Operating Instructions

for the machine operator and maintenance personnel
always keep by the machine
Translation of the original instructions

Auger pump

Sprayboy P 12

Machine no.

Putzmeister Mörtelmaschinen GmbH
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Putzmeister

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1 Guide to the Operating Instructions

In this chapter you will find notes and information that will help you use these Operating Instructions. If you have any queries, please contact us in confidence at:

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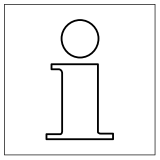
or contact the branch responsible for you or your service dealer. You can find a selection of responsible contacts online at: www.pmmortar.de.



1.1 Foreword

These Operating Instructions aim to help you to familiarise yourself with the machine and make use of its applications as designated.

The Operating Instructions contain important information on how to operate the machine safely, properly and economically. Observing these instructions helps to avoid danger, to reduce repair costs and downtimes and to increase the reliability and service life of the machine.

The operator undertakes to supplement the Operating Instructions with the relevant national rules and regulations for accident prevention and environmental protection.

The Operating Instructions must always be available at the machine's site of use.

The Operating Instructions must be read and applied by anyone who will be carrying out the following work with/on the machine:

- Operation, including setting up, fault rectification in the course of work, removal of production waste, maintenance and disposal of functional fluids and auxiliary materials
- Maintenance (service, inspection, repair)
- transport

The generally recognised rules of technology for safe and proper working must be observed in addition to the Operating Instructions and mandatory rules and regulations for accident prevention in the country and site of use of the machine.

Should you have any questions after studying the Operating Instructions, the relevant branch, your service dealer or the manufacturer will be happy to provide more information.

You will make it much easier for us to respond to any questions if you can give us the details of the machine model and the machine number.

These Operating Instructions do not describe the engine - for information regarding the engine, please refer to the enclosed operating instructions issued by the engine manufacturer.

For the purpose of continuous improvement, changes are made at certain times, meaning that these changes may in some circumstances not yet have been taken into account by the time these Operating Instructions are sent to print.

In the event of any amendment, the copy of the Operating Instructions intended for the machine will be replaced in full.

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The pages are divided into chapters, where they are numbered consecutively.

Example: 3 – 2 (chapter 3 – page 2)

1.2 Icons and symbols

The following icons and symbols are used:

Icon/symbol/ designation	Meaning
▸	Individual instruction or alternative step.
1. 2. 3.	Instructions to be carried out as described in the specified sequence.
⇒	Result or intermediate result of previous steps.
➞	Result of an instruction or of several steps.
•	Marking for simple lists.
Cross reference *(Icons and symbols P. 1 — 4)*	Cross references refer to chapters, sections or figures, for example. A cross reference is depicted in brackets.
	Fault rectification – Instructions to be carried out in accordance with fault messages.
	View additional steps. For example, “Contact a qualified electrician”.
✓	Inspection or maintenance activity must be carried out

Icon/symbol/ designation	Meaning
	Special tools are required. This icon is followed by a list of special tools that are required to carry out the task. (Normal tools, i.e. conventional tools or tools carried in the vehicle, are not listed specially.)
	This icon is followed by an indication of required maintenance work.
	This indicates a tip, helpful note or additional information regarding machine maintenance, environmental protection, etc.

1.2.1 Layout of warning notices

⚠ WARNING

Type and cause of risk

Consequences of not observing the risk.

- What to do in order to provide a remedy or avoid the risk.

Signal words

The signal word is selected in accordance with the ANSI Z535.6:2011 safety standard.

The following signal words are used:

⚠ DANGER

Indicates a dangerous situation in which an accident resulting in serious injuries and/or death may occur. Highest level of risk.

- After identifying the risk, instructions are set out which are intended to avoid or remedy the risk.

⚠ WARNING

Indicates a dangerous situation in which an accident resulting in serious or fatal injuries may occur.

- After identifying the risk, instructions are set out which are intended to avoid or remedy the risk.

⚠ CAUTION

There is a risk of injury to the entire body, however there is no risk of serious or fatal injuries.

- After identifying the risk, instructions are set out which are intended to avoid or remedy the risk.

NOTICE

Risk of damage to the machine. There is no risk of injury.

- After identifying the risk, instructions are set out which are intended to avoid or remedy the risk.

2 Safety regulations

This chapter summarises the most important safety regulations. This chapter must be read and understood by all persons who come into contact with the machine. The various regulations also appear again at the appropriate points in the Operating Instructions.

Special safety regulations may be necessary for some tasks. These special safety regulations will only be found in the description of the particular task.

The following safety instructions should be regarded as a supplement to existing applicable national legal norms and accident prevention regulations.

Existing legal norms and accident prevention regulations must be observed in all cases.

2.1 Definition of terms

The following sections explain the terms used in these operating instructions and describe the requirements for specific groups of personnel.

2.1.1 Auger pump

Depending on the model, the auger pump is a machine designed for site-made mixes and processing premixed dry mortar and self-levelling floor screed. It mixes, pumps and sprays continuously.

2.1.2 Manufacturer

Any natural or legal person who puts into circulation any complete or incomplete machine included in these operating instructions.

2.1.3 Operator

An authorised representative of the machine owner. The operator is responsible for the use of these machines.

2.1.4 Machine operator

Machine operators are personnel trained and assigned to perform the following activities:

- Operating the machine
- Simple inspection and maintenance work
- Testing
- Cleaning

2.1.5 Subject expert

For the purposes of the German Industrial Health and Safety Ordinance, a subject expert is a person who, through their professional training, their professional experience and their recent professional activity, has the required specialist knowledge to inspect the tools.

2.1.6 Qualified personnel

Personnel who have successfully completed a specialist training course that qualifies them to carry out specific activities.

2.1.7 Service technician

Personnel qualified or authorised by the manufacturer to perform maintenance tasks.

2.1.8 Maintenance

Maintenance includes all measures required to inspect and repair a machine.

2.1.9 Workplace

The workplace is the area in which people must remain in order to carry out the work.

The **workplace of the machine operator** during use is at the operating elements of the machine.

The workplace of the operator of connected accessories is where work is being carried out with these accessories. The machine operator and accessories operator must maintain visual contact.

2.1.10 Working area

The working area is the area in which work is carried out with and at the machine. Parts of the working area can become danger zones, depending on the job being performed.

The working area is also the area where work is carried out with and on delivery lines and attached accessories.

Secure the working area and affix signs clearly indicating the dangers. Suitable protective equipment is compulsory within the working area. The machine operator is responsible for safety in the working area when the machine is in use.

2.2 Basic principle

The machine must only be operated in technically perfect condition, as designated and observing the Operating Instructions while remaining conscious of safety and dangers. Faults, particularly those which may compromise safety, must be rectified immediately.

Observe the following basic principles:

- Safety equipment must not be removed, decommissioned or otherwise modified.
- Safety equipment removed for maintenance work must be fitted again as soon as work is complete.
- Following assembly, the safety equipment must be checked to ensure it is fully functional.

Check operational safety every time you start work. Any defects found or suspected must be eliminated immediately. If necessary, inform the project supervisor.

If defects or faults are found or suspected during operation, operation must cease immediately. Rectify the defects or faults before restarting the machine.

2.2.1 Onwards sale

Observe the following for an onwards sale of the machine:

Pass on all accompanying documentation (operating and maintenance instructions, plans, inspection certificates, etc.) you received with your machine to the new operator. If necessary, you must re-order the papers from us, citing the machine number. The machine must not be sold on without the accompanying documentation under any circumstances.

Notifying the manufacturer of the onwards sale/purchase ensures that you will also receive support from the manufacturer as well as any information on safety-relevant changes.

2.3 Designated use

The machine is designed in accordance with current engineering standards and recognised safety rules. However, its use may still present a risk of machine operators or third parties suffering death or injury, or the machine and other property becoming damaged.

The machine may only be used as designated in the Operating Instructions and the accompanying documentation. All notes and safety regulations in the Operating Instructions must be observed.

The P12 auger pump is intended exclusively for mixing and pumping premixed dry mortar and site-made mixes with a particle distribution of up to 6 mm through delivery lines with a maximum nominal diameter of 50 mm.

Filling of the auger pump is carried out at the hopper.

All protective covering elements of the machine must be fitted during operation. The machine must be operated only with the safety equipment fitted.

Specified inspection work must be carried out at regular intervals.

Any work on the electrical system of the machine must be carried out by trained and qualified electricians only.

Conversions, alterations or modifications to the machine must not be carried out without permission from the manufacturer.

The operational safety of the machine must be inspected by a subject expert at least once a year. The operator is responsible for commissioning the inspection.

2.4 Improper use

Use is defined as contrary to the designated use if it is not described in or goes beyond that described in the “Designated use” section. The manufacturer accepts no liability for damage resulting from such use. The risk lies solely with the machine operator.

2.4.1 Operation with defects

The machine must not be operated with defects. A few examples are listed below:

- Loose or damaged bolts
- Leaks
- Impermissible fill levels
- Wrong functional fluids
- Worn, damaged or defective components
- Worn, damaged or illegible plates
- Worn, damaged or defective safety equipment
- Deactivated or modified safety equipment
- Impermissible or modified connections or fuses

2.4.2 Removal or modification of safety equipment

Depending on the model, the machine is fitted with different safety equipment for protection against serious personal injury.

Removing, modifying or decommissioning safety equipment is prohibited.

If safety equipment has been modified, damaged, removed or is not fully functional, the machine must be shut down and secured immediately. Defects must be rectified immediately.

All protective devices must be undamaged, completely fitted and fully functional. This must be checked through daily visual checks.

If moving protective devices are fitted, an additional function check must be carried out every time before using the machine.

2.4.3 Conveyed material

The machine is only designated for conveying media specified in the machine's technical data. Its performance is limited to operation on construction sites or in workshops. The maximum delivery pressure must not exceed that specified on the rating plate or in the technical data.

2.4.4 Extending the delivery line

Extension of the delivery line beyond the length specified in the technical data is forbidden.

A new delivery line is only suitable for pressures entered on the rating plate.

2.4.5 Pressurised systems

Opening pressurised systems (delivery line) is prohibited. Before opening, the pressure must be dumped or the entire system must be depressurised.

2.4.6 Site of use

The machine is not approved for operation in potentially explosive areas (unless stated otherwise).

2.4.7 Transport

The machine may only be transported as stated. During transport, lifting equipment, lifting tackle or other auxiliary devices that are unsuitable or not reliable and safe in operation must not be used. Loading the machine with unauthorised materials and accessories, as well as exceeding the maximum permissible gross weight of the machine, is prohibited.

2.4.8 General maintenance

Maintenance measures must not be carried out while the machine is switched on or unsecured. The machine must be set up sufficiently safely and must be secured against unauthorised or accidental switching on. Other necessary safety measures depend on the type of maintenance and are the responsibility of the relevant, authorised and qualified personnel.

Machine components not intended for this purpose must not be stepped on.

It is prohibited to use other components or spare parts than those approved by the manufacturer for maintenance work.

Tools that are unsuitable or not reliable and safe in operation must not be used.

If safety equipment needs to be removed to carry out maintenance work, it may only be removed for the duration of that work. Safety equipment must be fitted again and checked to ensure it is fully functional as soon as maintenance work is complete.

2.4.9 Safety equipment maintenance

The specified inspection and replacement intervals for safety equipment must be observed.

Safety equipment may only be repaired, adjusted or replaced by authorised qualified personnel.

Unauthorised changes to safety-related parts (SRP), adjustable devices, machine data or the removal of seals by the operating company or its authorised maintenance personnel are not permitted.

2.4.10 Changing the works settings

The works settings must not be changed. A few examples are listed below:

- Pressure and performance settings
- Software versions and software parameters

2.4.11 Structural changes

Structural changes must not be implemented without permission from the manufacturer. A few examples are listed below:

- Accessories and attachments not explicitly approved by the manufacturer must not be fitted.
- Alterations or modifications that could compromise safety must not be carried out.
- Welding work on load-bearing parts, pressure containers, fuel or oil systems is not permitted.
- Welding work is only permitted following consultation with the manufacturer and with express permission.
- Welding work may only be carried out by authorised qualified personnel.

2.4.12 Wrong bolts/nuts and tightening torques

Only nuts and bolts corresponding to the specifications in the spare parts sheets may be used.

Nuts and bolts may only be tightened with the specified tightening torques.

The following nuts and bolts must not be reused:

- Self-locking nuts
- Bolts with adhesive in the locking threads
- Bolts of property class 10.9 and higher

2.5 Liability

The operator is obliged to act in accordance with the Operating Instructions.

