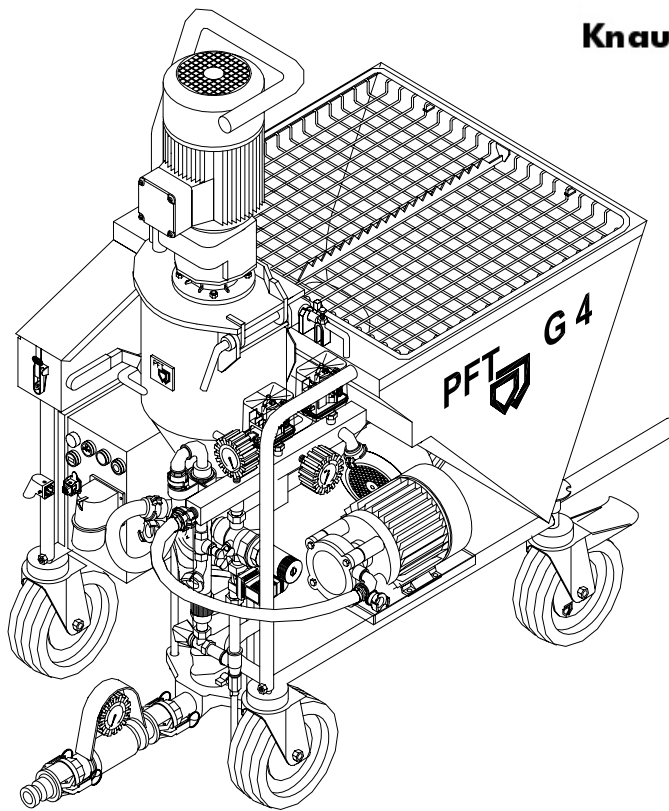


Operating Manual

Mixing Pump PFT G4

Knauf PFT GmbH & Co. KG 



Article number of this Operating Manual: 00 10 20 92

Article number of the machine's parts list: 00 00 23 38

Doc ID: Knau-5991

Read this Operating Manual before starting work

- ⌚ This Operating Manual provides important instructions for working with the Knauf Mixing Pump PFT G 4 (hereinafter also referred to as the “machine”). For your own and the safety of others always strictly follow these instructions.

Inform yourself about local accident prevention guidelines and general safety regulations.

Read this Operating Manual in detail before starting any work! The Operating Manual is a component of the machine and must be kept in its immediate vicinity. It must be accessible to all personnel at all times.

If the machine is transferred to a third party ensure that the Operating Manual is provided with the machine.

The illustrations in this Operating Manual are provided for your better understanding. They are not necessarily true to scale and may deviate slightly from the actual version of the machine.

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1 General

1.1 Explanation of symbols and signal words

Safety messages in this Operating Manual can be identified by a safety alert symbol and/or signal words (see below).

The signal words express the extent of the hazard.

Strictly comply with the instructions and act with prudence to avoid accidents, property damage, personal injury or possibly death.

"DANGER" indicates a hazardous situation which, if not avoided, will result in death or serious injury:

 **DANGER**

Safety message text. Safety message text. Safety message text. Safety message text. Safety message text.

DANGER! Safety message text. Safety message text. Safety message text. Safety message text. Safety message text.

"WARNING" indicates a hazardous situation which, if not avoided, could result in death or serious injury:

 **WARNING**

Safety message text. Safety message text. Safety message text. Safety message text. Safety message text.

WARNING! Safety message text. Safety message text. Safety message text. Safety message text. Safety message text.

"CAUTION", used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury:

 **CAUTION**

Safety message text. Safety message text. Safety message text. Safety message text. Safety message text.

CAUTION! Safety message text. Safety message text. Safety message text. Safety message text. Safety message text.

"NOTICE" is used to address practices not related to moderate injury but to property damage:

NOTICE

Safety message text. Safety message text. Safety message text. Safety message text. Safety message text.

NOTICE! Safety message text. Safety message text. Safety message text. Safety message text. Safety message text.

The "i" symbol indicates tips and recommendations or information for efficient and trouble-free operation:

1.2 Disclaimer

All information and instructions in this Operating Manual are provided with due consideration of applicable guidelines, the current state of the art, and our many years of experience within the industry.

The manufacturer assumes no liability for damages due to:

- Failure to heed the instructions in this Operating Manual
- Non-intended use of the machine
- Unauthorized use of the machine
- Use of the machine by untrained personnel
- Unauthorized conversions, alterations or changes
- Use of non-approved replacement parts

The machine as actually supplied may vary from the information and graphic representations provided in this Operating Manual due to special versions, supplemental order options, and/or the latest technical changes to the machine. We reserve the right to make technical and design changes to the machine in the course of further product development.

In all other respects the agreed upon obligations in the delivery contract, the general terms and conditions, the delivery conditions of the manufacturer, and the statutory regulations valid at the time of the contract apply.

1.3 Warranty terms

The warranty terms are provided in the manufacturer's terms and conditions.

1.4 Copyright

This Operating Manual has been exclusively prepared for those individuals working with the machine. Content, text, drawings, graphics, and other representations are protected by copyright and are subject to commercial property rights.

Duplication in any form – including excerpts – as well as exploitation and/or communication of the content without prior written consent from the manufacturer is prohibited.

Any violation of the manufacturer's copyright and other intellectual property rights will be prosecuted.

1.5 Replacement parts

WARNING

Injury hazard if non-OEM parts are used!

Any use or installation of non-OEM replacement parts can cause damage, malfunction, or total failure; and may also result in death or serious injury. Only use OEM replacement parts.

You may purchase replacement parts from authorized dealers or directly from the manufacturer. See page 2 of this Operating Manual for manufacturer's address.

See chapter 10 of this Operating Manual for replacement part lists.

The replacement part list is in the appendix

1.6 Customer service

Our customer service organization is available for technical information.

Appropriate contact information about the responsible contact is available via telephone, fax, email, or the Internet. See the manufacturer's address located on page 2 of this Operating Manual.

We are always interested in feedback from our customers. Do not hesitate to contact us!

2 Safety

This section provides an overview of all the important safety aspects for the protection of personnel and third parties, and for safe and trouble-free operation of the machine.

Significant hazards can occur if the handling instructions and safety instructions in this Operating Manual are not followed.

2.1 Responsibility of the owner

The machine is used in commercial applications. Consequently the operator of the machine is subject to the legal responsibilities of industrial safety standards.

In addition to the safety instructions in this Manual, all applicable accident prevention guidelines and environmental protection guidelines must be heeded and complied with. In this regard:

- The owner must know all applicable industrial safety regulations. In a hazard analysis, the owner must identify other hazards that may exist at the installation site due to any special work conditions. The owner must apply this information during the operation of the machine.
- During the entire period of operation of the machine, the owner must ensure that his operating instructions comply with the current state of legislation. If necessary the owner must adapt these operating instructions.
- The owner must clearly regulate and specify responsibilities for installation, operation, maintenance, and cleaning of the machine.
- The owner must ensure that all employees who handle the machine have read and understood this Manual.
In addition, the owner must train and inform personnel with regards to hazards at regular intervals.
- The owner must provide the required protective equipment for personnel to operate the machine.

Moreover the owner is responsible for ensuring that the machine is always in perfect operating condition; consequently the following applies:

- The owner must ensure that the maintenance intervals described in this Manual are strictly observed.
- The owner must regularly inspect all safety devices for function and completeness.

2.2 Personnel requirements

2.2.1 Requirements with regards to personnel

WARNING

Danger of injury without sufficient qualification!

Improper handling can cause death, serious injury or property damage. Only the persons described in the respective chapters of this Operating Manual should perform specific tasks as described. When in doubt, ensure the presence of experts.

The following qualifications are cited in the Operating Manual for the various activities:

■ **Instructed person**

is a person who is instructed by the owner to the specific tasks assigned and the possible dangers associated with inappropriate behavior.

■ **Specialized personnel**

are individuals who execute assigned tasks and are capable of independently recognizing possible (or potential) hazards due to specialized training, skills, experience and knowledge of applicable regulations.

■ **Certified electrician**

is a person who due to his specialized training, skills, and experience, as well as knowledge of the applicable regulations is capable of executing work on electrical equipment and of recognizing possible hazards on his own.

The certified electrician is especially trained for the work environment in which he is active and knows all relevant standards and regulations.

Only persons who execute their work reliably and competently are considered "personnel". Persons whose capability to react is impaired, for instance through drugs, alcohol, or medication are not approved.

Always comply with age-specific and job-specific regulations that are applicable at the installation site when selecting personnel.

2.2.2 Unauthorized persons

WARNING

Danger for and due to unauthorized persons!

Unauthorized persons who do not satisfy the requirements described above may not be aware of the hazards in the work area. Their presence in the work area may result in death or serious injury for them and others. Keep unauthorized persons away from the work area.

When in doubt, speak to these persons and instruct them to leave the work area. Interrupt work as long as unauthorized persons are in the work area.

2.2.3 Inspection

The machine must be inspected annually by a PFT representative (contact your local PFT dealer for further information).

The inspection must be documented (see Appendix "11.2 Check list for annual expert inspection") and must include the following points:

- Visual inspection for apparent defects
- Function check
- Test of the safety devices
- High voltage test of the control panel.

After completion of inspection a test badge will be affixed to the machine and the control panel as verification of this inspection. The inspection log must be shown on request.

2.3 Intended use

The machine is designed and constructed exclusively for the following intended use:

The machine is to be used exclusively for the use of factory pre-mixed and machine processable dry mortar up to a grain size of 3 mm (0.12 inches).

WARNING

Danger due to non-intended use, abuse or misuse!

Any use that extends beyond the intended use of the machine can cause property damage, serious injury or even death. Only use the machine as intended. Always comply with the processing guidelines provided by the manufacturer of the dry mortar. Strictly follow all instructions in this Operating Manual.

Pay particular attention to the following instructions since failure to do so is considered as non-intended use, abuse or misuse of the machine:

- Never use the machine for food industry or pharmaceuticals industry applications.
- Never process acrylic-based paints.
- Never process mixtures that are already tempered as they are commonly used at construction sites.
- Never use the machine as scaffolding.
- Never use the machine as transport cart or vehicle.

Claims of any type due to damage or injury arising from non-intended use, abuse or misuse are excluded. The owner bears sole responsibility for all damages and/or injuries arising from such non-intended use.

2.4 Personal protective equipment

Wearing personal protective equipment is required to minimize health hazards when working with the machine.

- Always wear the protective equipment necessary for the respective task when working with the machine.
- Follow the instructions that have been posted in the work area.

Always wear

For all tasks always wear the following protective equipment when working with the machine:



Protective work clothing

Tight-fitting work clothing with low tear resistance, with tight sleeves and without projecting parts such as loops or belts. Such clothing is primarily used as a protection against being caught in moving machine parts.

Do not wear rings, chains, or other jewelry.



Safety footwear

For protection against heavy falling parts and slipping on slippery surfaces.



Protective goggles

To protect the eyes from flying parts and liquid splashes.



Light respiratory protection

To protect against harmful dusts.



Ear protection

To protect against hearing loss.



Hard hat

For protection against falling and flying parts and materials.



Protective gloves

To protect the hands from friction, abrasion, puncture wounds, or deeper injuries as well as from contact with hot surfaces.

For special tasks wear

Special protective equipment is required when executing special tasks. Separate reference is made to this equipment in the specific chapters of this Operating Manual. This special protective equipment is explained below:

**Face protection**

To protect the eyes and face from flames, sparks or scorching heat, hot particles or exhaust gases.

2.5 Specific dangers

Residual risks that have been determined based on a hazard analysis are cited below.

- Always follow all safety instructions and warnings in this Operating Manual to reduce health hazards and to avoid dangerous situations.

Electrical current

DANGER! Life-threatening danger due to electric shock!

There is an imminent danger of death or injury if live components are touched or come in contact with personnel. Damage to insulation or to specific components can pose a life-threatening hazard.

Immediately switch off the machine and have it repaired if there is damage to the insulation of the power supply.

Only a certified electrician shall perform work on electrical equipment. For work on electrical equipment de-energize the electrical equipment and ensure that all components are disconnected. Prior to performing maintenance and repair work, switch off the power supply and safeguard it from being switched on again. Do not bypass fuses or render them inoperable.

Always use the correct ampacity when changing fuses.

Keep moisture away from live parts to prevent short circuits.

Ejecting mortar

DANGER! Injury hazard due to ejecting mortar!

Ejecting mortar can cause severe eye, face and other injuries.

Never look into the sprayer. Always wear protective goggles.

Always set up the machine so that no one can be hit by ejecting mortar.

Moving parts

DANGER! Danger of injury due to moving parts!

Do not reach into moving parts or handle moving parts during operation of the machine. Do not open covers when the machine is in operation. Even after switching off there is a standstill-delay. Prior to opening the covers ensure that all parts have come to a complete standstill. Wear tight-fitting work clothing in the danger zone.

Noise

WARNING! Hearing damage due to noise!

The noise level that occurs in the work area can cause severe hearing damage. Always wear ear protection when working with or near the machine. Only stay in the danger zone if required and to the extent necessary.

Harmful dust

WARNING! Dust is a health hazard!

Inhaled dust can cause long-term lung damage or other health impairments. Wear light respiratory protection for all tasks in the danger zone.

Fouling and loose objects

WARNING! There is a danger of stumbling due to fouling and loose objects! Fouling and loose objects on the ground pose slipping and stumbling hazards and can cause severe injuries. Always keep the work area clean. Remove objects that are not being used. Mark stumbling hazards with a black/yellow marking.

Sharp edges and corners


WARNING! Injury hazard on sharp edges and corners!

Sharp edges and corners can cause skin abrasions and cutting injuries. Exercise caution when working near sharp edges and corners. When in doubt, wear gloves and other protective clothing.

2.6 Safety devices

⚠ WARNING

Life-threatening danger due to non-functioning safety devices! Prior to starting work, always ensure that all safety devices are functional and correctly installed.
Never render safety devices inoperable.
Ensure that safety devices are accessible at all times.

 See chapter "4 Structure and function" of this Operating Manual for more information on the location of the safety devices.

The following safety devices are installed on the machine:

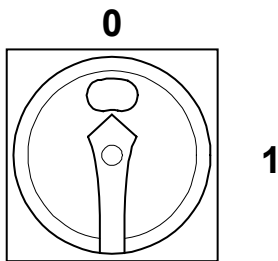


Fig. 1: Main switch

Main switch

The main switch also functions as the EMERGENCY-STOP switch. Turning the main switch to the "O" position immediately cuts off the energy supply.

WARNING! Life-threatening danger due to uncontrolled restart! Prior to restarting the machine, ensure that the cause of the Emergency-Stop has been corrected, and that all safety devices are mounted and functional.

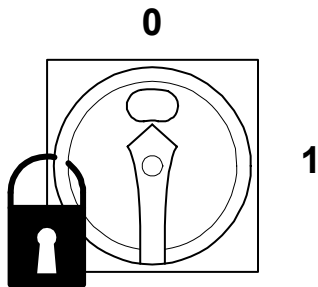


Fig. 2: Main switch (with padlock)

Securing the main switch

The main switch can be secured in position "O" with a padlock to safeguard against restart or unauthorized information.

DANGER! Life-threatening danger if switched on without authorization! Switching on the machine can cause life-threatening injuries to personnel working on the machine.
Never remove the lock without authorization.

Prior to removing the lock, ensure that personnel is no longer in the danger zone.

2.7 Behavior in the event of danger or accident

Preventive measures

- Always be prepared for accidents or fire!
- Keep first aid supplies (first-aid boxes, blankets etc.) and fire extinguishers close at hand.
- Familiarize personnel with accident alarms, first-aid boxes, rescue equipment and procedures.
- Keep entry ways clear for rescue vehicles.

In an emergency situation

- Immediately trigger an EMERGENCY-STOP.
- Initiate first-aid measures.
- Get people out of the danger zone.
- Inform the emergency response team.
- Call for rescue service.
- Keep entry ways clear for rescue vehicles.

2.8 Environmental protection

NOTICE

Environmental hazard due to incorrect handling!
 Incorrect handling of environmentally hazardous substances, particularly improper disposal can cause significant environmental damage. If environmentally harmful substances should inadvertently get into the environment, immediately initiate suitable measures. When in doubt, notify the responsible municipal authorities about any actual or potential environmental hazard.

2.9 Labeling

⚠ WARNING

Danger of injury due to illegible signs and symbols!
Illegible signs may cause hazardous situations. Always keep symbols, instructions and warning signs in good legible condition! Immediately replace damaged signs or labels.

Various warning labels are attached to the machine. These warning labels are intended to make you and others aware of various risks. You must never remove any of these warning labels.

Removal of any of these labels may cause you and others to be unaware of certain risks which may result in an accident, personal injury or even death.

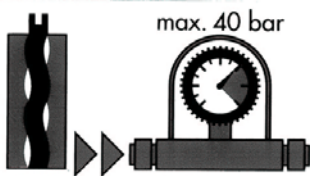
The following warning labels are attached to the machine at the time of delivery:



Injury hazard due to moving parts!

Do not reach into the machine when it is running!

There is a danger that extremities could be crushed, pulled in, or injured in some manner.



Risk of bursting!

Never exceed the maximum pressure of 40 bar!

Overpressure will burst the machine possibly leading to severe injury or even death.



Crushing hazard!

Keep extremities away from areas with this warning!

There is a danger that extremities could be crushed, pulled in, or injured in some other manner.



Automatic start up!

Reinstall all guards and protective housings and be sure that nobody is in the danger zone before starting up the machine.

There is a danger that extremities could be crushed, pulled in, or injured in some manner.

**Electrocution hazard!**

Only qualified electricians should work in the work area that is identified in this manner. Unauthorized personnel should not enter the work areas or open panels that are identified in this manner.

There is an imminent danger of death or injury if live components are touched or come in contact with personnel.

**Moving machine parts!**

Only specially trained personnel should perform maintenance work on open machines.

As long as the machine is moving there is an imminent injury hazard.

**Pressurized media!**

Be aware of possibly escaping compressed air. When in doubt, wear protective equipment, especially protective goggles.

Neglecting this warning may lead to injuries, especially to the eyes.

**Danger spot!**

This label warns of a danger spot within the work area.

Be particularly careful and act consciously. Where appropriate, wear protective equipment.

Neglecting this warning may lead to severe injury or even death.

**Protective gloves**

Wear protective gloves in areas that are identified by this label to protect the hands from friction, abrasion, puncture wounds, or deeper injuries as well as from contact with hot surfaces.

Failure to do so poses an injury hazard.

**Heed the instructions in the Operating Manual**

Do not use the machine until after you have read the corresponding Operating Manual.

Otherwise you may expose yourself and others to actual and potential sources of hazards related to machine operation.



Face protection

To protect the eyes and face from flames, sparks or scorching heat, hot particles or exhaust gases.



Running machine

Do not reach into the machine when it is running. Be sure to switch the machine off and secure it against switching on before reaching into areas that are marked in this manner.

Failure to do so poses an injury hazard.



Do not remove protective devices!

Do not remove protective devices that are marked this way as long as the machine is in operation. Be sure to have these protective devices re-installed before restarting the machine.

Failure to do so poses an injury hazard.



Injury hazard due to rotating parts!

Do not reach into rotating parts. Be sure to switch the machine off and secure it against switching on before reaching into areas that are marked in this manner.

Failure to do so poses an injury hazard.



No maintenance tasks whilst the machine is running!

Do not perform any maintenance tasks if the machine is running. Be sure to switch the machine off and secure it against switching on before performing maintenance work in areas that are marked in this manner.

Failure to do so poses an injury hazard.



Do not touch!

Parts may be destroyed by touching.

Failure to do so may lead to property damage.

3 Technical data

3.1 General mixing pump data

Specification	Value	Unit
Weight	253 (558)	kg lbs)
Length	1200 (47.3)	mm inch)
Width	730 (28.8)	mm inch)
Height	1550 (61)	mm inch)

Single weights

Specification	Value	Unit
Pump motor with tilt flange	53 (117)	kg lbs)
Mixing pump module, complete	81 (179)	kg lbs)
Tank module	141 (311)	kg lbs)
Compressor	23 (51)	kg lbs)

Hopper dimensions

Specification	Value	Unit
Fill height	930 (36.6)	mm inch)
Hopper content	150 (39.6)	l USliq.gal.)
Hopper content with attachment	200 (52.8)	l USliq.gal.)

