

Operating manual

Mixing pump BOLERO 230V

Part 2 Overview, operation and service



Item no. of the operating manual:

00255850

BOLERO FC-230V, 1 Ph, 50 Hz

Item no. 00245337



Read the operating manual prior to starting any work!

About us

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1 General information

1.1 Information regarding the operating manual

- This operating manual provides important information and instructions on the correct use of the machine. A prerequisite for safe working is the observance of all stated safety guidelines and instructions.
- Furthermore, the local accident prevention guidelines and general safety instructions for the application area of the device are to be adhered to.
- Read the operating manual thoroughly before starting any work! It is a part of the product and has to be kept near the device and easily accessible to the personnel at all times.
- If the device is given to third parties, also include the operating manual.
- The figures in this manual are for presentation purposes of facts, not necessarily to scale and may slightly differ from the actual model of the device.

1.2 Division

The operating manual is divided into 2 books:

- Part 1 Safety/drinking water protection

General safety instructions mixing pumps/conveying pumps

Item no. 00172709

- Part 2 Overview, operation and service (this manual).

WARNING



Danger of injury due to incorrect operation!

Improper operation may lead to serious damage to persons and property.

- To ensure safe and proper operation of the machine, all parts of the operating manual must be read before starting work; all parts together are considered to be a single operating manual.

1.3 Display of safety and warning notices

In this manual, safety and warning notices are used in conjunction with signal words to raise safety awareness, indicate degrees of danger and explain safety measures.

Such safety and warning information may also be attached to the product in the form of signs, stamps or stickers.

General information

Structure of the safety and warning notices

All safety and warning notices consist of:

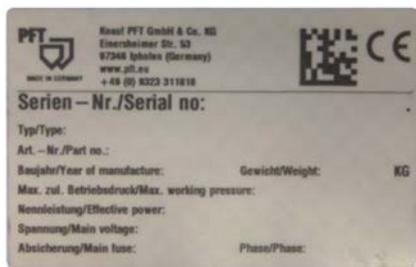
- The danger sign and signal word
- Information on the nature of the hazard
- Information on the source of the hazard
- Information on possible consequences of disregarding the hazard
- Measures to avert the hazard

Danger sign	Signal word	Significance
	Danger	Death or serious injury will occur if you do not take the precautions described.
	Warning	Death or serious injury may occur if you do not take the precautions described.
	Caution	Minor injury may occur if you do not take the precautions described.
	Note	Property damage may occur if you do not take the precautions described.
	Tip	An important piece of information about the product or the particular section of the manual to which special attention is to be drawn.

1.4 Keep the manual for future reference

The operating manual has to be available during the whole service life of the product.

1.5 Name plate



The following details can be found on the name plate:

- Manufacturer
- Type
- Year of manufacture
- Machine number
- Permissible operating pressure

Figure 1: Name plate



1.6 EC Declaration of Conformity

Company: Knauf PFT GmbH & Co. KG
 Einersheimer Straße 53
 97346 Iphofen
 Germany

declares under our sole responsibility that the machine:

Type of machine: BOLERO
Type of equipment: Mixing pump
Serial number:
Guaranteed sound power level: 78 dB

is in conformity with the following CE directives:

- Outdoor Directive (2000/14/EC),
- Machinery Directive (2006/42/EC),
- Electromagnetic Compatibility Directive (2014/30/EU),.

Operative Conformity Assessment according to Outdoor Directive 2000/14/EC:

Internal production control as per article 14 paragraph 2 in connection with annex V.

This declaration only refers to the machine in the state in which it has been placed on the market. Parts subsequently added by the user and/or subsequent interventions are not covered. This declaration ceases to be valid if the product is converted or changed without consent.

Person authorised to compile the relevant technical documentation:

- (Dipl. in Industrial Engineering, University of Applied Sciences) Michael Duelli, Einersheimer Straße 53, 97346 Iphofen.

The technical documentation is available from:

- Knauf PFT GmbH & Co. KG, Technical Department, Einersheimer Straße 53, 97346 Iphofen.

Iphofen

Dr York Falkenberg
 Managing Director

Town/city

Name and signature

Details of signatory

1.7 Quality Control sticker



The following details can be found on the Quality Control sticker:

- CE confirmed as per EU directives
- Serial no / serial number
- Controller / signature
- Date of control

Figure 2: Quality Control sticker

2 Technical data

2.1 General information

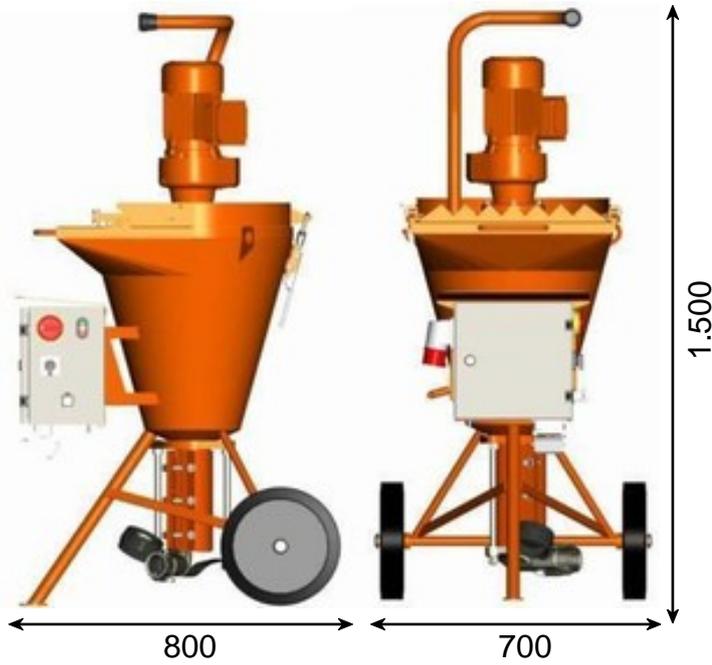


Figure 3: Dimension sheet in mm

Detail	Value	Unit
Empty weight approx.	112	kg
Length	800	mm
Width	700	mm
Height	1,500	mm

Individual weights

Detail	Value	Unit
Pump motor with protection grille	42	kg
Chassis with mixing pump and control box	64	kg
Agitator	6	kg

Material hopper dimensions

Detail	Value	Unit
Filling height	950	mm
Material hopper volume	68	l

Technical data

2.2 Operating conditions

Environment	Detail	Value	Unit
	Temperature range	2 - 45	°C
	Relative humidity, max.	80	%
Duration	Detail	Value	Unit
	Max. operating time at a stretch	8	hours
Electrical details	Detail	Value	Unit
	Voltage, alternating current 50 Hz	230	V
	Fuse protection, minimum	16	A
	Power consumption, max.	8.7	A
	Pump motor power consumption, max.	8.7	A
	Power input, max.	2.2	kW
	Drive pump motor	2.2	kW
	Speed pump motor approx.	0 – 170	Rpm

2.3 Capacity values, pump unit D 4-2

Pump capacity D 4-2	Detail	Value	Unit
	Pump capacity, approx.	0 – 11	l/min
	Operating pressure, maximum	20	bar
	Maximum grain size	4	mm
	Feed range *, max. with 25 mm Ø	20	m
	Feed range *, max. with 35 mm Ø	30	m

* Reference value depending on conveying height, pump condition and version, mortar quality, composition and consistency

2.4 Sound power level

Guaranteed sound power level L_{WA}

■ 78 dB(A)

2.5 Vibrations

Weighted effective value of acceleration to which the upper body parts are exposed <2.5 m/s²

3 Transport, packing and storage

3.1 Safety instructions for transport

Improper transport

NOTE



Damage from improper transport!

Improper transport may cause substantial property damage.

Therefore:

- When unloading the packages on delivery, as well as transport within the company, pay attention and observe the symbols and instruction on the package.
- Use only the specified anchorage points.
- Remove packaging only shortly before the assembly.

Suspended loads

⚠ WARNING



Danger to life from suspended loads!

When lifting heavy loads, there is danger to life from falling parts or uncontrolled swinging parts.

Therefore:

- Never step under suspended loads.
- Observe the instructions regarding the provided anchorage points.
- Do not attach to projecting machine parts or eyelets of attached components and ensure safe fit of the sling gear.
- Only use approved lifting gear and accessories with a sufficient load-bearing capacity.
- Do not use torn or frayed ropes and belts.
- Do not lay ropes and belts over sharp edges and corners, do not knot or twist.
- When ropes and chains are used in construction operations, the provisions contained in the accident prevention regulation 'Load suspension devices in lifting gear operations' (VBG 9a) should be complied with. The following sections contain instructions for scenarios in which ropes and chains are used as lifting means.