The safety and accident prevention regulations from the following institutions must be observed:

- The legal authority of the country of use
- The Industrial Employers' Liability Insurance Associations
- The responsible commercial liability insurance company

The legal authority places liability for accidents caused by not observing safety and accident prevention regulations or by lack of care with the operating personnel or (where they cannot be held responsible due to lack of training or basic knowledge) the supervisory personnel.

2.5.1 Exclusion of liability

We state here expressly that the manufacturer accepts no liability for damage arising from incorrect or negligent operation or maintenance or as a result of improper use. This statement is also valid for modifications to, additions to and customisation of the machine that are liable to compromise safety. The warranty will no longer be valid in such cases.

2.6 Personnel selection and qualifications

Only the following persons may be tasked with the independent operation, servicing or maintenance of the machine:

- Persons above the legally permitted minimum age
- Persons who are physiologically capable (rested and not under the influence of alcohol, drugs or medication)
- Persons who are instructed in the operation and maintenance of the machine
- Persons who can be expected to reliably execute the tasks with which they are charged
- Persons who have been explicitly tasked with the stated activities by the employer

2.6.1 Training

The machine must only be operated, serviced or maintained by trained subject experts. The areas of responsibility for personnel must be clearly defined.

The following personnel must only work on the machine under the permanent supervision of an experienced person:

- Personnel participating in training courses
- Trainees
- Personnel being instructed
- Personnel receiving general training

2.6.2 Qualified personnel

Personnel who have successfully completed a specialist training course that qualifies them to carry out specific activities.

2.6.3 Subject expert

For the purposes of the German Industrial Health and Safety Ordinance, a subject expert is a person who, through their professional training, their professional experience and their recent professional activity, has the required specialist knowledge to inspect the tools.

2.7 Sources of danger

2.7.1 General sources of danger

Never reach into moving machine components, whether the machine is running or switched off. Always switch off the main switch first. Take note of the warning plate.

In case of malfunctions, shut the machine down immediately and secure it. Have faults rectified immediately.

Secure the machine at the set-up site against rolling away by means of chocks.

Make sure than no one can be endangered by the machine starting up before you switch on the machine.

Do not loosen or tighten pressurised threaded unions.

2.7.2 Danger from hot machine components

During and after work, there is a risk of burning from hot parts of the motor and the frame.

2.7.3 Danger from the delivery line and coupling system

The delivery line and coupling system is designed for a maximum operating pressure of 40 bar. The maximum operating pressure must not exceed 40 bar.

2.8 Safety equipment

Never remove or modify safety equipment on the machine.

If safety equipment needs to be removed for set-up, maintenance or repairs, the safety equipment must be refitted and checked immediately upon completion of the maintenance and repair work.

All equipment required for safety and accident prevention (warning signs and information plates, cover grilles, guards, etc.) must be in place. Such equipment must not be removed, modified or damaged.

All warning and information plates on the machine must be complete and fully legible at all times.

It is your responsibility as operator to ensure that any warning and information plates that have been damaged or rendered illegible are replaced without delay.

2.9 Personal protective equipment

To reduce the risk to life and limb, personal protective equipment must be used by the operating personnel whenever necessary or required by regulations. Safety helmet, protective gloves and safety footwear are specified for all persons working at or with the machine.

Personal protective equipment must at least comply with the specified standards.

Symbol	Meaning
	Safety helmet The safety helmet protects your head, e.g. against falling concrete or parts of the delivery line if the lines burst. (DIN EN 397:2013-04; Industrial safety helmets)
	Safety footwear Safety footwear protects your feet against falling objects and against penetration by projecting nails. (DIN EN ISO 20345:2012-04; Safety footwear for professional use; category S3)
	Hearing protectors Hearing protectors protect you against the noise generated in the vicinity of the machine when you are standing close to it. (DIN EN 352-1:2003-04; Hearing protectors - General requirements - Part 1: Earmuffs or DIN EN 352-3:2003-04; Hearing protectors - General requirements - Part 3: Earmuffs attached to an industrial safety helmet)
	Protective gloves Protective gloves protect your hands against aggressive or chemical substances and against mechanical effects (e.g. knocks) and cutting injuries. (DIN EN 388:2017-01; Protective gloves against mechanical risks; classification 1111)
	Protective goggles Protective goggles protect your eyes from injuries due to concrete spatter and other particles. (DIN EN 166:2002-04; Personal eye protection - Specifications)

Symbol	Meaning
	Safety harness When working at heights, use climbing aids and platforms that are intended for this purpose and comply with the safety regulations or wear a safety harness. Relevant national regulations must be observed. (DIN EN 361:2002-09; Personal protective equipment against falls from a height - Full body harnesses; category III)
	Respiratory protection and face mask Respiratory protection and face masks protect you from particles of building materials that may enter your body through the respiratory passages (e.g. concrete admixtures). (DIN EN 149:2009-08; Respiratory protection devices - Filtering half masks to protect against particles - Requirements, testing, marking; classification FFP1)

2.10 Risk of injury, residual risks

The machine is designed in accordance with current engineering standards and recognised safety rules. However, its use may still present a risk of machine operators or third parties suffering death or injury, or the machine and other property becoming damaged.

Some of the injuries that may be caused by improper use of the machine are listed below:

- Risk of crushing and impact when moving and setting up the machine.
- Electrical contact (possibly with fatal consequences) with the electrical equipment, if the connection has not been made properly or electrical assemblies are damaged.
- Injuries through unauthorised start up or use of the machine.
- Noise exposure, if persons without hearing protectors are permanently in the vicinity of the machine.

- Injuries to the skin and eyes caused by dust particles, concrete spatter, water glass or other chemical substances.
- Damage to health caused by breathing in dust particles or cleaning agents, solvents and preservatives.
- Injuries caused by opening pressurised delivery lines (e.g. following blockages).
- Injuries caused by tripping over cables, hoses or reinforcements.

2.11 Risk of crushing and impact

2.11.1 Operating modes

There is a risk of crushing and impact at the machine during the following operating modes:

- Transport
- Setting up
- Starting up
- Operation
- Cleaning, troubleshooting and maintenance
- Decommissioning

2.11.2 Transporting the machine

The machine has no lifting points. It is loaded on suitable transport handling equipment (Euro pallet). Use a suitable crane with lifting gear or a forklift truck to lift the machine.

⚠ WARNING

Risk of crushing due to lifting and loading the machine

1. Lift the machine carefully with a forklift truck and move it with great care.
2. When lifting with the crane, determine the centre of gravity of the machine by lifting it carefully. All cables or chains on the lifting gear must be tensioned evenly and the machine must be raised evenly at all support points.
3. Load the machine on a suitable transport vehicle.
4. Secure the machine to prevent it from rolling away, slipping and toppling over during transport.

⚠ WARNING

Risk of death or injury from falling loads

Hoisted loads may fall if they are not loaded properly or if the auxiliary loading equipment is damaged.

1. Use only undamaged auxiliary loading equipment designed for the gross weight of the machine.
2. Do **not** walk under suspended loads.

2.11.3 Assembly of the auger pump

There is a risk of crushing when mounting the auger pump.

⚠ WARNING

Risk of crushing due to turning of the auger pump

Depending on the mounting position of the stator or screw conveyor barrel, it can turn all the way to the stop when the machine is switched on.

1. Secure the machine against unauthorised or accidental starting.
2. Never reach into the auger pump while switching the machine on.
3. For screw conveyor barrels with a stop, this must be secured at the stop of the mixing pipe.

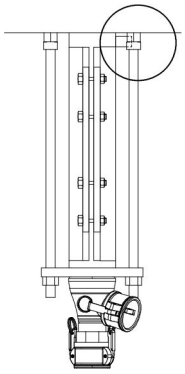


Figure 1: Risk of crushing in the end stop area of the auger pump

2.12 Electrical contact

There is a risk of death from electrical contact on the control cabinet, the electrical lines and the motor during the following operating modes:

- Starting up
- Operation
- Cleaning, troubleshooting and maintenance
- Decommissioning

As standard, all electrical assemblies are protected according to degree of protection IP 54 in line with IEC 60204 part 1 or DIN EN 60529.

Use only original fuses with the specified voltage rating. Bridging or the use of fuses with too high a rating can irreparably damage the electrical system.

Work on the electrical systems and equipment of the machine must only be carried out by a qualified electrician or by instructed persons under the supervision and guidance of a qualified electrician and in accordance with electrical engineering rules and regulations.

2.13 Blockage

Blockages increase the risk of accidents. A well-cleaned and leak-tight delivery line prevents the formation of a blockage.

Using the correct couplings and delivery line connections largely prevents the formation of a blockage. To prevent blockages in the delivery lines, you must moisten the inside of the delivery lines.

DANGER

Risk of death due to the incorrect removal of a blockage

When removing a blockage with compressed air, the delivery line may burst or the blockage may be ejected from the delivery line at a high pressure.

- **Never** remove a blockage using compressed air.

⚠ WARNING

Risk of death due to ejected blockage

1. Align the delivery line so that no persons are hit by ejected blockages.
2. Secure the danger zone to prevent unauthorised access.
3. Always wear personal protective equipment.

2.14 Conduct in an emergency

In case of an emergency or malfunctions, shut the machine down immediately and secure it. Rectify faults immediately or, if needed, consult an authorised service technician.

For further details, see also the “Emergency shutdown procedure” section in the “Operation” chapter.

(Emergency shutdown procedure P. 6 — 3)

2.15 Environmental protection

Collect residual hydraulic fluid, grease, solvent or cleaning agent separately, safely and in an environmentally friendly manner in suitable collectors. Store and dispose of them in an environmentally friendly manner according to applicable local regulations.

Use only suitable and sufficiently large containers to drain functional fluids. Escaped functional fluids must be bound with binding agents immediately and contaminated soil must be disposed of in line with regulations.

Always close fuel, hydraulic fluid or grease containers carefully.

Make sure that you dispose of empty functional fluid containers, old filters, batteries, replacement parts, used cleaning rags, etc. in line with regulations and in an environmentally friendly manner.

Only work with waste disposal companies who are approved by the responsible authorities. Ensure that different oils are never mixed.

2.16 Noise emissions

Noise emissions are created at the machine during the following operating modes:

- Starting up
- Operation
- Cleaning, troubleshooting and maintenance
- Decommissioning

Above 85 dB (A), hearing protectors must be worn. You will find the value for the sound pressure level in the “Technical data” section.

⚠ WARNING

Hearing loss caused by noise

- ▸ Wear the mandatory personal hearing protectors.

2.16.1 Operator

The operator must provide their personnel with hearing protectors.

Instruct your personnel to always wear their personal hearing protectors. As the operator, you are responsible for ensuring that your personnel comply with this regulation.

All soundproofing equipment must be fitted and in perfect condition. It must be fitted during operation. A high sound level can cause permanent hearing damage.

2.17 Safety-related parts (SRPs)

⚠ WARNING

Risk of death

Incorrect assembly of safety-related parts can result in malfunctions.

- ▸ Safety-related parts (SRP) should only ever be repaired, maintained or replaced by qualified personnel with the necessary authorization.

Safetyrelated parts (SRP) are components that ensure the safety of the machine functions. They are specially marked on spare parts sheets. When a spare part that can be used as an SRP is ordered, it is delivered in separate, clearly labelled packaging.

Read the “EB00-5-xxxxx-xxxx” sheet to ensure that you are aware of the SRPs fitted on the machine.