3.2 Power and water supply

Water connection

Specification	Value	Unit
Operating pressure, min.	2.5 (36.3)	bar psi)
Connection	3/4	inches

Power supply

Specification	Value	Unit
Voltage, three-phase 60 Hz	230	V
Current consumption, maximum	32	A
Power consumption, maximum	8	kW
Fusing	3 x 25	A
Drive pump motor	5,5	kW
Drive - cellular wheel motor	0,75	kW
Speed pump motor approx.	400	rpm
Speed - cellular wheel motor	28	rpm
Current consumption pump motor *	11,5	A
Current consumption cellular wheel motor *	2,2	A

* at 400 V

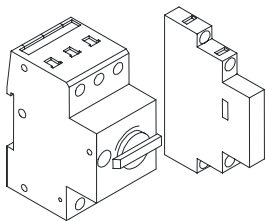


Fig. 3: Motor protection switch

	Output	Set value	Designation
Cellular wheel	0.75 kW	3.2 A	Q3
Mixer motor	5.5 kW	19.0 A	Q2

3.3 Operating conditions

Environment

Specification	Value	Unit
Temperature range	+2 ... +45 (+35.6 ... +113	°C °F)
Relative humidity, maximum	80	%

Duration

Specification	Value	Unit
Max. continuous operating period	8	h
Pause until next operation	20	min

3.4 Performance values

Pump capacity

Specification	Value	Unit
Delivery rate, approx. (at 400 rpm)	20	l/min
Operating pressure, max.	30 (435	bar psi)
Compressor capacity	0.25	Nm³/min
Max. delivery distance * (at a hose Ø of 25 mm [0.98 inch])	30 (99	m ft)
Max. delivery distance * (at a hose Ø of 35 mm [1.38 inch])	50 (165	m ft)

*Appropriate value depending on delivery head, pump conditions and version, mortar quality, composition and consistency

3.5 Emissions

Specification	Value	Unit
Noise emission	77±1	dB(A)

3.6 Dimension drawing

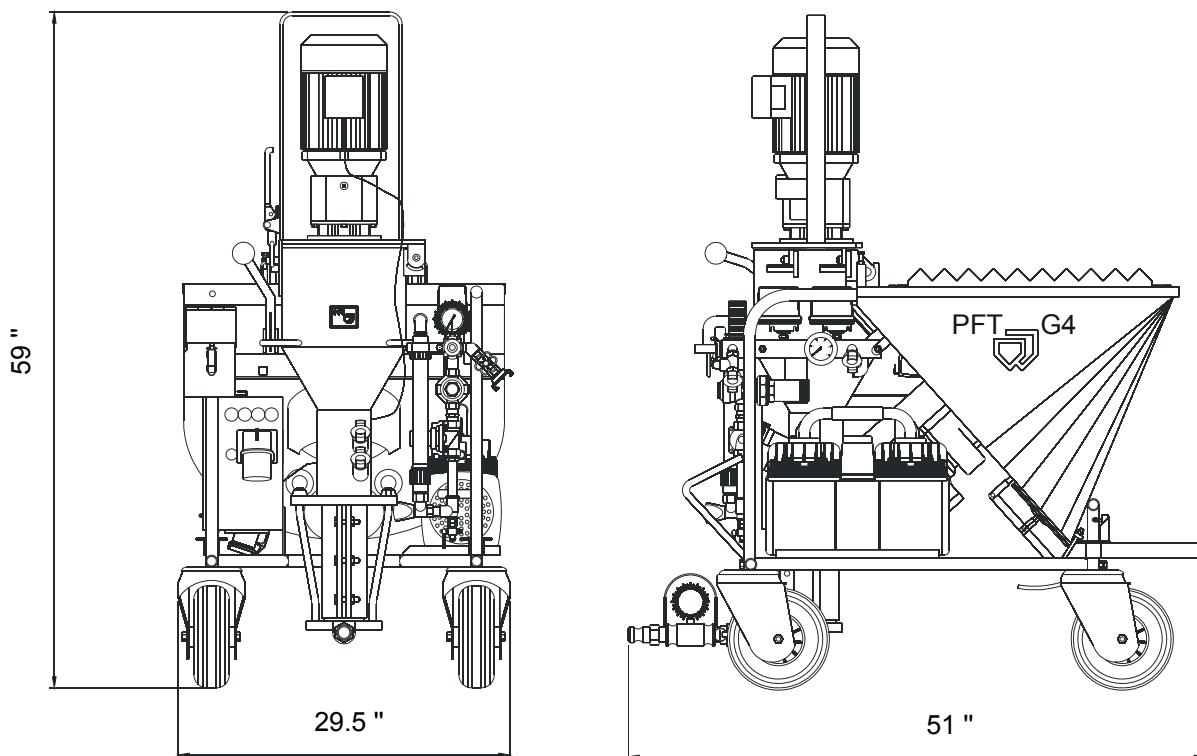




Fig. 4: Dimension drawing

3.7 Type plate

Knauf PFT GmbH & Co. KG		
Typ:		
Baujahr:		
Masch.-Nr.:		
Fahrgestell Nr.:		
Zul. Ges. Gewicht:	Zul. Achslast:	
<small>Knauf PFT GmbH & Co. KG Postfach 60 97343 Iphofen Telefon: +49 9323 31-760 Telefax: +49 9323 31-770</small>		
Made in		

The type plate is located on the inside of the tool box and contains the following information:

- Manufacturer
- Machine type
- Year of manufacture
- Serial identification number
- Allowable total weight
- Axle load limit
- Manufacturer's address

Fig. 5: Type plate

4 Structure and function

4.1 Overview

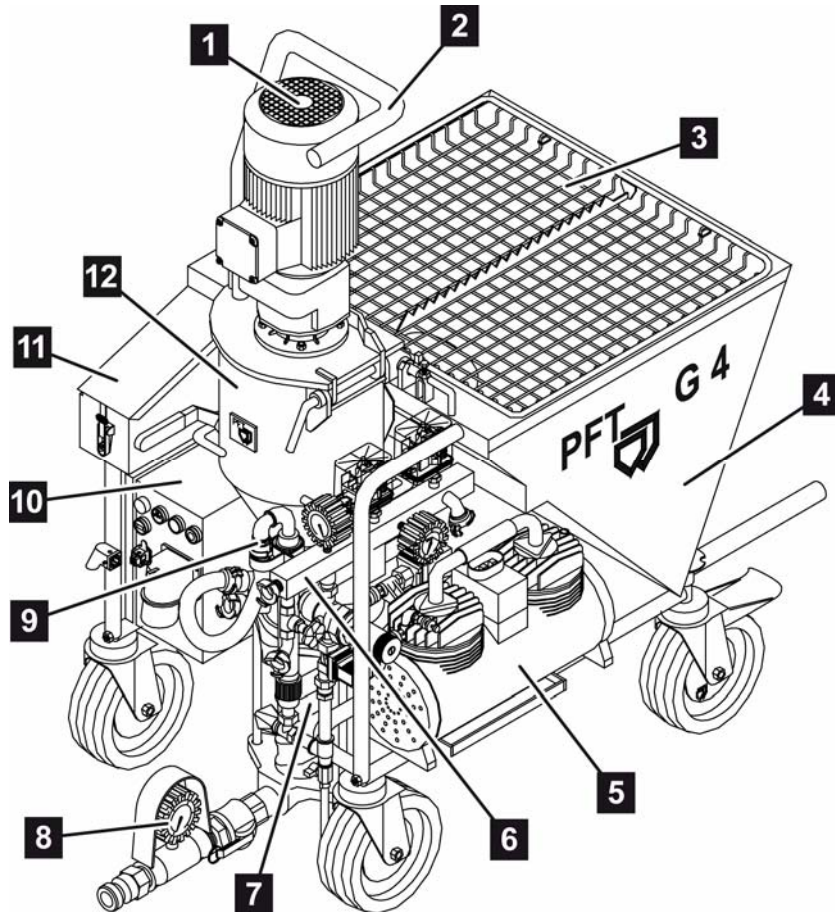


Fig. 6: Overview of major subassemblies

- | | |
|-------------------------------------|----------------------------------|
| 1 Mixer motor | 7 Mortar pump D6-3 |
| 2 Motor protection bracket | 8 Mortar pressure manometer |
| 3 Protective grille with bag opener | 9 Water inlet on the mixing pipe |
| 4 Material container G 4 | 10 Control panel |
| 5 Compressor | 11 Tool box |
| 6 Water fitting | 12 Mixing pipe |

4.2 Brief description

The **PFT G4** Mixing Pump is a continuous operation mixing pump for factory pre-mixed dry mortar. It can be filled with mortar delivered in bags as well as via transfer hood or injection hood.

The machine consists of portable single components that permit fast and convenient assembly, disassembly and transport due to their small, handy dimensions, and low weight.

4.3 Module description

The PFT G4 Mixing Pump consists of the following major components:

- Material container with frame and protective grille

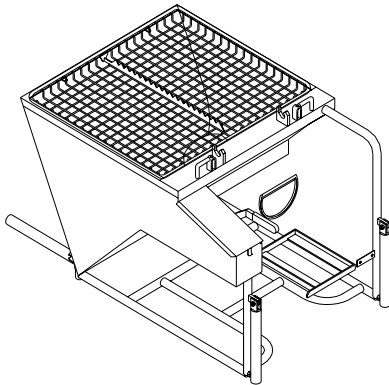


Fig. 7: Material container

- Mixing pipe with motor and pump unit

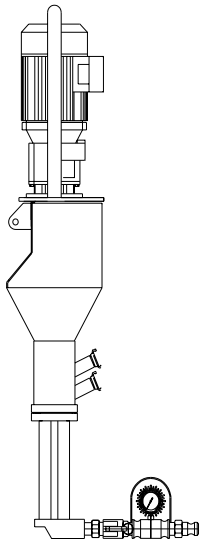


Fig. 8: Mixing pipe with motor

- Air compressor K 2

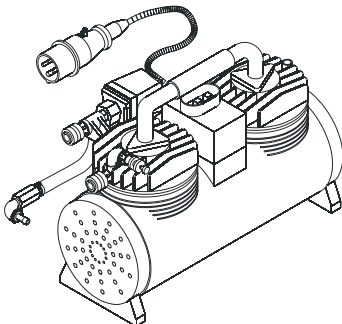


Fig. 9: Compressor

■ Control panel:

- 1 Selector switch cellular wheel
Manual-0-Automatic
- 2 Selector switch water pump
Manual-0-Automatic
- 3 Indicator light "sense of rotation"
- 4 Main reverse switch,
is concurrently an Emergency-Stop
switch
- 5 Indicator light red, motor protection
switch tripped
- 6 Button "water flow"
- 7 Illuminated button "operation ON"
- 8 Button "operation OFF"
- 9 Button "sense of rotation reverse"
- 10 Main current connection 32 A
- 11 Remote control socket
- 12 Dummy plug 4-pin
- 13 CEE – attachment socket 4x32 A
gear motor
- 14 CEE – attachment socket 4x16 A
air compressor

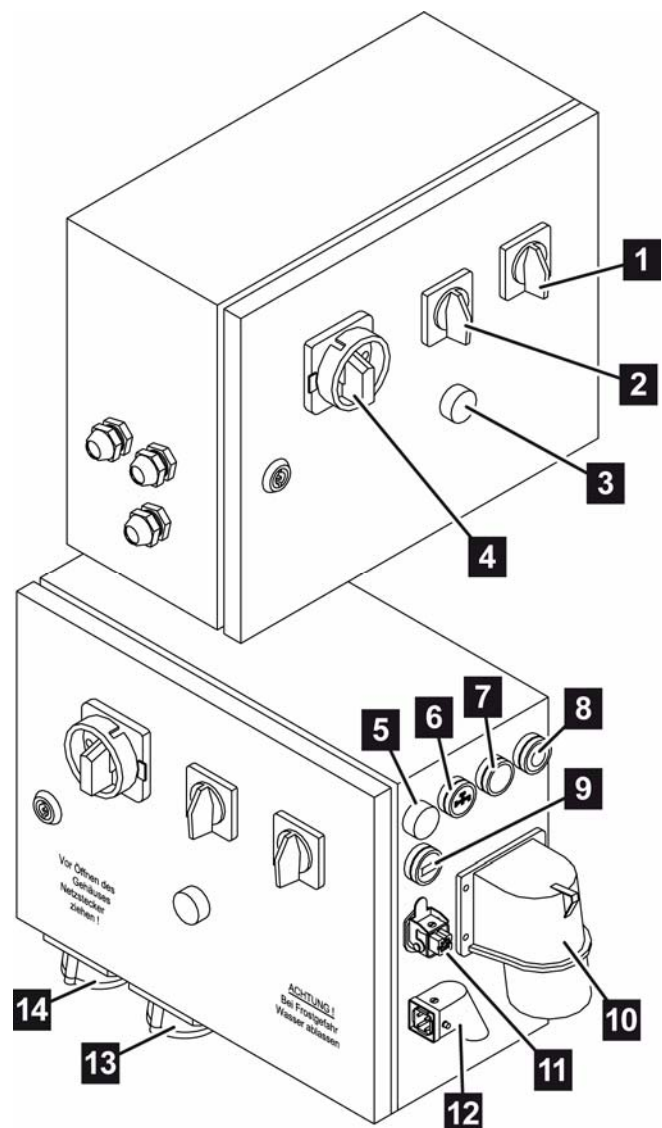


Fig. 10: Control panel

■ Water/air fitting:

- 1 Water connection
- 2 Manometer water operating pressure
- 3 Pressure switch – water
- 4 Pressure switch – air
- 5 Air for the sprayer
- 6 Manometer – air operating pressure
- 7 Air from pressure controller – compressor
- 8 Pressure reducer
- 9 Solenoid valve
- 10 Drain cock
- 11 Needle valve
- 12 Water flow meter
- 13 Water removal valve
- 14 Water to the mixing pipe

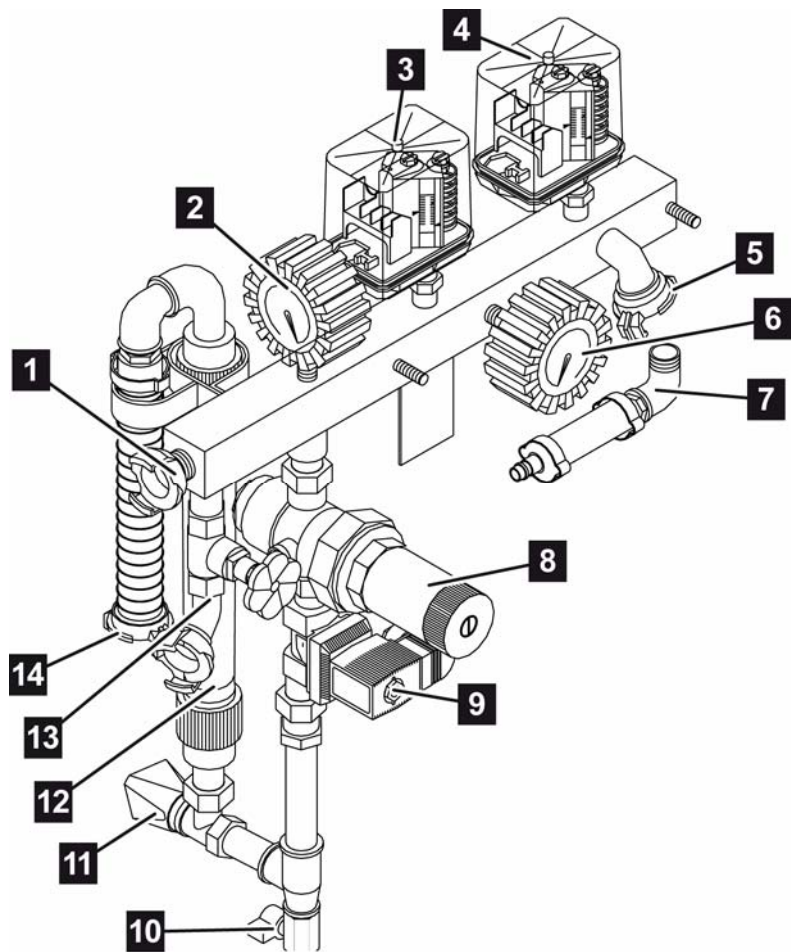


Fig. 11: Water/air fitting

4.4 Connections

- 1 Main circuit connection
- 2 Water connection
- 3 Mortar hose connection

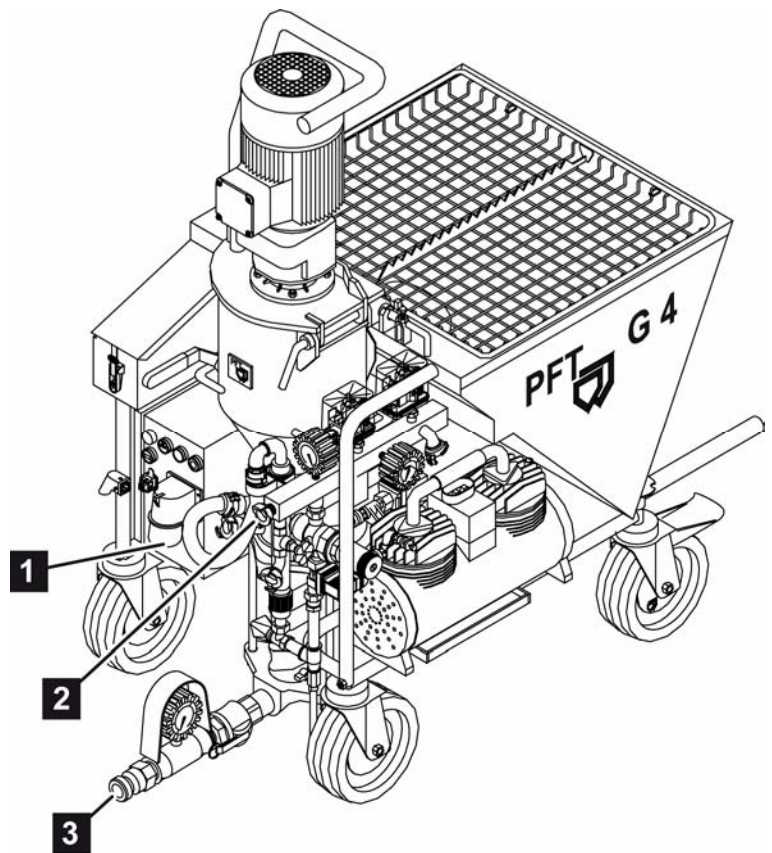


Fig. 12: Connections

4.5 Operating modes



Fig. 13: Cellular wheel – operation modes

Cellular wheel

The cellular wheel can be operated in three different modes:

- **"O"**
Cellular wheel is switched off and thus material feed to the mixing zone is interrupted, e.g. for cleaning the mixing zone with the cleaning shaft, or for pressure testing the pump.
- **"AUTO"**
Cellular wheel runs synchronously with the mixing pump and is switched on and off with the air controller or remote control.
- **"HAND" (MANUAL)**
In "Manual" position the cellular wheel runs in continuous operation regardless of the air controller. In this position material can be supplied to the mixing zone if the pump is at a standstill.



Fig. 14: Water pump – operation modes

Water pump

The water pump can be operated in three different modes:

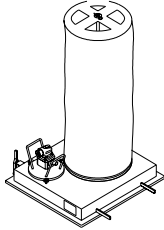
- **"O"**
Water pump is switched off, e.g. if the water pressure is continuously 2.5 bar (36.2 psi).
- **"AUTO"**
Water pump runs synchronously with the mixing pump.
- **"HAND" (MANUAL)**
In the "Manual" setting the water pump is always running (e.g. for cleaning the hoses).

4.6 Accessories

The following accessories can be ordered:

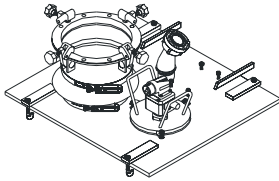
PFT injection hood E1 for G 4 (Item number 20 60 02 13)

The PFT injection hood is used for charging the mixing pump with dry material with the aid of the PFT SILOMAT pneumatic conveyor.



PFT transfer hood with no-load safeguard for G 4 (Item number 20 60 05 00)

The PFT transfer hood is used for charging the PFT G 4 Mixing Pump with dry material directly from the silo / container. If there is an empty signal in the material container the mixing pump is switched off via the remote control socket.



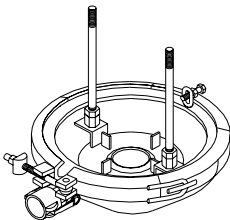
ROTOMIX D pumps complete with 35-series coupling (Item number 20 11 80 00)

Agitator for better break up and blend of the material.
Direct drive through rotor studs
Contents approx. 1.2 l (0.32 US liq. gal.)



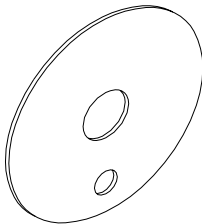
ROTOQUIRL II complete with 35-series coupling (Item number 20 11 84 00)

Agitator for better break up and blend of the material.
Direct drive through rotor studs
Contents approx. 4.2 l (1.1 US liq. gal.)



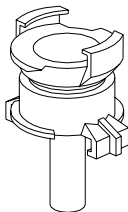
Cellular wheel spacer disk for coarse grain plaster (Item number 20 10 19 00)

Increases the cellular wheel's clearance to the floor of the material container by 3 mm (0.12 inch).



Nozzle insert for water inlet with Geka coupling (Item number 20 21 58 00)

For better injection of water into the mixing zone at low water factor.



5 Transport, packing, and storage

5.1 Instructions for transport

DANGER

Life-threatening hazard due to suspended loads!

When lifting loads there is a life-threatening hazard due to falling parts or parts swinging out of control.

Never step under suspended loads. Swinging or falling parts may cause personal injury or death.

Comply with instructions concerning intended attachment points. Do not attach lifting tackle to projecting machine parts or to eyes of attached components; ensure that the lifting equipment is firmly seated. Only use approved lifting devices and lifting equipment with sufficient load bearing capacity.

Do not use rope or belts that are torn or frayed.

Do not place ropes or belts on sharp edges and corners, do not knot or twist ropes or belts.

NOTICE

Improper transport can cause damage!

Proceed with caution when unloading packed goods during delivery, and for inner-company transport, and comply with the symbols and instructions on the packaging.

Only remove the packaging prior to installation.


Only use the intended attachment points.

5.2 Transport inspection

Check delivery immediately upon receipt for completeness and shipping damage.

Proceed as follows if there is apparent external damage:

- Do not accept the delivery, or only accept it with reservation.
- Note the extent of shipping damage on the shipping documents or on the shipping company's delivery ticket.
- Submit a complaint to the shipping company immediately.

 Report any defect as soon as it is detected. Claims for damage compensation can only be enforced during the applicable periods for giving notice of lack of conformity.

5.3 Packaging

NOTICE

Improper disposal may cause environmental damage. Packaging materials are valuable raw materials and in many cases they can be reused or effectively treated and recycled. Dispose of packaging materials in accordance with the rules and regulations. If necessary, commission a specialized company to dispose of packaging.

About the packaging

The goods are packaged according to the expected transport conditions. Environmentally-friendly recyclable materials are used exclusively for the packaging.

Packaging is intended to protect the specific components from transport damage, corrosion, and other damage until installation. Therefore do not destroy the packaging; remove it just before installation.

5.4 Transport

Attachment points

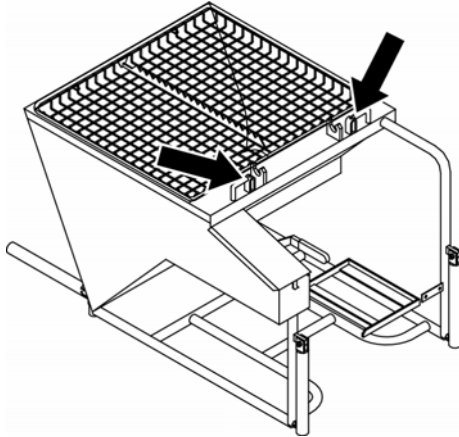


Fig. 15: Attachment points

For crane transport attach the pump on the lifting lugs (Fig. 15/arrows) with a cable.

Comply with the following conditions:

- Crane and lifting equipment must be designed for the weight of the packed goods.
- The operator must be authorized and trained to operate the crane.

Attachment:

1. Attach the ropes or straps appropriately using all foreseen lifting lugs (Fig. 15/arrows).
2. Ensure that the packed goods hang straight; pay attention to the center of gravity.
3. Start to hoist the machine.

Transport of a machine that is already in operation

DANGER! Injury hazard due to ejecting mortar!

Face and eyes can be severely injured. Prior to opening the couplings ensure that all hoses are depressurized (check the reading on the mortar pressure indicator).