Transport, packing and storage

3.2 Transport inspection

On receipt check the delivery immediately for completeness and transport damage.

In case of externally visible transport damage, proceed as follows:

- Do not accept the delivery or under reserve only.
- Note the extent of damage on the transport documentation or on the delivery note of the carrier.
- Initiate complaint process.

NOTE



Report any defect as soon as it is detected. Claims for damages can be asserted only within the valid warranty period.

3.3 Packaging

For packaging

The individual packages have to be packed in accordance with the transport conditions to be expected. Only environmentally-friendly materials were used for the packaging.

The packaging should protect the individual components until the assembly from transport damage, corrosion and other damage. Therefore do not destroy the packaging and remove only shortly before the assembly.

Handling packaging materials

If no agreement for the recovery of the packaging has been made, separate materials according to type and size and reuse or recycle.

NOTE



Environmental damage due to incorrect disposal!

Packaging materials are valuable raw materials and in many cases they can be reused or reconditioned and recycled.

- Dispose of packaging materials in an environmentally-friendly way.
- Observe the applicable local disposal regulations. If required hand over the disposal to a specialist.

3.4 Closing the motor tilt flange



Figure 4: Closing the motor tilt flange

⚠ CAUTION



Danger of crushing at the motor tilt flange!

There is a danger of crushing injuries when closing the motor tilt flange.

- Never reach into the closing range of the motor tilt flange.

3.4.1 Closing the snap lock before transport



Figure 5: Closing the quick closure

⚠ CAUTION



As a general rule, make sure that the quick closure (1) on the protection grille and on the material hopper is closed when the machine is moving.

3.5 Crane transport



Figure 6: Attachment points

Attachment points

Anchor the machine at the crane eyes (1) for transport by crane.

Observe the following conditions:

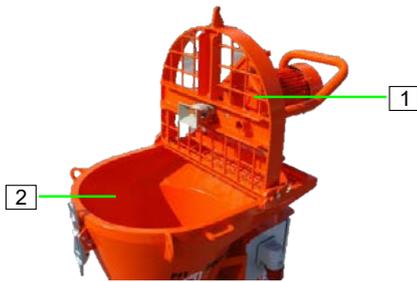
- The crane and lifting equipment have to be designed for the weight of the packages.
- The operator has to be authorised to operate the crane.

Attachment:

1. Anchor the hooks to the crane hooks accordingly.
2. Ensure that the package is straight, possibly observe eccentric centre of gravity.

Transport, packing and storage

3.6 Transport in individual parts



To make transport easier, disassemble the machine into its individual components. In the units gear motor with protection grille (1) and material hopper with chassis and control box (2).

1. Release cable and hose connections.
2. Remove gear motor with protection grille from the chassis.

Figure 7: Individual parts

3.7 Transporting a running machine

⚠ CAUTION



Danger of injury from discharged mortar!

Injuries to face and eyes can occur.

Therefore:

- Before opening the couplings ensure that there is no more pressure on the hoses (observe display at mortar manometer).

Carry out the following steps before beginning the transport:

1. First unplug the mains cable.
2. Undo all other cable connections, water supply lines and hoses.
3. Remove loose parts during crane transport.
4. Start transport.

4 Description

4.1 Overview

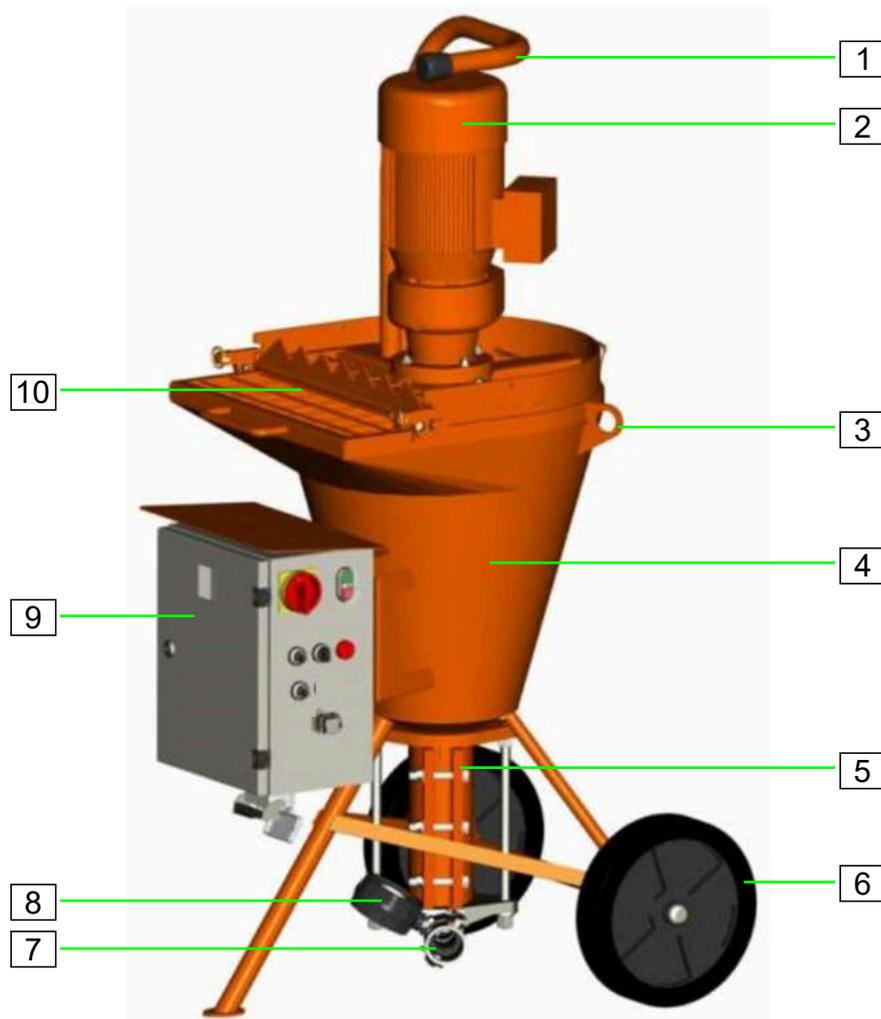


Figure 8: Table of the assembly groups

[1] Motor protection handle	[2] Gear motor
[3] Crane eye	[4] Material hopper
[5] Pump unit	[6] Plastic wheel
[7] Connection for mortar hose	[8] Mortar pressure gauge
[9] Control box	[10] Protective grille with sack opener

4.2 Functional description of BOLERO

The handy PFT BOLERO is a combined mixing, pumping and spraying machine for small building sites.

With anticlockwise running of the mixing shaft the material is mixed continuously. When rotating clockwise, the delivery pump is switched on.

The PFT BOLERO demonstrates its particular strength in materials with intensive mixing that are processed discontinuously. These include special types of mortar, bentonite, textured and acoustic plaster, levelling compounds and flowing fillers.

4.3 Fields of application

For materials such as:

- Doorframe grout
- Anchor mortar
- Adhesive mortar
- Fire protection mortar
- Multi-component mortar
- Bentonite
- Structural plaster
- Acoustic plaster
- Levelling compounds
- Liquid filler

Flowability / flow characteristics



- *The pump unit D4-2 can be used up to 20 bar working pressure.*
- *The possible conveying distance depends mainly on the flowability of the material.*
- *If 20 bar operating pressure are exceeded the mortar hose length has to be reduced.*
- *To avoid machine breakdowns and excessive wear on pump motor, mixing shaft and pump, always use original PFT spare parts such as:*
 - *PFT rotors*
 - *PFT stators*
 - *PFT agitator*
 - *PFT mortar hoses*
- *These are compatible with each other and form a constructive unit with the machine.*
- *Non-compliance does not only cause loss of guarantee, but also bad mortar quality is to be expected.*

4.4 Description of assemblies

The PFT BOLERO mixing pump consists of the main components described in the following chapters.

4.4.1 Gear motor with protection grille



Figure 9: Gear motor assembly

- Gear motor with protection grille and motor flange.
- The gear motor with motor flange can be removed from the material hopper for transport purposes.