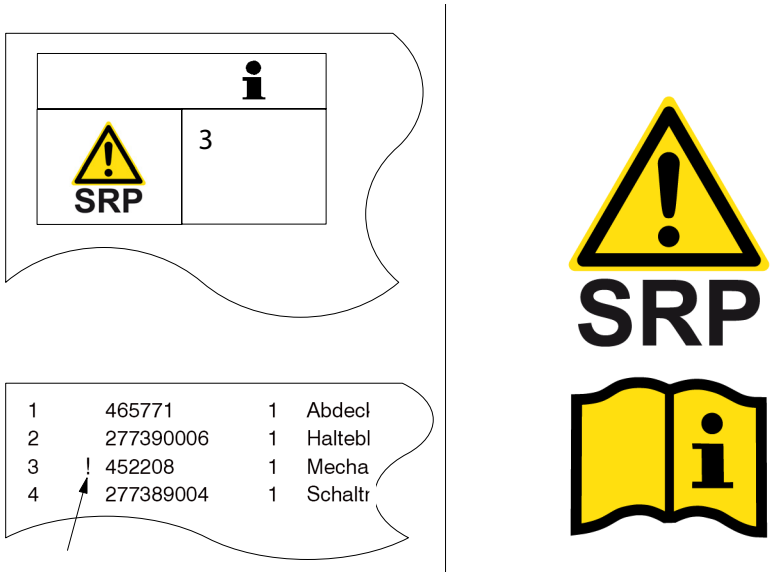


Figure 2: SRP marking

Item	Designation
Left	Spare parts sheet
Right	Spare part packaging

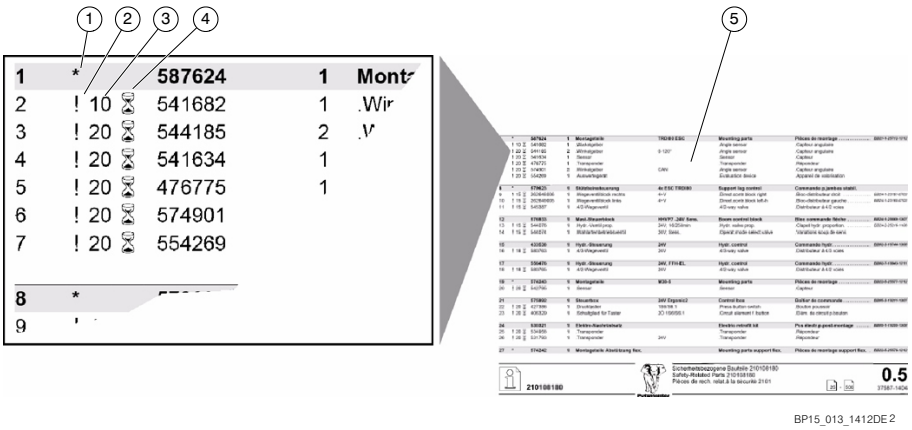


Figure 3: Extract from an example spare parts sheet

Item	Designation
1	Asterisk “*” – item cannot be ordered
2	Exclamation mark “!” - Safety-related part (SRP)
3	SRP service life in years 10 = 10 years
4	Hourglass – SRP service life
5	Example spare parts sheet “EB00-5-xxxxx-xxxx”

Putzmeister specifies a service life *(3)* for every safety-related part (SRP). The SRPs must be replaced once this service life has elapsed.

2.18 Spare parts

Spare parts must meet the technical requirements specified by the manufacturer. This is always guaranteed for original spare parts.

Use only original spare parts. The manufacturer accepts no liability for damage caused by the use of spare parts that are not original spare parts.

2.19 Accessories

Accessories must meet the technical requirements specified by the manufacturer and be compatible with one another. This is always guaranteed for original accessories.

Accessories not included in the products supplied with the machine are supplied by the manufacturer and can be purchased via the Parts Sales department. The supplied accessories are listed on the delivery note.

The operating company is responsible for ensuring that the correct accessories are used. The manufacturer accepts no responsibility or liability for damage caused by the use of third-party accessories or by incorrect use.

2.20 Storing the machine

The machine should be stored only in a dry, frostfree location.

If there is a risk of freezing at the storage location, corresponding frost protection measures must be implemented.

2.21 Unauthorised start-up or use of the machine

2.21.1 Operating modes

There is a danger posed by unauthorised start up or use of the machine during the following operating modes:

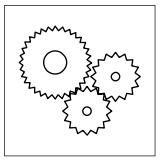
- Starting up
- Operation
- Cleaning, troubleshooting and maintenance
- Decommissioning

2.21.2 Securing the machine

The machine operator must always be able to see the machine. If necessary, the machine operator must appoint a person to monitor the machine. If unauthorised persons approach the machine, the machine operator must cease work immediately.

Always secure the machine against unauthorised start-up before you move away from the machine:

- Switch off the main switch
- Lock the main switch with a padlock



3 General technical description

This chapter describes the components and assemblies on this machine and describes how they function. Please note that possible (optional) auxiliary equipment is also described.

3.1 Machine model

Your machine is a P 12 auger pump.

The following data can be found on the rating plate:

- Machine model
- Machine number

You will make it much easier for us to respond to any questions or orders if you give us the details of the machine model and the machine number.

3.2 Overview

You can find a description of the most important components below.

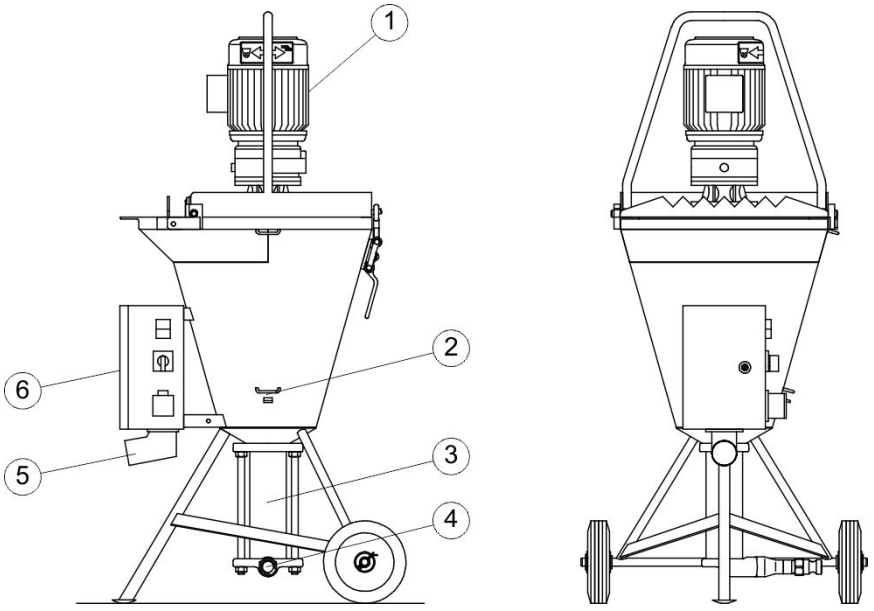


Figure 4: Machine overview

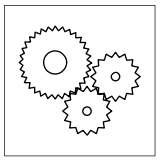
Item	Designation
1	Gear motor
2	Rating plate
3	Auger pump
4	Pressure connection
5	External device plug (power connection)
6	Control cabinet

3.3 Technical data

Dimensions	
Length	714 mm
Width	696 mm
Height	1437 mm
Filling height	939 mm
Reservoir volume	50 l

Weight	
Gross weight	125 kg

Performance data	
Gear motor	1.5/1.7 kW 400 V N=90/181 (111469060)
	1.5/1.7 kW 3 x 230 V N=90/181 (111469040)
	1.7/2.0 kW 440 V/60 Hz N=99/199 (111469070)
Auger pump (dependent on model)	D 5 short
Delivery rate	6–12 l/min
Delivery pressure	25 bar
Maximum delivery pressure	See rating plate
Delivery distance	30 m horizontally, 15 m vertically
Conveyed material particle size	Max. 4 mm
Sound power level	See plate on the machine
Sound pressure level	< 85 dB(A)



Electrical connection	
Power connection	The electrical connection must be made on the basis of the electrical circuit diagram supplied. The electrical circuit diagram can be found in the machine spare parts list.

Water connection	
Lowpressure hose connection	GEKA 3/4”
Pipe diameter	3/4”
Water pressure	Min. 2 bar, max. 6 bar

The output specifications are guide values.

The maximum delivery rate and the maximum delivery pressure cannot be achieved simultaneously.

The specifications depend on the following variables:

- Material to be pumped
- Material composition
- Consistence

3.4 Rating plate

The most important machine specifications are shown on the rating plate.

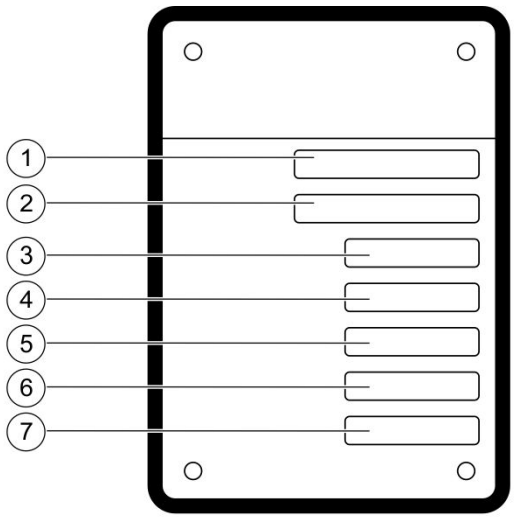


Figure 5: Rating plate

Item	Designation
1	Model (machine model)
2	Machine no. (machine number)
3	Year of manufacture
4	Max. delivery pressure [bar]
5	Voltage [V]
6	Frequency [Hz]
7	Power [kW]

3.5 Sound power level

Next to the rating plate on the machine there is the plate shown in the picture below, which gives the machine's sound power level measurement.

Figure 6: Plate – sound power level

Item	Designation
L_{WA}	Sound power level
dB	Value in decibels

3.6 Options

Consult your dealer or local Putzmeister Mörtelmaschinen GmbH representative as to how and whether you should upgrade your machine.

You can find further options and accessories in the Putzmeister Mörtelmaschinen GmbH catalogue or online at: www.pmmortar.de

3.7 Safety equipment

The following is a list of safety equipment installed on the machine.

⚠ WARNING

Risk of injury if not all safety equipment is fitted and fully functional

- Only operate the machine with all safety equipment fitted and fully functional.

3.7.1 EMERGENCY STOP button

Depending on the version and country of use, your machine may be fitted with an EMERGENCY STOP button. The EMERGENCY STOP button is fitted to the control cabinet of the machine.

If your machine does not have an EMERGENCY STOP button, switch it off at the main switch when an impending danger arises. *(Emergency shutdown procedure P. 6 — 3)*

⚠ WARNING

Danger to persons from the machine

1. If situations arise during operation which could endanger persons, the machine must be stopped immediately by pressing the EMERGENCY STOP button.
2. After an EMERGENCY STOP, eliminate the danger before restarting operation.

NOTICE

Machine damage caused by incorrect actuation of the EMERGENCY STOP button

1. Only press the EMERGENCY STOP button in the event of danger.
2. Do **not** use the EMERGENCY STOP button to switch off the machine.

Familiarise yourself with the position of the EMERGENCY STOP button(s) on your machine.

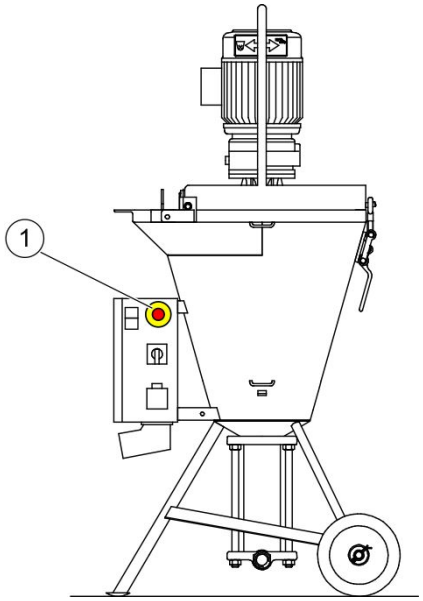


Figure 7: Position of the EMERGENCY STOP button

Item	Designation
1	EMERGENCY STOP button

Pressing the EMERGENCY STOP button triggers the following actions:

- The motor switches off.
- The pump stops.
- The agitator switches off.
- All control panels and switch boxes are electrically locked.

To cancel the EMERGENCY STOP status, unlock the depressed EMERGENCY STOP button by turning it.

3.7.2 Protective grille

There is a protective grille on the machine's hopper. It is protected by a safety switch. The safety switch switches off the agitator as soon as the protective grille is opened.

The mesh size of the protective grille is such that material can fall unobstructed into the container, yet it guarantees protection for the machine operator.

⚠ WARNING

Risk of injury due to removed protective grille

1. Make sure that the protective grille is fitted in every operating mode.
2. Fit the protective grille again every time maintenance work is completed.
3. Only operate the machine when the protective grille is closed.

3.8 Description of the functions

The following sections are intended to help you understand the operational sequences of the machine so that you can limit the field of application of the machine to suitable areas and avoid faults in operation.

The machine is only suitable for conveying cementitious adhesive, thin skim plaster and fireprotection mortar.

The machine is filled via the hopper.

From the hopper, the mixed material is pumped through an auger pump and into the delivery hose. A spray gun (not included with the products supplied) can be attached to the end of the delivery hose. Air is introduced from the compressor (not included with the products supplied) and the mortar applied in the desired layer thickness.

3.9 Control cabinet

The machine is operated and controlled from the control cabinet.

3.9.1 General

⚠ DANGER

Risk of death due to fatal electric shock

- Work on the electrical system may only be carried out by certified, licensed and qualified electricians (proof of qualification in line with EN 60204, part 1, page 14, item 2.21).

NOTICE

Machine damage caused by incorrect fuses

Overriding fuses or fuses that are too strong may destroy the electrical system.

- Use only original fuses with the specified voltage rating.

The wiring, earthing and connections on the control cabinet comply with VDE codes of practice.