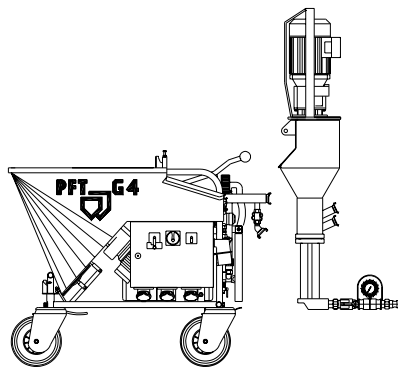


Fig. 16: Dismantling the mixing pump

Execute the following steps prior to transport:

1. Unplug the mains connection.
2. Disconnect all other cable connections.
3. Remove water feed line.
4. For easier transport, break down the machine into the mixing pipe and material container subcomponents (see Fig. 16). These items can be transported separately.


6 Operation

6.1 Safety

Personal protective equipment

Wear the following protective equipment for all operating tasks:

- Protective work clothing
- Protective goggles
- Protective gloves
- Safety footwear
- Light respiratory protection
- Ear protection

 The warnings in this chapter make special reference to additional protective equipment that is required for certain tasks.

WARNING

Danger of injury due to improper operation!

Improper operation may cause death, serious injury or property damage. Execute all operating steps in accordance with the warnings and information in this Operating Manual. Prior to starting work ensure that all covers and safety devices are properly installed and functioning. Never render a safety device inoperable.

WARNING

Danger of injury due to inappropriate working conditions!

Loose parts and tools that are lying not properly stored or on top of the machine are accident hazards! Ensure order and cleanliness in the work area!

6.2 Preparation

Prior to operating the machine execute the following work steps in preparation.

DANGER! Running cellular wheel! Danger of serious injury when reaching into the running cellular wheel. Do not remove the grille cover during machine preparation and operation. Never reach into the machine when running.

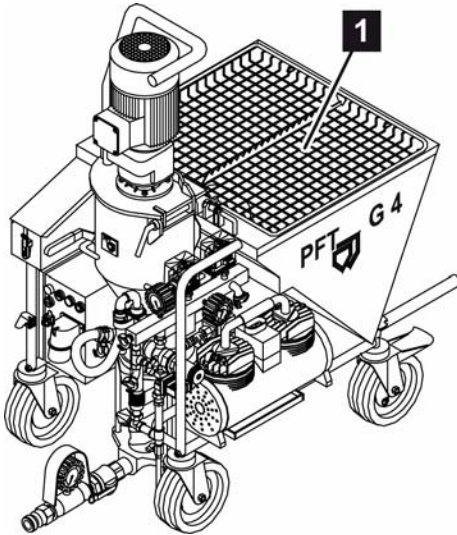


Fig. 17: Grille cover (1)

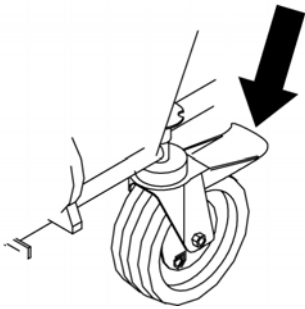


Fig. 18: Lockable castor

1. Lockable castor (Fig. 18) must be locked before starting up the machine.
2. Set up the machine so that it is stable on a level surface and secure it against undesired movements:
 - Do not tilt or roll the machine.
 - Set up the machine where it is safe from falling objects.
 - The operating elements must be freely accessible.

DANGER! Life-threatening danger due to electric shock!
The connecting line must be correctly fused:

- Only connect the machine to a construction site power distributor with a residual current operated circuit breaker (30 mA).
- If the machine controller has a 3-phase frequency converter, then the residual current operated circuit breaker of the construction site distributor must be sensitive to universal current.

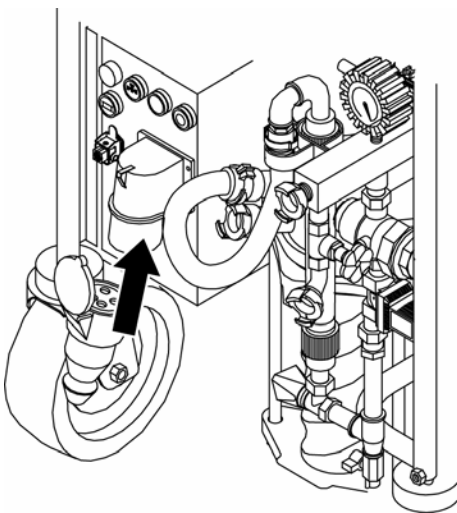


Fig. 19: Connecting the power

3. Connect the power on the construction site distributor and control panel of the machine.
4. Interrupt the control current circuit by removing the dummy plug on the control panel and plug the mains connection (Fig. 19/arrow).

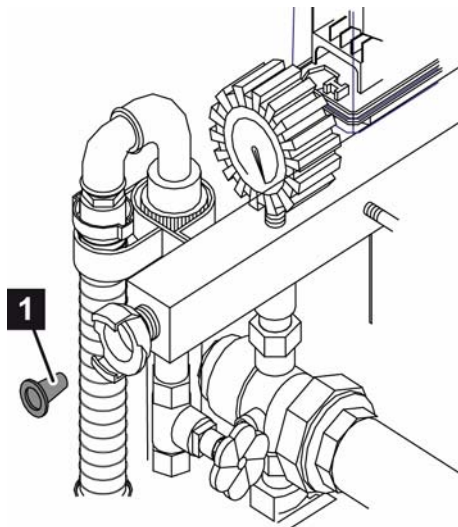


Fig. 20: Water inlet sieve

5. Ensure that the water inlet sieve (Fig. 20/1) is clean.

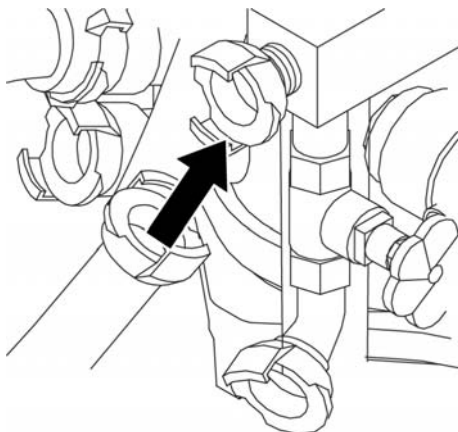



Fig. 21: Connecting the water

6. Clean and vent the water hose.
7. Connect the water hose on the water hose connection and on the water inlet (Fig. 21/arrow).

 Only use clean water that is free of solids. The minimum pressure for the running machine is 2.5 bar (36.2 psi).

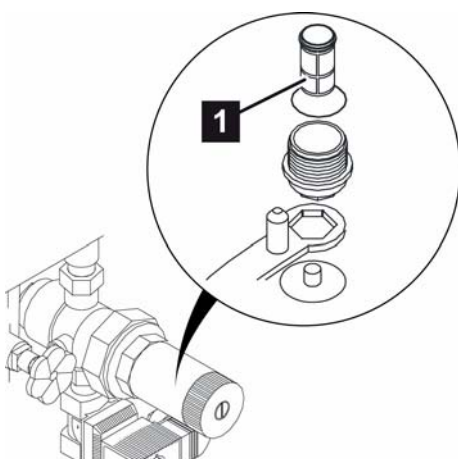


Fig. 22: Debris collector sieve

8. Ensure that the debris collector sieve (Fig. 22/1) in the pressure reducer is clean.

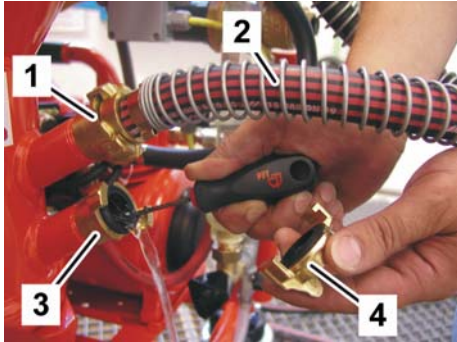


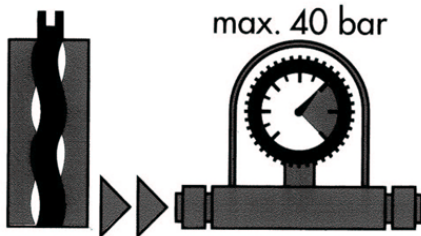
Compaction by watering

Fig. 23: Blind cover and water duct

 For heavy and dispersion-combined materials we recommend "compaction by watering" to enable easier pump start up.

9. If necessary have water on hand for compaction by watering:

- a) Remove the blind cover (Fig. 23/4) from the lower water duct (Fig. 23/3).
- b) Connect water hose (Fig. 23/2) from the armature to the mixing pipe on the upper water duct (Fig. 23/1).
- c) Press the button  ("Water flow ON") in the control panel, once water escapes below, the fill level is correct. Release the button "Water flow ON".
- d) Reattach the blind cover (Fig. 23/4) to the lower water duct (Fig. 23/3).



DANGER! Excess pressure on the machine!

Machine parts can be blown off and seriously injure or kill the operator or third parties.

Do not operate the machine without a mortar pressure manometer. Only operate the delivery hoses with an appropriate operating pressure of max. 40 bar (580 psi).

The burst pressure of the mortar hose must be at least 2.5 times the value of the operating pressure.

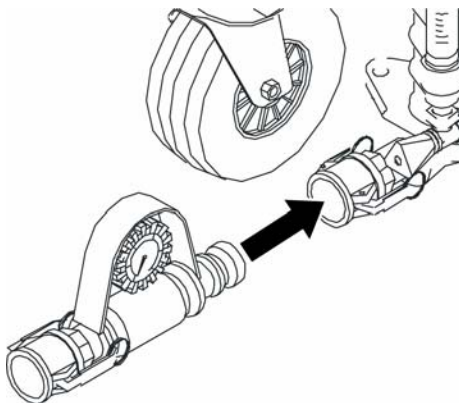


Fig. 24: Coupling pressure manometer

10. Couple the mortar pressure manometer onto the pressure flange.



Fig. 25: Goods shipped in sacks



Fig. 26: Transfer hood



Fig. 27: Injection hood

11. Charge the machine with factory pre-mixed dry mortar.
Charging can be executed with goods shipped in bags, with the transfer hood, or the injection hood, depending on the equipment.


- If charging with dry mortar shipped in bags:

WARNING! Sharp edges on the bag opener pose an injury hazard! Act carefully and wear safety gloves.

- If charging with transfer hood
(optional accessory - item number 20 60 05 00):

DANGER! Danger of serious injury on the cellular wheel!
Do not open the transfer hood during machine operation.
Prior to opening, always switch off the main helix switch and the power supply.


1. Place the transfer hood onto the machine instead of the grille cover.

 If the fill level indicator in the injection hood shows "empty", then after a set time has elapsed the machine will come to a standstill. Charge the G 4 Mixing Pump with material first. To accomplish this, pull out the dummy plug or switch off the machine via the air pressure controller. Only start work when the fill level indicator shows "full".

- If charging with the injection hood
(optional accessory - item number 20 60 02 13):

DANGER! Danger of serious injury on the cellular wheel!
Do not open the machine during pneumatic delivery.
Prior to opening, always switch off the main helix switch and the power supply.

1. Place the injection hood on the hopper instead of the grille cover.

 If the fill level indicator in the injection hood shows "empty", then after a set time has elapsed the machine will come to a standstill. Charge the G 4 Mixing Pump with material first. To accomplish this, pull out the dummy plug or switch off the machine via the air pressure controller. Only start work when the fill level indicator shows "full".

6.3 Switching on and starting up

Switching on

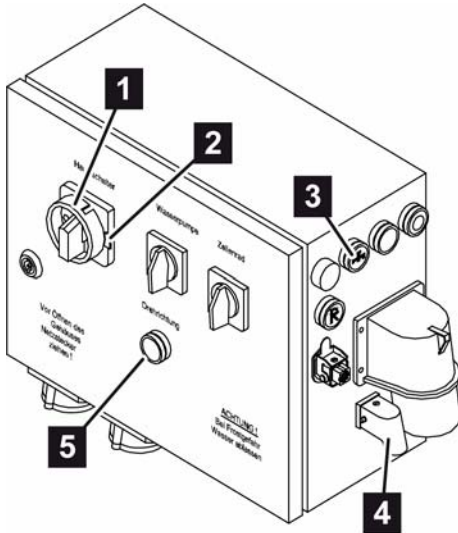



Fig. 28: Controls

1. Turn the main switch (Fig. 28/1) to position "I".

If the yellow indicator light "Change sense of rotation" (Fig. 28/5) is illuminated, change the sense of rotation.

To accomplish this, push the metal bracket (Fig. 28/2) in the opposite direction.

 The machine only starts up if the yellow indicator light is not illuminated.

2. Close the control current circuit by inserting the dummy plug (Fig. 28/4) on the control panel.

Adjusting the water quantity

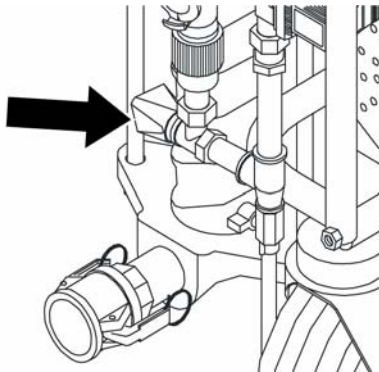



Fig. 29: Needle valve

3. Press the button "Water flow ON" (Fig. 28/3) to adjust the water quantity (water pump is running).

4. Then set the anticipated water quantity on the needle valve (Fig. 29/arrow). Heed the specifications provided by the manufacturer of the material for the correct water quantity.

 Any interruption of the spray process causes a slight irregularity in the consistency of the material. This irregularity is normalized after the machine has been operating for a short period. Do not change the water quantity every time there is an irregularity. Wait until the consistency of the material has been regulated again.

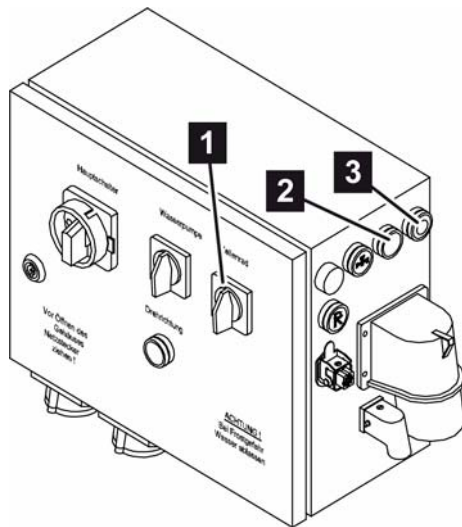
Check the mortar consistency

Fig. 30: Controls

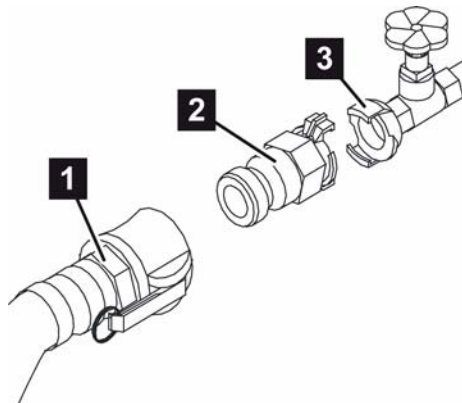
Preparing the mortar hose

Fig. 31: Preparing the mortar hose

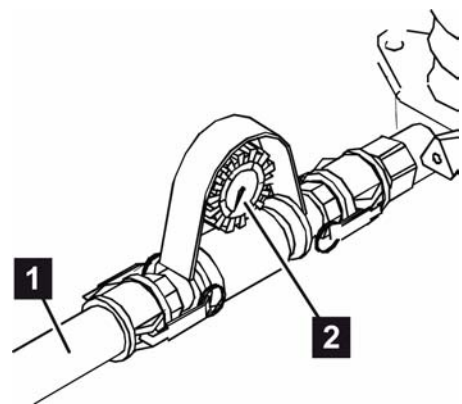

Connecting the mortar hose

Fig. 32: Connecting the mortar hose

5. Position the selector switch for cellular wheel (Fig. 30/1) "Manual-O-Auto" to **"AUTO"**.
 6. Switch on the machine via the green pushbutton (Fig. 30/2). The mortar will run out of the material connection.
 7. Check the consistency of the mortar.
-  Correct mortar consistency is achieved when the material merges on the surface being sprayed (we recommend applying from top to bottom on wall surfaces). If the water quantity is insufficient, uniform mixing and spraying is no longer ensured. This can cause blockage in the hose and increased wear on the pumps.
8. Switch off the machine via the red pushbutton (Fig. 30/3).
 9. Connect the plaster component (Fig. 31/2) on the water removal valve (Fig. 31/3).
 10. Connect the motor hose (Fig. 31/1) and water.
 11. Take off the motor hose and plaster component again and disconnect.
 12. Completely empty the mortar hose.
 13. Pre-lubricate the mortar hose with approximately 2 liters of wallpaper paste.
 14. Connect the mortar hose (Fig. 32/1) to the mortar pressure manometer (Fig. 32/2).
 15. Switch on the machine via the "Operation ON" button and let the machine run until mortar escapes at the end of the mortar hose.

Connecting the sprayer

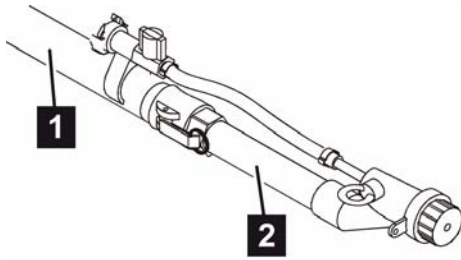


Fig. 33: Connecting the sprayer

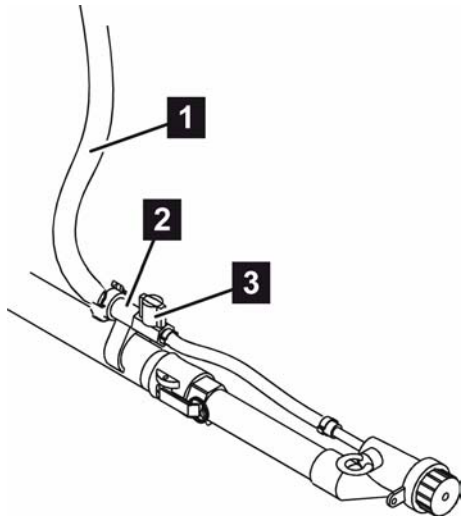


Fig. 34: Compressed air supply on sprayer

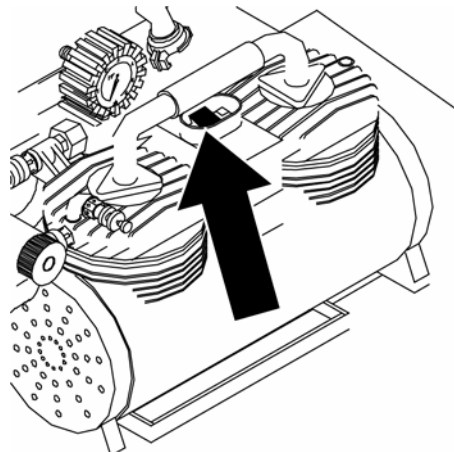


Fig. 35: Switching on the compressor

16. Switch off the machine via the "Operation OFF" pushbutton.
17. Connect the sprayer (2) to the mortar hose (1).

18. Ensure that the air cock (Fig. 34/3) on the sprayer is closed.
19. Connect compressed air hose (Fig. 34/1) to the sprayer (Fig. 34/2) and to the compressed air fitting.

WARNING! Pressurized media!

Be aware of possibly escaping compressed air. When in doubt, wear protective equipment, especially protective goggles. Neglecting this warning may lead to injuries, especially to the eyes.


20. Switch on the compressor via the black button (Fig. 35/1).
21. Switch on the machine via the green "Operation ON" pushbutton. The green button will be illuminated.

The machine is now ready for operation.

6.4 Applying mortar

DANGER

Injury hazard due to ejecting mortar! Ejecting mortar can cause severe eye and face injuries. Never look into the sprayer. Always wear protective goggles. Always set up the machine so that no one can be hit by ejecting mortar.

 The possible delivery distance primarily depends on flowability of the mortar. Heavy sharp-edge mortar has poor delivery characteristics. Thin-fluid materials have good delivery characteristics. If 30 bar (435 psi) operating pressure is exceeded, then use thicker mortar hoses.

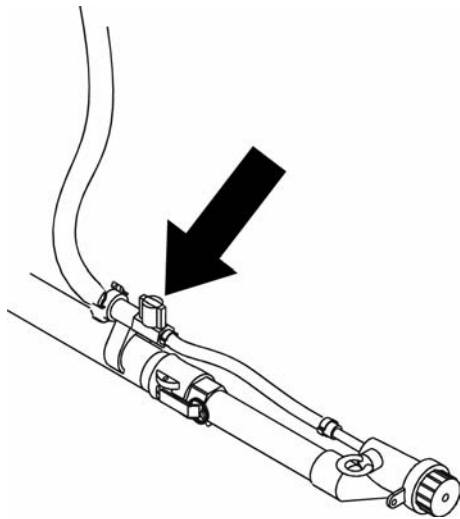



Fig. 36: Open air cock

1. Point the sprayer in the direction of the wall that will be plastered.
2. Ensure that that no one is in the target area for the mortar.
3. Open air cock (Fig. 36/arrow) on the sprayer.
The machine will start up automatically and the mortar will be ejected.
4. Close the air cock (Fig. 36/ arrow) for brief work interruptions.

 It is also possible to operate the machine without compressed air, for example for applying screed. To accomplish this, turn the "Cellular wheel" selector switch to "Manual".
The mortar flow will start immediately.

6.5 Switching off

1. Position the selector switch "Manual-O-Auto" to "O".
2. Pump out residual material until water escapes.
3. Close air cock (Fig. 37/arrow) on the sprayer.
4. Switch off the machine via the "Operation OFF" pushbutton.