4.4.2 Agitator



Figure 10: Agitator assembly

- Agitator with freewheel and lubricating nipple.

4.4.3 Material hopper with chassis and control box

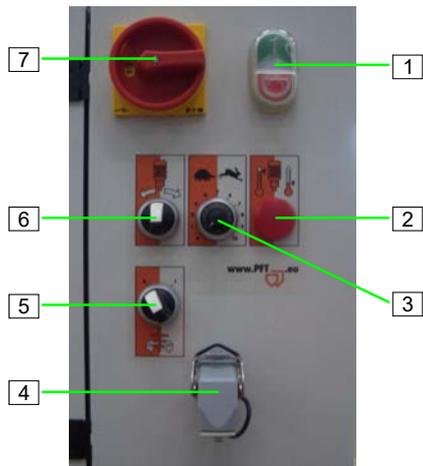


Figure 11: Material hopper assembly

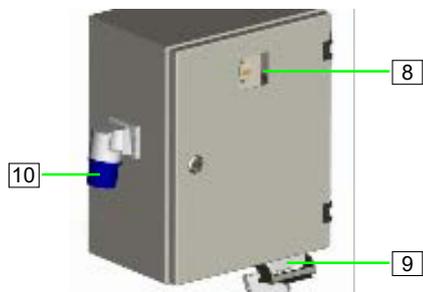
- Material hopper with chassis and control box

Description

4.4.4 Control box



- [1] Pushbutton for control voltage 'ON/ OFF'
- [2] Red control lamp, motor protection switch activated
- [3] Potentiometer for motor speed / material volume
- [4] Dummy connector / connection for remote control
- [5] Mixing process selector switch
- [6] Pump motor selector switch
- [7] The master switch is also the emergency-stop switch



- [8] Sight glass for frequency converter
- [9] Connection of pump motor
- [10] Main terminal

Figure 12: Assembly unit control box

4.4.5 Mortar pressure gauge



Figure 13: Mortar pressure gauge

⚠ CAUTION



The use of a mortar pressure gauge is recommended for safety-related reasons.

Some advantages of the mortar pressure gauge:

- Exact adjustment of the correct mortar consistency.
- Constant control of the right conveying pressure.
- Early detection of clogging or overload of the pump motor.
- Relieving pressure.
- Durability of pump components
- Is a major contribution to the safety of the operators.

4.5 Operating modes



Figure 14: Pump motor selector switch

Pump motor selector switch

The pump motor has three operating modes:

Switch position '0':

- The machine is switched off.

Switch position 'right':

- The machine conveys the material from the material hopper.

Switch position 'left':

- The machine mixes the material in the material hopper.



Figure 15: Mixing process selector switch

Mixing process selector switch

Switch position '0':

- The mixing process is deactivated.

Switch position '1':

- The mixing process is activated.

NOTE



An additional mixing function can be switched on for special mortar.

If the selector switch is set to position 1, the machine automatically switches to the mixing process during breaks in delivery (switch off by remote control). The material is mixed continuously.

4.6 Accessories



Extension cable 5 x 2.5 mm², RED 5-16 A – 25 m (400 V, 3 Ph)

- Item no. 20423360

Description



Extension cable 5 x 2.5 mm², RED 5-16 A – 50 m (400 V, 3 Ph)

- Item no. 20423350



Extension cable 3 x 2.5 mm², BLU 3-16 A | BLA 2-16 A - 25 m

- Item no. 20423420



RONDO DN25 hydraulic connection male part | Female part – 5 m

- Item no. 00021103



RONDO DN25 hydraulic connection V-part | Female part - 10 m

- Item no. 00021100



RONDO DN25 hydraulic connection V-part | Female part - 15 m

- Item no. 00021101



Water hose/air hose DN12 Geka | Geka - 5 m

- Item no. 20211100



Air hose DN12 Ewo V-part | Geka – 11 m

- Item no. 20211600



Air hose DN12 Ewo male part | Geka – 15 m

- Item no. 20211601



Remote control cable with switch - 25 m

- Item no. 20456929

Description



Remote control cable with switch on cable reel – 50 m

- Item no. 20456916



Extension for remote control cable – 25 m

- Item no. 20456931



Extension for remote control cable – 50 m

- Item no. 20456934



ZARGOMAT pro DN25-360°

- Item no. 00420058



Spraying set for JETSET pro DN25 Ewo

- Item no. 00418975



Spraying set for JETSET pro DN25 Ewo

- Item no. 00232106



Water pump as standalone suction pump AV 1000 with integrated pressure cut-off and flow monitor, 230 V, 1 Ph, 50 Hz, 0.6 kW

- Item no. 00493686

Description



Inlet strainer complete with stainless steel filter screen

- Item no. 00136619



Air compressor COMP M-250, 400 V, 3 Ph, 50 Hz with pressure control for G 4 (from 2013)

- Item no. 00414866



Air compressor COMP P-200, 230 V, 1 Ph, 50 Hz with pressure switch-off

- Item no. 00196221



Air compressor COMP P-320, 230 V, 1 Ph, 50 Hz

- Item no. 00746490



Spray nozzle DN19 ($\frac{3}{4}$ " Geka

- Item no. 20215700



Rinsing hose DN10 Geka - 11 m

- Item no. 00113856



Pressure tester 0 to 100 bar with DN25 female part

- Item no. 20216802



Consistency checking tube 25 female part

- Item no. 20104301

You can find further accessories on the internet at www.pft.net or from your PFT construction machinery dealer.

Operation

5 Operation

5.1 Safety

Personal protective equipment

The following protective equipment has to be worn for all operative work:

- Protective clothing
- Protective goggles
- Protective gloves
- Safety shoes
- Hearing protection



Further protective equipment that is to be worn during particular jobs will be pointed out separately in the warning instructions of this chapter.

Basic information

⚠ WARNING



Danger of injury due to incorrect operation!

Improper operation may lead to serious damage to persons or property.

Therefore:

- Carry out all operating steps according to the instructions in this user manual.
- Prior to starting your work, ensure that all components are complete and undamaged.
- Prior to starting your work, ensure that all covers and protection devices are installed and work as intended.
- Never operate the machine with defective components and protective devices.
- Never disable protective devices during operation.
- Ensure order and cleanliness in the work area! Loose components and tools on top of one another or lying about pose potential accident risks.
- Increased noise level may cause permanent hearing deficiencies. At close range of the machine 78 dB(A) can be exceeded due to operational conditions. Close range is a distance of less than 5 metres to the machine.

5.1.1 Safety rules

⚠ CAUTION



Observe the regional safety rules for mortar conveyors and mortar guns!

5.1.2 Monitoring the machine

WARNING



Access by unauthorised persons!

- The machine may only be operated when monitored.

5.1.3 Hazardous dusts



Figure 16: Dust protection

WARNING



Danger of damage to health!

In the long term, inhaled dust can lead to lung damage or have other adverse health effects.

- Use suitable face protection.

NOTE



The machine operator or the person working in the dusty area always has to wear a dust protection mask when filling the machine!

The rules of the Committee on Dangerous Substances (AGS) can be found under Technical Rules for Dangerous Substances (TRGS 559).

5.1.4 Mortar pressure gauge



Figure 17: Mortar pressure gauge

WARNING



Operating pressure too high!

Machine parts can open in an uncontrolled manner and injure the operator.

- Do not operate the machine without mortar pressure gauge.
- Only use mortar hoses with a permissible operating pressure of at least 40 bar.
- The burst pressure of the mortar hose must reach at least 2.5 times the value of the operating pressure.

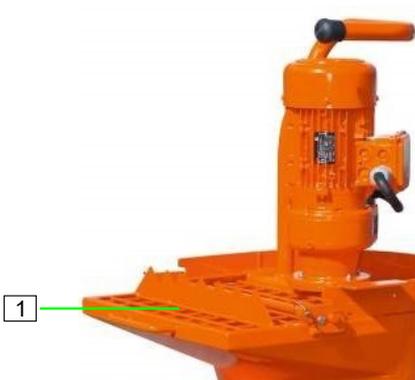
5.2 Inspection by machine operator

- Prior to each shift, the machine operator has to examine the effectiveness of the control and safety devices, as well as the proper fitting of the protection devices.
- The safe working condition of construction machinery has to be checked by the machine operator during operation.
- If the safety devices show any defects or if any other defects are detected that compromise a safe operation, the supervisor has to be informed immediately.
- In case of defects that cause harm to persons, the operation of the construction machine has to be stopped to eliminate the defects.

