



Operating manual

SWING M delivery pump

Part 2 Overview, operation and service



Item no. of the operating manual:

00164443

SWING M 1.5 kW 0.5 - 9 l/min (W7)

Item no.: 00151992

SWING M 0.5 - 9 l/min (VA)

Item no.: 00256639



Read the operating manual prior to starting any work!

About us



About us

<u>Publisher</u>	Knauf PFT GmbH & Co. KG Postfach 60 ▪ 97343 Iphofen Einersheimer Straße 53 ▪ 97346 Iphofen Germany
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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:

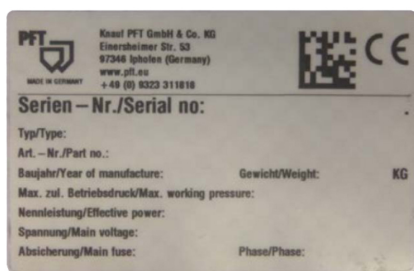
- The danger sign and signal word
- Information on the nature of the hazard
- Information on the source of the hazard
- Information on possible consequences of disregarding the hazard
- Measures to avert the hazard

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: SWING M
Type of equipment: Delivery 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.	70	kg
Length	1,150	mm
Width	570	mm
Height	600	mm

Material hopper dimensions

Detail	Value	Unit
Filling height	540	mm
Material hopper volume	38	l

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
Pump motor current consumption	11.5	A
Power input, max.	1.5	kW
Drive pump motor	1.5	kW

Technical data**2.3 Capacity values, pump unit B 4–2**

Pump capacity B 4–2
(accessories)

Detail	Value	Unit
Delivery rate *, approx.	0.1 - 3	l/min
Operating pressure, maximum	20	bar

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

2.4 Capacity values, pump unit C 4-2

Pump capacity C 4-2 (series)

Detail	Value	Unit
Delivery rate *, approx.	0.5 - 9	l/min
Operating pressure, maximum	20	bar
Delivery distance *, up to	15	m

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

2.5 Sound power level

Guaranteed sound power level L_{WA}

■ 78 dB(A)

2.6 Vibrations

Weighted effective value of acceleration to which the upper body parts are exposed $<2.5 \text{ m/s}^2$



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 Transport



Figure 4: Transport

⚠ WARNING



Danger to life due to crane transport

Transporting the PFT SWING M with a crane is prohibited.

3.5 Transport by car

⚠ CAUTION



Risk injury due to unsecured load!

All persons involved in the loading are responsible for securing the load properly during road transport. The relevant vehicle driver is responsible for the operational loading.

3.6 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.

Description



4 Description

4.1 Overview

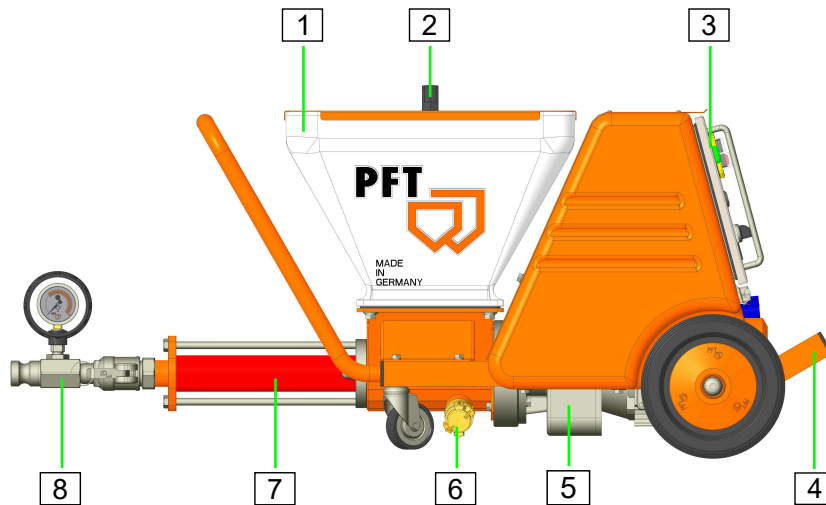


Figure 5: Table of the assembly groups

[1] Material hopper	[2] Cover (accessories)
[3] Control box	[4] Chassis
[5] Drive unit	[6] Cleaning nozzles
[7] Pump unit	[8] Mortar pressure gauge

4.2 Functional description SWING M

The PFT SWING M is a small delivery pump with an electronic, continuously adjustable 1.5 kW direct drive. Its application is universal, whether fed from buckets or screw mixers.

Fluid, pumpable and solvent-free materials up to a maximum of 3 mm granulation can be pumped, grouted and sprayed.

The delivery pump PFT SWING M offers advantages that all users have come to appreciate.