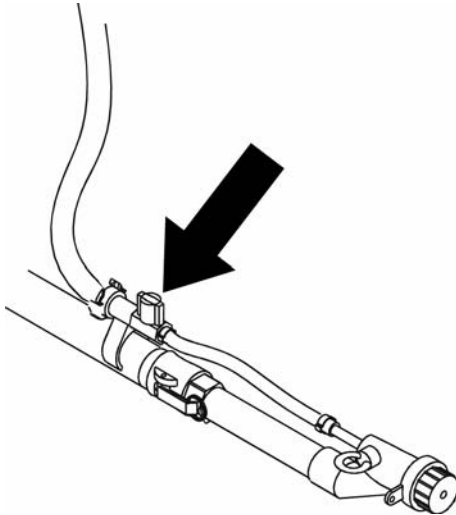


Fig. 37: Close air cock

5. Switch off the compressor via the red button (Fig. 38/arrow).

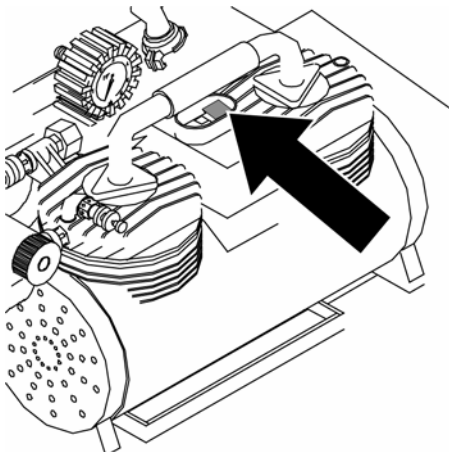


Fig. 38: Switching off the compressor

6.6 Cleaning

NOTICE

Damage due to improper cleaning after operation!

Always clean the machine on a daily basis after your work is completed. Mortar deposits and remnants otherwise plug up and block the machine's pipes, hoses and valves, which will adversely affect the machine's functioning.

Protect your investment!

The machine must be cleaned daily after work is completed:

1. Switch off the machine.
2. On the mortar pressure manometer (*Fig. 39/1*) always check whether mortar pressure has dropped to 0.

Check mortar pressure

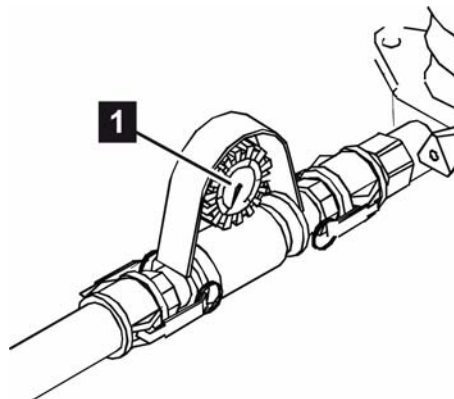


Fig. 39: Mortar pressure at 0

DANGER! Excess pressure on the machine.

When opening machine components these components can unexpectedly fly open and seriously injure the operator or others. Only open the machine if the pressure has dropped to 0.

Cleaning the mixing pipe

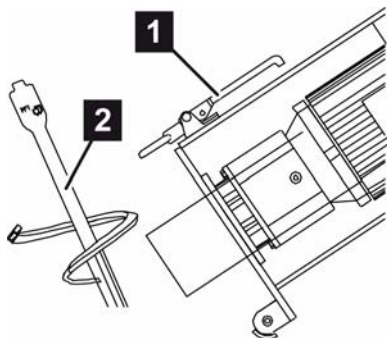


Fig. 40: Open the motor tilt flange

3. Open the quick lock (*Fig. 40/1*) on the motor tilt flange and tilt the motor.
4. Remove the mixing helix (*Fig. 40/2*) and clean it.



Fig. 41: Retaining fixture

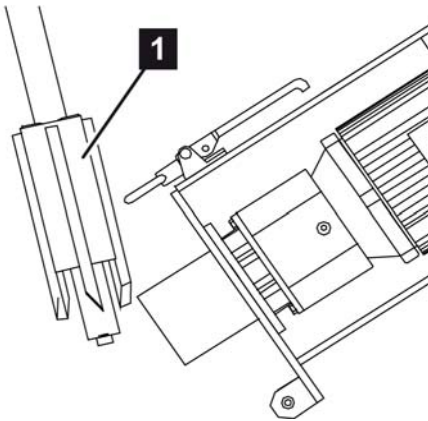


Fig. 42: Inserting the mixing pipe cleaner



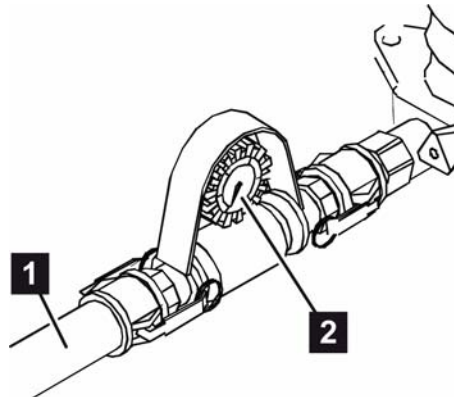
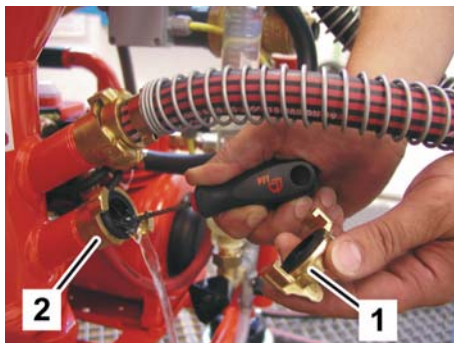
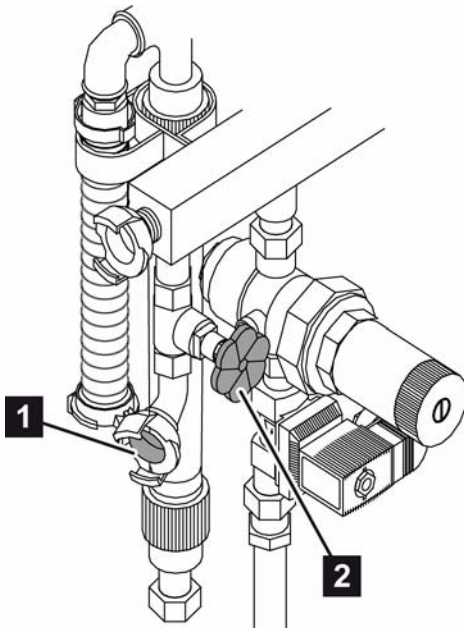
Fig. 43: Close the motor tilt flange

5. Take the mixing pipe cleaner out of the retaining fixture (Fig. 41/1).

6. Insert the cleaner shaft and mixing pipe cleaner (Fig. 42/1) into the mixing pipe with the scraper down.

WARNING! Danger of crushing on the motor tilt flange!
When closing the motor tilt flange there is danger of crushing.
Do not reach into the closing area of the motor tilt flange.


7. Close the motor tilt flange and lock it via the quick lock (Fig. 43).
8. Press the green "Operation ON" push button and let the machine run between 5 – 10 seconds until the mixing pipe is clean.
9. Open the quick lock on the motor tilt flange and tilt the motor.
10. Remove the mixing pipe cleaner.
11. Place the mixing pipe cleaner in the retaining fixture (Fig. 41).
12. Reinsert the mixing helix and ensure that it is properly seated.
13. Re-close the tilt flange.

Removing the mortar hose*Fig. 44: Removing the mortar hose***Rinse out the pump***Fig. 45: Blind cover on the water duct**Fig. 46: Water removal*

14. Remove the mortar hose (Fig. 44/1) with the mortar pressure manometer (Fig. 44/2).

15. Remove the blind cover (Fig. 45/1) from the lower water duct (Fig. 45/2).

16. Remove the material accumulation with a rasp.

17. Press the button  ("Water flow ON") in the control panel, to rinse out the deposits. Release the button "Water flow ON".

18. Reattach the blind cover (Fig. 45/1) on the lower water duct (Fig. 45/2).

19. Connect the rinsing hose on the water removal connection (Fig. 46/1) and open the water removal valve (Fig. 46/2).

20. Switch on the machine via the green "Operation ON" pushbutton. The green button will be illuminated.



Fig. 47: Rinsing out deposits

21. Insert the rinsing hose into the pressure flange and rinse out remaining deposits (Fig. 47).

Cleaning the mortar hose

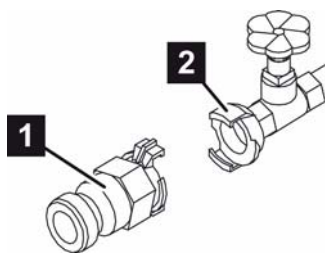


Fig. 48: Plaster component

22. Connect the plaster component (Fig. 48/1) to the mortar pressure connection (Fig. 48/2).

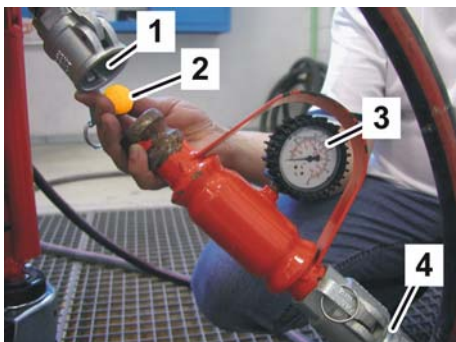


Fig. 49: Connecting the mortar hose

23. Introduce the water-soaked sponge ball (Fig. 49/2) into the mortar manometer (Fig. 49/3).
24. Connect the mortar hose (Fig. 49/4) with the mortar pressure manometer (Fig. 49/3) to the plaster component (Fig. 49/1).



Fig. 50: Air nozzle pipe and plaster nozzle

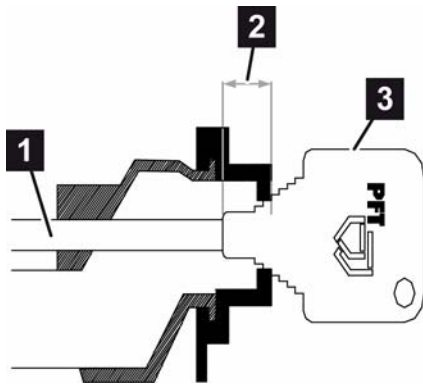
Adjust the air nozzle pipe clearance

Fig. 51: Air nozzle pipe clearance

25. Remove air nozzle pipe (Fig. 50/3) and fine plaster nozzle (Fig. 50/1) from the sprayer (Fig. 50/2).
26. Open the water removal valve until the sponge ball escapes at the fine plaster device. Repeat this process until the hose is clean.
27. If there are different hose diameters then the hoses must be cleaned separately with the appropriate sponge balls.
28. If there is heavier fouling repeat this process.
29. Knock the air nozzle pipe (Fig. 50/3) free with the rasp.
30. Switch on the compressor and blow out the air nozzle pipe.

31. Use the supplied gauge (Fig. 51/3) to correctly adjust the air nozzle pipe distance (Fig. 51/2).



The distance between air nozzle pipe and plaster nozzle must correspond to the hole diameter of the plaster nozzle; for example: 14 mm (0.55 inch) fine plaster nozzle = distance of 14 mm (0.55 inch).

32. Switch off the machine (main switch on position "O").

6.7 Measures if there is danger of freezing

NOTICE

Damage due to freezing!

Water that expands inside the machine at freezing temperatures can significantly damage the machine.

Never operate the machine at ambient temperatures below 2 °C (35,6 °F)!

Execute the following steps when the machine is at a standstill and there is danger of freezing:

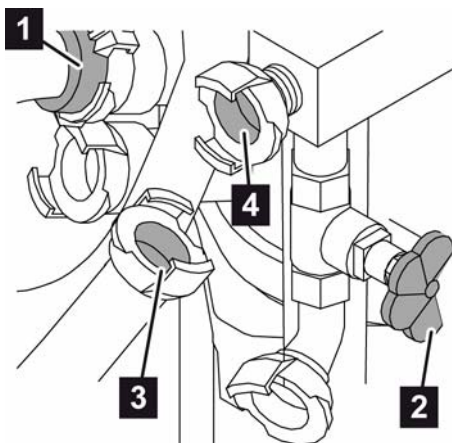


Fig. 52: Water removal

1. Disconnect the water feed from the mixing pipe. To accomplish this, disconnect the hose from the upper water duct (Fig. 52/1) on the mixing pipe.
2. With the external water supply still connected, briefly press the green "Operation ON" pushbutton 2 to 3 times to remove the remaining water from the pump unit.
3. Close the external water supply.
4. Open the water removal valve (Fig. 52/2).
5. Drain the water.
6. Unclamp the water hose (Fig. 52/3) from the water connection (Fig. 52/4) and empty the hose.

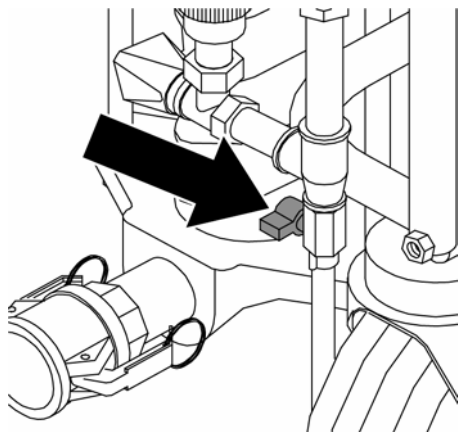


Fig. 53: Drain cock

7. Open the drain cock (Fig. 53/arrow) on the water fitting.

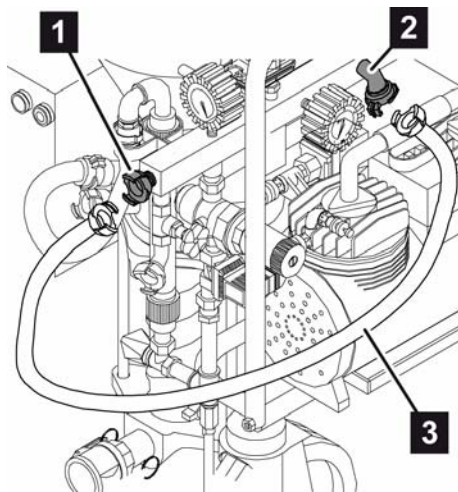


Fig. 54: Air hose

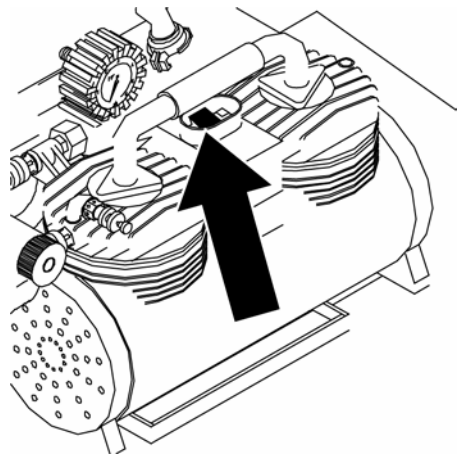


Fig. 55: Switching the compressor on

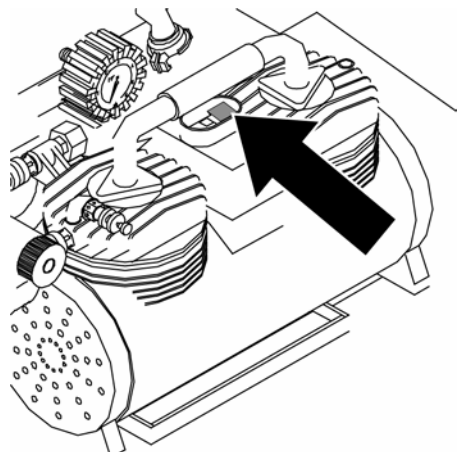



Fig. 56: Switching the compressor off

8. Remove air hose (Fig. 54/3) on the sprayer.
9. Fasten the hose on the water inlet (Fig. 54/1) and on the outlet of the air fitting (Fig. 54/2).
10. Close all water valves.
11. Switch on the machine (main switch on position "I").
12. Switch on the compressor via the black button (Fig. 55/arrow).
13. Press the button  ("Water flow on").
The water will now blow out of the fitting with compressed air.
(For approximately 1 minute at 1.5 bar [21.8 psi])
14. Open all water valves and again blow out with compressed air.
15. Switch off the compressor via the red button (Fig. 56/arrow).
16. Switch off the machine. Main switch in position "O".

6.8 Shutdown in emergency situations

Shutdown in emergency situations

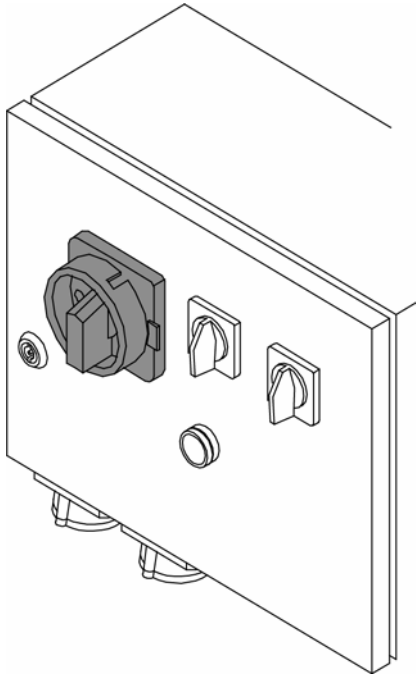


Fig. 57: Main switch

In case of an emergency, machine movements must be stopped immediately and the energy supply must be switched off.

In case of an emergency, proceed as follows:

1. Immediately switch off the main switch (Fig. 57) which also serves as EMERGENCY STOP.
2. Safeguard the main switch from being switched on again.
3. Inform the responsible parties at the implementation site.
4. Notify emergency services as needed.
5. Get persons out of the danger zone, initiate first-aid measures.
6. Keep entry ways clear for rescue vehicles.

After the rescue measures

7. Depending on the seriousness of the emergency situation, inform the responsible government agencies.
8. Assign specialized personnel to resolve the malfunction.

WARNING! Life-threatening danger if machine is restarted without authorization. Prior to restarting the machine ensure that no one is in the danger zone.

9. Prior to starting up the machine again check and ensure that all safety devices are installed and functioning.

7 Troubleshooting

Possible causes for operational issues/problems and the tasks to correct these issues are described in this chapter.

If operational issues occur more frequently, the maintenance intervals must be shortened in accordance with the actual usage of the machine.

Contact the manufacturer if there are issues that cannot be corrected by following the instructions below; see the service address on page 2 of this Operating Manual.

7.1 Safety

Personnel

- The troubleshooting described herein can be executed by the operator unless otherwise indicated within this Operating Manual.
- Some tasks should only be executed by especially trained, specialized personnel, or exclusively by the manufacturer; specific reference will be made in each case in the description of the respective troubleshooting tasks.
- Only certified electricians should perform work on the electrical equipment.

Personal protective equipment

Wear the following protective equipment for all troubleshooting work:

- Protective work clothing
- Protective goggles
- Protective gloves
- Safety footwear

WARNING

Injury hazard due to insufficient qualification!

Not being aware of potential risks during troubleshooting may result in property damage, serious injury or even death.

Troubleshooting and repair work shall only be executed by personnel being qualified, trained and authorized in this respect. When in doubt, always contact the manufacturer!

WARNING

Injury hazard posed by improper troubleshooting!

Prior to starting work, ensure that there is adequate space for installation. Ensure order and cleanliness at the installation location! Loose parts and tools are accident hazards!

If components have been removed, ensure that they are properly re-installed, that all fastening elements are re-installed, and that all threaded connections are tightened with appropriate torque.

⚠ DANGER

Life-threatening danger due to electric shock!
There is a life-threatening hazard when touching live components. Prior to starting work switch off the power supply and safeguard it from being re-started.


⚠ WARNING

Danger of injury if switched on again without authorization!
When troubleshooting there is danger of the energy supply being switched on without authorization.
Switched-on electrical components can move unexpectedly and can cause serious injuries or even death.
Pressure might be built up accordingly.
Both poses an injury hazard for persons in the danger zone.
Prior to starting work switch off the machine and safeguard it from being switched on again.

Troubleshooting guidelines

The following always applies:

- 1.** For operational issues that pose a direct danger for personnel and/or property immediately execute the EMERGENCY-STOP function.
- 2.** Determine the cause of the problem.
- 3.** If correction of the problem requires work in the danger zone, switch off the machine and safeguard it against being restarted.
- 4.** Immediately inform the responsible parties at the installation site as defined in the owner's operating instructions.
- 5.** Depending on the type of problem, either have authorized specialized personnel correct the issue, or correct it yourself.

 The troubleshooting table provided below lists personnel being authorized to correct the fault.

7.2 Fault indications

Fault indications

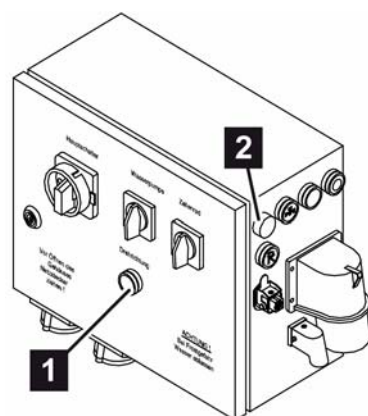


Fig. 58: Fault indicator lights

The following devices indicate operational issues:

Pos.	Warning signal	Description
1	Indicator light – yellow (Fig. 58/1)	Is illuminated if the sense of motor rotation is wrong. Is illuminated if a phase is missing in the feed line.
2	Indicator light – red (Fig. 58/2)	Is illuminated if the motor protection switch is faulty.