5.3 Preparing the machine

Prior to operating the machine carry out the following steps for preparing the machine:

5.3.1 Risk of injury due to rotating agitator



WARNING



Rotating agitator!

Risk of injury when reaching into the material hopper.

- During machine preparation and operation the grille cover (1) must not be removed.
- Never reach into the running machine.

Figure 18: Grille cover

5.3.2 Setting up the machine



Figure 19: Positioning machine

Install the machine on stable and even ground and secure it against accidental movements:

- Do not tilt or roll the machine away.
- Place the machine where it cannot be hit by any falling objects.
- The controls must be freely accessible.
- Maintain a clearance of approx. 1.5 metres around the machine.

5.3.3 Connecting the power supply



Figure 20: Connecting the power supply

1. Only connect the machine to a 230 V AC network.

⚠ DANGER



Danger to life from electric current!

The electrical connection must be fused correctly:

- Only connect the machine to a power source with permissible 30 mA circuit breaker (RCD) of type B that is sensitive to all currents that are required for the operation of frequency converters.

Operation

5.3.3.1 Connecting the motor connecting cable

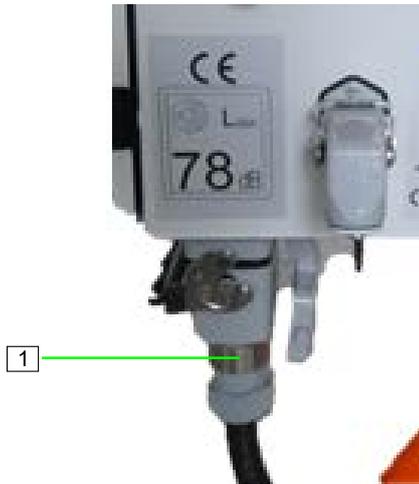


Figure 21: Connecting the motor connecting cable

⚠ WARNING



Danger to life from rotating parts!

Improper operation may lead to serious damage to persons or property.

- The respective drive (motors) must be operated only with the control box of the machine.

1. Connect the motor connection cable (1) to the control box.

5.3.4 Mortar hoses

5.3.4.1 Preparing the mortar hoses

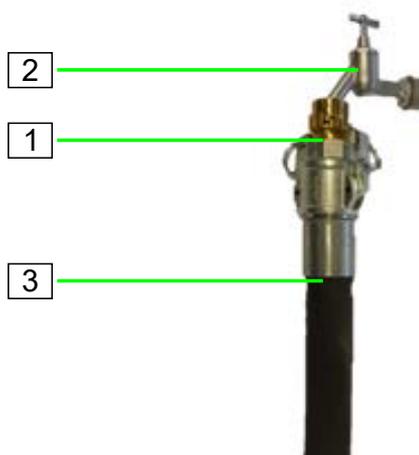


Figure 22: Preparing the mortar hose

1. Connect the cleaner coupling (1) to the water tap (2).
2. Connect the mortar hose (3) to the cleaner coupling (1).
3. Open the water tap (2) and water the mortar hose (3).
4. Remove mortar hose and cleaner coupling again and disconnect from each other.
5. Remove all the water from the mortar hose.
6. Pre-lubricate the mortar hose with about 2 litres of wallpaper paste.
7. The wallpaper paste is mixed through the mortar hose with the first mixing.

⚠ WARNING



The mix could burst out under pressure and result in serious injuries, especially injuries to the eyes.

Hoses that tear off can lash wildly and injure those standing nearby!

- Never loosen the hose couplings as long as there is pressure on the mortar hoses (check mortar pressure gauge)!

5.3.4.2 Connecting the mortar hose



Figure 23: Connecting the mortar hose

1. Connect the mortar hose (1) to the mortar pressure gauge (2).

NOTE



Ensure clean and correct connection and tightness of the couplings! Dirty couplings and rubber seals are not watertight, and water might leak under pressure inevitably leading to blockages.

2. Lay mortar hoses with a radius large enough so that the hoses do not kink.
3. Carefully secure risers so that they do not tear away from their own weight.

NOTE



Fill the material hopper with approx. one litre of wallpaper paste or slurry so that the mixing pump does not run dry when starting up.

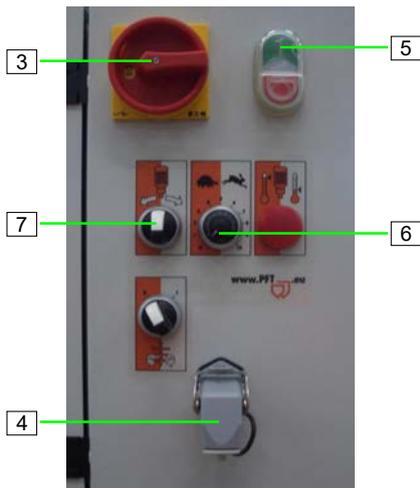


Figure 24: Switching on

4. Turn the main switch (3) to 'ON'.
5. Close the control circuit by inserting the dummy connector (4).
6. Switch the machine on by pressing the green pushbutton (5) control voltage 'ON'.
7. Turn potentiometer (6) for motor speed / material volume to position 4.
8. Turn the pump motor selector switch (7) to the 'right' position.
9. Allow the machine to run until all the wallpaper paste has emerged from the end of the mortar hose.
10. Collect the wallpaper paste in suitable container and dispose of as per regulations.
11. Turn the pump motor selector switch (7) to the '0' position.

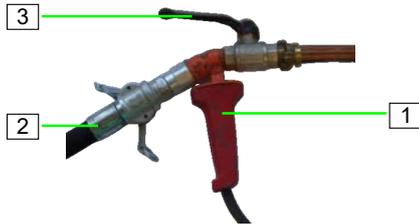
NOTE



Never let the pump run dry as this reduces the service life of the pump.

Operation

5.3.4.3 Connecting the zargomat gluing gun



1. Connect zargomat gluing gun (1) to the mortar hose (2).
2. Ensure that the ball valve (3) is closed.

Figure 25: Connecting the zargomat gluing gun

5.3.5 Feeding dry material to the machine



Figure 26: Bagged goods

NOTE



Never fill the material hopper when the agitator is stationary.

CAUTION



Danger of injury at the sack opener!

The sharp edges of the sack opener pose a risk of injury.

- Wear safety gloves.



For initial filling with bagged material slowly pour half of the first bag into the material hopper!

5.4 Shutdown in case of emergency

Shutdown in case of emergency

In dangerous situations, machine movements have to be stopped as quickly as possible, and the power supply has to be disconnected.



In case of danger proceed as follows:

1. Switch off the main switch immediately.
2. Secure the main switch against reactivation.
3. Inform responsible person at the operational site.
4. If necessary call for medical assistance and fire brigade.
5. Recover persons from the danger zone, initiate First Aid measures.
6. Keep access routes free for emergency vehicles.
7. If the severity of the emergency permits, inform the competent authorities.
8. Assign specialised personnel with the troubleshooting.

After the rescue operations

⚠ WARNING



Danger to life from premature reactivation!

On reactivation there is danger to life for all persons in the danger zone.

- Ensure that the danger zone is clear before switching the machine back on.
- Check the system before reactivation and ensure that all safety equipment is installed and functional.

9. Check the system before reactivation and ensure that all safety equipment is installed and functional.

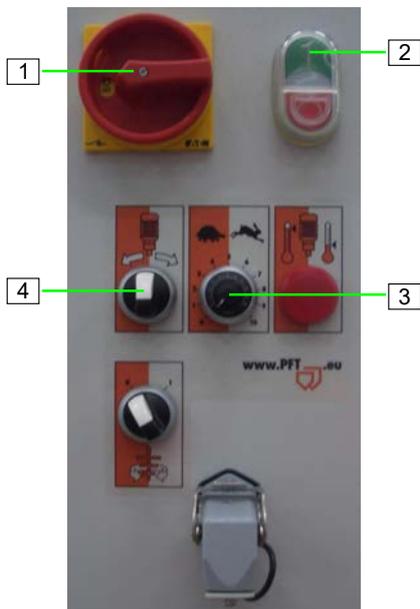
5.5 Putting the machine into operation

5.5.1 Feeding material to the machine

NOTE



Never fill the material hopper when the agitator is stationary.



