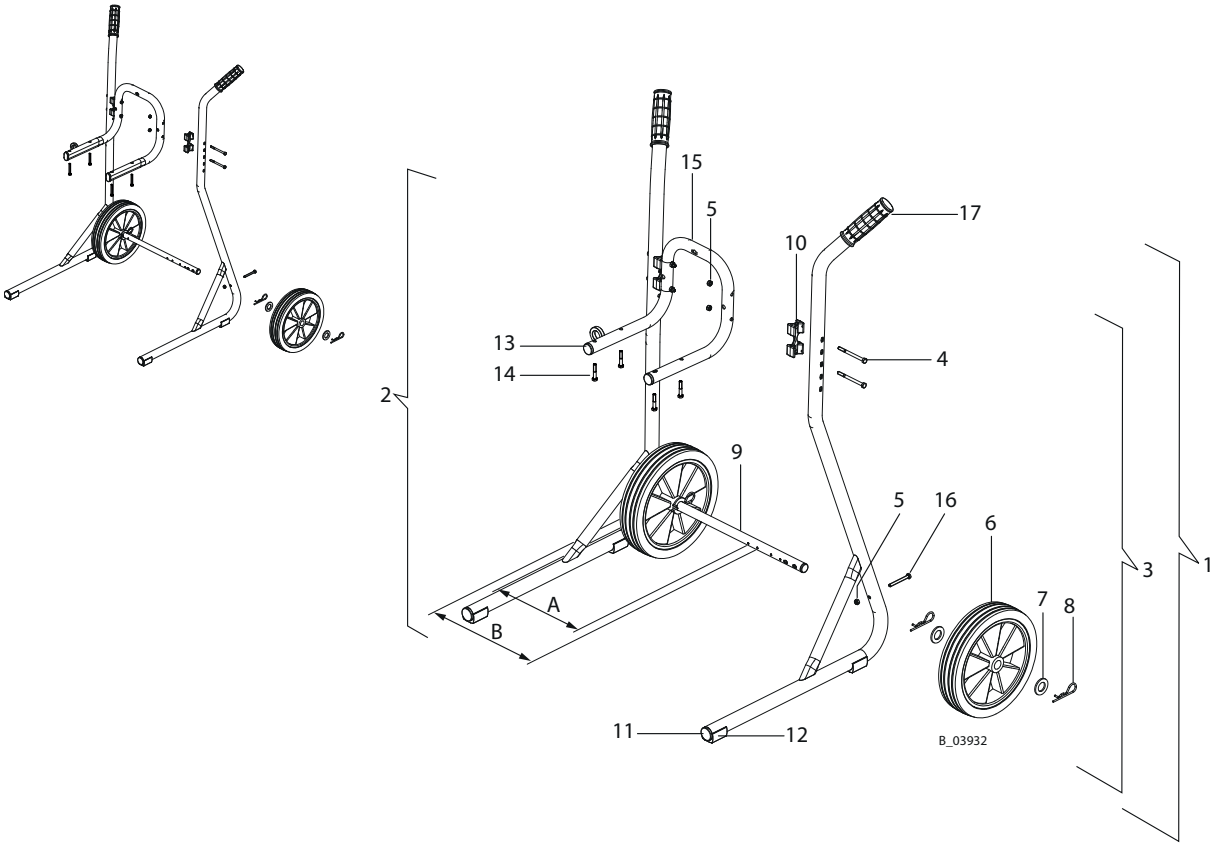
Pos 5: Screw in the pressure gauge until the white sealing ring is completely in the filter control valve. Thereafter continue turning the pressure gauge only to align the display scale.

Pos. 4: Remove protective container. Mount contact plate (pos. 16). Unscrew/screw on protective container three times (provides contact point via container coating)

Pos	K	Stk	Order no.		Designation
			AirCoat regulator	AirCoat filter regulator	
1		1	2328611	/	AirCoat regulator set
2		1	/	2382997	AirCoat filter regulator set
3	♦	1	2309972	/	Pressure regulator valve, LR-1/4-D-O-I-Mini
4	♦	1	/	2331950	Filter control valve (manual drain)
			/	2360259	Option: filter pan (automatic drain)
5	♦	1	9998677		Pressure gauge, 0-10 bar, RF40 (d40)
6	♦	1	9974166	/	O-ring
7		1	2325527	/	Holding plate
8		1	9906021	/	Hexagon socket head cap screw
9		1	9900320	/	Hexagon socket head cap screw
10		1	9994627	/	Double fitting, R1/4-R1/4
11	♦	1	9971313	/	O-ring
12		1	9992831	/	Loctite® 542
13		1	9992616	/	Molykote® DX grease
14		1	9998808	/	Mobilux® EP 2 grease
15		1	/	9992528	Loctite® 270
16		1	/	2366466	Contact plate
17		1	/	2389277	Fitting, EF-MM-G1/4-R1/4-530 bar
18		2	/	9900152	Hexagon screw without shaft
19		3	/	9920104	Washer
20		1	/	9998719	Detachable double fitting