7.3 Troubleshooting table

Problem	Possible cause	Corrective action	to be corrected by
Machine does pump water	Insufficient water pressure	Check the water feed line, clean the debris collector sieves (see chapter "Maintenance" in this Operating Manual)	Operator
	Manometer shows less than 2.2. bar	Switch on the booster pump	Operator
Machine does not have electricity	Power supply line not functioning	Repair the electric power supply line	Certified electrician
	Main switch not switched on	Switch on the main switch	Operator
	Residual current operated circuit breaker has tripped	Reset the residual current operated circuit breaker	Certified electrician
	Indicator light yellow, fault sense of rotation is illuminated	Change the sense of rotation, on the main reversing switch, push the metal bracket in the opposite direction (see chapter "Switching on and starting up" in this Operating Manual)	Operator
	Motor protection switch tripped	On the control panel turn the motor protection switch to position 1	Service technician
	"Operation ON" button not pressed	Press button "Operation ON"	Operator
	Contactor defective	Replace the contactor	Certified electrician
	Fuse defective	Replace fuse	Service technician
	Water safety switch incorrectly set	Adjust the water safety switch	Service technician
Machine does not supply air	Pressure drop in the remote control is insufficient due to blocked air line or air nozzle pipe	Clean the blocked air line or air nozzle pipe (see chapter "Maintenance" in this Operating Manual)	Operator
	Air-safety switch incorrectly set	Adjust the air-safety switch	Service technician

Problem	Possible cause	Corrective action	to be corrected by
Machine does supply mortar	Too much thickened material in the hopper or mixing zone	Empty half of the hopper and start up the machine again	Operator
	Material in the pump component is too dry	Run the machine in reverse, or remove and clean the pump	Service technician
Mo water running (flow meter shows nothing)	Solenoid valve (bore in the diaphragm is blocked)	Clean the solenoid valve	Service technician
	Magnetic coil defective	Replace the magnetic coil	Service technician
	Pressure reducer valve is closed	Open the pressure reducer valve	Operator
	Water inlet on the pump pipe is blocked	Clean the water inlet on the pump pipe (see chapter "Maintenance" in this Operating Manual)	Operator
	Needle valve closed	Open needle valve	Operator
	Cable to the solenoid valve is defective	Replace cable to the solenoid valve	Service technician
Pump motor does not start up	Pump motor defective	Replace pump motor	Service technician
	Connecting cable defective	Replace the connecting cable	Certified electrician
	Plug or attached outlet is defective	Replace plug or attached outlet	Service technician
	Motor protection switch is defective or has tripped	Replace or reset the motor protection switch	Certified electrician
Machine stops after a short time	Debris collector sieve is fouled	Clean or replace sieve (see chapter "Maintenance" in this Operating Manual)	Operator
	Pressure reducer sieve is fouled	Clean or replace sieve	Service technician
	Hose connection or water line is too small	Enlarge hose connection or water line	Operator
	Water suction line is too long or suction pressure is too weak	If necessary connect a booster pump in series	Service technician

Troubleshooting

Problem	Possible cause	Corrective action	to be corrected by
Machine does not switch off	Air pressure safety switch is incorrectly adjusted or defective	Adjust or replace the air pressure safety switch	Service technician
	Air pressure hose defective or seals are defective	Replace compressed air hose, replace seals or check compressor	Service technician
	Air cock on the sprayer is defective	Replace air cock	Service technician
	Compressor does not supply enough air	Check the compressor	Service technician
	Air line is not connected on the compressor	Connect the air line on the compressor	Operator
Mortar flow interrupted (bubbles)	Poor mixing in the mixing tube	Add more water	Operator
	Material clumps and cuts off the mixing pipe inflow	Add more water or clean or replace the mixing helix	Operator
	Feed hopper on the mixing pipe has become wet	Dry the mixing pipe inlet and start again	Operator
	Mixing helix defective	Replace mixing helix	Operator
	Motor claw defective	Replace the motor claw	Service technician
Mortar flow "thick-thin"	Insufficient water	Increase the water quantity 10% for about 1/2 minute and then slowly adjust downward	Operator
	Water safety switch is incorrectly adjusted or defective	Adjust or replace the water safety switch	Service technician
	Mixing helix defective; not an original PFT mixing helix	Replace mixing helix with an original PFT mixing helix	Operator
	Pressure reducer is incorrectly adjusted or defective	Adjust or replace the pressure reducer	Service technician
	Rotor worn out or defective	Replace rotor	Service technician
	Stator worn out or spring clamp clip is too loosely tensioned	Replace the stator or retighten the clamp clip	Service technician

Problem	Possible cause	Corrective action	to be corrected by
Mortar flow "thick-thin"	Clamp clip defective (oval)	Replace clamp clip	Service technician
	Inner wall of the mortar hose is defective	Replace mortar hose	Operator
	Rotor is too deep in the pressure flange	Replace pressure flange	Service technician
	Replacement parts are not original PFT replacement parts	Use original PFT replacement parts	Service technician
During operation water rises in the mixing pipe	Back pressure in the mortar hose is greater than the pump pressure	Increase tension or replace the stator	Service technician
	Rotor or stator are worn	Replace rotor or stator	Service technician
	Hose is blocked by mortar that is too thick (higher pressure due to a low water factor)	Eliminate the hose blocks, increase the water factor	Service technician
Indicator light red, fault is illuminated	Overload due to pump stalled by dry material	Run the machine in reverse, or remove and clean the pump	Service technician
	Overload due to insufficient water quantity	Increase water feed at start up	Operator
	Motor protection switch "Pump motor" (16 A) has tripped	Switch on the protection switch again	Service technician
	Motor protection switch "Cellular wheel" has tripped	Switch on the protection switch again	Service technician
	Overload due to compressed material in the hopper	Clean hopper and cellular wheel	Service technician

7.4 Troubleshooting work

7.4.1 Eliminating hose blockage

- To be performed by a service technician only.
- Additionally required protective equipment:
 - Face protection

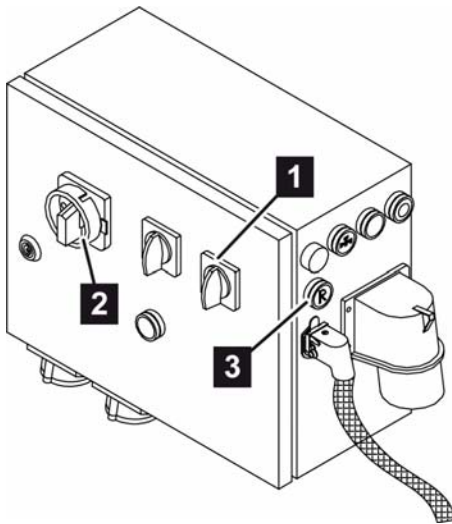


Fig. 59: Switching off cellular wheel motor

DANGER! Injury hazard through spraying mortar! When loosening blocked hoses mortar can escape under high pressure and cause severe eye injuries or injuries to other parts of the body. Use face protection equipment when opening parts that are under pressure.

1. Switch off the cellular wheel motor (Fig. 59/1).
2. Let the pump motor run backwards briefly, to do this throw over the main reverse switch (Fig. 59/2) (indicator light "Change sense of rotation" will be illuminated).
3. Cover the area from the pressure flange to the mortar hose with foil.
4. Press the blue pushbutton (Fig. 59/3) "Pump motor reverse" (water supply will be interrupted automatically), until the pressure on the mortar pressure manometer drops to 0.
5. Lightly loosen the nuts on the tension rod (Fig. 60/arrows) so that any residual pressure can completely dissipate.
6. Loosen the hose coupling and clean the hose.
7. Introduce a water hose into the mortar hose and rinse out the residual mortar.
(For how to clean the mortar hose, see chapter "Cleaning" under "Operation" in this Operating Manual)

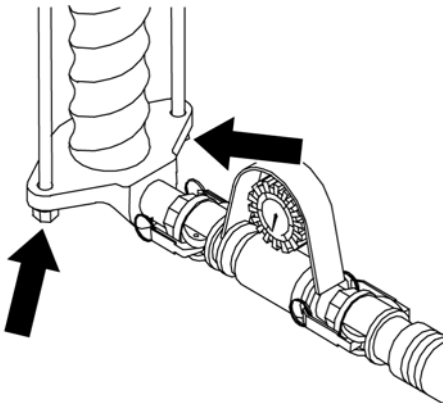


Fig. 60: Loosen the tension rod nuts

7.4.2 Measures in the event of power failure

- To be performed by a service technician only.

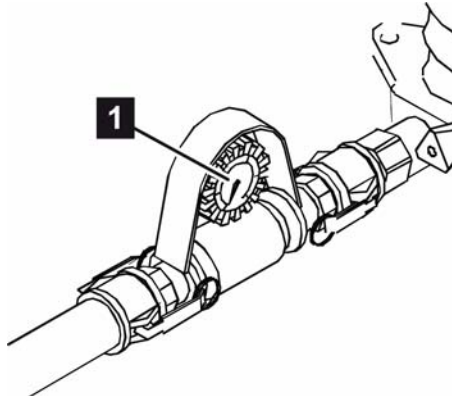


Fig. 61: Check mortar pressure

DANGER! Excess pressure on the machine!

When opening machine components these components can unexpectedly fly open and seriously injure the operator.

Only open the machine if the pressure has dropped to 0.

1. On the mortar pressure manometer (Fig. 61/1) check whether mortar pressure has dropped to 0 bar. If necessary, dissipate mortar pressure by opening all cocks on the sprayer.
2. Clean mortar hoses immediately
(For how to clean the mortar hose, see chapter "Cleaning" under "Operation" in this Operating Manual).
3. First lightly loosen the tension rod bolts (Fig. 62/1) then completely unscrew them from the tension rod.
4. Push the rotor (Fig. 62/2) out of the stator (Fig. 62/3) and clean it.
5. Clean the pressure flange (Fig. 62/4) or agitator (ROTOMIX or ROTOQUIRL).
6. Clean the mixing zone and mixing helix with water and spatula.
7. Completely reassemble the pump.

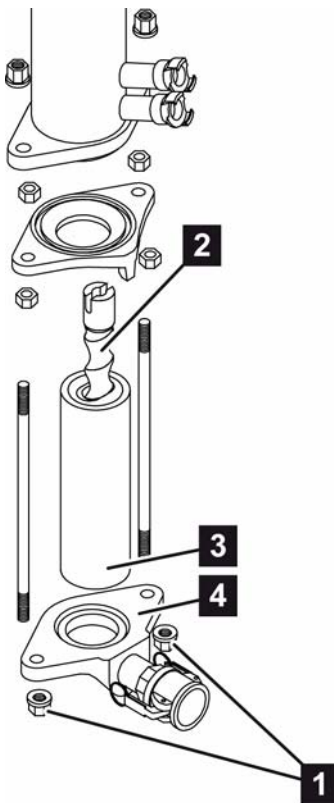


Fig. 62: Cleaning the pump

7.4.3 Measures if the water supply fails

Supply the machine with clean water that is free of solids via the suction basket (to be ordered under item number: 00 00 69 06) and booster pump (to be ordered under item number: 20 47 60 10).

8 Maintenance

8.1 Safety

Personnel

- The maintenance work described herein can be executed by the operator unless otherwise indicated.
- Some maintenance tasks should only be executed by especially trained, specialized personnel, or exclusively by the manufacturer; specific reference will be made in each case in the description of the respective maintenance task.
- Only certified electricians should perform work on the electrical equipment.

Personal protective equipment

Wear the following protective equipment for all maintenance work:

- Protective work clothing
- Protective goggles
- Protective gloves
- Safety footwear

DANGER

Life-threatening danger due to electric shock!

There is a danger to life when touching or coming into contact with live components. Running electrical components can move unexpectedly and can cause serious injuries or possibly death. Prior to starting work, switch off the power supply and safeguard it from being re-started.

WARNING

Injury hazard due to improperly executed maintenance work!

Prior to starting work, ensure that there is adequate space for installation. Ensure order and cleanliness at the installation location! Loose parts and tools are accident hazards! If components have been removed, ensure that they are properly re-installed, that all fastening elements are re-installed, and that all threaded connections are tightened with the applicable torque.

Environmental protection

When performing maintenance work, comply with the following instructions for environmental protection:

- Wherever applying lubricants by hand, remove escaping, used, or excess grease, and dispose of it in accordance with the applicable rules and regulations.
- Collect used oil in suitable containers and dispose of it in accordance with all applicable rules and regulations.

8.2 Cleaning

NOTICE

Water can penetrate into sensitive machine parts!

Prior to cleaning the machine, cover all openings that should be protected against water penetration for safety and proper functioning (e.g., electric motors and control panels).

After cleaning, completely remove covers.

- The material container can be cleaned with a water hose after it is completely empty.
- Only clean the exterior machine parts with a damp cloth.

8.3 Maintenance schedule

Maintenance tasks that are required for optimal and trouble-free operation are described in the sections below.

If increased wear is detected during regular inspections, shorten the required maintenance intervals according to the actual indications of wear.

Contact the manufacturer, if you have questions concerning maintenance tasks and intervals.

(For the service address see page 2 of this Operating Manual.)

Interval	Maintenance task	To be executed by
Daily	Clean/replace the brass sieve in the water inlet.	Operator
Weekly	Knock off/replace the filter of the compressor.	Operator
Every 2 weeks	Clean/replace the debris collector sieve in the pressure reducer.	Operator

8.4 Maintenance tasks

8.4.1 Clean the brass sieve

■ To be performed by the operator.

1. Take the brass sieve (Fig. 63/1) out of the water inlet.
2. Clean the sieve.
3. Replace sieve if there is heavy fouling.
4. Reinsert the cleaned sieve or insert new sieve.

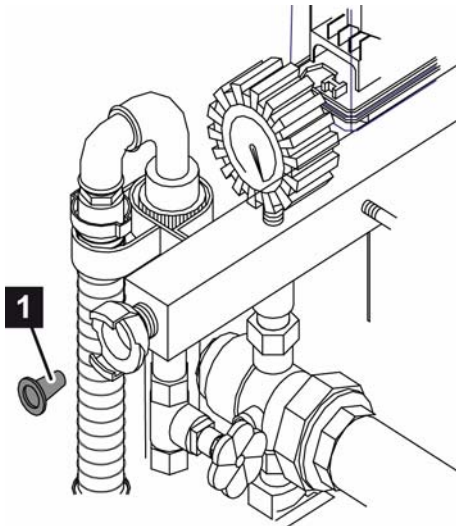


Fig. 63: Brass sieve in the water inlet

8.4.2 Clean the compressor filter

■ To be performed by the operator.

1. Open the filter cover (Fig. 64/1).
2. Remove and knock off the filter (Fig. 64/2).
3. Replace filter if there is heavy fouling.
4. Insert filter with the rough filter side facing inside.
5. Close the filter cover.

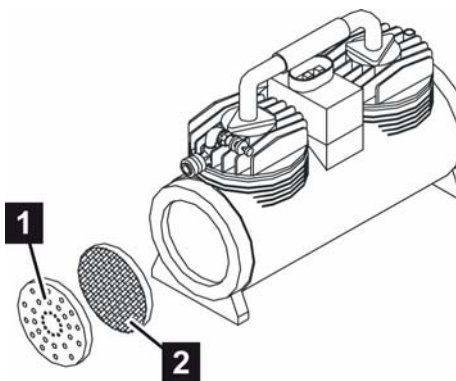


Fig. 64: Compressor filter

8.4.3 Clean the debris collector sieve

■ To be performed by the operator.

1. Unscrew the pressure reducer's screw plug (Fig. 65/1).
2. Take out the debris collector sieve (Fig. 65/2) and clean it
3. Replace debris collector sieve if there is heavy fouling.
4. Insert the debris collector sieve and screw in the plug screw.

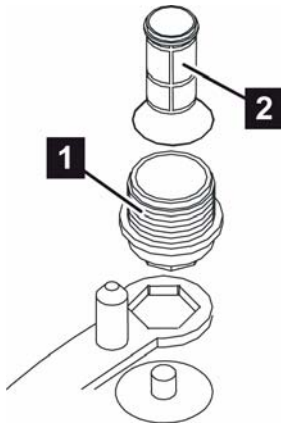


Fig. 65: Debris collector sieve

8.4.4 Check the set values of the pressure switch

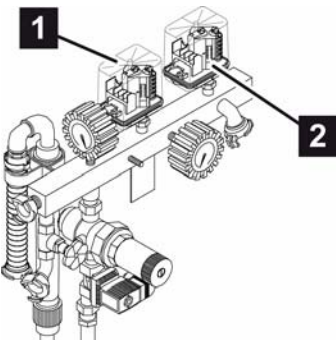


Fig. 66: Position of the pressure switches

- To be performed by a service technician.
If problems occur at an increasing rate the pressure switch should be readjusted.

- 1 Pressure switch – water
- 2 Pressure switch – air

Pressure switch air and water

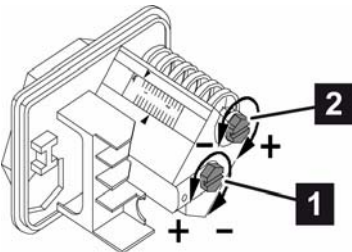


Fig. 67: Adjusting the pressure switch

	Switch on the machine (Fig. 67/1, red)	Switch off the machine (Fig. 67/2, green)
Water	2.2 bar (31.9 psi)	1.9 bar (27.6 psi)
Air	1.5 bar (21.8 psi)	1.9 bar (27.6 psi)

Pressure switch - compressor

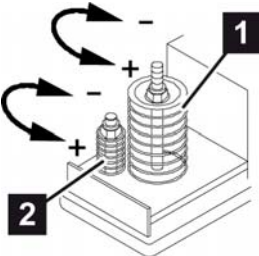


Fig. 68: Adjusting the pressure switch

	Switching on the compressor (Fig. 68/1)	Switching off the compressor (Fig. 68/2)
Compressor	2.5 bar (36.3 psi)	3.1 bar (45 psi)

Safety valve - compressor

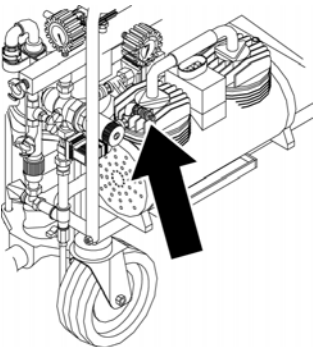


Fig. 69: Safety valve (1)

- Check to ensure that the safety valve (Fig. 69/arrow) opens at 4.0 bar (58 psi) against a completely closed air line.

8.4.5 Check pressure and set values

Pressure reducer valve

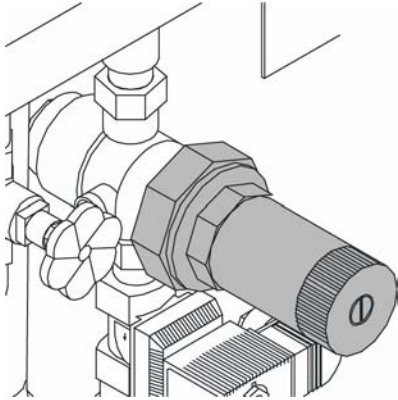


Fig. 70: Pressure reducer valve

- Adjust a pressure of 1.9 bar (27.6 psi) at maximum passage on the pressure reducer valve (Fig. 70).

Adjust the air nozzle pipe clearance

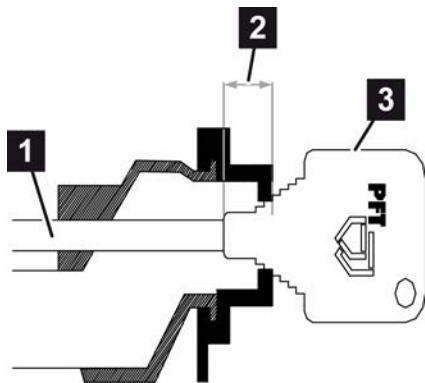



Fig. 71: Air nozzle pipe clearance

- Adjust the air nozzle pipe (Fig. 71/2) clearance with the supplied gauge (Fig. 71/3).

 The distance between the air nozzle pipe and the plaster nozzle must correspond to the hole diameter of the plaster nozzle; for example: 14 mm (0.55 inch) fine plaster nozzle = distance of 14 mm (0.55 inch).

Cellular wheel

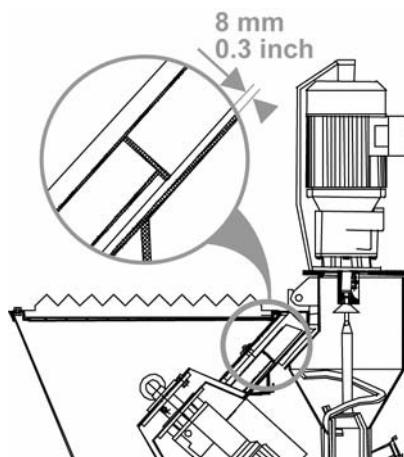



Fig. 72: Cellular wheel


- Distance from cellular wheel to hopper floor (Fig. 72): Factory set at approximately 8 mm (0.3 inch).


 Rule of thumb: 1.5 times the diameter of the largest grain of factory dry-mix mortar. If needed the cellular wheel spacer disk (to be order under the item no. 20 10 19 00) can be installed for coarse grain plaster.

8.4.6 Check delivery pressure and back pressure

- To be performed by the operator.
- Special tools required:
 - PFT pressure tester with coupling and drain cock (to be order under the item no. 20 21 68 10)

Delivery pressure and back pressure can be checked to determine whether the pump is damaged and therefore does not supply the required capacity. If the values specified here are not reached then the pump must be replaced.

 For a pump with clamp clip (optional) it may be sufficient to retighten the clamp clip.

 If the stator or rotor have been newly inserted then an initial spray process must be executed before the test. Stator and rotor must first run in.

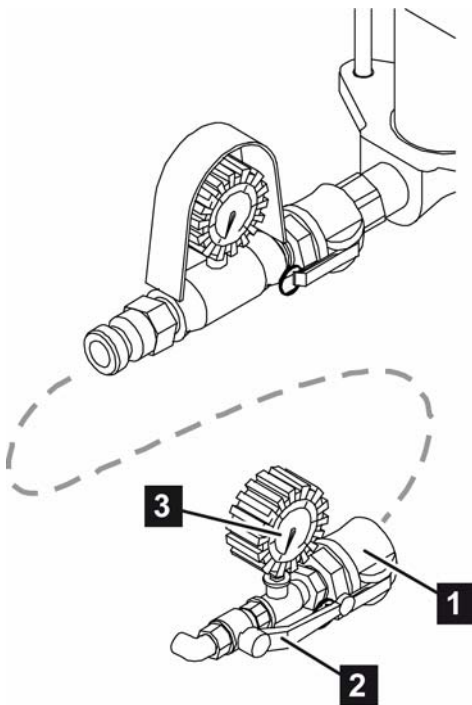



Fig. 73: Coupling the PFT pressure tester

1. Be sure that power and water are connected. (If not, see chapter "Preparation" in this Operating Manual).
 2. Connect 10 m (33 ft) mortar hose.
 3. Couple the PFT pressure tester (Fig. 73/1) to the end of the mortar pressure hose.
 4. Open the drain cock (Fig. 73/2) on the PFT pressure tester.
-  Do not introduce any mortar into the system for the test. The test is executed exclusively with water. Ensure that mortar couplings are correctly connected.
5. Switch on the machine and let the water run until it escapes at the PFT pressure tester (vent the mortar hose).
 6. Close the drain cock (Fig. 73/2) on the PFT pressure tester. The pump will now build up pressure against the closed drain cock on the PFT pressure tester. Let the pump run until the pressure no longer increases.
 7. Check the delivery pressure on the manometer (Fig. 73/3) of the PFT pressure tester. It should show approximately 30 bar (435 psi)!

8. Switch off the machine.

Now the pump should seal and retain the pressure in the mortar hose. However, if the augur is improperly positioned in the jacket then the water will flow back into the container with a noticeable gurgling sound. If this happens, switch on the machine again.

You may have to switch the machine on and off several times to find the position in which the pump seals.

9. Check the back pressure on the manometer (Fig. 73/3) of the PFT pressure tester. The back pressure should be maintained at approximately 14 bar (203 psi) for the first several minutes after switching off.
10. Open the the drain cock on the PFT pressure tester.
11. Remove the test equipment.

8.5 Measures after successful maintenance

WARNING

Injury hazard posed by incomplete maintenance work!