1. Turn the main switch (1) to 'ON'.
2. Press the green pushbutton (2) control voltage 'ON'.
3. Turn the potentiometer (3) to position 4.
4. Turn the level sensor selector switch (4) to the 'left' position.
5. Pour specified water quantity for one material sack into the material hopper.
6. Empty the bagged material into the material hopper.



For initial filling with bagged material slowly pour half of the first bag into the material hopper!

7. Mix material well.
8. Turn the pump motor selector switch (4) to the '0' position.

Figure 27: Switching on

Operation

5.6 Remote control

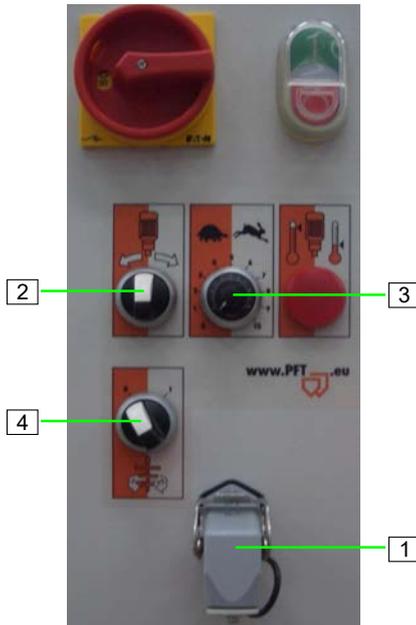


Figure 28: Remote control

Working with the remote control

1. Remove dummy plug (1) from control cabinet.
2. Connect remote control.
3. The machine can be switched on or off using the on/off switch on the zargomat gluing gun.
4. Turn the pump motor selector switch (2) to the 'right' position.
5. The potentiometer (3) can be used to change the motor speed and therefore also the quantity of material.

NOTE



If the selector switch (4) is set to position 1, the machine automatically switches to the mixing process during breaks in delivery (switch off by remote control). The material is mixed continuously.

5.7 Applying mortar

⚠ WARNING



Danger of injury from discharged mortar!

Discharged mortar may lead to injuries to eyes and face.

- Never look into the spray gun.
- Always wear protective goggles.
- Always position yourself in such a way that you are not hit by the mortar being discharged.



The possible conveying distance depends mainly on the flowability of the mortar. Heavy, sharp-edged mortar has poor flow characteristics. Fluid materials have good flow characteristics.

If an operating pressure of 20 bar is exceeded, the hose length must be shortened or the hose thickness increased.

5.7.1 Open the ball valve

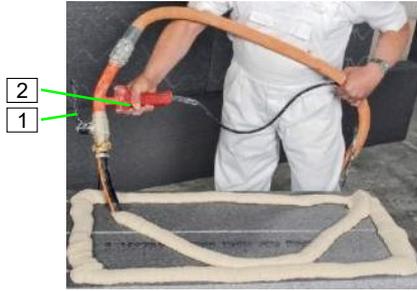


Figure 29: Open the ball valve

1. Set the pump motor selector switch to the 'right' position and switch to level 1 or level 2 as required.
2. Point the zargomat gluing gun in the direction of the object to be processed.
3. Check that no-one is in the spray gun range.
4. Open the ball valve (1).
5. Press the on/off switch (2) on the zargomat gluing gun.
6. The mortar escapes from the zargomat gluing gun.

5.8 Interruption of work

NOTE



Always observe the setting time of the material to be processed:

Clean the system and mortar hoses depending on the setting time of the material and the length of the interruption (pay attention to outside temperature).

The guidelines of the material manufacturers have to be observed regarding breaks.

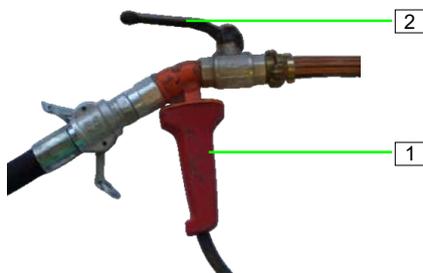


Figure 30: Close the ball valve

1. Actuate the on/off switch (1).
✓ The machine stops.
2. Close ball valve (2).
3. Then open the ball valve (2) again.
4. Actuate the on/off switch (1).
✓ The machine starts again.

5.9 Switching off the machine

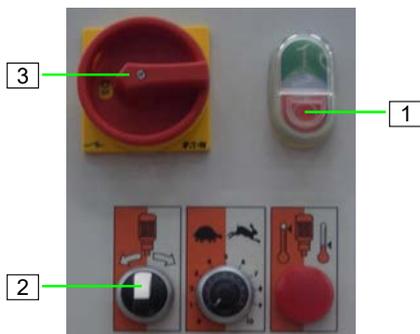


Figure 31: Switching off the machine

1. Switch off the machine by pressing the red pushbutton (1) control voltage 'OFF'.
2. Turn the pump motor selector switch (2) to the '0' position.
3. Turn the main switch (3) to 'OFF'.

Operation

5.10 Action in case of power failure



Figure 32: Turn main switch to the 'OFF' position

Turn main switch to the 'OFF' position

1. Close the ball valve on the zargomat gluing gun.
2. Turn the main switch to the 'OFF' position.
3. Have the power supply connection checked by an expert.

5.10.1 Discharging mortar pressure

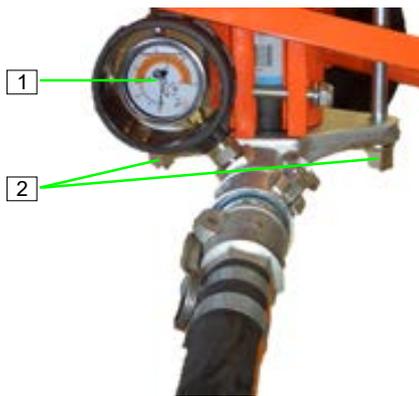


Figure 33: Check and relieve the mortar pressure

⚠ WARNING



Overpressure on the machine!

When opening machine parts they can open in an uncontrolled manner and injure the operator.

- Only open the mortar hoses if the mortar pressure gauge (1) indicates the pressure has fallen to '0 bar'.

⚠ WARNING



Danger of injury from discharged mortar!

Discharged mortar may lead to injuries to eyes and face.

- Never look into the spray gun.
- Always wear protective goggles.
- Always position yourself in such a way that you are not hit by the mortar being discharged.

1. Open the ball valve on the zargomat gluing gun.
2. Check the mortar pressure gauge (1) if the mortar pressure has fallen to '0 bar'. If necessary, discharge any mortar pressure by unscrewing the nuts (2) slightly. When doing so, cover the work area with tear-proof film.
3. Tighten nuts (2) again.

5.10.2 Switching on the machine again after a power failure

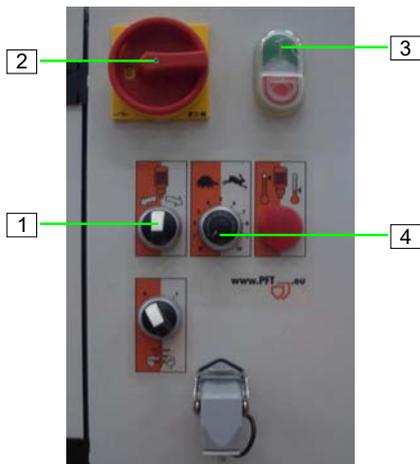


Figure 34: Switching on the machine after a power failure

NOTE



The machine is equipped with a restart interlock. In case of a power failure, this must be started as follows.

1. Turn the pump motor selector switch (1) to the '0' position.
2. Close the ball valve on the zargomat gluing gun.
3. Turn the main switch (2) to 'ON'.
4. Press the green pushbutton (3) control voltage 'ON'.
5. Turn the potentiometer (4) to position 4.
6. Turn the pump motor selector switch (1) to the 'right' position.
7. Open the ball valve on the zargomat gluing gun.
8. The machine starts again as soon as the on/off switch on the zargomat gluing gun is actuated.

NOTE



In case of a longer power cut, the machine and the mortar hoses have to be cleaned immediately.

5.11 Measures in case of risk of frost

⚠ CAUTION



Damage by frost!

Water that expands on freezing inside the component can cause serious damage.

Therefore:

- Only install dry parts.

5.12 Ending work / cleaning the machine

5.12.1 Cleaning

- Clean the machine daily at the end of work and in case of extended breaks.

NOTE



Water can enter sensitive machine parts!