♦ = wearing parts

14.14 COMPLETE TROLLEY

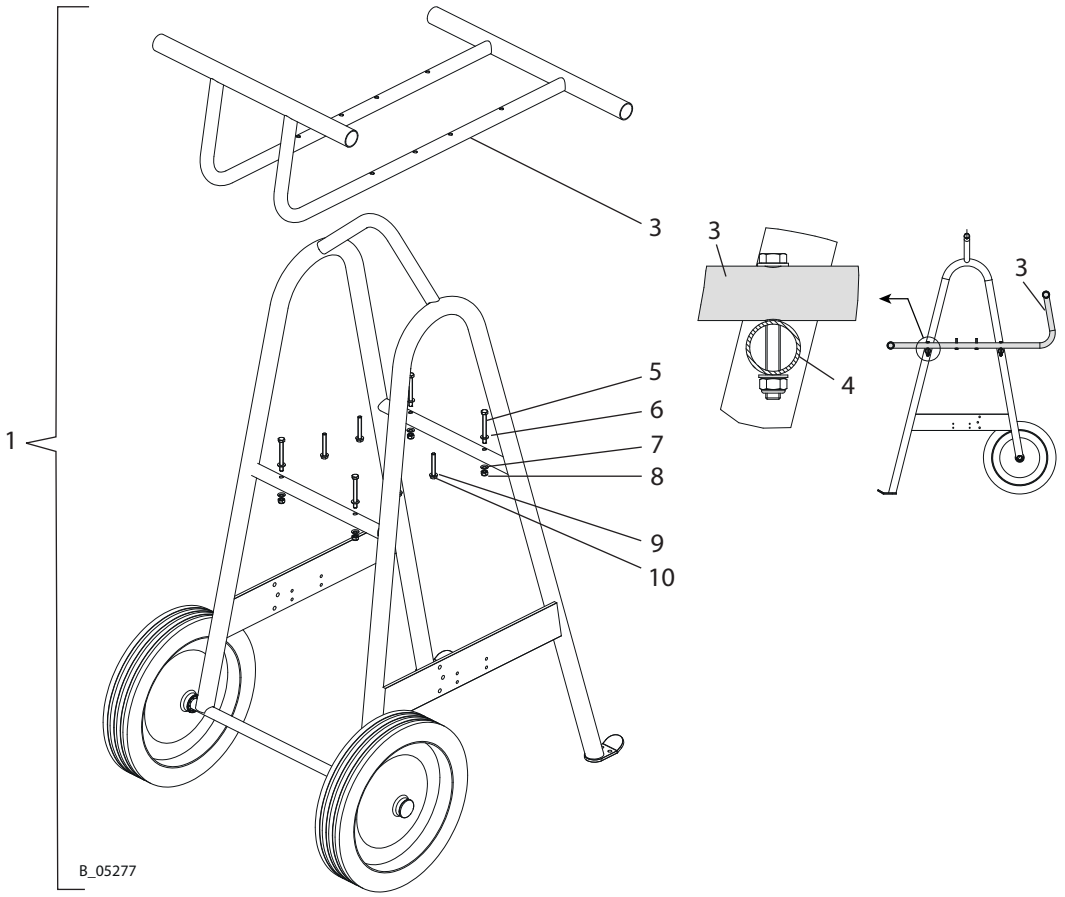


A	Distance for Puma / Wildcat	B	Distance for Leopard

Pos	K	Stk	Order no.		Designation
			Wildcat / Puma	Leopard	
1		1	2325901	2325916	Trolley, complete
2		1	--		Frame, left, 4"-6" (welded)
3		1	--		Frame, right, 4"-6" (welded)
4		4	9907140		Hexagon screw DIN931, M6x75
5		6	9910204		Self-locking hexagon nut, M6
6	♦	2	2304440		Wheel, D250
7		4	340372		Washer
8		4	9995302		Cotter pin
9		1	--		Wheel axle, 4"-6"
10	♦	2	367943		Connecting part 4"-6"
11		2	--		Tube plug, ribbed
12		2	--		Saddle feet for round tubes
13		2	--		Plug
14		4	9900218	9900126	Hexagon screw
15		1	2332143	2332145	Wall mount
16		2	3061695		Hexagon screw without shaft, M6x55
17	♦	2	9998747		Handle

♦ = wearing parts

14.15 PC HEAVY DUTY TROLLEY



Installation instructions: Mount bracket holder (3) above the crossbar (4).

Pos	K	Stk	Order no.	Designation
			Leopard (6")	
1		1	2339705	PC heavy duty trolley
3		1	--	Bracket holder
5		4	9900246	Hexagon screw
6		4	9920102	Washer, A8.4
7		4	3155404	Contact washer, M8
8		4	9910208	Self-locking hexagon nut, M8
9		4	9925031	Washer, A6.4 or A8.4
10		4	9900126	Hexagon screw

15 DECLARATION OF CONFORMITY

15.1 EU DECLARATION OF CONFORMITY

We hereby declare that the supplied version of the pneumatic piston pumps and their spray packs:

Wildcat	Puma	Leopard
10-70	28-40	35-70
18-40	21-110	35-150
/		48-110
/		26-200

complies with the following guidelines:

2006/42/EC
2014/34/EU

Applied standards, in particular:

DIN EN ISO 12100:2010	EN 14462:2015
EN 809: 1998+A1:2009+AC:2010	EN 12621:2006+A1:2010
EN ISO 4413:2010	EN 1127-1:2011
EN ISO 4414:2010	EN ISO 80079-36:2016
EN ISO 13732-1:2008	EN ISO 80079-37:2016

Applied national technical standards and specifications, in particular:

DGUV regulation 100-500 Chapter 2.29
DGUV regulation 100-500 Chapter 2.36
TRGS 727

Identification:

CE Ex II 2 G Ex h IIB T3/T4 Gb X

T3: Without dry running protection

T4: With dry running protection

EU Declaration of Conformity

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

Order number:

2302304

Order number 2333538
Edition 03/2021

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 11145601
Version F

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