Improperly executed maintenance and repair work may result in property damage, serious injury or even death.

Maintenance and repair work shall only be executed as described herein. When in doubt, always contact the manufacturer! Maintenance and repair work are not complete until the machine is being checked for the following:

1. Check all previously loosened threaded connections for firm fit.
2. Ensure that all previously removed protective devices and covers have been properly installed.
3. Ensure that all tools, materials, and other equipment has been removed from the work area.
4. Clean the work area and remove any substances that may have escaped, such as liquids, processing material, or similar items.
5. Ensure that all safety devices are again functioning properly!

9 Dismantling

At the end of the machine's service life, the machine must be dismantled and disposed of in an environmentally responsible manner.

9.1 Safety

Personnel

- Only trained, specialized personnel should perform dismantling work.
- Only certified electricians should perform work on the electrical equipment.

WARNING

Improper dismantling poses an injury hazard!

Stored residual energy, sharp-edged components, points and corners on and in the machine, or on the necessary tools can cause serious injuries.

Prior to starting work, ensure that there is adequate space.

Handle open, sharp-edged components carefully.

Ensure order and cleanliness at the workstation!

Loose parts and tools are accident hazards!

Dismantle components properly.

Pay attention to the high dead weight of the components.

Use hoist equipment if necessary. Secure the components so that they do not fall down or fall over.

Consult with the manufacturer if there are questions.

DANGER

Life-threatening danger due to electric shock!

There is a danger to life when touching live components.

Switched-on electrical components can move unexpectedly and can cause serious injuries. Prior to dismantling the machine switch off the electrical supply and permanently disconnect it.

9.2 Dismantling of the machine

For sorting, clean the machine and dismantle it in compliance with applicable industrial safety and environmental protection guidelines.


Prior to disassembling:

- Switch off the machine and safeguard it from being restarted.
- Physically disconnect the machine from all energy supplies; discharge stored residual energy.
- Remove fuels, auxiliary materials, or residual processing materials and dispose of these items in an environmentally responsible manner.

9.3 Disposal

NOTICE

Improper disposal may cause environmental damage! Electrical scrap and electronic components, lubricants, and other auxiliary materials are subject to treatment as special waste. These materials should only be disposed of by specialized disposal companies!

 Local municipal authorities or specialized disposal companies provide information on environmentally responsible disposal.

If no return or disposal contract is in place, recycle dismantled components in the following manner:

- Scrap metals.
- Recycle plastic elements.
- Sort and dispose of the remaining components in accordance with material condition.

10 Replacement part lists

10.1 Material container and frame

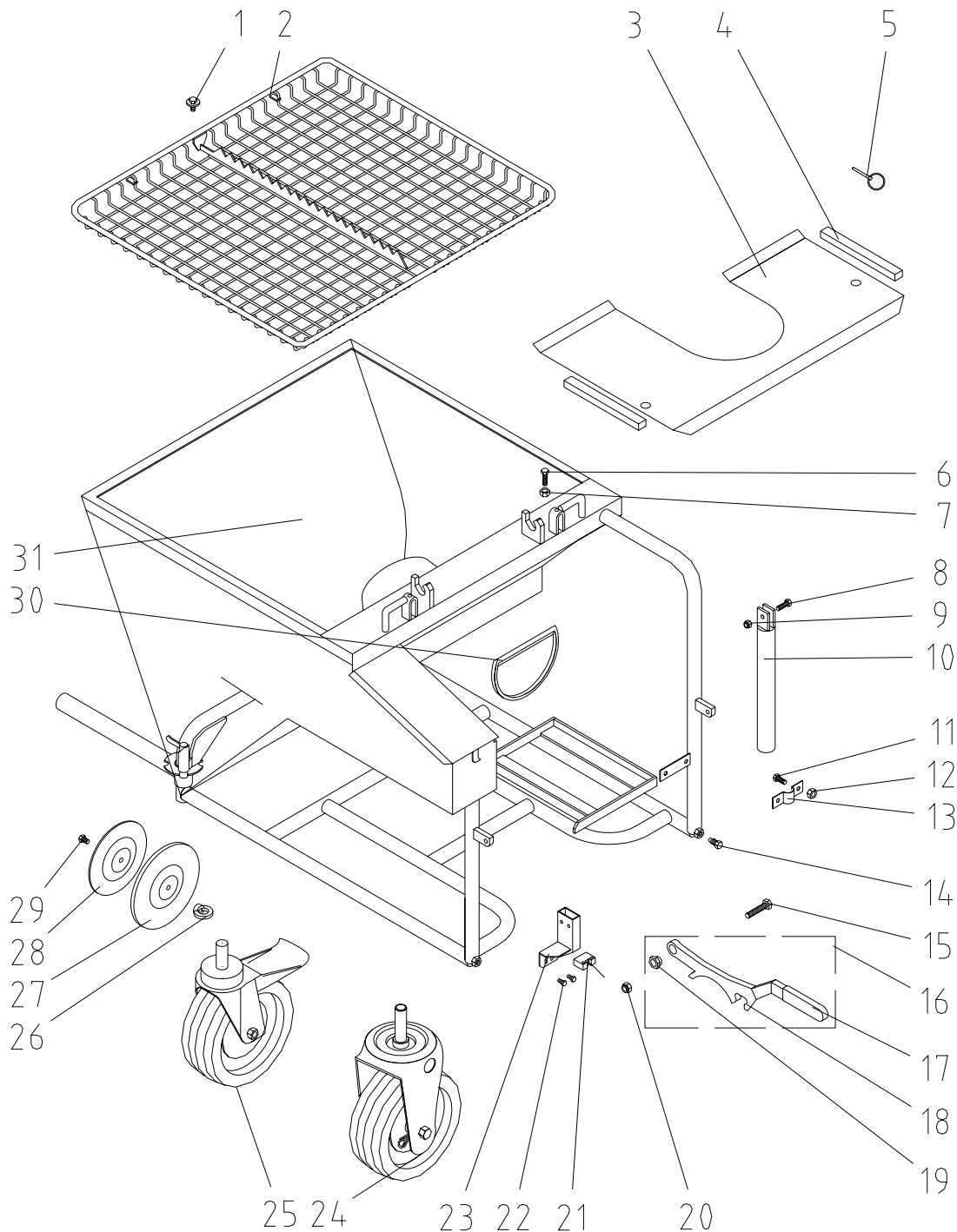


Fig. 74: Replacement part drawing – material container and frame

Pos.	Quantity	Item no.	Designation
1	1	20 20 78 19	Hex bolt M8 x 16 with collar
2	1	00 00 21 13	Protective grill with tubular steel frame
3	1	00 00 13 40	Anti-dust sheet G 4 RAL 2004
4	2	20 10 28 06	Rubber support strips 20x15x200 single-side adhesive coating
5	2	20 10 10 10	Cotter pin D 4.5 with ring
6	2	20 20 78 10	Hex bolt M 8 x 25 DIN 933 galvanized
7	2	20 20 64 00	Hex nut M 8 DIN 934 galvanized
8	2	20 20 78 00	Hex bolt M 8 x 30 DIN 933 galvanized
9	2	20 20 72 00	Lock nut M8 DIN 985 galvanized
10	2	20 10 31 10	Fold away carrying handle 340 mm
11	2	20 20 61 00	Hex bolt M 8 x 20 DIN 933 galvanized
12	2	20 20 64 00	Hex nut M 8 DIN 934 galvanized
13	1	20 10 26 10	Fastening clamp - water fitting G4 galvanized
14	4	20 20 96 02	Hex bolt M10 x 20 DIN 561 galvanized (setscrew)
15	1	20 20 96 01	Hex bolt M10 x 45 DIN 933 galvanized
16	1	00 01 13 86	Arresting lever G 4 with rubber cap RAL2004
17	1	00 01 04 62	Plastic handle 25x12 arresting lever
18	1	00 00 25 84	Arresting lever G 4 1 latch RAL2004
19	1	00 08 80 29	Eccentric bush MS for G 4 arresting lever
20	1	20 20 72 10	Lock nut M 10 DIN 985 galvanized
21	1	00 05 79 91	Magnet/safety sensor
22	2	20 20 71 16	Hex bolt M6 x 12 DIN 933 galvanized
23	1	00 08 42 63	Holder limit switch material container G 4/G 5 ULC RAL2004
24	3	00 00 11 63	Steering roller 230 mm black cover
25	1	00 00 11 64	Double stop - steerable castor 230 mm black cover
26	1	20 20 79 50	Ring nut M8 DIN 582 galvanized
27	1	20 10 14 01	Cover cleaning opening (exterior)
28	1	00 00 23 58	Sealing disk cleaning opening D=173 mm
29	1	20 20 78 01	Hex bolt M 8 x 16 DIN 933 galvanized
30	1	20 10 11 00	Seal drain opening G 4 sponge rubber 20 x 15 x 670
31	1	20 10 33 00	Material container with frame G 4

10.1.1 Cellular wheel

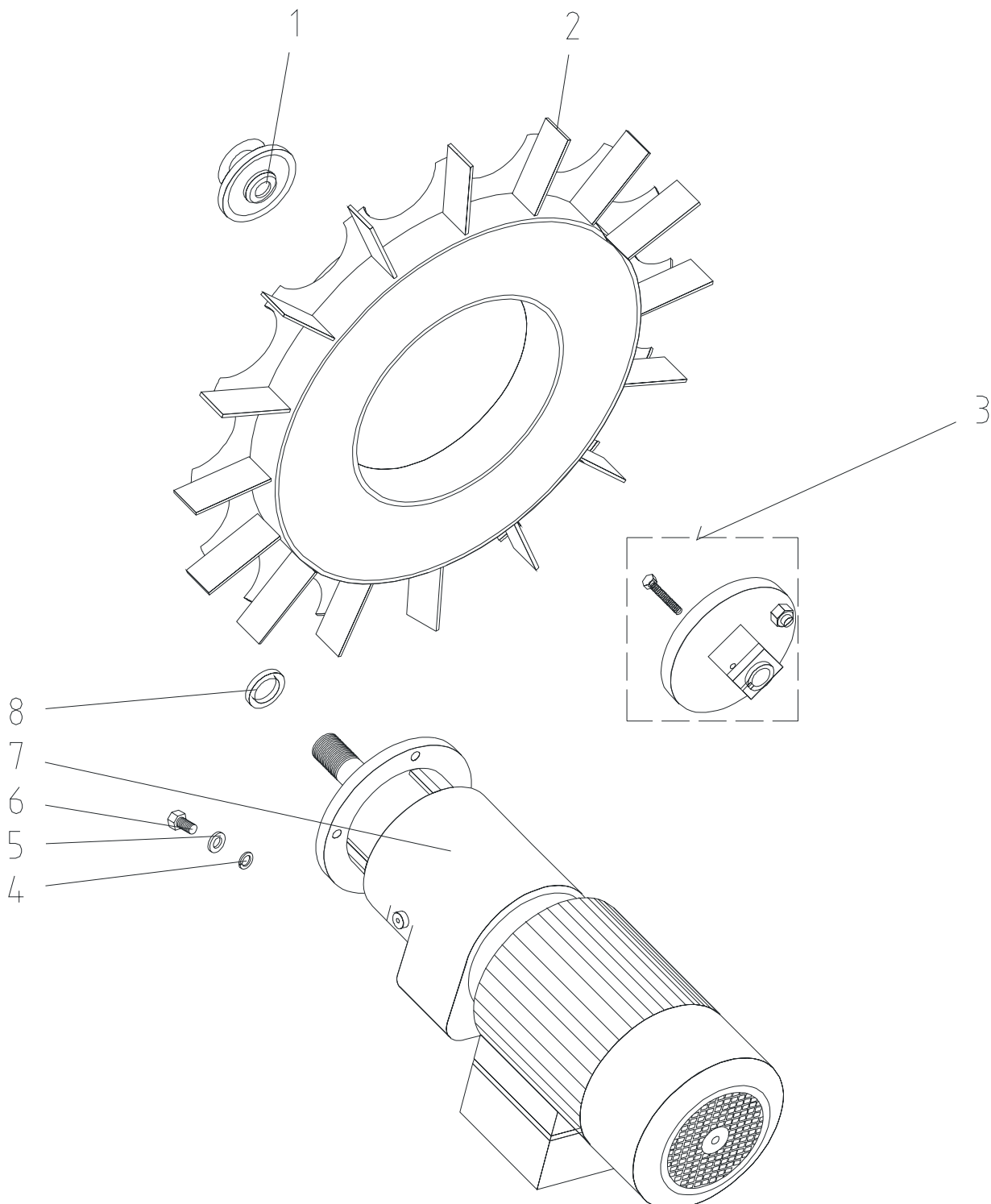


Fig. 75: Replacement part drawing – cellular wheel

Pos.	Quantity	Item no.	Designation
1	1	00 07 27 90	Cellular wheel nut M24 galvanized
2	1	20 10 15 00	Cellular wheel G 4
3	1	20 10 18 10	Cellular wheel fastening plate
4	4	20 20 91 10	Spring ring B 12 DIN 127 galvanized
5	4	20 20 90 00	U-washer B 13 DIN 125 galvanized
6	4	20 20 99 61	Hex bolt M12 x 20 DIN 933 galvanized
7	1	00 07 18 52	Gear motor ZFQ38 0.75KW 31 rpm 230/400V 60Hz RAL2004
8	1	20 10 15 02	Spacer disk cellular wheel 1.5 mm galvanized

10.2 Mixing pipe and gear motor

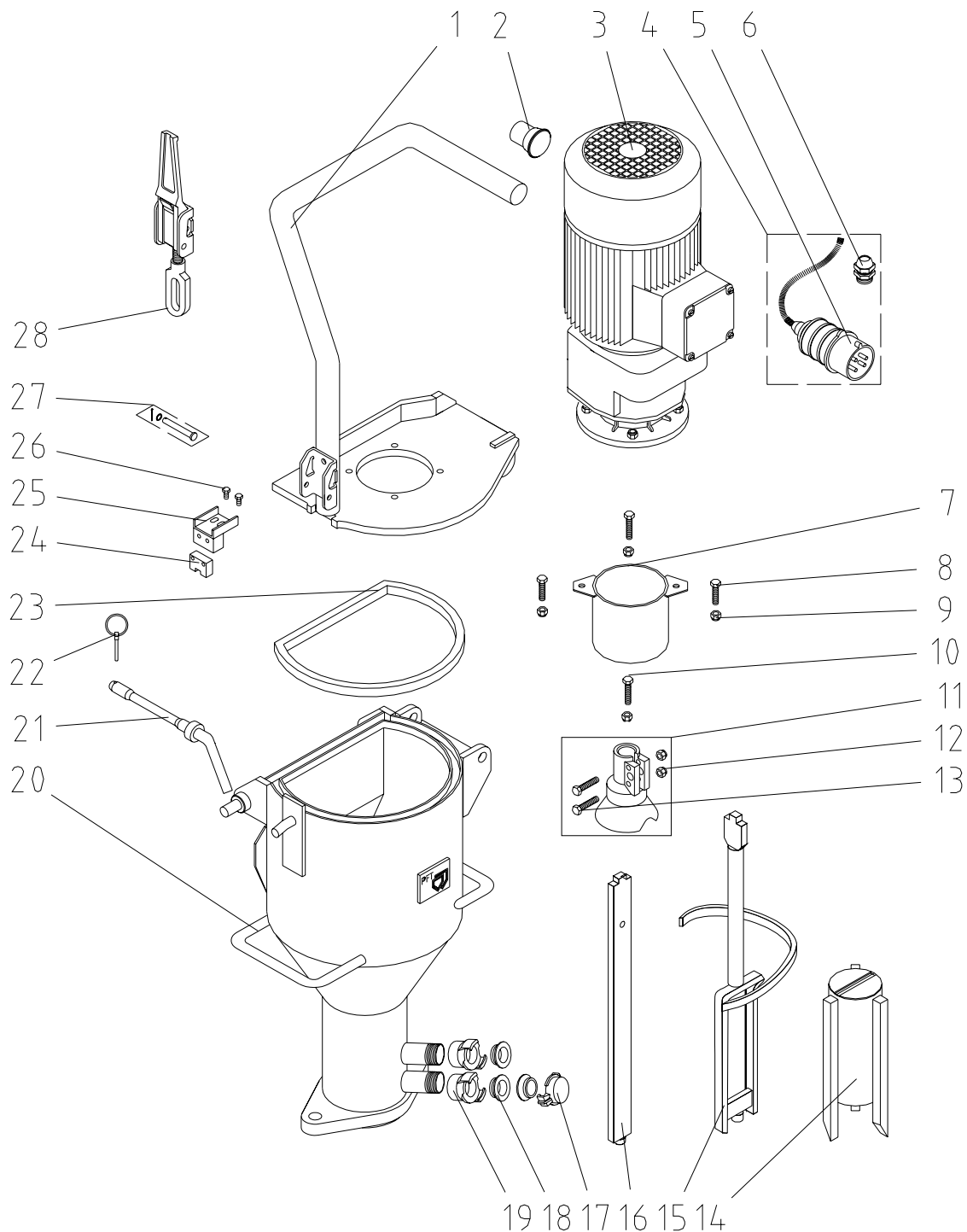


Fig. 76: Replacement part drawing mixing pipe and gear motor

Pos.	Quantity	Item no.	Designation
1	1	00 04 76 21	Tilt flange G 54 with pipe bracket RAL2004
2	1	00 04 80 15	Sealing cap PVC 1" (round, black)
3	1	00 05 36 36	Gear motor ZF38 5.5kW 381 rpm 60Hz RAL2004
4	1	20 42 41 22	Motor connection cable 1.9 m CEE connector 4x 32A 9h blue ring bolt 5 mm
5	1	20 42 76 02	CEE connector 4 x 32A 9h blue no. 263
6	1	00 00 22 97	Skintop gland PG 21
7	1	20 10 29 01	Protective tube for driver claw G4
8	2	20 20 78 00	Hex bolt M 8 x 30 DIN 933 galvanized
9	4	20 20 72 00	Lock nut M8 DIN 985 galvanized
10	2	20 20 78 01	Hex bolt M 8 x 35 DIN 933 galvanized
11	1	00 06 18 58	Driver claw cast G4 with round catch funnel
12	2	20 20 72 00	Lock nut M8 DIN 985 galvanized
13	2	00 02 32 71	Hex bolt M 8 x 40 DIN 931 galvanized
14	1	20 10 23 20	Mixing pipe cleaner D-pump and R-pump galvanized
15	1	20 10 35 10	Mixing helix G 4/G 5 hardened RAL2004
16	1	00 09 12 89	Cleaner shaft galvanized
17	1	20 20 16 50	Geka coupling blind cover
18	3	20 20 17 00	Seal Geka coupling (PU=50 pcs.)
19	2	20 20 11 00	Geka coupling 1" IT
20	1	20 10 06 50	Mixing pipe with cylinder without tilt flange G 4 with protective bracket
21	1	20 10 12 02	Hinge bolt motor tilt flange galvanized
22	1	20 10 10 10	Cotter pin D 4.5 with ring
23	1	20 10 09 00	Seal tilt flange G4 sponge rubber 20 x 1
24	1	00 05 79 92	Magnetic activator for safety sensor
25	1	00 08 42 65	Holder limit switch an the tilt flange G 4/G 5 ULC RAL2004
26	2	20 20 71 16	Hex bolt M6 x 12 DIN 933 galvanized
27	1	20 20 85 22	Cotter bolt 8 H11 x 58 x 54 with washer
28	1	20 10 08 01	Snap closing with safety lock

10.3 Pump unit and mortar pressure manometer

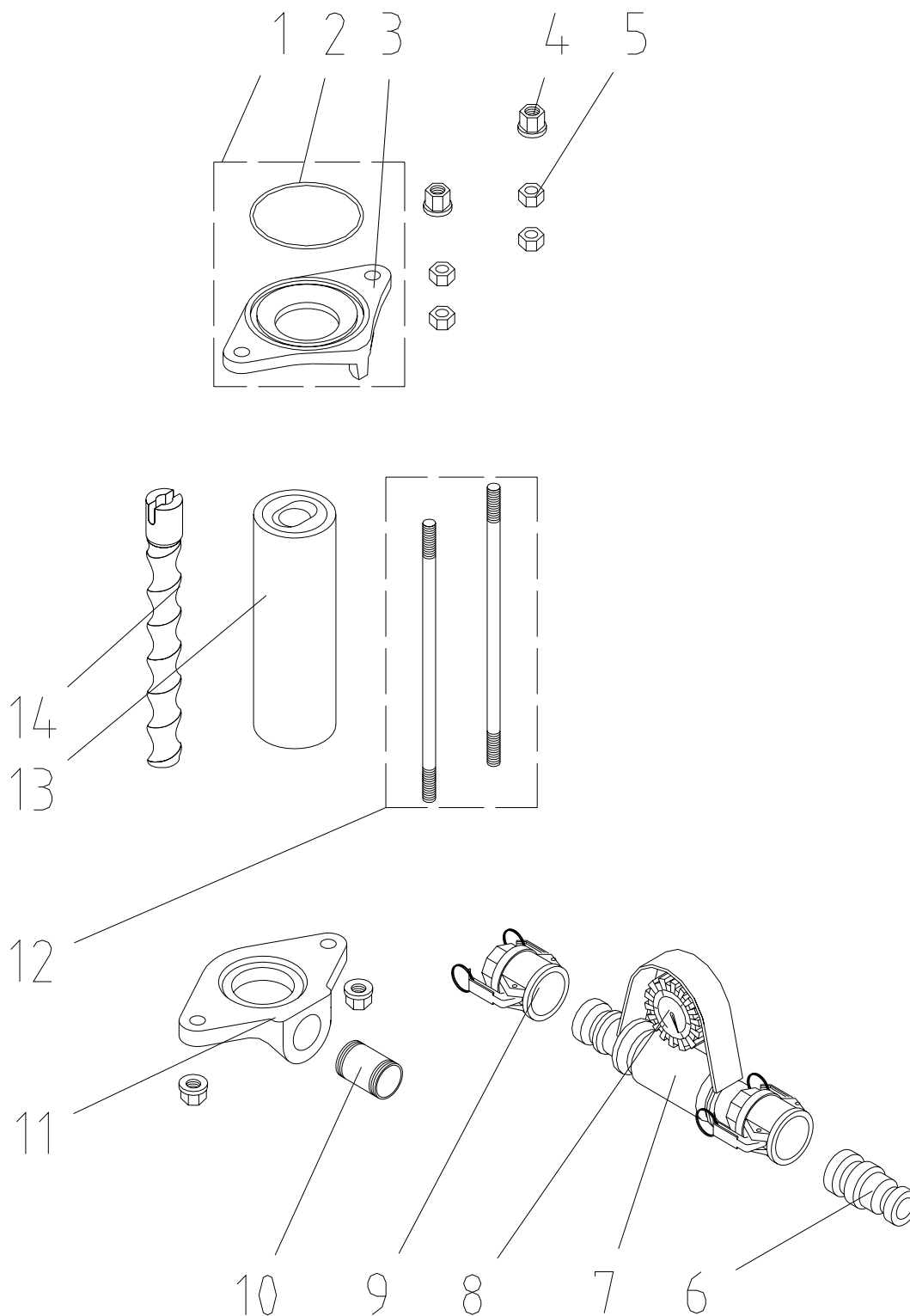


Fig. 77: Replacement part drawing - pump unit

Pos.	Quantity	Item no.	Designation
1	1	00 08 94 32	Suction flange D-pump with O-ring L=200 galvanized
2	1	20 10 42 30	O-ring 117 x 5 for suction flange
3	1	00 08 94 31	Suction flange D-pump for O-ring L=200 galvanized, yellow
4	4	20 20 99 21	Collar nut M16 DIN 6331 galvanized
5	4	20 20 99 20	Hex nut M 16 DIN 934 galvanized
6	1	20 20 03 30	Coupling reduction 35V-25V part LW 24
7	1	00 08 08 58	Mortar pressure manometer 35 mm cpl.
8	1	00 08 15 52	Manometer 0-100bar glycerin filled 1/2" with remote seal VA
9	1	20 20 07 90	Coupling 35M-part 1 1/4" IT with seal
10	1	00 00 17 92	Double nipple 1 1/4" x 60 no. 23 galvanized
11	1	00 04 16 64	Pressure flange D-pump G 4 galvanized 1 1/4" IG
12	1	20 11 87 80	Tension rod M16 x 370 mm (1 set =2 pc.)
13	1	20 11 55 10	Stator D6-3 maintenance-free orange
14	1	20 11 30 00	Rotor D6-3