- Before cleaning the machine cover all openings in which no water must enter for safety and functional reasons (e.g.: electric motors and control cabinets).
- Remove the covers completely after cleaning.

Operation

5.12.2 Secure against restarting

WARNING



Danger to life from unauthorised restarting!

When working with the machine there is the risk that the energy supply is switched on without authorisation. This poses a danger to life for the persons in danger area.

- Before starting work, switch off all electrical power supplies and secure them against being switched back on again.
- If the protective covers are removed for cleaning purposes, it is essential that they be properly reattached when work is finished.

5.12.3 Running the machine empty

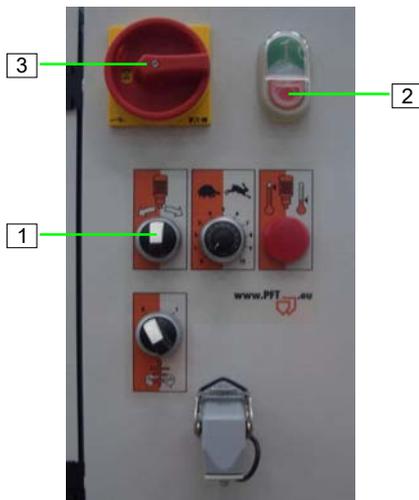


Figure 35: Running the machine empty

The machine must be cleaned daily after work and before prolonged pauses:

1. Run the material hopper empty except for a small amount of residue.
2. Turn the pump motor selector switch (1) to the '0' position.
3. Switch off the machine by pressing the red pushbutton (2) control voltage 'OFF'.
4. Turn the main switch (3) to 'OFF'.
5. Open the ball valve on the zargomat gluing gun.

WARNING



Danger of injury from discharged mortar!

Discharged mortar may lead to injuries to eyes and face.

- Beware of residual pressure.

5.12.4 Disconnecting and cleaning the mortar hose

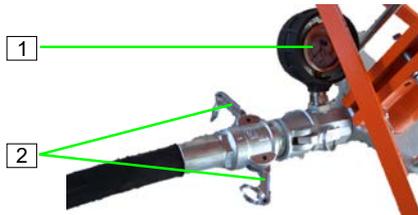


Figure 36: Disconnecting the mortar hose

Disconnecting the mortar hose

1. Check the mortar pressure gauge (1) to determine whether the mortar pressure has fallen to '0 bar'.

⚠ WARNING



Overpressure on the machine!

When opening machine parts they can open in an uncontrolled manner and injure the operator.

- Only open the machine if the pressure has fallen to 0 bar.

2. Loosen the cam lever (2) and decouple the mortar hose from the mortar pressure gauge.

Cleaning the mortar hose

NOTE



The mortar hoses and spray gun must be cleaned immediately at the end of work.

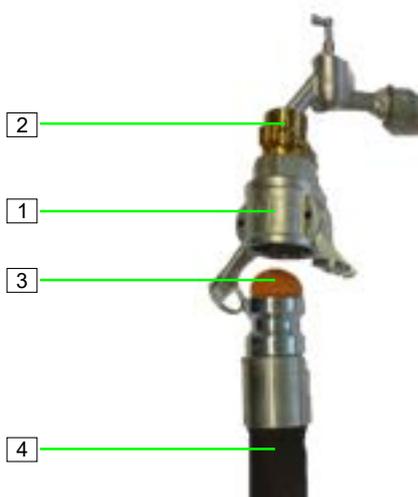


Figure 37: Cleaning the mortar hose

1. Connect the cleaner coupling (1) to the water tap (2).
2. Press the water saturated sponge ball (3) into the mortar hose (4).
3. Connect mortar hose (4) with the sponge ball to the cleaner coupling (1).
4. Open the water tap (2) until the sponge ball emerges from the zargomat gluing gun.
5. Repeat this procedure several times in case of heavy soiling.
6. For different hose diameters, the hoses should be cleaned separately with the appropriate sponge balls.
7. Disconnect the zargomat gluing gun from the mortar hose and clean it.

5.12.5 Cleaning the material hopper



The inside of the material hopper can be cleaned with a water hose after having been emptied completely.

Operation

5.12.6 Drain residual water

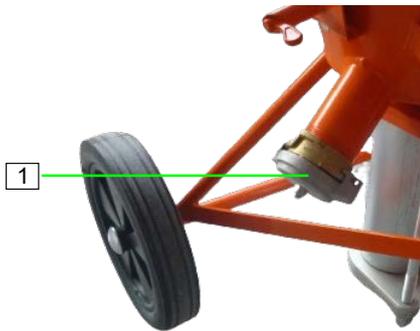


Figure 38: Opening the cleaning nozzles

1. Remove the cover from the cleaning nozzle (1) and let the residual material drain off.
2. Clean the protective grille and material hopper with a water jet.
3. Close the cover (1) again.
4. Fill material hopper with water and switch on the machine so that the pump is rinsed with water.
5. Remove the cover (1) again and drain the remaining water completely.
6. Then close the cover (1) again.

NOTE



Never let the pump run dry as this reduces the service life of the pump.

5.12.7 Cleaning the pump

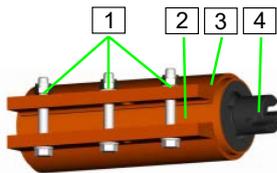


Figure 39: Cleaning the pump unit

1. Remove the pump unit.
2. Loosen the nuts (1) from the clamp.
3. Push the stator (2) out of the clamp (3).
4. Push the rotor (4) out of the stator (2) and clean.
5. Clean pressure flange.
6. Completely reassemble the pump unit.
7. Fit the pressure flange and refit the pump unit.

NOTE



It is essential to spray the pump (rotor in stator) with assembly spray before assembly, as otherwise the break-away torque required for the pump motor is too high.

- Assembly spray for PFT rotor/stator item no. 00588821

NOTE



Only store assembled pumps (rotor in stator) for a few days, since longer storage may cause the rotor and stator to become inseparably joined.

5.12.8 Cleaning the agitator



Figure 40: Opening the protection grille



Figure 41: Cleaning the agitator

1. Open the quick closure (1) and tilt the motor with protection grille.
2. Remove the agitator (2) from the material hopper and clean thoroughly.
3. Clean material hopper.
4. Reinsert the agitator (2) into the material hopper.

NOTE



When inserting the agitator (2) ensure that the freewheel (3) in the head of the rotor (4) grips properly into the hauling bracket (5) when closing the protection grille.

CAUTION



Danger of crushing at the motor tilt flange!

There is a danger of crushing injuries when closing the motor tilt flange.

- Never reach into the closing range of the motor tilt flange.

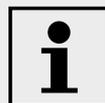
5. Close quick closure (1).
6. Close the cover on the cleaning nozzle.

5.13 Reaction in the event of faults

Reaction in the event of faults

The following applies as a general rule:

1. In the event of faults presenting immediate danger to persons or property, activate the emergency OFF function immediately.
2. Determine cause of the fault.
3. If the rectification of faults requires works in the danger zone, switch off the system and secure against restarting.
4. Inform the manager on site immediately about the fault.
5. Depending on the type of fault, commission authorised skilled personnel or rectify the fault yourself.



The following fault table gives information on who is authorised to rectify the fault.

Operation

5.13.1 Safety

Personnel

- The work for rectification of faults described here can be carried out by the operator, unless marked otherwise.
- Some works must be carried out only by specially trained skilled personnel or exclusively by the manufacturer. Information on this can be found in the description of the individual faults.
- Work on electrical systems must always only be carried out by qualified electricians.

Personal protective equipment

The following protective equipment has to be worn for all maintenance work:

- Protective clothing
- Protective goggles
- Protective gloves
- Safety shoes

5.13.2 Faults

The following chapter describes possible causes for faults and the activities carried out for their rectification.

In case faults occur frequently, shorten the maintenance intervals in accordance with the actual load.

Contact your dealer if malfunctions occur that cannot be solved using this manual.

5.13.3 Fault displays



Figure 42: Fault display 1



Figure 43: Fault display 2

The following installation indicates faults:

Pos.	Light signal	Description
1	Red control lamp	Lights up on motor protection switch fault. → Check the motor protection switch
2		Faults in the frequency converter are shown in the display. Remedial measures are described in the enclosed Quick Reference Guide.