4.3 Fields of application



Figure 6: SWING M

For all pump-compatible ready-mix dry mortars such as:

- Adhesive mortar
- Reinforcement plasters
- Finishing coats
- Plastic plasters
- Silicate plasters
- SPCC restoration mortars
- Multi-component masses

For wet products and pasty materials such as:

- Finishing plaster of up to 3 mm granulation
- Decorative plasters
- Bentonite
- Adhesive mortar
- Reinforcing mortar

For liquid materials such as:

- Dispersion paints
- Primers
- Concrete primer

Flowability / flow characteristics



- *The pump unit B 4–2 can be used up to 20 bar operating pressure.*
- *The pump unit C 4–2 can be used up to 20 bar operating pressure.*
- *The possible conveying distance depends mainly on the flowability of the mortar.*
- *Heavy, sharp-edged mortar has poor flow characteristics. Runny materials, fillers, paints etc. have good flow characteristics.*
- *If 20 bar operating pressure are exceeded the mortar hose length has to be reduced.*
- *In order to avoid machine faults and increased wear of the pump motor, pump shaft and the pump itself, only original PFT spare parts such as:*
 - *PFT rotors*
 - *PFT stators*
 - *PFT pump shafts*
 - *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.*

Description

4.4 Description of assemblies

The SWING M delivery pump consists of the main components described in the following chapters.

4.4.1 Control box item no. 00158813

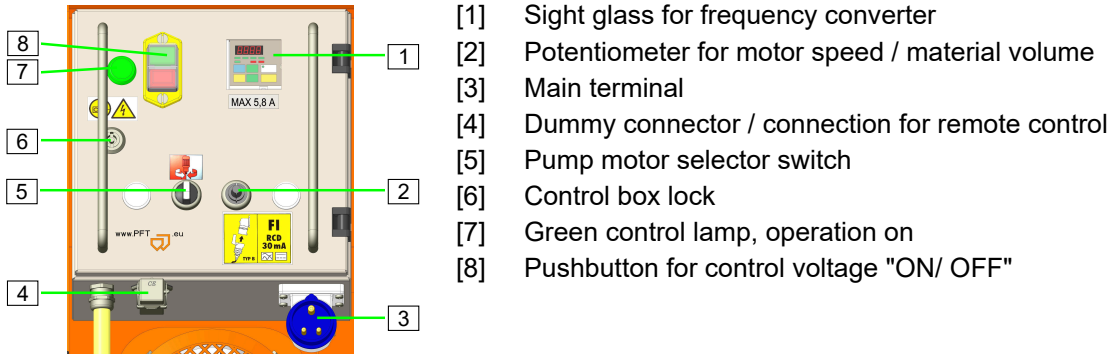


Figure 7: Assembly unit control box

4.4.2 Mixing and pumping

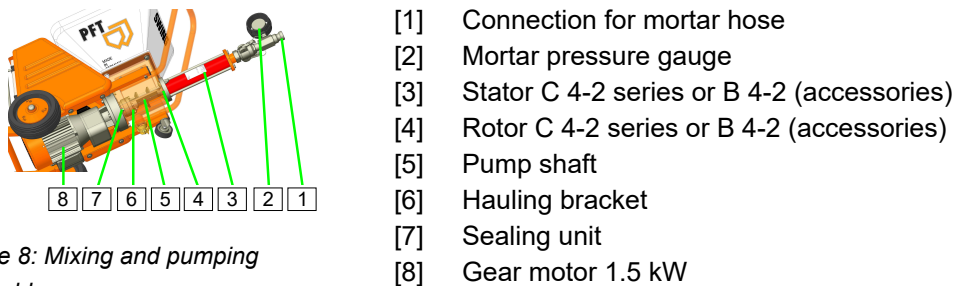


Figure 8: Mixing and pumping assembly

4.4.2.1 Checking the conveying pressure



Figure 9: Rotor and stator

PFT SWING M pump system

The PFT SWING M is equipped with the maintenance-free C 4-2 pump system as standard.

NOTE



If the delivery pressure decreases and the material flow fluctuates, the pump must be replaced.

4.4.2.2 Pump conveying pressure

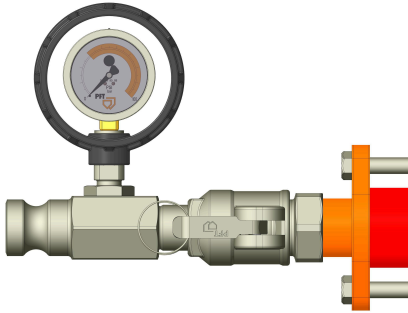


Figure 10: Mortar pressure gauge



Figure 11: Spray gun

The PFT SWING M pump unit should attain a pressure of at least 15 - 20 bar and a backpressure of approx. 6 - 8 bar when the machine is switched off.