10.4 Control panel

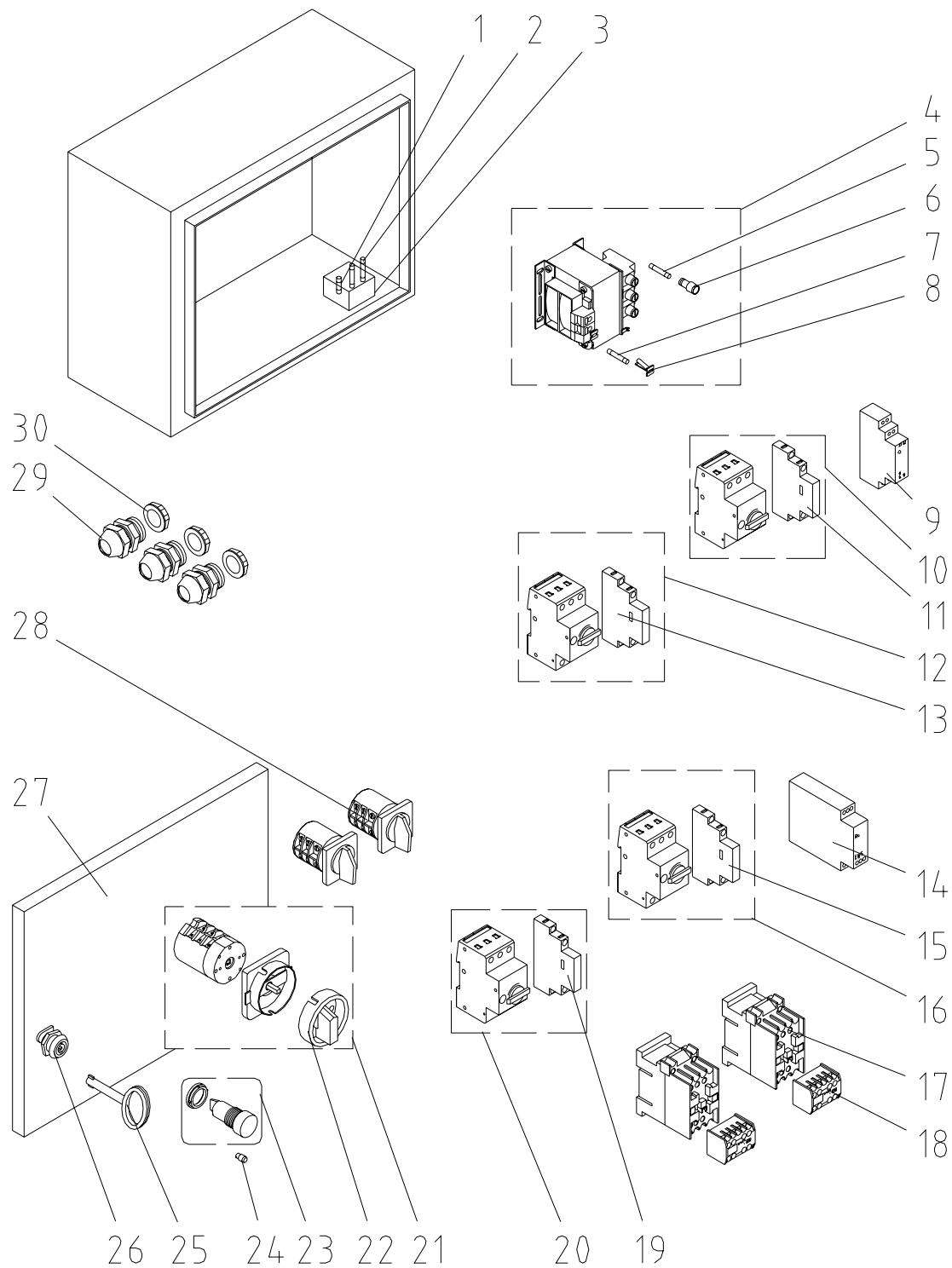


Fig. 78: Replacement part drawing 1 control panel

Pos.	Quantity	Item no.	Designation
1	1	20 41 90 21	Microfuse 5 x 20, 2.0 A
2	2	20 41 90 30	Microfuse 5 x 20, 0.5 A
3	1	00 02 22 25	Foam rubber block for fuses
4	1	00 00 69 19	Control transformer 209/220 V 48 V (70 VA) micro fuse 20 mm in length
5	3	20 41 90 30	Microfuse 5 x 20, 0.5 A
6	3	00 01 24 75	Fuse insert holder round/sw bayonet
7	1	20 41 90 21	Microfuse 5 x 20, 2.0 A
8	1	00 00 73 73	Fuse insert holder rectangular/orange
9	1	00 08 11 09	Coupler relay 48 V AC/DC 50-60 Hz 2 change-over contact
10	1	00 00 93 70	Motor protection switch 1.6-2.5 A PKZM 0-2.5
11	1	00 02 14 01	Auxiliary contact NHI-11-PKZO
12	1	00 02 21 40	Motor protection switch 2,5-4 A PKZM 0-4
13	1	00 02 14 01	Auxiliary contact NHI-11-PKZO
14	1	20 45 27 51	Phase-sequence relay 200-500 V with 2 change-over contacts
15	1	00 02 14 01	Auxiliary contact NHI-11-PKZO Klöckner/Möller
16	1	00 02 21 43	Motor protection switch 16-20 A PKZM 0-20
17	1	00 00 25 68	Air protection DIL 0AM 42 V
18	1	00 00 25 67	Auxiliary contact 22 DIL M
19	1	00 02 14 01	Auxiliary contact NHI-11-PKZO Klöckner/Möller
20	1	00 00 93 71	Motor protection switch 10-16 A PKZM 0-16 complete with auxiliary contact
21	1	20 45 52 00	Main reverse switch
22	1	20 45 52 01	Knob for main reverse switch item no. 20455200
23	1	00 00 22 50	Indicator light, plug socket yellow without bulb, front install
24	1	20 45 91 01	Bulb 42 V 2 W plug socket BA 9S
25	1	20 44 45 00	Key for control panel
26	1	00 03 62 49	Lock control panel (double mandrel)
27	1	00 04 31 07	Door G 4 SUPER RAL7032
28	2	20 45 55 00	Manual-0-Automatic switch 400 V
29	3	00 04 11 27	Skintop cable gland M 20 x 1.5
30	3	00 04 11 45	Counter nut skintop M 20 x 1.5

Replacement part lists

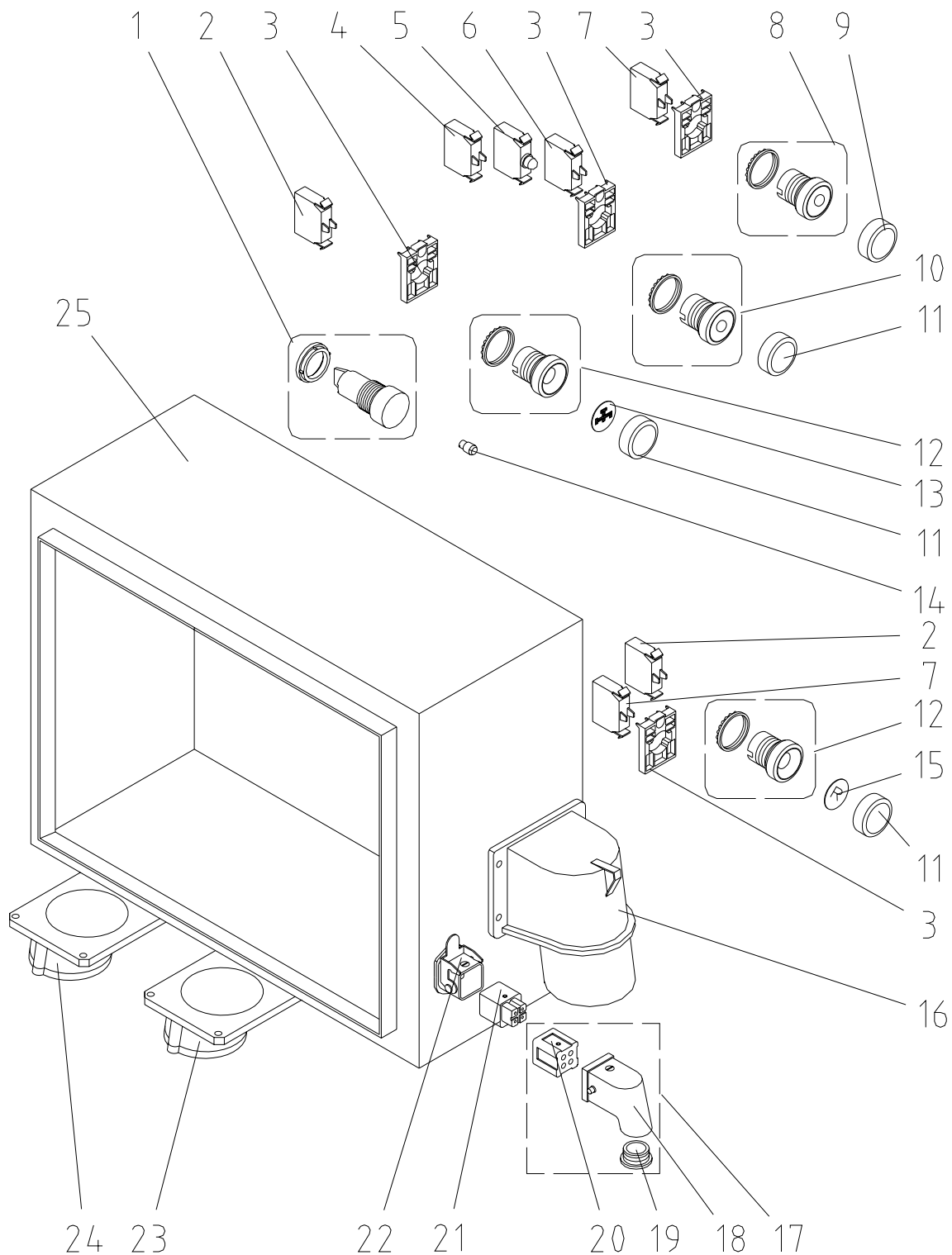


Fig. 79: Replacement part drawing 2 control panel

Pos.	Quantity	Item no.	Designation
1	1	00 00 22 51	Indicator light, receptacle red without bulb, front install
2	2	00 05 38 35	Contact element 1 [NOC] normally open contact, M22
3	4	00 05 38 34	Fastening adapter for switch elements
4	1	00 05 38 86	LED – resistor series element for 42 V
5	1	00 05 38 80	Diode, green 12-30 V
6	1	00 05 38 35	Contact element 1 [NOC] normally open contact, M22
7	2	00 05 38 36	Contact element 1 break contact M22
8	1	00 05 38 37	Pushbutton red Off M22
9	1	00 05 38 30	Tactile membrane, round for pushbutton IP 67
10	1	00 05 38 33	Tactile button green M22
11	3	00 05 38 30	Touch membrane round for pushbutton IP 67
12	2	00 05 38 39	Pushbutton without button plate M22
13	1	00 05 38 42	Sensor plate for pressure switch, black liquid M22
14	1	20 45 91 01	Bulb 42 V 2 W plug socket BA 9S
15	1	00 05 38 43	Touch plate for pressure switch blue/reset M22
16	1	00 00 10 58	CEE device connector 5 x 32 A 9h blue no.390
17	1	20 42 85 01	Dummy plug 4-pole HAN 3 A
18	1	20 42 86 05	Sleeve housing 4 + 5-pole angled
19	1	20 43 12 00	Dummy plug PG 11
20	1	20 42 86 06	Pin insert 4-pole HAN 3A
21	1	20 42 86 07	Socket insert 4-pole HAN 3A
22	1	20 42 86 04	Attachment housing 4/5-pole HAN 3A/HA 4
23	1	20 42 66 03	CEE attachment socket 4 x 32A 9h blue no.1495
24	1	20 42 66 02	CEE attachment socket 4 x 16A 9h blue no.1466
25	1	00 02 21 04	Control panel housing G 4 PRIMA

10.5 Water fitting

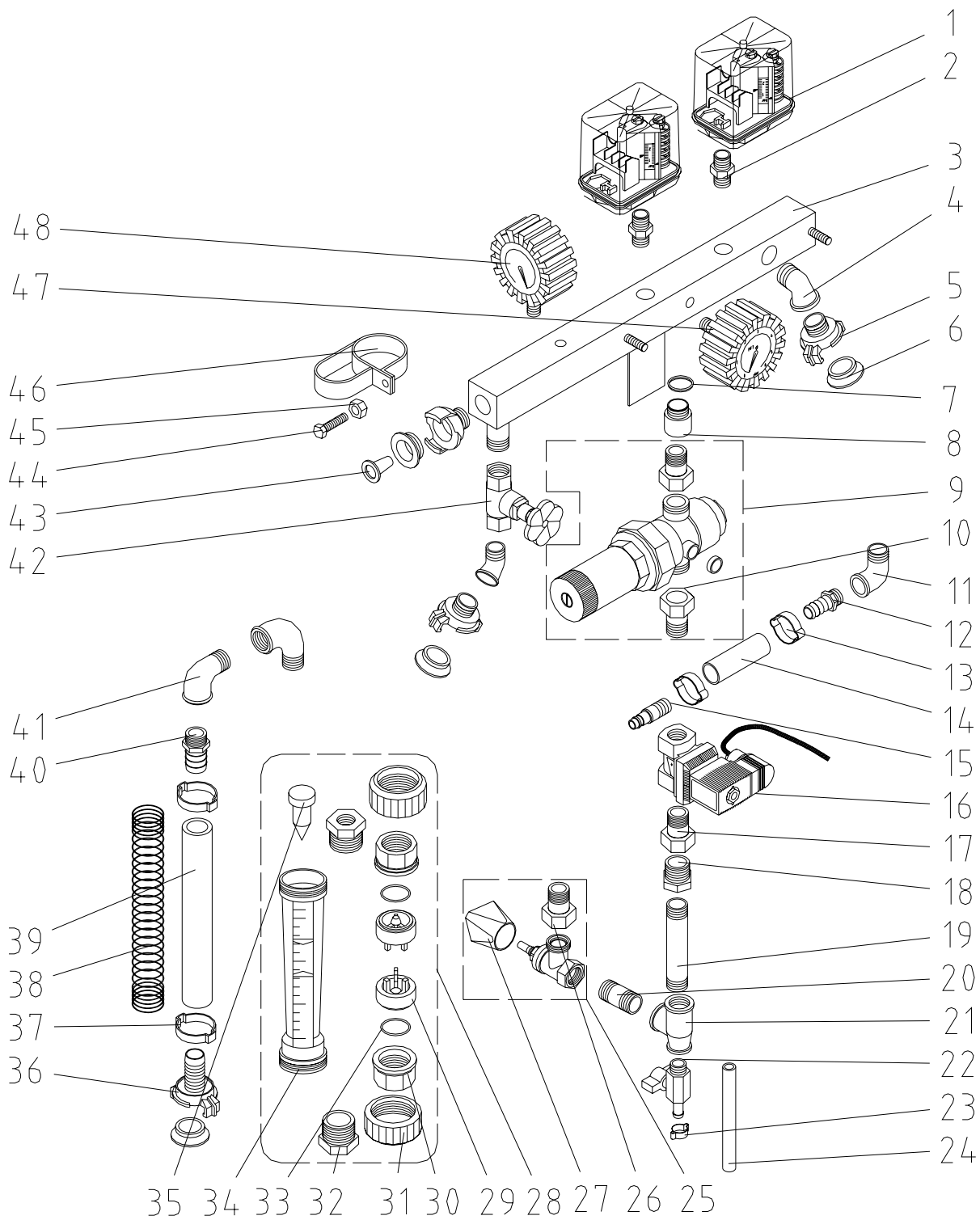
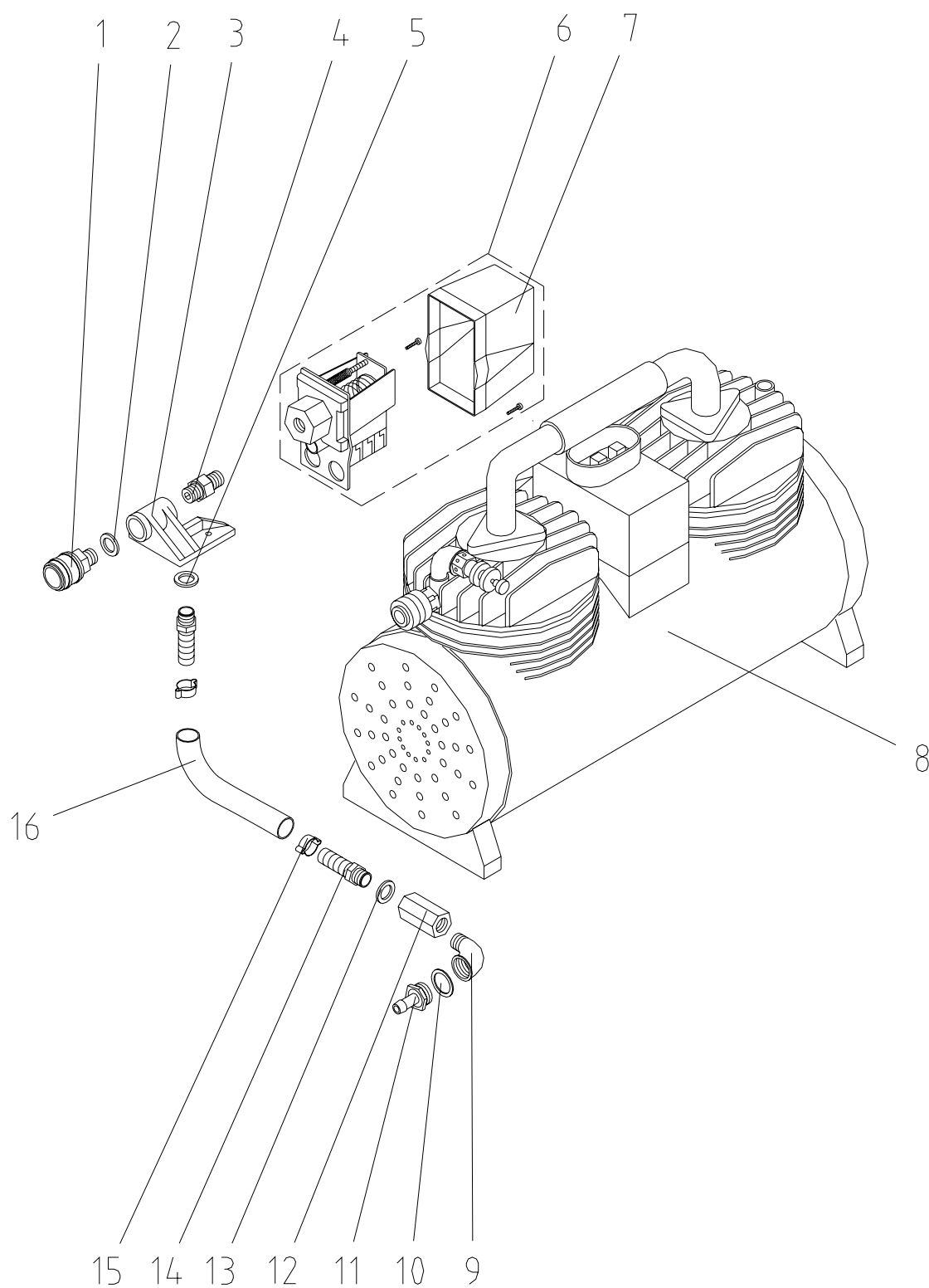