5.13.4 Table of faults

Fault	Possible cause	Troubleshooting	Rectification by
Machine does not start current	Power supply not in order	Repair power supply	Service technician
	Main switch not activated	Activate main switch	Operator
	RCD was triggered	Reset RCD	Service technician
	Motor protection switch triggered	Turn motor protection switch in control box to position 1	Service technician
	Pushbutton for control voltage 'ON' is not pressed	Press pushbutton for control voltage 'ON'	Operator
	Contactors defective	Change contactors	Service technician
	Fuse defective	Change fuse	Service technician
Machine does not start material	Thickened material in the material hopper	Remove thickened material or add water	Operator
	Excessively dry material in pump part	Remove mixing pump and clean	Operator
Pump motor will not start	Pump motor defective	Replace pump motor	Service technician
	Connection cable defective	Change connection cable	Service technician
	Plug or mounted socket defective	Replace plug or mounted socket	Service technician
	Motor protection switch defective or triggered	Replace or reset motor protection switch	Service technician
	Poor mixture	Add more water or leave the mixture to mix for longer	Operator
	Clumped material	Add more water or clean/replace agitator	Operator
	Driving claw defective	Replace driving claw	Service technician
	Agitator defective	Replace agitator	Service technician
Mortar flow 'thick-thin'	Rotor worn or defective	Replace rotor	Service technician
	Stator worn or clamped too loosely	Replace stator or re-tighten clamp	Service technician
	Clamping bracket defective (oval)	Replace clamping bracket	Service technician
	Inner wall of mortar hose defective	Replace mortar hose	Operator
	Rotor too deep in pressure flange	Replace pressure flange	Service technician
	No original PFT spare parts	Use original PFT spare parts	Service technician

Operation



Fault	Possible cause	Troubleshooting	Rectification by
Red control lamp, fault lights up	Overload due to the pump getting blocked with dry material	Remove mixing pump and clean	Service technician
	Overload due to low water volume	Add more water when starting off	Operator
	Motor protection switch triggered	Switch the motor protection switch on again	Service technician

5.13.5 Hose blockages

Indications Blockages can occur in the pressure flange or in the mortar hoses.

Indications are:

- Rapidly increasing pressure head
- Blockage of pump
- Running difficulties or blockage of the pump motor
- Expansion and turning of the mortar hose
- No material leakage at the hose ends

Possible causes:

- Heavily worn mortar hoses
- Badly greased mortar hoses
- Residual water in mortar hose
- Clogging of the pressure flange
- Severe restriction at the couplings
- Kink in the mortar hose
- Leaks at the couplings
- Poorly pumping and separated materials

Earlier damage to the mortar hose



Should the pressure in the mortar hose exceed 60 bar in the event of a machine failure due to material clogging, replacement of the mortar hose is recommended as there might be damage in the hose that is not externally visible.

5.13.6 Removal of clogging in hoses

⚠ WARNING

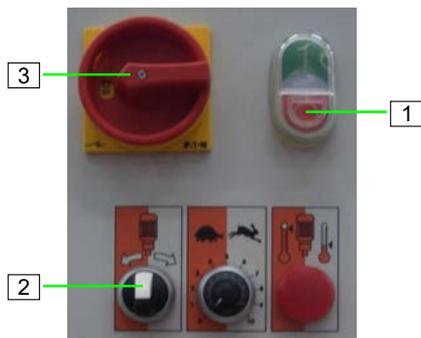


Danger from discharged material!

Never detach hose couplings if the feed pressure has not been fully released! Material to be conveyed can be discharged under pressure and cause injuries particularly to the eyes.

Persons commissioned with the cleaning of clogged hoses have to wear personal protective equipment (protective goggles, gloves) for safety reasons, and must position themselves in such a way that they cannot be hit by discharged material. Other persons have to clear the area.

5.13.6.1 Switching off the machine



1. Switch off the machine by pressing the red pushbutton (1) control voltage 'OFF'.
2. Turn the pump motor selector switch (2) to the '0' position.
3. Turn the main switch (3) to 'OFF'.

Figure 44: Switching off the machine

Operation

5.13.6.2 Blockage cannot be cleared

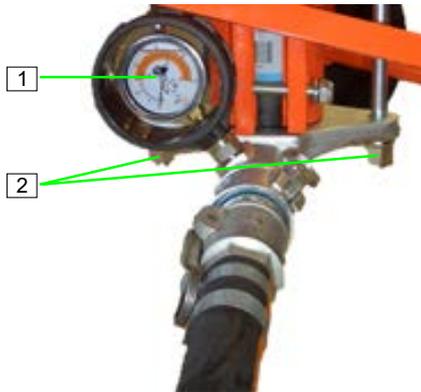


Figure 45: Check and relieve the mortar pressure

⚠ WARNING



Overpressure on the machine!

When opening machine parts they can open in an uncontrolled manner and injure the operator.

- Only open the mortar hoses if the mortar pressure gauge (1) indicates the pressure has fallen to '0 bar'.

⚠ WARNING



Danger of injury from discharged mortar!

Discharged mortar may lead to injuries to eyes and face.

- Never look into the spray gun.
- Always wear protective goggles.
- Always position yourself in such a way that you are not hit by the mortar being discharged.

1. Undo both nuts (2) on the pressure flange slightly to ensure the residual pressure can escape.
2. As soon as the pressure is down to '0 bar', tighten the nuts (2) again.



Figure 46: Detaching the coupling

NOTE



Clean mortar hoses immediately

3. Cover coupling connections with tear-proof film.
4. Release cam lever (3) and hose connections.
5. Remove blockage by tapping or shaking at the point of the blockage.
6. If necessary, insert a flushing hose into the mortar hose and flush out the mortar.
 - PFT flushing hose item no. 00113856

5.13.6.3 Switching on the machine after removing a blockage

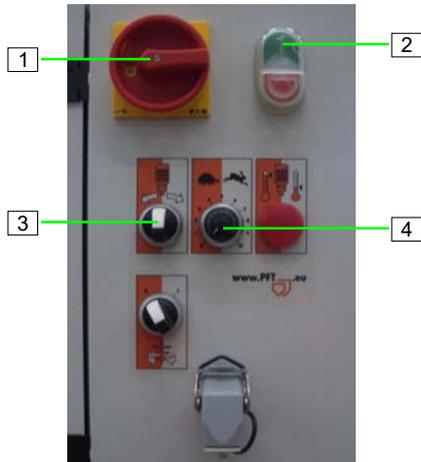


Figure 47: Switching on the machine again

1. Turn the main switch (1) to 'ON'.
2. Press the green pushbutton (2) control voltage 'ON'.
3. Turn the pump motor selector switch (3) to 'right' position.
4. Turn the potentiometer (4) to position 4.
5. Let the machine run for a short while without mortar hoses.
6. As soon as material flows out of the pressure flange, switch the pump motor selector switch (3) to the '0' position.
7. Apply wallpaper paste to the cleaned mortar hoses and connect to the machine and the zargomat gluing gun.
8. Turn the pump motor selector switch (3) to the 'right' position.
9. Open the ball valve on the zargomat gluing gun.
10. The machine starts again as soon as the on/off switch on the zargomat gluing gun is actuated.

Maintenance

6 Maintenance

6.1 Safety

Personnel

- The maintenance works described here can be carried out by the operator, unless marked otherwise.
- Some maintenance work must only be carried out by specially trained technical personnel or exclusively by the manufacturer.
- Work on electrical systems must always only be carried out by qualified electricians.

Basic information

WARNING



Risk of injury due to improperly carried out maintenance work!

Improper maintenance can lead to severe injuries or considerable property damage.

- Prior to starting the works ensure that there is enough space to carry out the works.
- Ensure order and safety at the assembly site! Unattached components or tools left lying around or stacked on one another can cause accidents.
- If components have been previously removed, ensure that they are mounted again correctly, reattach all fastening elements and adhere to the specified screw tightening torques.

Electrical system

DANGER



Danger to life from electric current!

Contact with live components can lead to death or serious injury. Live electrical components can move uncontrollably and cause serious injury.

- Switch off the energy supply before starting any work and secure against restarting.

6.1.1 Remove connection cable



Figure 48: Remove connection cable

Electrical system

⚠ WARNING



Danger to life from electric current!

There is danger to life if you come in contact with live parts. Activated electrical components can carry out uncontrolled movements and cause serious injuries.

Therefore:

- Switch off the energy supply before starting any work and secure against restarting.
- Disconnect the power supply by removing the connection cable.