Checking the conveying pressure and backpressure:

1. Fill the material hopper of the machine with water.
 2. Connect the mortar pressure gauge.
 3. Connect mortar hose.
 4. Connect the spray gun to the end of the hose.
 5. Open the ball valve.
 6. Switch on the machine until water emerges from the spray gun (bleed the hose).
 7. Close the ball valve.
 8. Let pump run against pressure until there is no more increase in pressure.
- If the required pressure of 15 - 20 bar is no longer attained, the pump must be replaced.
 - Make sure the power supply is interrupted during the installation when installing/removing the pump unit.
 - A new rotor and new stator need to be run in first; actual pressure values can only be determined after the first spraying cycle.

4.4.3 Material hopper with the tightening torque of the screws

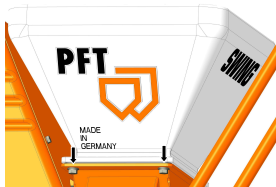


Figure 12: Material hopper

NOTE



The maximum tightening torque for the screws of the material hopper is 15 Nm.

Description



4.4.4 Mortar pressure gauge

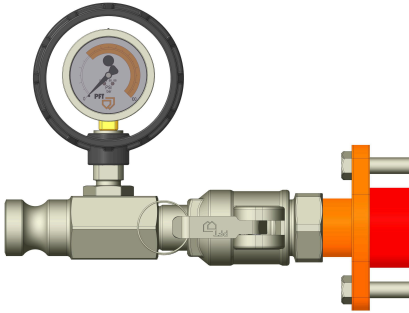


Figure 13: Mortar pressure gauge

PFT 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

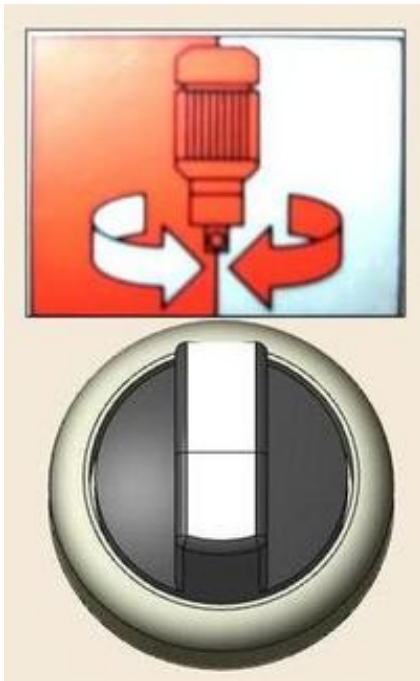


Figure 14: Pump motor selector switch

Pump motor selector switch

The pump motor has three operating modes:

Switch position "0":

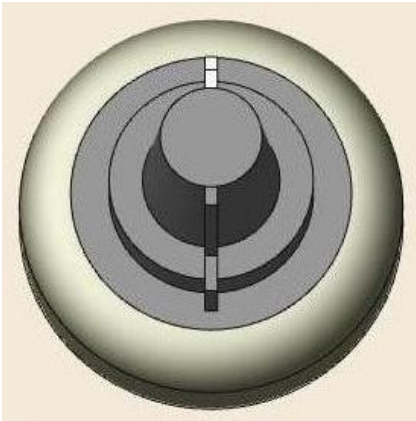
- The machine is switched off.

Switch position "right" (latching):

- The machine starts up when the power supply is correctly and completely switched on.

Switch position "left" (spring return):

- The pump motor goes into reverse, thereby relieving the pump and locking other functions.



Potentiometer

Potentiometer for motor speed/material volume:

- Turning the potentiometer to the right to a higher number increases the motor speed and thus the delivery rate/material volume.

4.6 Accessories



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

- Item no. 20423420



Remote control cable with switch - 25 m

- Item no. 20456929



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

- Item no. 20211100



Spray nozzle DN19 (3/4") Geka

- Item no. 20215700

Description



Cover of material hopper SWING M with accessories

- Item no. 00159323



PFT bag squeezer SWING M

- Item no. 00201565

Completely empties plastic bags filled with pastes.



PFT spraying set for finishing coats in case

- Item no. 00232106



Pressure control max. 3 bar

- Item no. 00067103

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

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!

Operation

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 15: 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

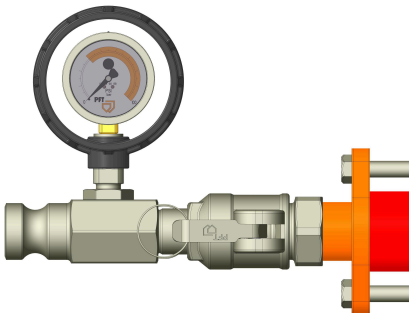


Figure 16: Mortar pressure gauge

⚠ 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 pump shaft



Figure 17: Grille cover

WARNING



Rotating pump shaft!