Fig. 80: Replacement part drawing – water fitting

Pos.	Quantity	Item no.	Designation
1	2	20 44 76 00	Pressure switch type FF4-4 0.22-4 bar
2	2	20 20 37 10	Double nipple hex 3/8" no. 280 galvanized
3	1	20 10 25 00	Water/air distributor pipe
4	2	20 20 38 00	Bracket 1/2" IT-OT 45 ° no. 121 galvanized
5	3	20 20 09 00	Geka coupling 1/2" AG
6	4	20 20 17 00	Seal Geka coupling
7	1	20 10 26 01	Seal USIT TM 120 NBR 28 x 20.7 x 1.5
8	1	20 20 34 20	Cock extension 1/2" x 20 brass DIN3523
9	1	20 15 52 00	Pressure reducer D06FN 1/2" bore
10	2	20 20 31 07	Nipple 1/2" OT flat with coupling ring 3/4" IG
11	1	20 20 36 00	Angle 3/8" IT-OT no. 92 galvanized
12	2	20 19 04 00	Hose coupling 3/8" OT socket 1/2"
13	2	00 05 91 97	Hose clamp 19-21
14	1	20 21 36 00	Water/air hose 1/2" x 51.18in
15	1	20 20 21 00	EWO coupling V-part 1/2" socket
16	1	20 15 26 13	Solenoid valve 1/2" 42V type 6213 A
17	1	20 20 31 07	Nipple 1/2" OT flat with coupling ring 3/4" IG
18	1	20 20 51 11	Reducing nipple 3/4" OT 1/2 IG DIN 3523 30 mm MS
19	1	20 20 33 00	Double nipple 1/2"x 100 no. 23 galvanized
20	1	20 20 34 00	Double nipple 1/2"x 40 no. 23 galvanized
21	1	20 20 45 21	T-piece 1/2" 1/2" 3/8" IT no. 130 galvanized
22	1	20 19 03 20	Ball cock 3/8" OT with socket 10 mm
23	1	00 05 91 97	Hose clamp 19-21 PU=10 pc.
24	1	20 19 05 30	Hose section 9 mm x 8.66in
25	1	20 15 77 00	Needle valve 1/2" type 6701
26	1	20 20 31 05	Nipple 1/2" OT conical with coupling ring 3/4" IT for needle valve 1/2" type 6701
27	1	20 15 78 00	Handle needle valve 1/2"
28	1	20 18 50 05	Water flow meter 0.44-4.4 gal/min. cpl.
29	2	Article no. on request	Stopper for water flow meter
30	2	Article no. on request	Insert piece for water flow meter
31	2	Article no. on request	Coupling ring for water flow meter
32	2	20 20 54 00	Adapter 1" OT 1/2" IG no. 241
33	2	Article no. on request	O-ring for water flow meter
34	1	Article no. on request	Plastic pipe 0.44 – 4.4 gal/min.
35	1	Article no. on request	Cone for water flow meter
36	1	20 20 16 00	Geka coupling 3/4" sleeve

Replacement part lists**Knauf PFT GmbH & Co. KG**

Pos.	Quantity	Item no.	Designation
37	2	20 20 29 00	Hose clamp 28-31 PU=10 pc.
38	1	20 20 30 05	Hose kink protection for 3/4" water/air hose 580 mm
39	1	20 21 36 19	Water/air hose 3/4" x 22.83 inch
40	1	20 19 04 42	Hose coupling 1/2" OT socket 3/4"
41	2	20 20 36 10	Angle 1/2" IT-OT no. 92 galvanized
42	1	20 21 52 00	Stop cock 1/2" without drain
43	1	20 15 20 00	Collector sieve for Geka coupling
44	1	20 20 78 00	Hex bolt M8 x 30 DIN 933 galvanized
45	1	20 20 64 00	Hex nut M8 DIN 934 galvanized
46	1	20 10 26 11	Clamp water flow meter 150-1500 l/h
47	1	20 21 60 10	Manometer 0-6 bar 1/4" rear, D = 63 mm
48	1	20 21 60 00	Manometer 0-10 bar 1/4" bottom, D = 63 mm

10.6 Compressor K2*Fig. 81: Replacement part drawing - compressor K2*

Replacement part lists

Pos.	Quantity	Item no.	Designation
1	1	20 20 20 00	EWO coupling M-part 1/4" OT non blocking
2	1	20 13 47 00	Seal ring 13 x 20 x 2
3	1	20 13 01 06	Distributor for pressure switch off
4	1	20 20 37 12	Threaded union 1/4" OT brass for pressure switch off
5	1	20 13 47 00	Seal ring 13 x 20 x 2
6	1	20 13 51 10	Pressure switch type FF53-5, 1/4" 2-3 bar 3-pole break contact
7	1	20 13 51 11	Protective hood pressure switch
8	1	20 13 00 31	Air compressor K2 230/460 V 60 Hz
9	1	20 20 36 50	Angle 1/4" IG-AG no. 92 galvanized
10	1	20 15 52 10	Sealing ring D21 x 14 x 3 PTFE drain cock on pressure reducer
11	1	20 20 21 03	EWO coupling V-part 1/4" OT
12	1	20 21 90 51	Double back pressure valve 1/4" IG
13	2	20 13 47 00	Seal ring 13 x 20 x 2
14	2	20 19 04 12	Hose fitting 1/4" OT socket 1/4"
15	2	20 20 26 10	Hose clamp 15-18 (PU=10 pc.)
16	1	20 19 05 10	Hose section 9 mm x 310 mm

10.7 Compressor console and rubber apron

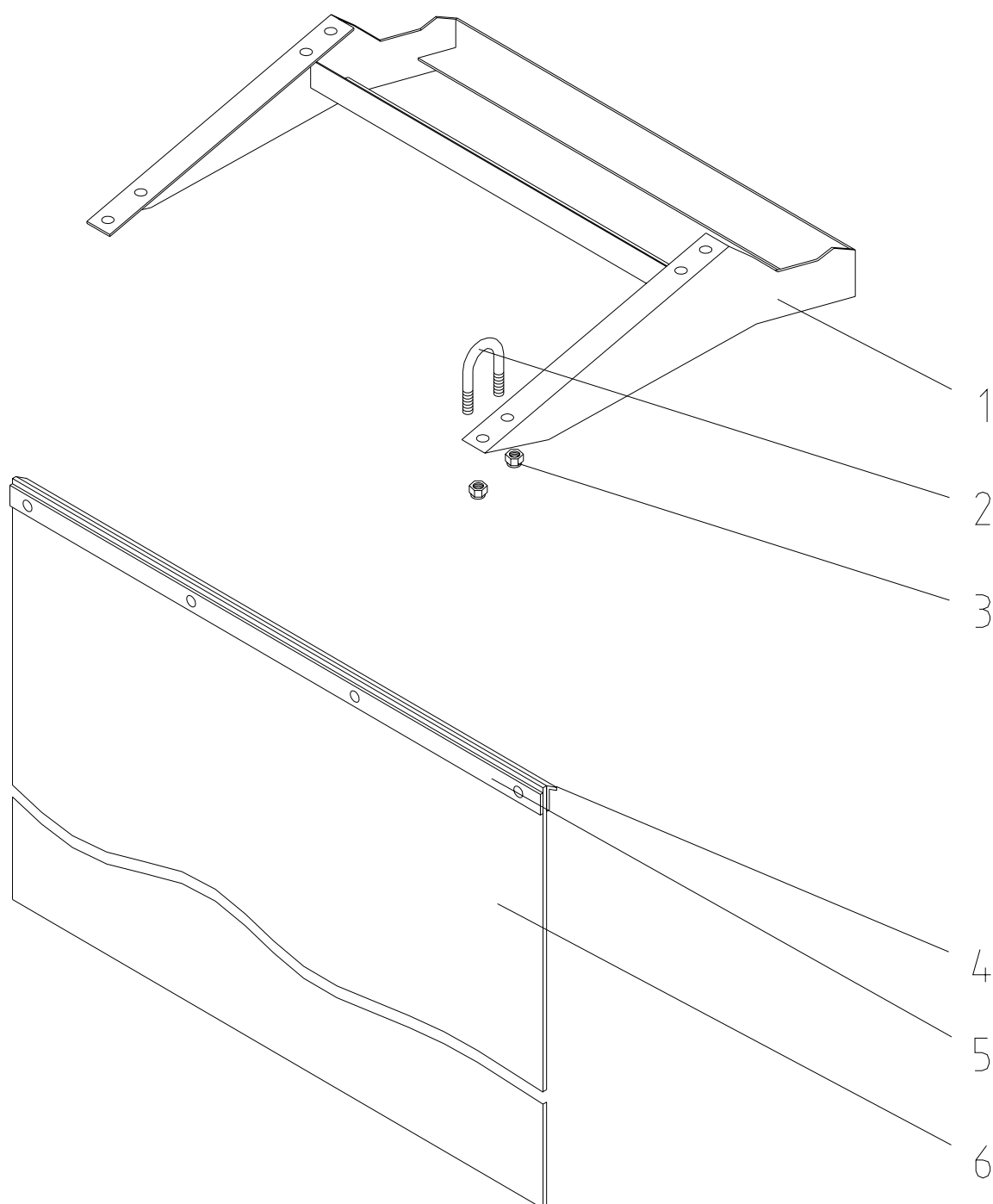


Fig. 1: Replacement part drawing – compressor K2

Replacement part lists**Knauf PFT GmbH & Co. KG**

Pos.	Quantity	Item no.	Designation
1	1	20 10 33 11	Compressor console RAL2004
2	4	20 20 99 85	Tubular steel bracket M8 x 3/4" x 43 galvanized
3	8	20 20 72 00	Locknut M8 DIN 985 galvanized
4	1	20 10 33 16	Receptacle strip rubber apron RAL 2004
5	1	20 10 33 14	Clamp strip rubber strip RAL2004
6	1	20 10 33 15	Rubber apron 600 x 590 x 4 mm with fabric insert

10.8 Booster pump AV 4

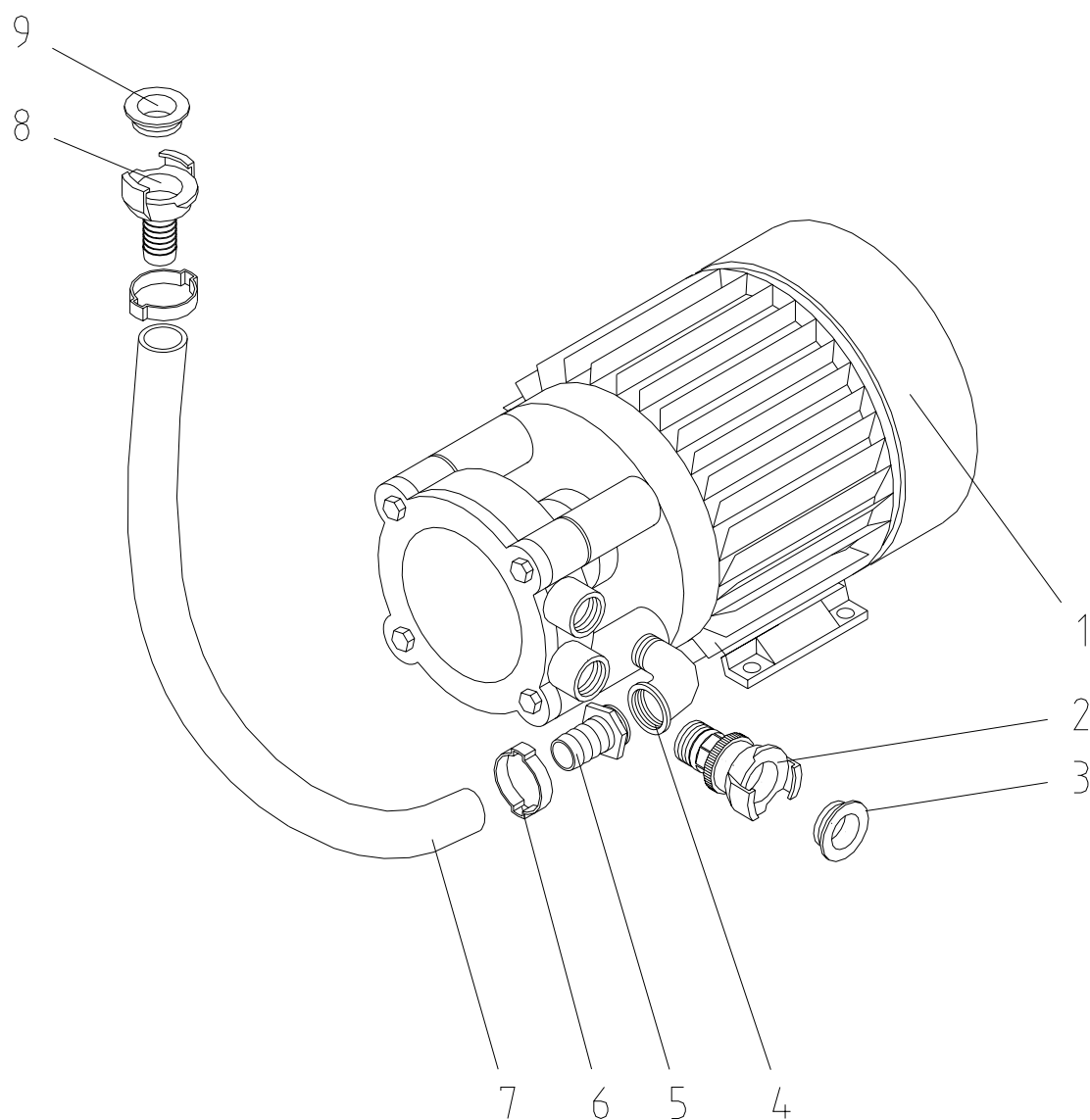


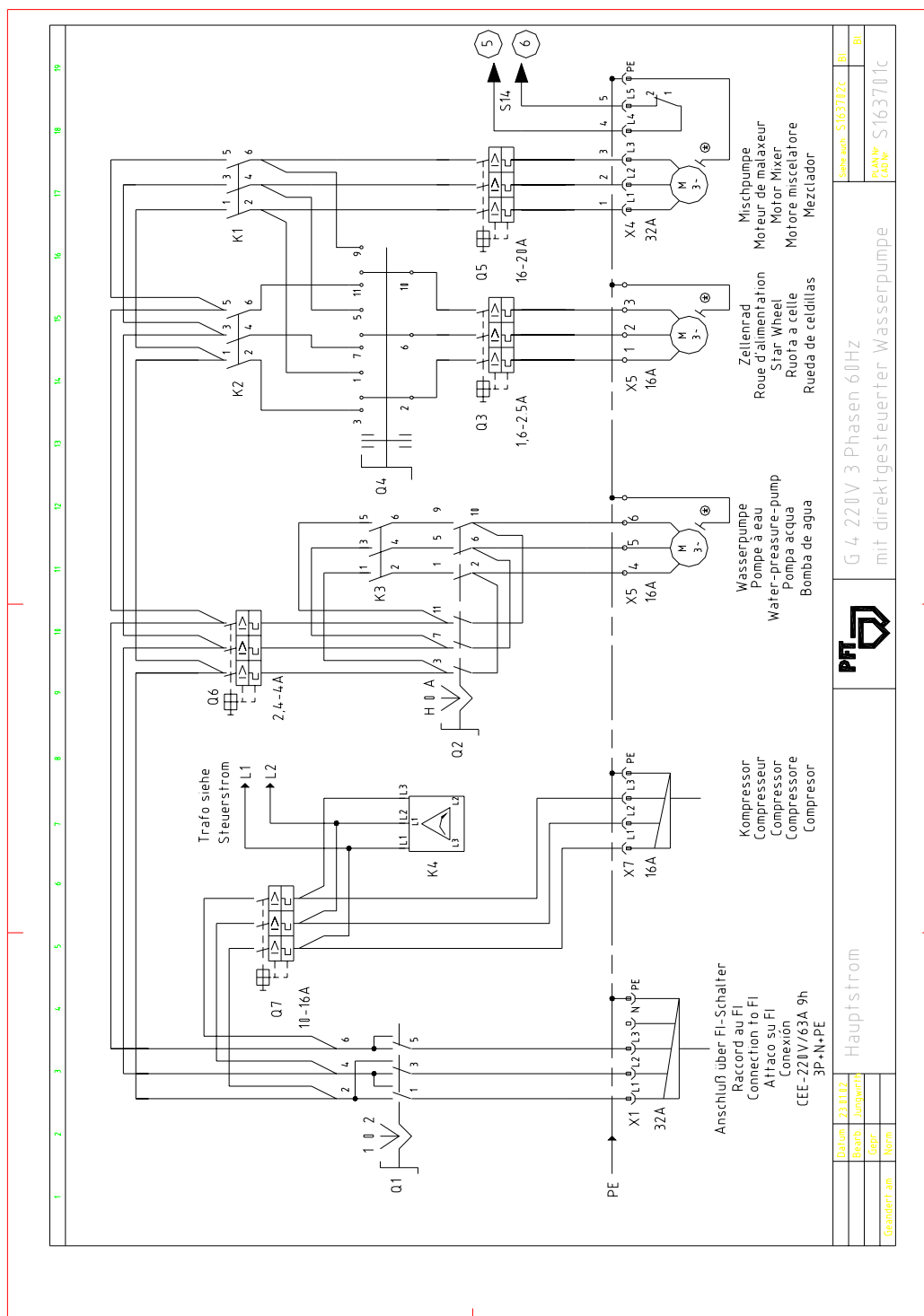
Fig. 1: Replacement part drawing – booster pump AV 4

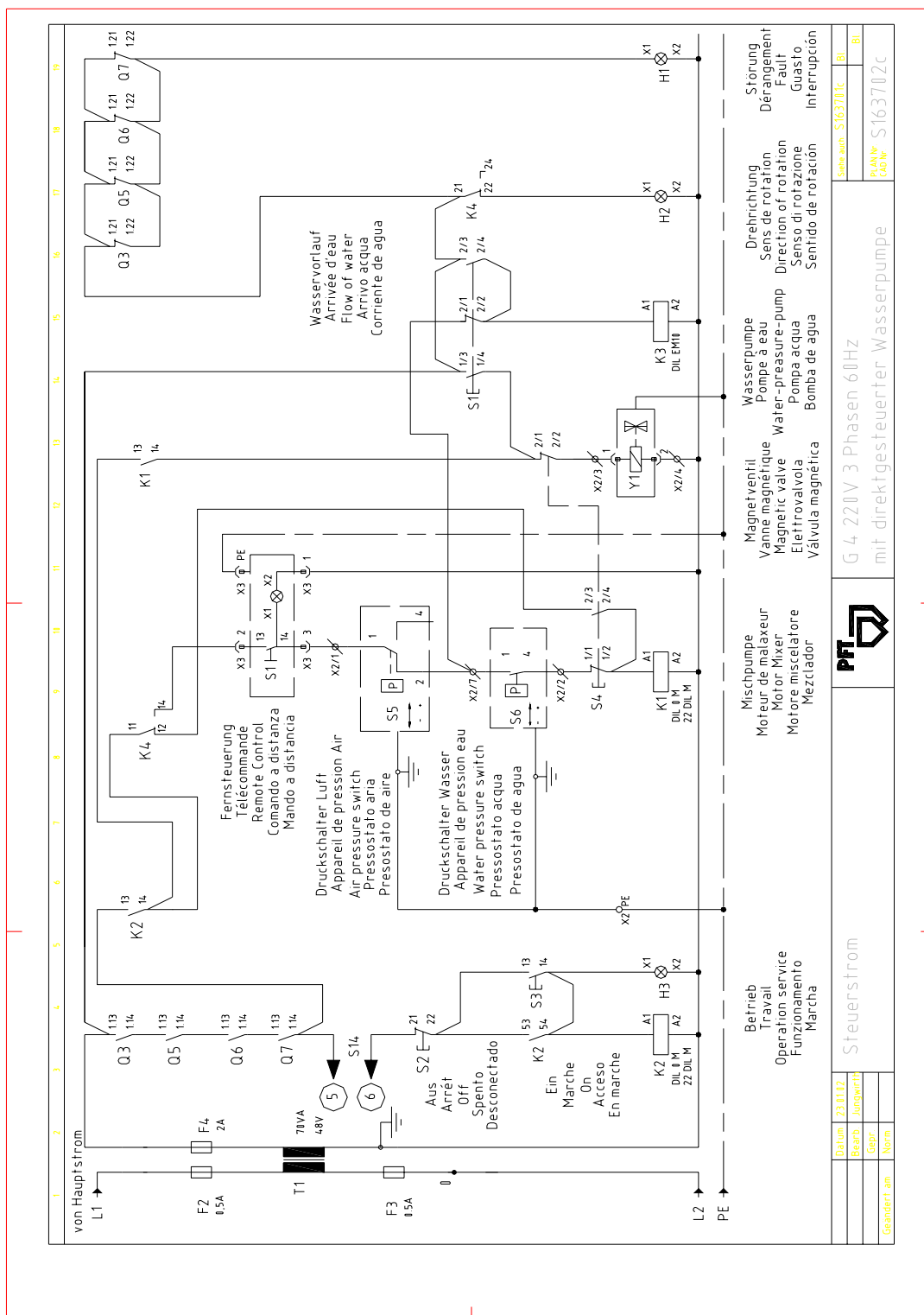
Replacement part lists**Knauf PFT GmbH & Co. KG**

Pos.	Quantity	Item no.	Designation
1	1	20 47 60 10	Booster pump AV 4 230V 60Hz
2	1	20 20 16 81	Suction high-pressure coupling 3/4" OT with seal
3	1	20 20 17 00	Seal Geka coupling (PU=50 pcs.)
4	1	20 20 36 01	Angle 3/4" IT-OT no. 92 galvanized
5	1	20 19 04 41	Hose fitting 3/4" OT with socket 10 mm
6	2	20 20 29 00	Hose clamp 28-31 (PU=10 pc.)
7	1	20 21 36 04	Water/air hose 3/4" x 800mm
8	1	20 20 16 00	Geka coupling 3/4" spout
9	1	20 20 17 00	Seal Geka coupling (PU=50 pcs.)

11 Appendix

11.1 Circuit diagrams





11.2 Check list for annual expert inspection (copy template)

The expert inspection must be executed once a year in accordance with applicable rules and regulations. A test badge will be affixed to the machine and the control panel as verification of this inspection. This inspection log must be shown on request.

Inspection date:	Inspector:	Signature:	Serial identification number:

Part	Test characteristic	In order	Fix/replace
Material container	Check all weld seams.		
Material container	Destruction due to corrosion or deformation?		
Mixing zone	Wear on the pipe wall? Minimum wall thickness to be 1.5 mm (0,6 inches).		
Mixing helix	Wear inspection of the wedge profile in the mixing area.		
Mixing helix	Wear inspection of the pump driver.		
Safety grille	Is the safety grille still level?		
Limit switch tilt flange	Check limit switch for function.		
Limit switch tilt flange	Check feed line to the limit switch for damage.		
Chassis	Check all weld seams.		
Chassis	Check all threaded connections for firm fit.		
Chassis	Check for deformation. Stability must be ensured.		
Castors	Do the castors move freely?		
Water flow meter	Is the view glass still clear and transparent and sealed?		
Solenoid valve	Function test		
Pressure reducer valve	Function test, check setting 1.9 bar (27.6 psi)		
Control panel	Visual inspection for apparent defects		
Control panel	Function test		
Control panel	Are all stickers in legible condition?		
Control panel	Measurement of insulation		
Control panel	Function test of all protective switches.		
Control panel	Function test of all indicator lights.		
Control panel	Check all cable connections for firm seat.		
Type plate	Present and legible		
Operating Manual	Present		
Mortar pressure manometer	Function test.		

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