3.9.2 Overview

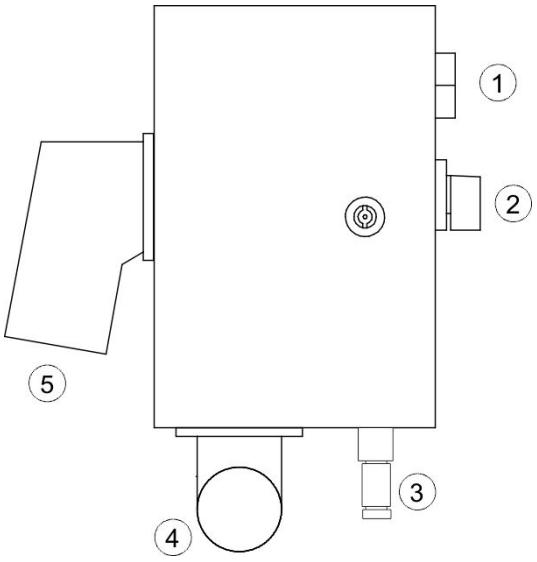


Figure 8: Control cabinet

Item	Designation
1	“Motor ON – OFF” double push-button
2	“Mix – OFF – Pump” selector switch
3	“Remote control connection” connector plug
4	“Gear motor connection” additional device socket
5	“Power supply connection” CEE external device plug

3.10 Auger pump

The auger pump fitted in the machine is a so-called displacement pump. An screw conveyor (rotor) rotates inside a fixed screw conveyor barrel (stator). The screw conveyor is made from a highly wear-resistant and extremely hard metal alloy; the screw conveyor barrel from a steel sleeve with several slots and an elastic, vulcanised rubber core.

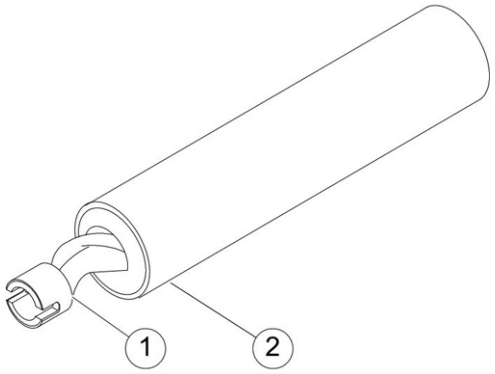


Figure 9: Auger pump overview

Item	Designation
1	Screw conveyor
2	Screw conveyor barrel

Depending on the model, the auger pump can be equipped with a clamping sheath for tightening.

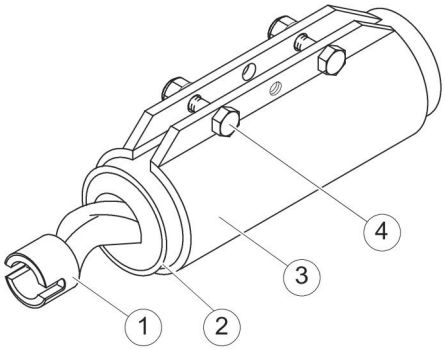


Figure 10: Auger pump with clamping sheath overview

Item	Designation
1	Screw conveyor
2	Screw conveyor barrel
3	Clamping sheath
4	Clamping bolts

3.11 Cable remote control

The machine is fitted with a cable remote control. It can be used to switch the auger pump on and off. The socket for this is located on the control cabinet.

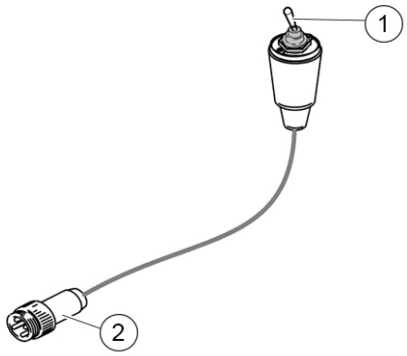
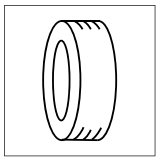


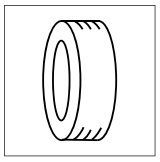
Figure 11: Cable remote control

Item	Designation
1	“ON – OFF” toggle switch
2	“Remote control” connector plug



4 Transport, setting up and connection

In this chapter you will find information concerning safe transport of the machine. In this chapter, you will furthermore find information on tasks necessary for the assembly and connection of the machine. Starting up the machine is described in the *(Starting up P. 5 — 1)* chapter.



4.1 Unpacking the machine

The machine is packaged for transport at the works. The packaging is made from recyclable material.

Dispose of the packing material in compliance with the nationally valid environmental protection regulations.

4.2 Transporting the machine

In order to transport your machine, you must load it onto a suitable transport vehicle.

⚠ WARNING

Risk of crushing due to lifting and loading the machine

1. Only use a crane for lifting if the machine is fitted with suitable lifting eyes.
2. Use lifting equipment, lifting tackle, support trestles and other auxiliary devices that are reliable and safe in operation.

⚠ WARNING

Risk of death or injury from falling loads

1. Use only auxiliary loading equipment designed for the weight of the machine.
2. Use all available lifting points.
3. Do **not** walk under suspended loads.

4.3 Selecting a setup site

As a rule, the site management determines the set-up site for the machine and prepares the site accordingly.

The responsibility for setting up the machine safely falls on the machine operator.

The set-up site must fulfil the following criteria:

- The supporting ground must be level, even and firm.
- The set-up site must be large enough to ensure that there is sufficient clearance around the whole machine.
- The machine must be accessible from all sides for servicing and repair purposes.
- The set-up site must be sufficiently illuminated.

Inspect the proposed site carefully and reject the set-up site if you have any doubts in respect of safety.

⚠ WARNING

Risk of injury due to falling items

People may be seriously injured or killed by falling items.

1. Set up the machine outside the danger zone of elevated workplaces.
2. Protect workplaces at the machine with suitable protective roofs.

When selecting a setup site for the machine, make sure that:

- There is no need for any sharp hose bends,
- Hoses do not lie on top of one another (risk of chafing),
- The lines are kept as short as possible.

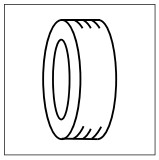
The machine must be installed horizontally and secured against moving.

4.4 Electrical connection

The electrical connection must be made on the basis of the electrical circuit diagram supplied. The electrical circuit diagram can be found in the machine spare parts list.

For the electrical connected loads, please refer to the “General technical description” chapter or the electrical circuit diagram.

The electrical connected loads are also shown on the machine's rating plate.



DANGER

Risk of death due to fatal electric shock

- Work on the electrical system may only be carried out by certified, licensed and qualified electricians (proof of qualification in line with EN 60204, part 1, page 14, item 2.21).

DANGER

Risk of death due to incorrect electrical connection or damaged electrical lines

1. Before establishing electrical connections, check that the electrical lines are not damaged.
2. Make sure that the electrical connections have been established correctly.

4.4.1 Power sources

Electrical installation prerequisites should be checked by a qualified electrician before connection work begins.

The machine must be connected to a separate feed point on construction sites. The following power sources are permissible as a special feed point:

- Site power distribution point
- Small site power distribution point
- Protective distributor
- Movable protective device

The power source must fulfil the following criteria:

- The connected load of the existing electrical installation must be sufficient for the machine. Please refer to the technical data for the maximum pre-fuse.
- All three phases and the protective earth conductor must be present.

4.4.2 Electrical supply cables

Supply cables must be laid neatly, taking local conditions into consideration, and safeguarded against damage.

DANGER

Risk of death due to fatal electric shock from damaged cables

If cables are installed unprotected on the construction site, they may be damaged by environmental or mechanical factors.

1. Install cables from the power source to the machine such that they are safe and protected.
2. Make sure that the cables are installed such that they are protected from mechanical damage and environmental influences. If necessary, install the cables in cable ducts.

DANGER

Risk of death due to fatal electric shock from control cabinets and terminal boxes

It is possible to come into direct contact with live parts on control cabinets and terminal boxes.

Please note that the control cabinet can only be opened with a special key or tools.

- Only qualified personnel may open the control cabinet.

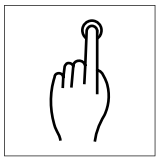
4.4.3 Connecting the machine

DANGER

Risk of death from switching on the main switch too soon

1. The main switch must remain secured while the machine is set up.
2. Only switch on the main switch once the machine has been completely and correctly set up.

- Plug the connector of the supply cable into the external device socket.
  ⇒ The machine is ready for operation.



5 Starting up

This chapter contains information on starting up the machine. It describes the work steps required for the initial commissioning of the machine and how to prepare the machine before use after longer breaks. There is also a description on how to check the condition of your machine and how to carry out a test run with function checks.

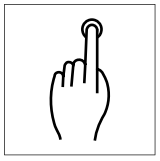
The operating personnel should be instructed on the machine during the initial commissioning.

For every use of the machine, the operator of the machine accepts full responsibility for the safety of anyone located in the device's danger zone. The operator is therefore under an obligation to ensure the operational safety of the machine.

After receiving the machine, the operator must familiarise themself with the machine. This means:

- The operator must have read and understood the Operating Instructions (particularly the “Safety regulations” chapter).
- The operator must implement the correct measures in an emergency and switch off and secure the machine.

The entire machine must be monitored during the first operating hours to detect any malfunctions.



5.1 Checks

Each time your machine is used, you should check the condition of the machine and carry out a test run including function checks. If you identify any defects during the checks, you must eliminate these (or have these eliminated) immediately.

5.1.1 Visual checks

Some visual checks should be carried out before starting up the machine.

1. Always check the machine thoroughly for defects before the start of work.
2. Check the delivery line for damage.
3. Check whether all safety equipment is fitted and fully functional.
4. Check that the components have been correctly assembled.
5. Observe the warning and information plates on the machine.

5.1.2 Electrical connection

Using faulty electrical components or connecting components incorrectly may result in serious (possibly fatal) injury or severe damage to the machine.

1. Always check all electrical components carefully for defects before the start of work.
2. Check whether the required power supply is available.

5.2 Test run

A test run must be carried out before operating the machine. During the test run, different functions are checked.

NOTICE

Machine damage caused by defects not having been rectified

- Any defects found during these tests must be rectified immediately. A fresh inspection is necessary after every repair. The machine may only be put into operation once all the inspections described below have been concluded satisfactorily.

5.2.1 Switchon conditions

Before switching on the auger pump, the following switch-on conditions must be present:

1. Check whether the machine is in a level position.
2. Check whether the required power supply is available.

5.2.2 Switching on the pump

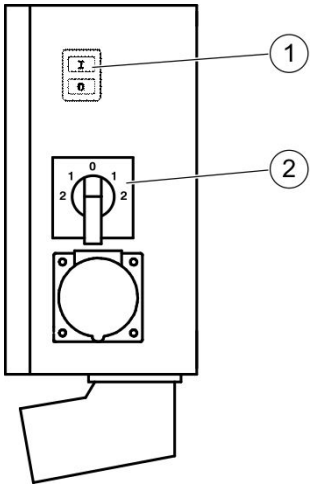


Figure 12: Operating panel on the control cabinet

Item	Designation
1	“Motor ON – OFF” double push-button
2	“Mix – OFF – Pump” selector switch

1. Set the “Mix – OFF – Pump” selector switch to “0”.
2. Switch on the machine using the double push-button.
   ⇒ The motor is running.

5.2.3 Checking the operating states

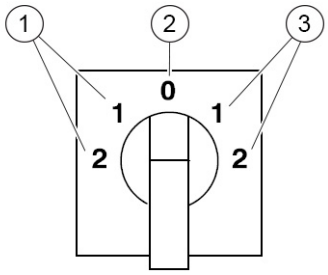


Figure 13: “Mix – OFF – Pump” selector switch

Item	Designation
1	Mixing range
2	OFF
3	Pumping range

Check the individual operating states using the “Mix – OFF – Pump” selector switch.

1. Turn the “Mix – OFF – Pump” selector switch anticlockwise to “Mix”. Set it either to stage 1 or 2.
   ⇒ The machine starts to mix.
2. Turn the “Mix – OFF – Pump” selector switch clockwise to “Pump”. Set it either to stage 1 or 2.
   ⇒ The machine starts to pump.
3. Switch the “Mix – OFF – Pump” selector switch to “0”.
   ⇒ The machine stops.

5.3 Function checks

Before using the machine, the following functions must be checked with the machine running.

5.3.1 Checking the EMERGENCY STOP button

Depending on the version, your machine may be fitted with an EMERGENCY STOP button.

Check the operability of the EMERGENCY STOP button.

NOTICE

Machine damage caused by incorrect actuation of the EMERGENCY STOP button

1. Only press the EMERGENCY STOP button in the event of danger.
2. Do **not** use the EMERGENCY STOP button to switch off the machine.