Risk of injury when reaching into the material hopper.

- The protective grille should not be removed while preparing or operating the machine.
- Never reach into the running machine.

5.3.2 Positioning machine

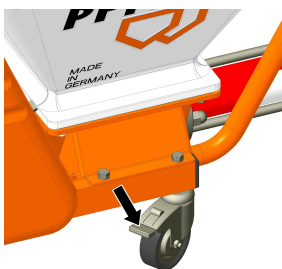


Figure 18: Lockable castor

1. Lock the lockable castor prior to operating the machine.
2. Put up the machine on a stable, even surface and secure against unwanted 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

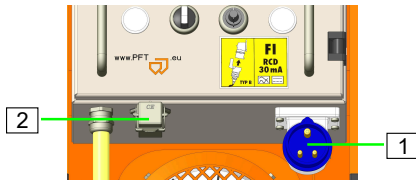


Figure 19: Connecting the power supply

1. Connect the machine (1) only to a 230V 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.

2. Disconnect the control circuit by removing the dummy plug (2) on the control box.

5.3.4 Mortar hoses

5.3.4.1 Preparing the mortar hoses

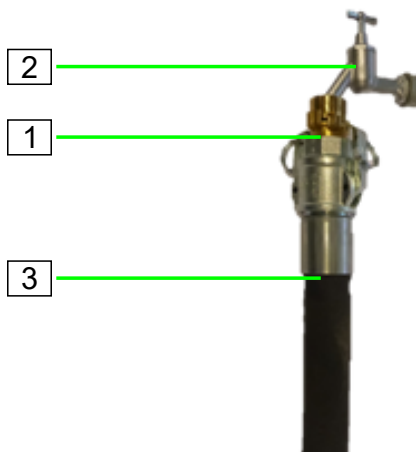


Figure 20: Preparing the mortar hoses

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 21: 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 pump does not run dry when starting up

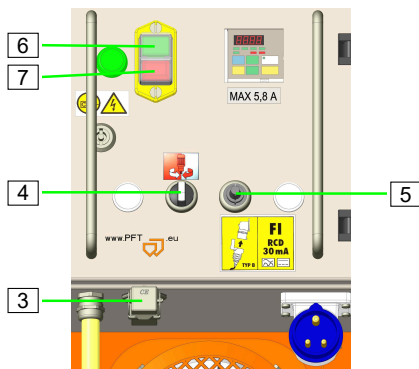


Figure 22: Switching on

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

NOTE

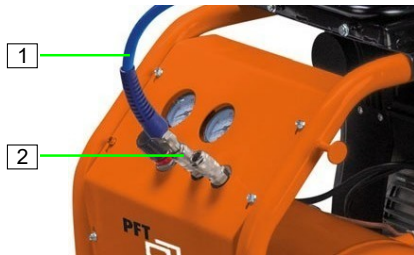


Never let the pump run dry as this reduces the service life of the pump.

Operation

5.3.5 Compressed air supply

5.3.5.1 Connecting the air hose



1. Connect the compressed air hose (1) to the compressed air connection (2) of the compressor.

⚠ WARNING



- Never undo hose couplings while the compressed air hose is pressurised.

Figure 23: Connecting the air hose

5.3.5.2 Pressure control (accessories)



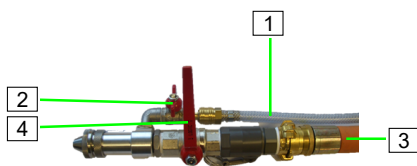
NOTE



If an air compressor is used, it is necessary to equip the machine with a separate pressure control, item no. 00067103. The machine can be switched on and off via the pressure control.

Figure 24: Pressure control

5.3.5.3 Connecting the spray gun



1. Connect compressed air hose (1) to the spray gun.
2. Make sure that the air tap (2) on the spray gun is closed.
3. Connect mortar hose (3) to the spray gun.
4. Make sure that the ball valve for the mortar (4) on the spray gun is closed.

Figure 25: Connecting the spray gun

5.3.5.4 Switching on the air compressor

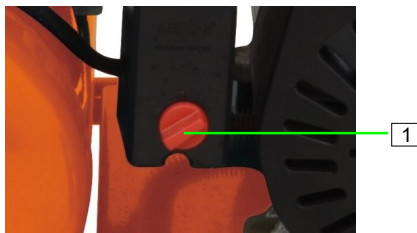


Figure 26: Switching on the air compressor

1. Switch on the air compressor at the on/off switch (1).

NOTE



Function of the on/off switch:

- The on/off switch releases the function of the pressure switch. The pressure switch switches the compressor on or off depending on the container pressure reached. The compressor operates automatically, stops when the maximum pressure is reached and then restarts when the switch-on pressure is reached.