Secure against restarting

⚠ WARNING



Danger to life from unauthorised restarting!

When working with the tool, there is the risk that the energy supply is switched on without authorisation. This poses a danger to life for the persons in danger area.

Therefore:

- Switch off all power supplies before starting any work and secure against restarting.

6.2 Environmental protection

Environmental protection

Observe the following notes on environmental protection when carrying out maintenance works:

- Remove the discharged, exhausted or surplus grease at all greasing points that are lubricated manually and dispose of in accordance with the local applicable regulations.
- Collect used oil in suitable containers and dispose of it according to the applicable local regulations.

6.3 Maintenance plan

The following paragraphs describe the maintenance works required for an optimal and trouble-free operation.

In the event that increased wear is detected during regular checks, the required maintenance intervals have to be shortened according to the actual signs of wear.

Should you have any queries regarding maintenance works and intervals contact the manufacturer, see back page for service address.



The maintenance is limited to a few checks.

Thorough cleaning after use is the most important maintenance.

Interval	Maintenance work	To be carried out by
Daily	Lubricate the freewheel bearing after cleaning the machine.	Operator
	Visual and functional inspection of all safety installations.	Operator
	Check all parts subject to wear.	Operator
	Check conveying hoses and couplings.	Operator
	Visual inspection of the electrical cables.	Operator
Yearly	Check screw connections.	Service technician

6.4 Maintenance work

In the event that increased wear is detected during regular checks, the required maintenance intervals have to be shortened according to the actual signs of wear.

Should you have any queries regarding maintenance works and intervals contact the manufacturer, see back page for service address.

6.4.1 Implementation by a service technician



A service technician is responsible for the assembly and commissioning of machines. In addition, service technicians carry out maintenance and repair work. If work is required on the control box or on other electrical parts, the service technician must have completed vocational training as an electrician.

6.4.2 Gear motor maintenance



Figure 49: Gear motor

NOTE



The gear motor (1) is filled with approx. 0.9 litres of ISO VG 220 lubricating oil at the factory. The oil must be changed every 1,000 hours and every 3 years at the latest.

6.4.3 Lubricate freewheel on agitator



Figure 50: Lubricate freewheel

1. Open the quick closure (1) and tilt the motor with protection grille.
2. Remove the agitator (2) from the material hopper.
3. Unscrew the locking screw (3) on the freewheel (4).
4. Lubricate the freewheel at the lubricating nipple.
5. Insert and tighten the locking screw (3) on the freewheel (4).
6. Check the seat of the freewheel for dirt and clean if necessary.
7. Reinsert the agitator (2) into the material hopper.



Figure 51: Insert agitator

NOTE



When inserting the agitator (2) ensure that the freewheel (4) in the head of the rotor (5) grips properly into the hauling bracket (6) when closing the protection grille.

⚠ CAUTION



Danger of crushing by protective grille!

There is a danger of crush injuries when closing the protective grill.

- Do not reach into the closing area of the protective grille or fully secure the protective grille.

8. Close quick closure (1).

6.4.4 Adjust clamping of pump

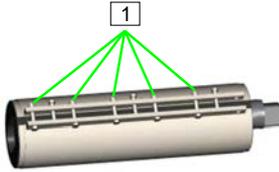


Figure 52: Adjust clamping of pump

1. If the pumping pressure decreases, the stator can be adjusted.
2. Evenly tighten the nuts (1).
3. Do not adjust the tightness of the pump clamping during operation.
4. Pump parts that do not achieve the required pumping pressure when clamped, have to be replaced.

When changing the pump, it has to be ensured that:

- All screws on the clamp are uniformly tightened.
- The tie rod screws on rubber stators are not overly tightened and the liner ends are resting fully and centred in the flanges.

NOTE



Only store assembled pumps (rotor in stator) for a few days, since longer storage may cause the rotor and stator to become inseparably joined.

NOTE



It is essential to spray the pump (rotor in stator) with assembly spray before assembly, as otherwise the break-away torque required for the pump motor is too high.

- Assembly spray for PFT rotor/stator item no. 00588821

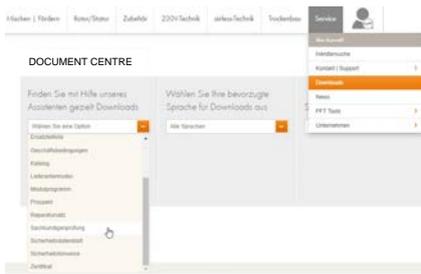
6.5 Actions after completed maintenance

After finishing the maintenance works and prior to switching on the machine, the following steps have to be carried out:

1. Check all previously loosened screw connections for secure fit.
2. Check if all previously removed safety systems and covers are properly reinstalled.
3. Ensure that all tools, materials and other equipment used have been removed from the work area.
4. Clean the work area and remove any spilled materials such as liquids, processing material or similar.
5. Ensure that all safety systems of the installation work perfectly.

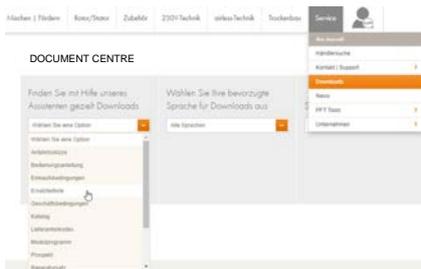
6.6 Periodic inspection/expert inspection

- Construction machinery has to be inspected for safe working condition in accordance with the operating conditions and the operational requirements as needed, however at least once a year by an expert.
- Pressure vessels have to undergo the prescribed expert inspections.
- The inspection results have to be documented and kept at least until the next inspection.



- The documents for the expert inspection can be found on the internet at www.pft.net.
- Open the Document Centre under Service → Downloads.
- In this area, select the expert inspection category to access all relevant inspection documents.

6.7 Spare parts lists



The spare parts lists for the machine can be found on the Internet at www.pft.net.

- Open the Document Centre under Service → Downloads.
- In this area, select the spare parts list category.
- In addition, select the machine you are looking for.

6.7.1 Accessories



Recommended accessories/equipment can be found in the PFT machine and equipment catalogue or under www.pft.net

7 Disassembly

After the useful service life has been reached, the device has to be dismantled and disposed of in an environment-friendly manner.

7.1 Safety

Personnel

- Disassembly must be carried out by specially trained technical personnel only.
- Work on the electrical system must be carried out by qualified electricians only.

Basic information

⚠ WARNING



Risk of injury in case of improper disassembly!

Stored residual energies, sharp components, points or edges at and inside the device or on the required tools might cause injuries.

Therefore:

- Prior to starting the works ensure that there is sufficient space.
- Carefully handle components with sharp edges.
- Ensure order and cleanliness at the working place! Loose components and tools on top of one another or lying about pose potential accident risks.
- Dismantle components correctly. Pay attention to partly high dead weight of the components. If required, use lifting equipment.
- Secure components that they do not fall down or topple over.
- In case of doubt, consult the dealer.

Electrical system

⚠ DANGER



Danger to life from electric current!

Contact with live components can lead to death or serious injury. Activated electrical components can carry out uncontrolled movements and cause serious injuries.

Therefore:

- Prior to beginning the disassembly, switch off the power supply and fully disconnect it.

7.2 Disassembly

When decommissioning, clean the device and dismantle it according to the applicable work safety and environmental protection regulations.

Prior to starting the disassembly:

- Switch off device and secure against restarting.
- Disconnect the entire energy supply from the machine and discharge the residual energy.
- Remove operating and auxiliary materials as well as residual processing materials and dispose of them in an environmentally sound manner.

8 Disposal

Provided no return or disposal agreements have been made, recycle the disassembled parts:

- Scrap metals.
- Recycle plastic elements.
- Dispose of remaining components, sorted according to the type of material.

NOTE



Environmental damage due to incorrect disposal!

- Electrical scrap and components, lubricants and other process materials are subject to special guidelines and may only be disposed of by approved waste disposal specialists!



Local authorities and waste disposal specialists can provide more details on the correct disposal of materials.



Disposal





PFT - ALWAYS AT YOUR SITE



Knauf PFT GmbH & Co. KG
Postfach 60 97343 Iphofen
Einersheimer Straße 53 97346 Iphofen
Germany

Telephone: +49 9323 31-760
Fax: +49 9323 31-770
Technical hotline: +49 9323 31-1818
info@pft.net
www.pft.net