⚠ WARNING

Risk of injury due to defective EMERGENCY STOP button

The machine is no longer safe to operate if the EMERGENCY STOP button is defective, as you will no longer be able to switch off the machine quickly enough in the event of danger.

1. If the EMERGENCY STOP button does not respond during the check, the machine must not be started up.
2. Eliminate the fault.

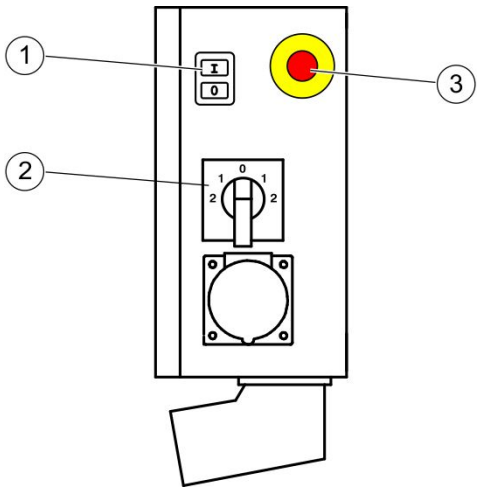
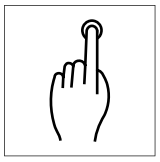


Figure 14: Control cabinet

Item	Designation
1	“Motor ON – OFF” double push-button
2	“Mix – OFF – Pump” selector switch
3	EMERGENCY STOP button

1. Set the “Mix – OFF – Pump” selector switch to “0”.



2. Switch on the machine using the double push-button.
   ⇒ The motor is running.
3. Turn the “Mix – OFF – Pump” selector switch clockwise to “Pump”.
   ⇒ The machine starts to pump.
4. Press the EMERGENCY STOP button.
   ⇒ The pump stops.
   ⇒ The motor is switched off.
   ⇒ All control panels and switch boxes are electrically locked.
5. Unlock the EMERGENCY STOP button by turning it.

5.3.2 Checking the delivery line

Use only original delivery lines from the machine manufacturer that are designed for the required operating and maximum pressures.

NOTICE

Contaminated couplings

Contaminated couplings are not properly sealed and allow water to leak out under pressure. This inevitably causes blockages.

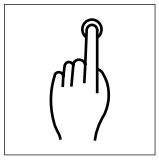
- Only couple delivery line couplings which have been cleaned and have fully functional gaskets.

Only original couplings and connections from the machine manufacturer guarantee compliance with the values specified in the German Accident Prevention Regulation.

Use only delivery lines with a suitable internal diameter.

You must secure the coupling parts on delivery lines with threaded spouts by gluing. If a coupling part needs to be replaced, carry out the following steps:

1. Use a suitable device to secure the new coupling against being opened.
2. Screw the coupling onto the delivery line element as far as the stop.
   ⇒ It must no longer be possible to loosen the coupling by hand.



6 Operation

This chapter contains information on operating the machine. It explains the work steps required for setting, operation and cleaning.

6.1 Requirements

You must have completed the operations for setting up and starting up the machine before you begin operating the machine.

Before you fill the machine with material and start pumping it through the delivery line, you must make sure that:

- The machine functions correctly
- The delivery line is designed for the specified delivery pressure
- The delivery line has been installed properly

If a malfunction occurs during the pumping process, consult the “Faults, cause and remedy” chapter first. Contact the manufacturer's After Sales department for advice if you are unable to rectify the fault yourself.

6.2 Emergency shutdown procedure

Make sure you are completely familiar with the procedure for shutting down the machine in an emergency situation before you start operating the machine.

6.2.1 Without EMERGENCY STOP button

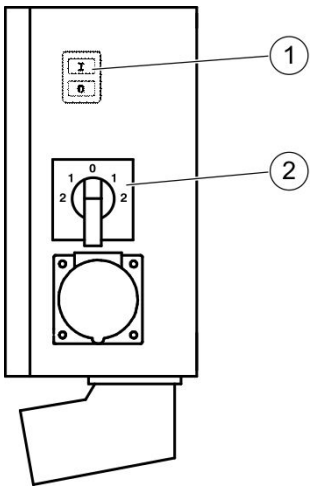


Figure 15: Operating panel on the control cabinet

Item	Designation
1	“Motor ON – OFF” double push-button
2	“Mix – OFF – Pump” selector switch

If your machine does not have an EMERGENCY STOP button, proceed as follows in an emergency.

1. Switch the “Motor ON – OFF” double push-button on the control cabinet to “0” (OFF).
2. Switch the “Mix – OFF – Pump” selector switch to “0”.
3. Disconnect the mains plug from the machine if possible.
4. Shut off the water supply if possible (e.g. at the tap).
5. If necessary, take first-aid measures.
6. Look for the cause of the fault and rectify it.
7. Note down the incident and report it in line with company guidelines.
8. Start the machine up again.

6.2.2 With EMERGENCY STOP button

Depending on the version and country of use, your machine may be fitted with an EMERGENCY STOP button.

The EMERGENCY STOP button is fitted to the control cabinet of the machine.

Familiarise yourself with the position of the EMERGENCY STOP button(s) on your machine.

1. In the event of impending danger, press the EMERGENCY STOP button
   ⇒ The pump stops.
   ⇒ The agitator switches off.
   ⇒ The motor is switched off.
   ⇒ All control panels and switch boxes are electrically locked.
2. If necessary, take first-aid measures.
3. Look for the cause of the fault and rectify it.
4. Note down the incident and report it in line with company guidelines.
5. Unlock the EMERGENCY STOP button by turning it.
6. Start the machine up again.

6.3 Starting to pump

The process from the start of forward pumping to the time at which a continuous flow of material exits from the delivery line is known as starting to pump. This can take place at the start of site use, but also after breaks in pumping.

The inside of the entire delivery line must be pre-lubricated at the start of pumping operations.

NOTICE

Machine damage caused by dry running

The grout lubricates the inside of the delivery line and prevents blockages. It is destroyed if the screw conveyor runs dry.

- ▸ Use cement grout when starting to pump.

Depending on the length of the delivery line, you will need approx. 20–40 litres of cement grout.

1. Rinse the delivery line out briefly with water before connecting it. Use one or two of the sponge balls provided as standard accessories soaked in water to do this.
2. Mix the cement grout and fill it into the hopper.
3. Provide a suitable container at the end of the delivery line to collect the cement grout.
4. Switch the pump on. See the “Starting up” chapter.
5. Pump the grout slowly into the delivery line.
   ⇒ The cement grout is collected in the provided container.
6. Correctly dispose of the cement grout.

The process of starting to pump with grout is completed when the two sponge balls and a solid material stream exit from the delivery line.

6.4 Pumping operations

Carefully complete the operations for starting up and setting up the machine. Make sure that your machine is functioning correctly before you fill the hopper with material and start pumping it through the delivery line.

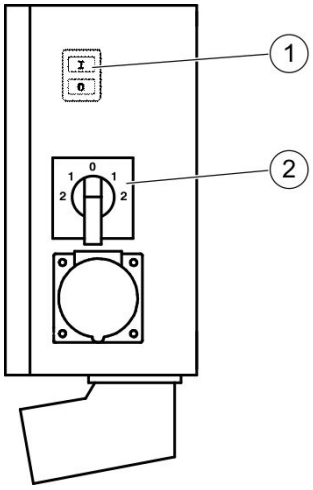


Figure 16: Operating panel on the control cabinet

Item	Designation
1	“Motor ON – OFF” double push-button
2	“Mix – OFF – Pump” selector switch

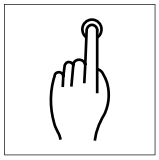
1. Switch the “Motor ON – OFF” double push-button *(1)* on the control cabinet to “I”.
   ⇒ The motor is running.
2. Pre-lubricate the delivery line with grout *(Starting to pump P. 6 — 5)*.

⚠ WARNING

Risk of the delivery line bursting in case of a blockage

- Never pump segregated material or material that has become lumpy because it is beginning to set into the delivery line.

3. Add pumpable material to the hopper.



⇒ The material in the hopper is mixed together.

The pump is generally started at a low speed of rotation. Once the delivery line has been lubricated, pumpable material is first delivered at the lowest possible speed of rotation. If the pump is working soundly, the delivery rate can be increased.

4. Switch on the auger pump *(Starting up P. 5 — 1)*.
   ⇒ The auger pump transports the material from the hopper to the delivery line.

NOTICE

Auger pump stops due to overloading

1. Reduce the delivery rate.
2. Reduce the length of the delivery line.

6.5 Mixing and pumping

Below is a description of the procedure for first mixing and then pumping material with the machine.

NOTICE

There is a risk of machine damage due to filling the hopper with the mixer shut down.

- ▸ Only fill the hopper with the mixer running.

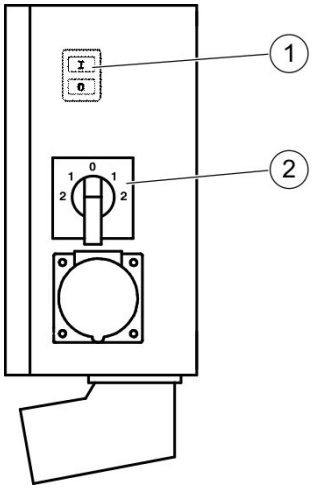


Figure 17: Operating panel on the control cabinet

Item	Designation
1	“Motor ON – OFF” double push-button
2	“Mix – OFF – Pump” selector switch

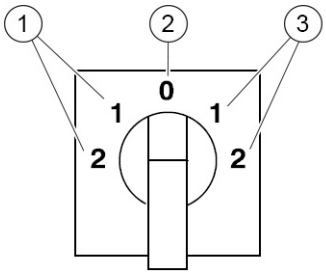
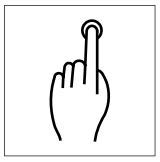


Figure 18: “Mix – OFF – Pump” selector switch

Item	Designation
1	Mixing range
2	OFF
3	Pumping range

1. Switch on the machine using the double push-button.
   ⇒ The motor is running.
2. Set the “Mix – OFF – Pump” selector switch anticlockwise to “Mix”, either to stage “1” or “2”.
3. Fill the required mixing water into the hopper and then gradually add the material to be mixed.
4. Attach the electrical remote control to the end of the delivery hose.



If required, connect an air line to the spray gun from a separate compressor.

Only compressors equipped with the required safety devices, such as pressure gauges and safety valves, must be used.

6.5.1 Possible applications

The machine can be used for different uses, such as compaction, injection, spraying, texturing. Described below are a few possible applications.

⚠ WARNING

Risk of injury due to the conveyed material spraying out

- Wear protective goggles when using a spray gun.

Accessories not included in the products supplied with the machine are supplied by the manufacturer and can be purchased via the Parts Sales department. The supplied accessories are listed on the delivery note.

6.5.1.1 Application of cementitious adhesive

Most adhesives are supplied wet by their manufacturers. Only a particular amount of cement must be added.

The maximum permitted hose length is 20 m, DN 25. To prevent material runout, a shutoff valve with DN 25 must be attached to the end of the hose.

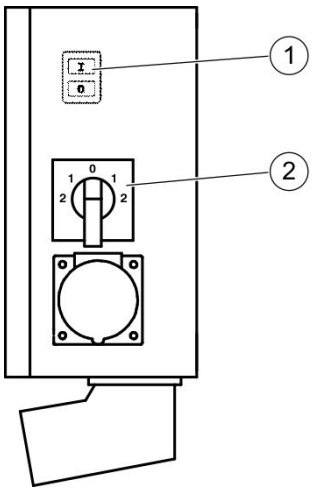


Figure 19: Operating panel on the control cabinet

Item	Designation
1	“Motor ON – OFF” double push-button
2	“Mix – OFF – Pump” selector switch

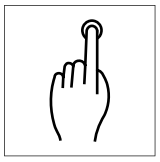
1. Set the “Mix – OFF – Pump” selector switch anticlockwise to “Mix”, either to stage “1” or “2”.
2. Switch on the machine using the “Motor ON – OFF” double push-button.
   ⇒ The motor is running.
   ⇒ The mixer is running.
3. Fill adhesive into the hopper, add the required amount of cement and mix well.
4. Set the “Mix – OFF – Pump” selector switch clockwise to “Pump”, either to stage “1” or “2”.
5. At the end of work, switch off the pump first and then close the shut-off valve.

6.5.1.2 Mineral plaster

Mineral plaster is mixed with water according to the manufacturer’s information.

The maximum permitted hose length is 30 m, DN 25.