5.3.6 Add material to the machine



Figure 27: Fill material

1. Fill the machine with material.

NOTE



Formation of tunnels:

Due to the material's physical properties, the material can partially adhere to the sides of the material hopper, resulting in the formation of tunnels. The mortar level in the material hopper should not be higher than absolutely necessary.

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.

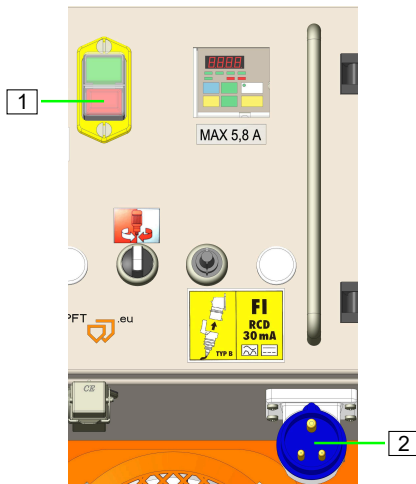


Figure 28: Stopping

In case of danger proceed as follows:

1. Immediately press the red pushbutton (1) control voltage "OFF".
2. Disconnect the power supply (2) by removing the connection cable.
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.

Operation

5.5 Putting the machine into operation

5.5.1 Avoid hose clogging



Figure 29: Unscrew the nozzle



To avoid the hose clogging, the nozzle (1) must be unscrewed from the spray gun before spraying for the first time!

5.5.2 Feeding material to the machine

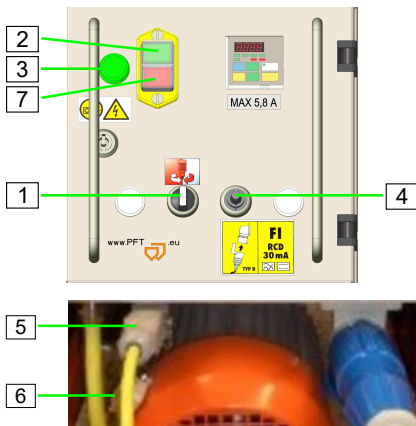


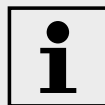
Figure 30: Switching on

1. Turn the pump motor selector switch (1) to "right" position.
2. Switch the machine on by pressing the green pushbutton (2) control voltage "ON".
- ✓ Green control lamp (3) lights up.
3. Adjust the amount of material on the potentiometer (4).
4. The machine can be switched on and off via the remote control cable (5).
5. When working with dummy plug (6), the machine starts immediately.



Figure 31: Open the ball valve

6. Open the ball valve (8) on the spray gun.
7. Run the machine until material comes out of the spray gun, then close the ball valve (8) again.
8. Switch off the machine via the remote control cable or the red pushbutton (7) control voltage "OFF".
9. Screw the nozzle (9) back onto the spray gun.



The correct mortar consistency is reached, if the material mixes on the surface to be sprayed (we recommend application on wall surfaces from top to bottom).

5.5.3 Potentiometer

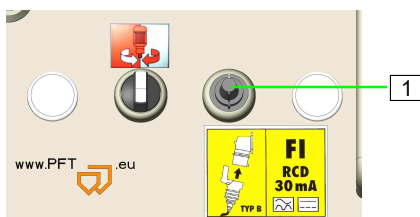


Figure 32: Potentiometer

1. The amount of material to be sprayed can be regulated via the potentiometer (1).

5.6 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.

5.6.1 Open the valves on the spray gun

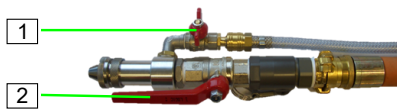


Figure 33: Open taps

1. Point the spray gun toward the wall to be plastered.
2. Check that no-one is in the spray gun range.
3. Open the air tap (1) on the spray gun.
4. Open the ball valve for mortar (2) on the spray gun.



The correct mortar consistency is reached, if the material mixes on the surface to be sprayed (we recommend application on wall surfaces from top to bottom). Uniform mixing and spraying cannot be ensured if the amount of water is insufficient. This can clog the hoses and the pumping components are then subjected to greater wear.

NOTE



When working with pressure control, the machine starts automatically as soon as the air tap (1) is opened and stops again as soon as the air tap is closed.

5.7 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.

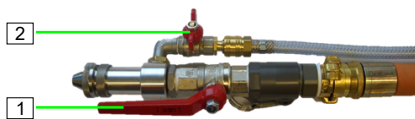


Figure 34: Close taps

1. Close the ball valve for mortar (1) on the spray gun.
2. Close the air tap (2) on the spraying gun.

5.7.1 In case of longer interruption of work / break

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.