1. Set the “Mix – OFF – Pump” selector switch anticlockwise to “Mix”, either to stage “1” or “2”.



2. Switch on the machine using the “Motor ON – OFF” double push-button.
   ⇒ The motor is running.
3. Fill the required mixing water into the hopper and add the dry mortar.
4. Mix the material thoroughly.
5. Set the “Mix – OFF – Pump” selector switch clockwise to “Pump”, either to stage “1” or “2”.
6. Fit a fine plaster spray gun (dia. 25, with rubber nozzle, order no. 203051.005) to the end of the hose.
7. The mixed mortar can now be sprayed.

The fine plaster spray gun is not included with the products supplied.

As a rule, an air compressor with an air volume of approx. 200 l is sufficient to achieve good spraying results.

6.5.1.3 Synthetic plaster

Synthetic plaster supplied by the manufacturer in liquid form does not need to be mixed.

The maximum permitted hose length is 25 m, DN 25.

1. Switch on the machine using the “Motor ON – OFF” double push-button.
   ⇒ The motor is running.

With synthetic plaster, the machine is switched directly to “Pump”. In this way, the material can be processed continuously.

2. Set the “Mix – OFF – Pump” selector switch clockwise to “Pump”, either to stage “1” or “2”.
3. Fit a Putzmeister structure spray gun (not included with the products supplied) to the end of the hose.

4. The synthetic plaster can now be sprayed.

Use an auxiliary compressor with at least 600 l air.

6.6 Blockages

Blockages can occur inside the pump itself as well as in the delivery line. A blockage can be recognised by no material exiting the end of the line and the pressure on the pressure gauge rising. If a blockage occurs inside the pump, the overload protection may switch off the motor.

Blockages have the following causes:

- Insufficient lubrication of the delivery line.
- Hard to pump or slightly segregating conveyed material.
- Leaks at the delivery line couplings.

6.6.1 Removing blockages

1. Briefly set the machine to reverse pumping to reduce the pressure in the delivery line.
2. Switch off the motor.

⚠ WARNING

Risk of injury due to the conveyed material spraying out

1. Secure the danger zone to prevent unauthorised access.
2. Wear protective goggles.
3. Always wear personal protective equipment.
4. You should only uncouple the delivery line once you have checked the pressure gauge to see that the system is fully depressurised.
5. Turn your face away when opening the line coupling.
6. Open the coupling carefully.

3. Uncouple the delivery line and clear the blockage in the line by shaking and tapping it.

DANGER

Risk of death due to bursting delivery line

1. Never remove a blockage using compressed air.
2. With stubborn blockages, rinse the line with water.

4. When you start the machine up again, add cement grout to the delivery line.

6.7 Using the cable remote control

To use the cable remote control, proceed as follows:

If the power supply is interrupted, the machine cannot start up again automatically. The cable remote control must be switched off before the machine is enabled again. The pump can then be switched on using the double push-button. The cable remote control is now enabled again.

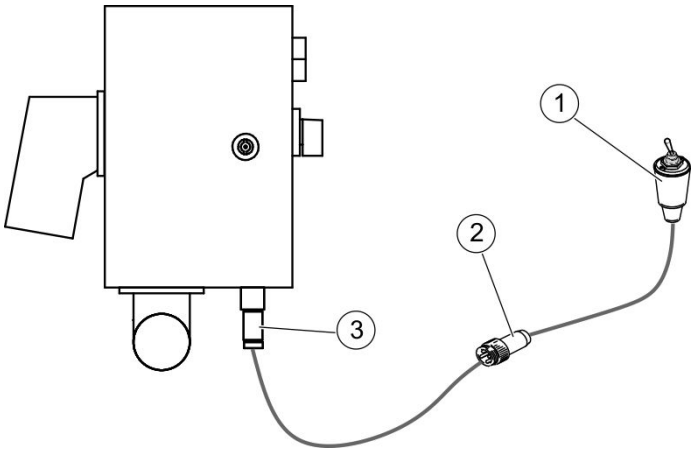


Figure 20: Connecting the cable remote control to the control cabinet

Item	Designation
1	Cable remote control
2	“Remote control” connector plug
3	“Remote control” blanking plug on the control cabinet

1. Pull out the “Remote control” blanking plug *(3)* on the control cabinet.

2. Plug the “Remote control” connector plug *(2)* into the socket of the remote control.
3. Switch on the pump using the “Pump ON/OFF” double push-button.
4. Set the pump motor to “Mix” or “Pump” using the “Mix – OFF – Pump” selector switch and set to stage I or II.
5. Switch on the pump using the “ON – OFF” toggle switch on the cable remote control.
   ⇒ The auger pump starts running.

In the event of a power cut, the machine does not restart automatically. First of all, switch off the cable remote control. Then switch the pump back on at the double pushbutton. The cable remote control is now enabled again.

6.8 Cleaning

6.8.1 General

At the end of work, the machine and delivery line must be cleaned. A clean machine and delivery line are indispensable to permit fault-free delivery when they are next used.

Material deposits and contamination inside the machine and delivery line can impair the function of the machine.

NOTICE

Environmental pollution caused by cleaning agents or fuel

Cleaning agents or fuel must not enter the sewage system.

- During all cleaning work, observe the waste disposal regulations that apply to your region.

NOTICE

Machine damage caused by water penetration

1. Prior to cleaning the machine with water or a steam jet/high-pressure cleaner or other cleaning agents, cover or seal all openings which water, steam or cleaning agents must not penetrate for safety or operating reasons. Especially at risk are electric motors, control cabinets and electrical plug-in connections.
2. The the machine may only by cleaned with a steam jet/high-pressure cleaner on the outside.

NOTICE

Machine damage caused by frost

- If there is a risk of freezing, drain the machine and all lines fully of residual water.

Water spraying on the machine from random directions has no damaging effect. The machine is splashproof but not watertight.

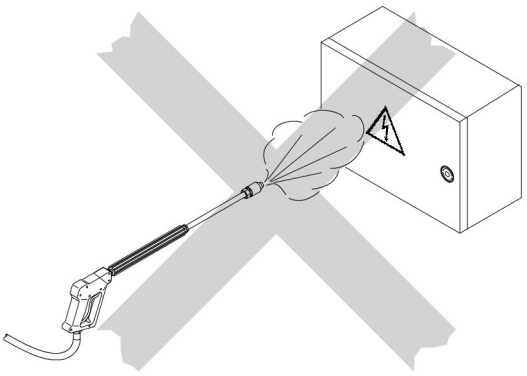


Figure 21: No water in the electrical system

1. In the first six working weeks, clean all painted surfaces with cold water only at a maximum water pressure of 5 bar. Only after this time will the paint have hardened completely, allowing you to use steam jet equipment or similar auxiliary devices.
2. Do not use any aggressive cleaning agents.

3. Never use sea water or other water containing salt for cleaning purposes.
4. Rinse the machine immediately with clean water if it comes into contact with sea water.
5. Completely remove all covers/tape after cleaning.

6.8.2 Cleaning the delivery line

Material deposits inside the delivery line can cause damage and continue to accumulate, thereby reducing the line cross section. To allow faultfree operation at the next use, it is vital that all delivery lines are clean.

DANGER

Risk of injury due to cleaning the delivery line with compressed air

- Please note that if you clean the delivery line with compressed air, you are doing so at your own risk. The manufacturer accepts no liability for damage caused by compressed air cleaning.

WARNING

Risk of injury due to the conveyed material spraying out

1. Secure the danger zone to prevent unauthorised access.
2. Wear protective goggles.
3. Always wear personal protective equipment.
4. You should only uncouple the delivery line once you have checked the pressure gauge to see that the system is fully depressurised.
5. Turn your face away when opening the line coupling.
6. Open the coupling carefully.

To clean the delivery line, one or two sponge balls of a suitable size are required.

A frequent error committed when cleaning the delivery lines is pumping water through the delivery line before a sponge ball has been inserted. This later leads to blockages in the delivery line caused by residual sand in the delivery line.

The delivery line is cleaned by water pressure. Use the water connection piece included in the accessory package for this purpose.

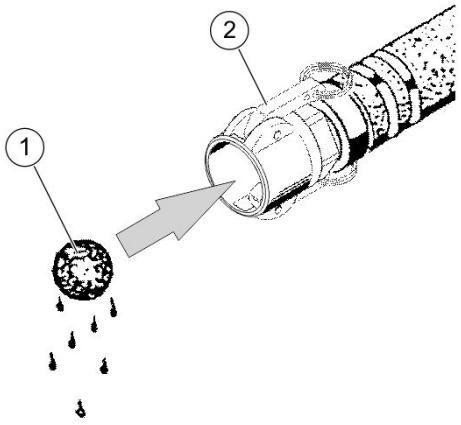


Figure 22: Cleaning the delivery line

Item	Designation
1	Sponge ball
2	Delivery line

1. Release the delivery line at the pressure connection.
2. Soak a sponge ball *(1)* in water.
3. Push the wellsoaked sponge ball into the delivery line.

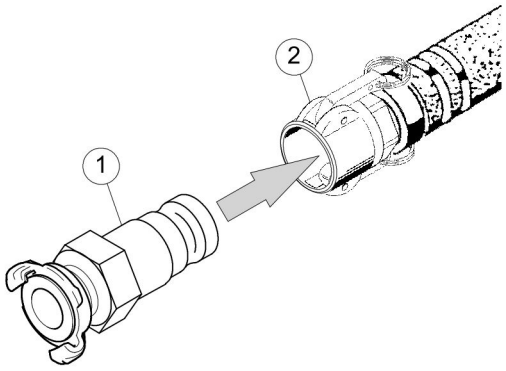


Figure 23: Water connection piece

Item	Designation
1	Water connection piece
2	Delivery line

4. Connect the water connection piece *(1)* to the delivery line.
5. Attach the water connection piece to the water supply line.
6. Use the water pressure to push the leavings and sponge balls out of the delivery line.
7. Collect the emerging mortar in a suitable container.

If the pressure in the water line is insufficient for cleaning the delivery line, you must use the pump for cleaning.

Using the pump for cleaning increases wear of the pump components. If the water line pressure is repeatedly insufficient, use an auxiliary water pump.

6.8.3 Cleaning seals

Contaminated couplings are not sealed and lead to blockages.

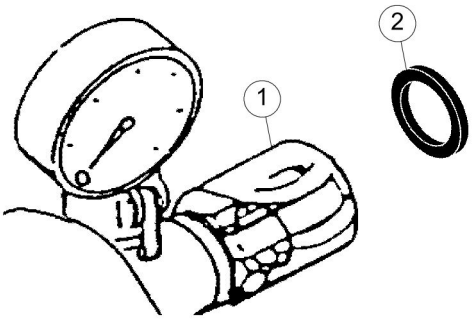


Figure 24: Cleaning seals

Item	Designation
1	Pressure connection
2	Rubber seal

1. Clean all seals and seal seats.
2. Grease the seals before replacing them.
3. If there is a risk of freezing, drain the machine and lines fully of residual water.

6.8.4 Cleaning after a power failure

If there is a site power failure, and the cause cannot be remedied immediately, you should clean the machine and the delivery lines at once.

Clean the machine and delivery lines as described in the “Cleaning” section.

⚠ WARNING

Risk of injury due to the conveyed material spraying out

1. Secure the danger zone to prevent unauthorised access.
2. Wear protective goggles.
3. Always wear personal protective equipment.
4. You should only uncouple the delivery line once you have checked the pressure gauge to see that the system is fully depressurised.
5. Turn your face away when opening the line coupling.
6. Open the coupling carefully.

1. Loosen the tie bolt on the auger pump and remove the pump.
2. Press the screw out of the screw conveyor barrel and clean it.
3. Clean the whole machine and reassemble it ready for operation.
4. Locate and remedy the cause of the power failure.

7 Faults, cause and remedy

This chapter gives you an overview of faults and their possible causes, and also ways in which you may rectify them. Observe the safety regulations when troubleshooting.

The inspection and maintenance personnel must have completed training relevant to working with the equipment on the machine and be conversant with the content of the Operating Instructions.

If you cannot rectify the fault yourself, contact the relevant Service department at the manufacturer or a dealer authorised by the manufacturer.

Use only original spare parts. The manufacturer accepts no liability for damage caused by the use of nonoriginal spare parts.

7.1 General machine

The following section provides a description of possible causes of faults and their remedies.

7.1.1 The machine does not start

Cause	Remedy
No power present.	Check the connection and fuse at the site distribution board. Maximum fuse 10 A (400 V), 16 A (230 V).
Cable connection to the site distribution board	Check the plug-in connection and cable for damage.

7.1.2 Material flow interrupted

Cause	Remedy
The material exits irregularly at the end of the delivery line and is spraying with force.	Check whether the hopper is nearly empty thus allowing air to be sucked in. Always ensure that there is sufficient material in the hopper.
The flow of material is being constantly interrupted without spraying.	Check whether the air valve on the spray gun is fully open. Check whether the delivery line forms a loop or is kinked. Check whether the air nozzle pipe on the spray gun is clear. If it is blocked, clean it.