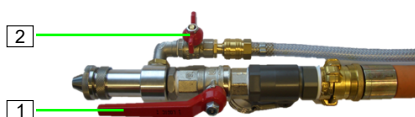


Figure 35: Close taps

1. Close the ball valve for mortar (1) on the spray gun if work is interrupted for a longer period of time.
2. Close the air tap (2) on the spraying gun.
3. Switch off air compressor.

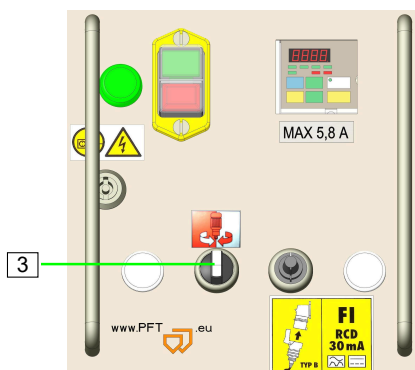


Figure 36: Switching off the machine

4. Turn the pump motor selector switch (3) to the "0" position.

5.8 Switching off the air compressor

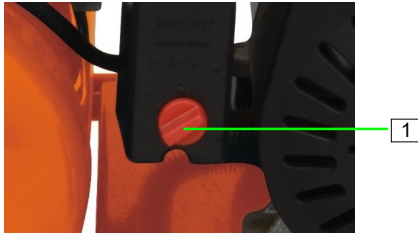


Figure 37: Switching off the air compressor

1. Switch off the air compressor at the on/off switch (1).
2. Open air tap on the spray gun so that the residual pressure can escape.

⚠ WARNING



Danger of injury from discharged mortar!

Discharged mortar may lead to injuries to eyes and face.

- Beware of residual pressure.

5.9 Switching off the machine

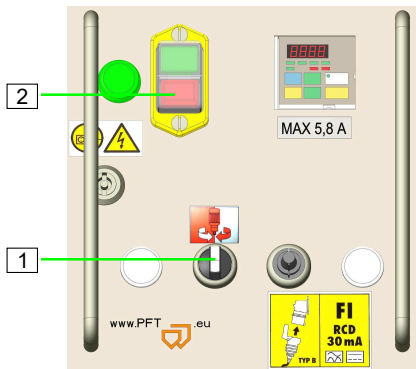


Figure 38: Switching off the machine

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

5.10 Action in case of power failure

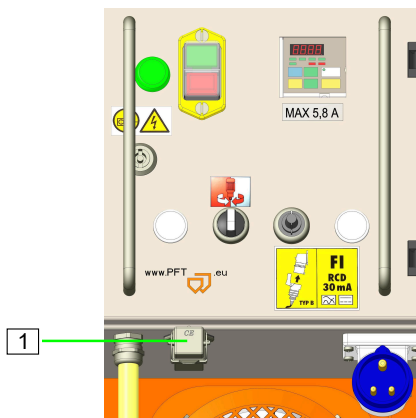


Figure 39: Interrupting the control circuit

Interrupting the control circuit

1. Close the air tap on spray gun.
2. Pull out the dummy plug (1) to interrupt the control circuit.
3. Switch off air compressor.
4. Have the power supply connection checked by an expert.

Operation

5.10.1 Discharging mortar pressure

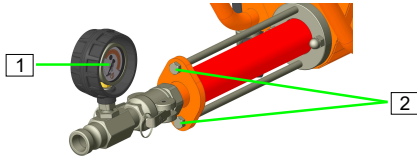


Figure 40: Check and relieve the mortar pressure

⚠ 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 air tap on the spray 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 screws (2) slightly. In doing so, cover the work area with film.
3. Firmly tighten the screws (2) again.

5.10.2 Switching on the machine again 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.

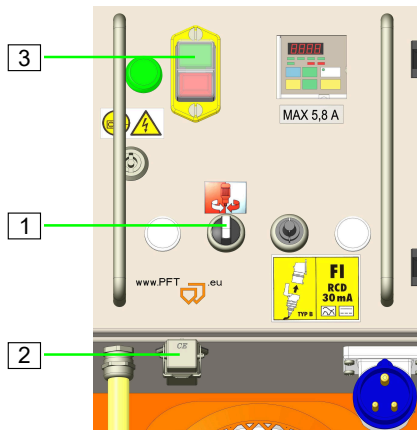


Figure 41: Switching on the machine after a power failure

1. Turn the pump motor selector switch (1) to the "0" position.
2. Close the air tap on spray gun.
3. Close the control circuit by inserting the dummy plug (2) in the control box.
4. Switch the system on by pressing the green pushbutton (3) control voltage "ON".
5. Switch on the air compressor at the on/off switch.
6. Turn the pump motor selector switch (1) to "right" position.
7. The machine starts again as soon as the air tap on the spray gun is re-opened.

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.

5.12.2 Secure against restarting

⚠ WARNING

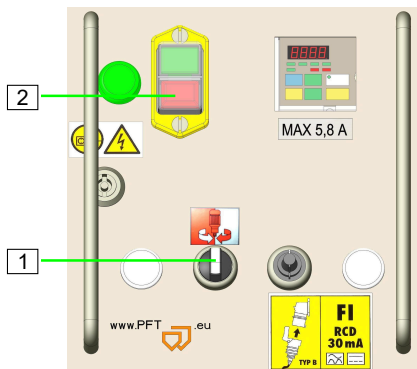


Danger to life from unauthorised restarting!

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



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. Switch off air compressor.
5. Open air tap on the spray gun.

Figure 42: Running the machine empty

⚠ 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 43: Disconnecting the water hose

Disconnecting the water 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.

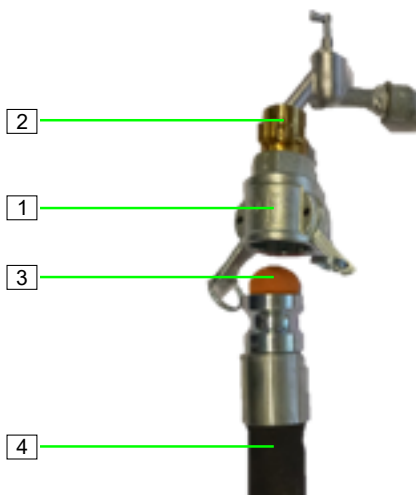


Figure 44: Cleaning the mortar hose

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. Unscrew the nozzle from the spray gun.
5. Open the water tap until the sponge ball emerges at the end of the spray gun.
6. Repeat this procedure several times in case of heavy soiling.
7. In case of different hose diameters, the mortar hoses have to be cleaned separately with the corresponding sponge balls.

5.12.5 Cleaning the spray gun

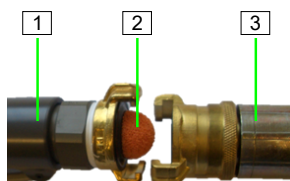


Figure 45: Cleaning the spray gun

1. Remove the mortar hose from the spray gun (1).
2. Unscrew the nozzle from the spray gun.
3. Insert water-soaked sponge ball (2) into the spray gun.
4. Connect the water hose (3) to the spray gun (1).
5. Open the water tap until the sponge ball emerges at the end of the spray gun.
6. Repeat this procedure several times in case of heavy soiling.

Operation

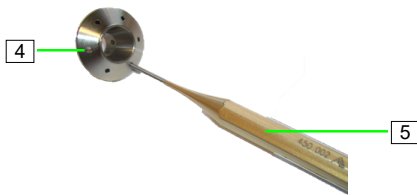


Figure 46: Cleaning the nozzle

7. Punch the air holes of the nozzle (4) with the pin punch (5) to clear.



Figure 47: Cleaning the spray gun

8. Hose down spray gun with water jet.
9. Clean the spray gun with the nozzle brush (6).
10. Switch on the compressor and blow the spray gun dry.
11. Reassemble spray gun.

5.12.6 Cleaning the material hopper



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

5.12.7 Drain residual water

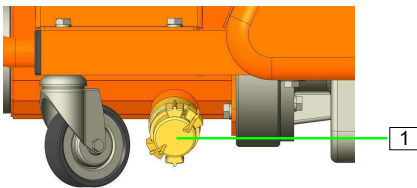


Figure 48: Opening the cleaning nozzles

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.

5.12.8 Cleaning the pump

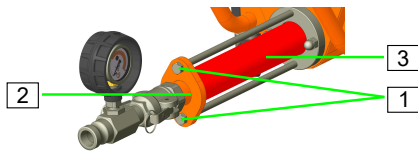


Figure 49: Loosening tie rod screws



Figure 50: Cleaning the pump unit

1. Slightly loosen the tie rod screws (1) so that any residual pressure can escape completely.
2. Then loosen the tie rod screws (1) completely.
3. Remove and clean the pressure flange (2) with mortar pressure gauge.
4. Remove the pump unit (3) and push the rotor (4) out of the stator (5) and clean it.
5. Completely reassemble the pump unit (3).
6. Mount the pressure flange (2) and tighten the tie rod screws (1) again.

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

5.12.9 Tightening torques for the screws on the material hopper

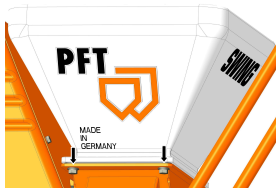


Figure 51: Tightening torque

NOTE



If the material hopper is dismantled for cleaning and then screwed back on, the tightening torque for the screws of the material hopper must be observed.

Maximum tightening torque for the screws of the material hopper is 15 Nm.

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.