7.1.3 Agitator in the hopper is not running

Cause	Remedy
The protective grille on the hopper is open or the safety switch is defective.	Close the protective grille on the hopper and check the safety switch.

7.2 Electrical system

The following section provides a description of possible causes of faults affecting the electrical system, and their remedies.

DANGER

Risk of death due to fatal electric shock

- Work on the electrical systems and equipment of the machine must only be carried out by a qualified electrician or by instructed persons under the supervision and guidance of a qualified electrician and in accordance with electrical engineering rules and regulations.

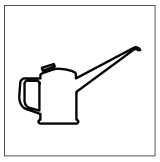
7.2.1 Power failure

If there is a site power failure, and the cause cannot be remedied immediately, you should clean the machine and the delivery hoses at once. Clean the machine and delivery hoses as described in the “Cleaning after a power failure” section of the “Operation” chapter.

⚠ WARNING

Risk of injury due to the conveyed material spraying out

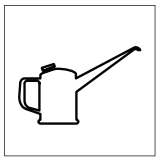
1. Secure the danger zone to prevent unauthorised access.
2. Wear protective goggles.
3. Always wear personal protective equipment.
4. You should only uncouple the delivery line once you have checked the pressure gauge to see that the system is fully depressurised.
5. Turn your face away when opening the line coupling.
6. Open the coupling carefully.



8 Maintenance

In this chapter you will find information on maintenance work which is necessary for the safe and efficient operation of the machine.

We would like to explicitly emphasise here that all prescribed checks, inspections and preventative maintenance work must be conscientiously carried out. Otherwise we will refuse any liability or warranty claim. Our After Sales department is available at any time should you have any questions.



8.1 Maintenance and inspection by the machine operator

Regular preventative inspections allow you to detect machine damage well in advance and implement the necessary repair measures. See the “Maintenance intervals” section for information on the type and frequency of necessary inspection work. It is recommended that the details and results of the inspections are documented in a suitable format.

For inspection and maintenance work carried out by the machine operator, the inspection and maintenance personnel must have authorisation and the necessary technical qualification. The persons tasked with inspection and maintenance work must receive particular technical training. They must have completed training relevant to working with the equipment on the machine and be conversant with the content of the Operating Instructions.

Use only original spare parts. The manufacturer accepts no liability for damage caused by the use of nonoriginal spare parts.

If maintenance work with the reference “Service” appears in the table, consult a service technician from the manufacturer or a dealer authorised by the manufacturer.

Have the first After Sales service carried out by a service technician of the manufacturer or a dealer authorised by the manufacturer.

8.2 Maintenance intervals

The following table shows the intervals for individual maintenance work.

⚠ CAUTION

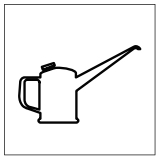
Risk of fire and short circuiting from loose cable connections in the control cabinet

- Check whether all cable connections in the control cabinet (terminals, connectors) are firmly seated during the first maintenance.

Interval	Assembly	Test criterion	Corrective measure	Comments Reference
daily	Safety equipment	Visual inspection	Repair the safety equipment	*(Visual checks P. 8 — 7)*
	Electric cabling	Visual inspection	Replace the electric cabling	
	Delivery line	Visual inspection to check: Suitability and wear That it is intended for the delivery pressure That it has been installed properly Sufficient wall thickness	Replace	
	Machine	Lubricate until you can see grease emerging		*(Lubricating the machine P. 8 — 8)*
	Hopper	Grease the freewheel bearing after cleaning the machine.		*(Lubricating the machine P. 8 — 8)*
as required	Auger pump	Visual inspection: Wear	Replace the screw conveyor.	*(Replacing the screw conveyor P. 8 — 10)*
annually	Threaded connections	Torque	Check and adjust bolted connections with the torque wrench.	See tightening torques in the spare parts sheets
3 years	Gearbox	Change gearbox oil		

8.3 Residual risks during maintenance work

Maintenance work may present a risk of personnel or third parties suffering injury or death.



8.3.1 Personnel requirements

Only qualified personnel may carry out maintenance work. Qualified personnel must have successfully completed a specialist training course that qualifies them to carry out such activities.

If you do not have qualified personnel for carrying out maintenance work, you should commission the manufacturer's After Sales department with the maintenance of your machine.

Have the first After Sales service carried out by a service technician of the manufacturer or a dealer authorised by the manufacturer.

8.3.2 Personal protective equipment

See the ““Safety regulations”” chapter for personal protective equipment requirements.

⚠ WARNING

Risk of injury due to not wearing personal protective equipment

- Always wear your personal protective equipment during maintenance work.

8.3.3 Residual risks

There are specific risks of accidents associated with maintenance work, as protective devices must be removed to perform certain activities. There follows a list of residual risks, which may be present during maintenance, inspection and repair work.

⚠ DANGER

Risk of death due to fatal electric shock

- Work on the electrical system may only be carried out by certified, licensed and qualified electricians (proof of qualification in line with EN 60204, part 1, page 14, item 2.21).

⚠ WARNING

Risk of injury due to the machine starting unexpectedly

- Before performing any maintenance work, shut down the machine and secure it to prevent accidental startup (e.g. by locking control equipment). If this is not possible, enlist the help of a second person to prevent the machine from starting unexpectedly.

⚠ WARNING

Risk of injury due to the machine rolling away

- Use chocks to secure the machine against rolling away.

⚠ WARNING

Risk of injury due to skin contact with functional fluids

1. Avoid contact with functional fluids.
2. Always wear personal protective equipment.
3. Observe the safety data sheets provided by the manufacturer of the functional fluids.

⚠ WARNING

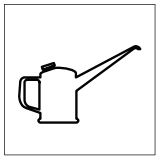
Risk of burning from hot machine components

- Allow the assemblies to cool down before you start the work.

8.4 Functional fluids

The manufacturer accepts no liability for damage caused by using unauthorised functional fluids. The documentation provided by the manufacturer always applies.

Consult the relevant Service department at the manufacturer should you have any questions.



NOTICE

Environmental pollution caused by incorrect disposal of functional fluids

1. Collect all functional fluids, e.g. used oil, filters and auxiliary materials, separately.
2. Dispose of these in line with the relevant national and regional regulations.
3. Only work with waste disposal companies who are approved by the responsible authorities. Ensure that different oils are never mixed.

8.4.1 Gearbox oil

NOTICE

Risk of machine damage due to incorrect gearbox oil

1. Only use a gearbox oil in accordance with the requirements standard specified in the lubricant recommendation for topping up or performing a full oil change. Observe the manufacturer's information in doing so.
2. Do not mix the specified oil with other oils.

If the machine is used at other ambient temperatures, the required oil grade must be requested separately. A full oil change should only be carried out when the machine is warm after operation.

8.4.2 Manual grease lubrication

Use a multipurpose grease corresponding to the lubricant recommendation for manual lubrication.

8.5 Maintenance work

In this section you will find all maintenance work for this machine.

8.5.1 Visual checks

This section describes the visual checks that must be carried out before any maintenance work.

1. Check that all safety equipment is fitted and fully functional.

⚠ WARNING

Damaged electrical lines pose a risk of death

1. Check that all electrical connections are secure and corrosion-free.
2. Check that the electrical lines have no breaks.
3. Check the condition of the insulation on all electrical lines.

2. Should you locate any damage to the electrical system, you must have the damage rectified immediately by a qualified electrician.

8.5.2 Lubricating the machine

The following overview shows the lubrication points on the machine.

The following special tools are required:

- Grease gun

Use only lubricants specified in the lubricant recommendation (see the “Appendix” chapter).

The specified lubrication interval applies to normal operation. Under extreme conditions of use, more frequent lubrication may be necessary.

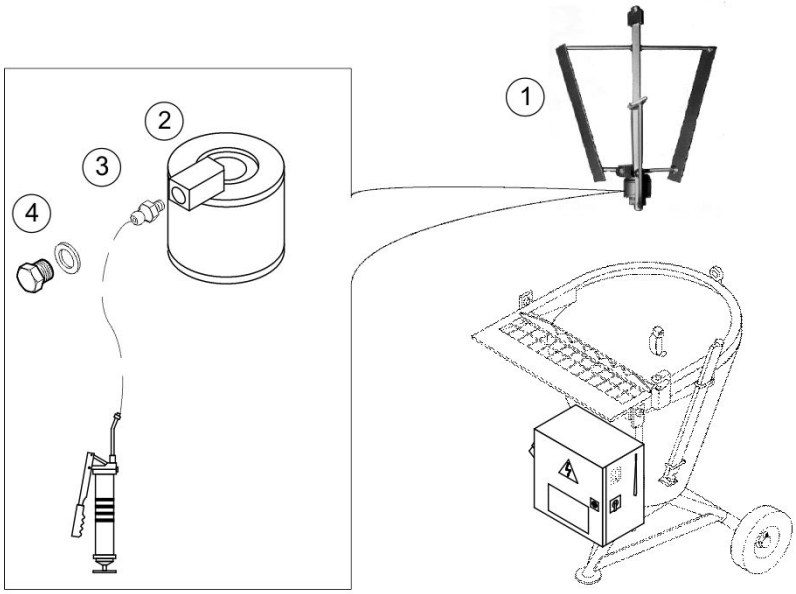


Figure 25: Lubrication points

Item	Designation
1	5-arm agitator
2	Freewheel
3	Lubrication nipple (located in the freewheel cover)
4	Screw plug with gasket

1. Open the protective grille.
2. Remove the 5-arm agitator from the hopper.
3. Unscrew the screw plug from the freewheel cover.
   ⇒ The lubrication nipple becomes visible.
4. Apply the grease gun to the lubrication nipple and grease until clean grease emerges visibly at the freewheel.
5. Screw the screw plug onto the freewheel cover, ensuring that the seal ring is properly seated when it is installed.
6. If the seal ring is worn, replace it.
7. Check the bearing seat of the freewheel in the hopper for contamination. If necessary, clean it.
8. Put the 5-arm agitator into the hopper.
9. Align the carrier and the 5-arm agitator with one another.
10. Close the protective grille.

8.5.3 Replacing the screw conveyor

See also the “Fitting/removing the auger pump” section.

NOTICE

Damage to the screw conveyor if the rubber of the screw conveyor comes into contact with used oil.

- Use only silicone spray from the manufacturer for assembly.

Only original spare parts may be used.

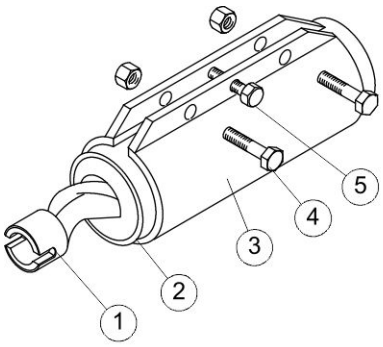


Figure 26: Replacing the screw conveyor

Item	Designation
1	Screw conveyor
2	Screw conveyor barrel
3	Clamping sheath
4	Clamping bolts
5	Bolt

1. Loosen the clamping bolts *(4)*.
2. Remove the screw conveyor barrel *(2)* from the clamping sheath *(3)*.

The screw conveyor barrel can normally be pulled out of the clamping sheath. If this is not possible, the clamping sheath can be pushed open.

3. Select a suitable bolt *(5)* and turn it into the open threaded hole.
   ⇒ The clamping sheath will be pushed open.

4. Pull the screw conveyor barrel *(2)* out of the clamping sheath *(3)*.
5. Clamp the screw conveyor barrel in a vice and unscrew the screw conveyor *(1)* by turning it anticlockwise.
6. Screw the new screw conveyor *(1)* into the clamped screw conveyor barrel *(2)* by turning it clockwise.
7. Adjust the end face of the screw conveyor and the screw conveyor barrel so that they are flush.

8.5.4 Fitting/removing the auger pump

See also the “Replacing the screw conveyor” section.

You must replace the wear parts if wear is identified during a visual check or if there is inadequate pressure buildup in the delivery line.

8.5.4.1 Removing the auger pump

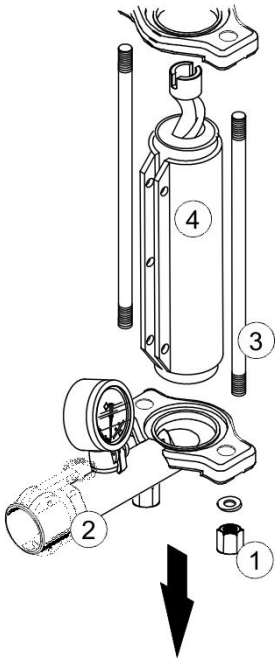


Figure 27: Removing the auger pump

Item	Designation
1	Clamping nut
2	Pressure connection
3	Tie bolt
4	Auger pump

1. Open the protective grille.
2. Remove the 5-arm agitator from the hopper.
3. Unscrew the clamping nuts on the tie bolt.