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 52: Fault displays

The following installation indicates faults:

- See viewing window on the control box for frequency converter.



5.13.4 Table of faults

Fault	Possible cause	Troubleshooting	Rectification by
Machine does not start current	Pushbutton for control voltage "ON" is not pressed	Press pushbutton for control voltage "ON"	Operator
	Power supply not in order	Repair power supply	Service technician
	RCD was triggered	Reset RCD	Service technician
	Dummy plug missing	Insert the dummy plug	Operator
	Microfuse is faulty	Replace micro fuse	Service technician
	Fuse defective	Change fuse	Service technician
Machine does not start material	Too much dry material in the material hopper, possibly resulting in tunnel formation	Clean material hopper and restart machine	Operator
	Hardened material clogs up the pump unit (rotor/stator)	Disassemble, clean and re-install the pump	Operator
Pump does not start	Pump motor defective	Replace the pump motor	Service technician
	Connection cable defective	Change connection cable	Service technician
	Rotor worn or defective	Replace rotor	Service technician
	Stator worn or clamped too loosely	Replace stator or re-tighten clamp	Service technician
	No original PFT spare parts	Use original PFT spare parts	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

Operation



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 hose blockage

⚠ WARNING

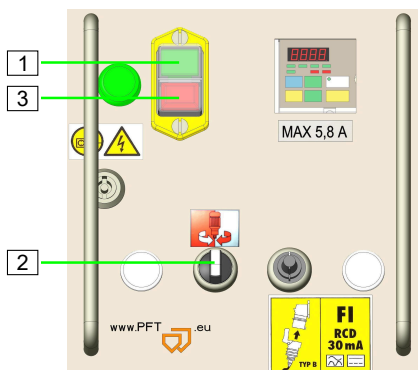


Danger from discharged material!

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 Let the pump run backwards



1. Switch the machine on by pressing the green pushbutton (1) control voltage "ON".
2. Switch selector switch of the pump motor (2) to the "left" position, until the pressure at the mortar pressure gauge has dropped to "0 bar".
3. Switch off the machine by pressing the red pushbutton (3) control voltage "OFF".

Figure 53: Reverse operation

5.13.6.2 Blockage cannot be cleared

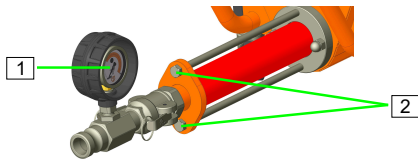


Figure 54: Check and relieve the mortar pressure

⚠ 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 screws (2) on the pressure flange slightly to ensure the residual pressure can escape fully.
2. As soon as the pressure has dropped to "0" bar, tighten the screws (2) again.



Figure 55: 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

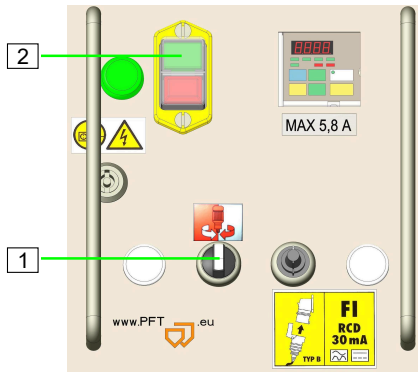


Figure 56: Switching on the machine again

1. Turn the pump motor selector switch (1) to the "0" position.
2. Switch the machine on by pressing the green pushbutton (2) control voltage "ON".
3. Turn the pump motor selector switch (1) to "right" position.
4. Let the machine run for a short while without mortar hoses.
5. As soon as material flows out of the pressure flange, switch the pump motor selector switch (1) to the "0" position.
6. Apply wallpaper paste to the cleaned mortar hoses and connect to the machine and spray gun.
7. Turn the pump motor selector switch (1) to "right" position.
8. The machine starts again as soon as the air tap on the spray gun is re-opened.



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.

6.2 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 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.

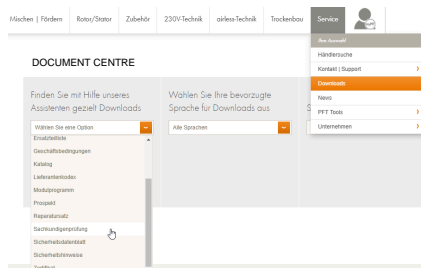
6.4 Actions after completed maintenance

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.

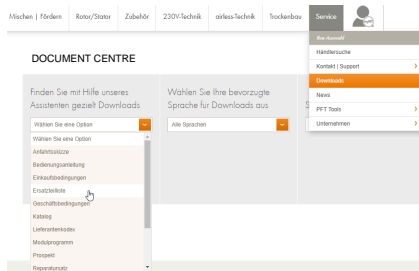
6.5 Periodic inspection/expert inspection

- 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.





6.6 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 Accessories



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

Disassembly



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



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