⚠ WARNING

Risk of injury due to the pressure connection falling down

- Secure the auger pump against falling before you pull off the pressure connection.

4. Pull off the pressure connection.
5. Remove the auger pump.

6. Replace the screw conveyor barrel and/or the screw conveyor, if there is wear.

8.5.4.2 Fitting the auger pump

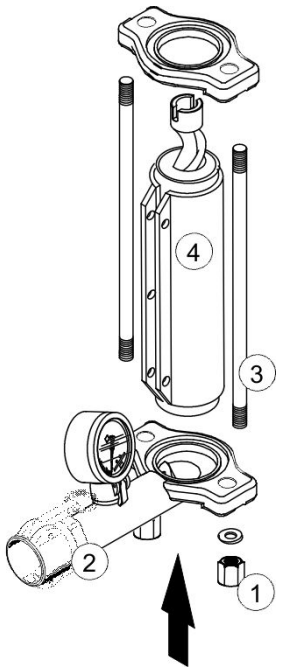


Figure 28: Fitting the auger pump

Item	Designation
1	Clamping nut
2	Pressure connection
3	Tie bolt
4	Auger pump

1. Insert the auger pump into the centring device on the hopper flange.
2. Slide the pressure connection onto the tie bolt.
3. Align the auger pump and the pressure connection.
4. Screw the clamping nuts onto the tie bolt.
5. Evenly tighten the clamping nuts.
6. Put the 5-arm agitator into the hopper.
7. Align the carrier and the 5-arm agitator with one another.
8. Close the protective grille.

8.5.5 Adjusting the auger pump

See also the *(Fitting/removing the auger pump P. 8 — 11)* section.

The following special tools are required:

- Putzmeister test pressure gauge, part no. 208745.002

The performance of the stator and rotor must be checked with water on the machine.

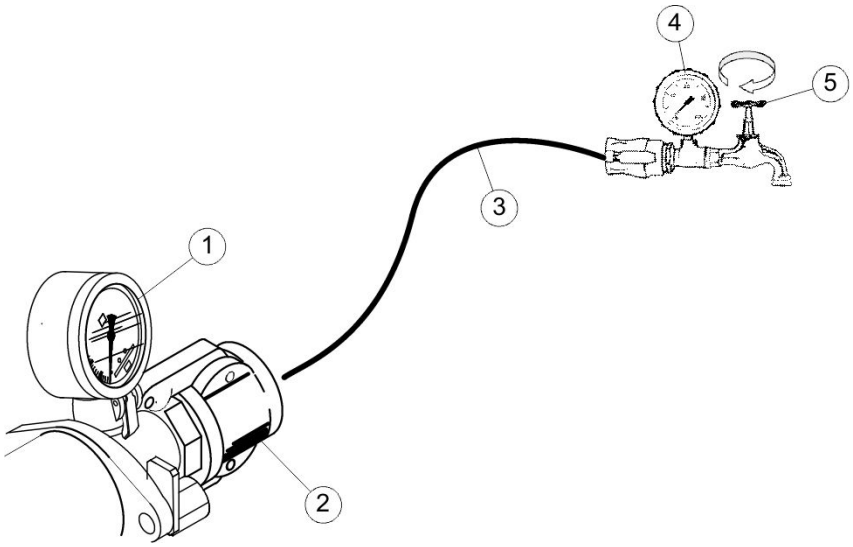


Figure 29: Checking the delivery pressure

Item	Designation
1	Pressure gauge
2	Pressure connection
3	Delivery hose
4	Test pressure gauge
5	Shut-off valve

1. Connect a delivery hose to the pressure connection.
2. Couple the test pressure gauge to the end of the hose.
3. Switch the machine on and set the selector switch to forward pumping.

4. Slowly close the shut-off valve on the test pressure gauge.
   ⇒ The pressure increases.
5. If a water pressure of approx. 10 bar is not reached at the test pressure gauge, increase the tension of the clamping sheath.

NOTICE

Increased wear on auger parts caused by tensioning the clamping sheath too much

1. Only pretension the clamping sheath until the required pressure is reached.
   If the required pressure is not reached even after strong tensioning:
2. Remove the auger pump and check it for wear.
3. Repeat the check to obtain a precise result.

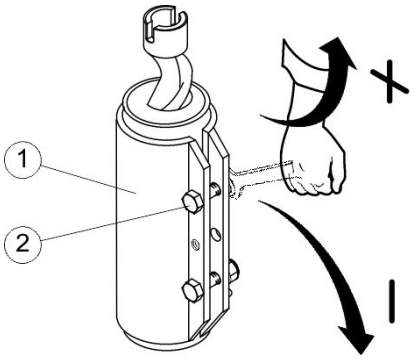
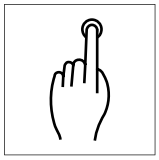


Figure 30: Tensioning the clamping sheath

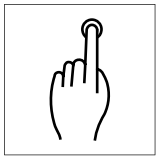
Item	Designation
1	Clamping sheath
2	Clamping bolt

6. By tightening the clamping bolts (2) evenly, you increase the pretensioning.
   ⇒ The pressure increases.
7. To achieve an exact measured result, repeat the test procedure.
8. Switch off the machine.
9. Dump the water pressure at the test pressure gauge.
10. Disconnect the test pressure gauge.



9 Decommissioning

This chapter contains information on decommissioning the machine.



9.1 Temporary decommissioning

If the machine is to be shut down temporarily, take the following measures.

⚠ WARNING

Risk of injury due to the conveyed material spraying out

1. Secure the danger zone to prevent unauthorised access.
2. Wear protective goggles.
3. Always wear personal protective equipment.
4. You should only uncouple the delivery line once you have checked the pressure gauge to see that the system is fully depressurised.
5. Turn your face away when opening the line coupling.
6. Open the coupling carefully.

⚠ WARNING

Risk of injury due to moving machine components

- Never reach into moving machine components, whether the machine is running or switched off.

1. Stop the material feed.
2. Run the hopper until it is empty.
3. Switch off the pump using the “Pump ON/OFF” double push-button.
4. Switch the machine off at the main switch.
5. Disconnect the machine from the mains.
6. Clean the machine as described in the “Operation” chapter.

9.2 Shutting down the machine

If the machine will be shut down or stored, it must be lubricated and, if needed, preserved.

Preserving and lubricating the machine protects it against corrosion and rapid ageing. This is required if the machine:

- Will be shut down for a longer period,
- Is exposed to corrosive atmospheres during storage or transport.

NOTICE

Damage to the machine caused by freezing water

- If there is a risk of freezing, you must drain the machine and the delivery line fully of residual water.

1. Perform all steps as described previously in the “Temporary decommissioning” section.
2. Shut down the machine only when de-energised.
3. Lubricate the machine.
4. Preserve the machine with a suitable corrosion protection agent.

9.3 Final decommissioning and disposal

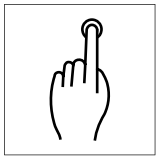
The final decommissioning and disposal requires the complete disassembly of the machine into its individual components. When disposing of all machine components, ensure that there is no possibility of damage to health or the environment.

⚠ WARNING

Risk of injury due to skin contact with functional fluids

Hydraulic fluid and other functional fluids can be injurious to health in case of skin contact.

- Always wear your personal protective equipment when handling toxic, caustic or other functional fluids that can be injurious to health and observe the manufacturer’s information.



⚠ CAUTION

Risk of injury due to sharp, exposed components

- ▸ Always wear personal protective equipment.

NOTICE

Environmental pollution caused by functional fluids escaping

When decommissioning the machine permanently, escaping lubricants, solvents, preserving agents, etc. may pose a risk.

1. Collect all functional fluids separately.
2. Dispose of these in line with the relevant national and regional regulations.
3. Only work with waste disposal companies who are approved by the responsible authorities.
4. Ensure that different functional fluids are never mixed.

NOTICE

Environmental pollution caused by incorrect disposal of the machine

1. When disposing of all machine components, ensure that there is no possibility of damage to health or the environment.
2. Commission a qualified specialised company with the final disposal of the machine.

9.3.1 Materials used

The main materials used for machine construction were:

Material	Used in
Copper	Cables
Steel	Machine frame
	Hopper parts
	Pump parts

Material	Used in
Plastic, rubber, PVC	Seals
	Hoses
	Cables
	Wheels
Tin	Printed circuit boards
Polyester	Printed circuit boards

9.3.2 Parts requiring separate disposal

The following parts and functional fluids must be disposed of separately:

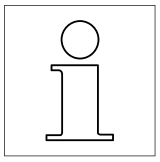
Designation	Applies for
Electronic scrap	Electrical supply
	PCBs with electrical components
Oil	Highpressure cleaner
	Hydraulic pump
	Hydraulic motor
	Drive motor
	Compressor

10 Appendix

This chapter contains the following topics:

- General tightening torques for bolts
- Lubricant recommendation
- Sample of the EC Declaration of Conformity

Depending on the machine model, further documents may be included in the appendix.



10.1 General tightening torques for bolts

See the spare parts list for an overview of general tightening torques.

NOTICE

Risk of damage to components caused by incorrect bolts

1. Always use bolts of the same size and grade when you need to replace the bolts.
2. Bolts with adhesive in the locking threads and selflocking nuts must always be replaced after removal.

10.2 Lubricant recommendation

We have listed all suitable lubricants in the tables below.

NOTICE

Risk of machine damage caused by mixing oils

1. The manufacturer accepts no liability for damaged caused by mixing oils from different manufacturers.
2. The manufacturer accepts no liability for the quality of the lubricants listed or for changes in quality made by the lubricant manufacturers without changing the grade designation.

NOTICE

Risk of machine damage caused by unauthorised functional fluids

The manufacturer accepts no liability for damage caused by using unauthorised functional fluids.

- Use only the lubricants specified in the lubricant recommendation.

The relevant Service department of the machine manufacturer can answer any questions you have about lubricants.

Mineral gearbox oil in accordance with DIN 51502	CLP ISO VG 220
Putzmeister	Part no. 212052008
ARAL	ARAL Degol BG 220
BP	BP Energol GRXP 220
ESSO	ESSO Spartan EP 220
MOBIL	Mobilgear 630
SHELL	SHELL Omala 220

Lubrication (manual)	
Marking	DIN 51502: K2K,
Type	Multipurpose grease with a lithium soap base
Viscosity grade	NLGI Class 2 DIN 51818

10.3 Sample EC Declaration of Conformity

The original EC Declaration of Conformity is included in the machine's scope of supply. Keep it in a safe place.

Local Template

EG Konformitätserklärung

2006/42/EG, II 1.A.

Putzmeister

LT-170050-031

1 de **EG-Konformitätserklärung im Sinne der Richtlinie 2006/42/EG, Anhang II 1.A des Europäischen Parlaments und des Rates vom 17. Mai 2006 über Maschinen**
en **EC Declaration of Conformity as per directive 2006/42/EC, appendix II 1.A of the European Parliament and of the Council of 17 May 2006 on machinery**

2 de **Hiermit erklären wir, dass die Maschine - Bezeichnung / Typ / Maschinennummer** — Mörtelmaschine
en Herewith we declare that the machine –Designation / Model / Serial No. — P 12

3 de **allen einschlägigen Bestimmungen der Richtlinie entspricht:** — 2006/42/EG
en **meets all relevant provisions of the directive:**

4 de Darüber hinaus entspricht die Maschine den einschlägigen Bestimmungen folgender weiterer Richtlinien: — 2014/35/EU, 2014/30/EU, 2000/14/EG
en Moreover, the machine meets the relevant provisions of the other directives below:

5 de **Angewendete harmonisierte Normen, insbesondere** — EN 12001
en complies with the following provisions applying to it

6 de Angewandte sonstige technische Normen und Spezifikationen, insbesondere
en Other, related technical standards and specifications, in particular:

7 de **Angaben zum Dokumentationsbevollmächtigten**
en Party authorized to produce documentation — Putzmeister Mörtelmaschinen GmbH Max-Eyth-Straße 10 D-72631 Aichtal

8 de **Angaben zum Unterzeichner / Datum / Unterschrift**
en Signer / Date / Signature

Putzmeister Mörtelmaschinen GmbH
Max-Eyth-Straße 10
D-72631 Aichtal

9 de **Geschäftsführer**
den
en Managing Director

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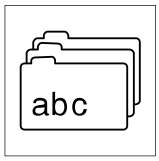

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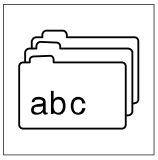

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