Operating manual

Mixing pump RITMO L / RITMO M
Overview - Operation

RITMO L

RITMO M

Article number of the operating manual: 00 14 14 08

Article number of the parts list-machine RITMO L: 00 22 22 56 / 00 24 64 44 / 00 23 20 48

Article number of the parts list-machine RITMO M: 00 06 49 61 / 00 07 84 01

CE

Read the operating manual prior to starting any work!

P.O. Box no. 60 97343 Iphofen
Einersheimer Straße 53 97346 Iphofen
Germany

Phone +49 9323 31-760
Fax +49 9323 31-770
Technical hotline +49 9323 31-1818

info@pft-iphofen.de
www.pft.eu

Table of Contents

Table of Contents

Table of Contents

EC Declaration of Conformity

1 EC Declaration of Conformity

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

declares under our sole responsibility that the product:

Type of machine: RITMO
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**),
- Machine directive (**2006/42/EC**),
- Electromagnetic Compatibility Directive (**2004/108/EC**).

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.-Wirtsch.-Ing. (FH) 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

Place, Date of issue | Name and signature | Identification of the signatory

2 Examination

2.1 Examination 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.

2.2 Periodic inspection

- Construction machinery has to be inspected for their 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.

3 General information

3.1 Information regarding the operating manual

- This operating manual gives important information on handling the device. 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 tool and easily accessible to the staff at all times.
- If the tool 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.

3.2 Keep the manual for future reference

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

3.3 Division

The operating manual is divided into 2 books:

- Part 1 Safety

General safety instructions mixing pumps/feed pumps

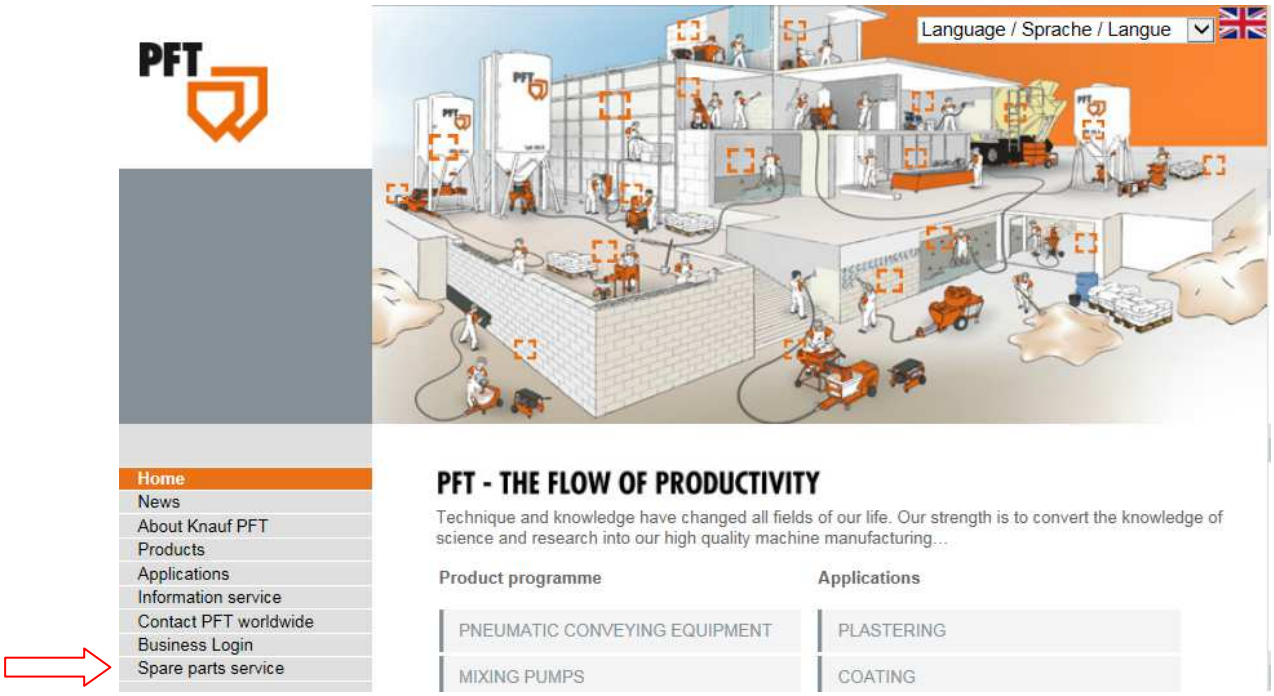
Article number: 00 17 27 09

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

For safe operation of the device both parts have to be read and observed. Together they form one operating manual.

3.4 Spare parts lists

Spare parts lists for the machine can be found on the Internet at www.pft.eu.



4 Technical data

4.1 General information

	Detail	Value	Unit
Total weight including accessories	Weight RITMO L 00 23 20 48	160	kg
Total weight including accessories	Weight RITMO L 00 24 64 44	149	kg
	Weight RITMO L 00 22 22 56	125	kg
Total weight including accessories	Weight RITMO M 00 07 84 01	120	kg
	Weight RITMO M 00 06 49 61	94.5	Kg
	Length with pump	900	mm
	Width	600	mm
	Height	1380	mm

Individual weights	Detail	Value	Unit
	Undercarriage with control cabinet	60	kg
	Motor with grille	31.5	kg
	Hopper with pump unit	24	kg

Hopper dimensions	Detail	Value	Unit
	Filling height	900	mm
	Hopper content	45	l

4.2 Electrical specifications RITMO L

Electrical 230V	Detail	Value	Unit
	Voltage, AC 50 Hz	230	V
	Power consumption, max.	9	A
	Power input, max.	2.5	kW
	Fuse protection	16	A
	Drive pump motor	2.2	kW
	Pump motor speed range	55 - 475	rpm
	Power input pump motor	8.7	A
	Air compressor	0.35	kW
	Vibrating unit	0.045	kW

4.3 Electrical specifications RITMO M

Electrical 230V

Detail	Value	Unit
Voltage, AC 50 Hz	230	V
Power consumption, max.	5.8	A
Power input, max.	2.0	kW
Fuse protection	16	A
Drive pump motor	1.5	kW
Pump motor speed range	140 - 575	rpm
Air compressor	0.35	kW
Power set minimal	6	KVA

4.4 Power values RITMO L

Pump capacity

B4-2L

Detail	Value	Unit
Feed capacity continuously controllable	2 -14	l/min
Operating pressure, max.	20	bar
Grain size max.	2	mm
Feed range *, max. at 25 mm ∅	20	m
Compressor output	0.080	Nm³/min

Compressor output

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

4.5 Power values RITMO M

Pump capacity

B4-1.5

Detail	Value	Unit
Feed capacity continuously controllable	4 -14	l/min
Operating pressure, max.	15	bar
Grain size max.	2	mm
Feed range *, max. at 25 mm ∅	15	m
Compressor output	0.080	Nm³/min

Compressor output

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

4.6 EMV examination

The machine is EMV-examined and fulfils the strict requirements of the EMV-guideline Filter class B.
The control cabinet is equipped with a network filter.

4.7 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

4.8 Power connection Water

Fig. 1: Water connection

Detail	Value	Unit
Operating pressure, max.	2.5	bar
Connection	1/2	inch

4.9 Sound power level

Guaranteed sound power level L_{WA}	78dB (A)

4.10 Vibrations

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

5 Dimension sheet

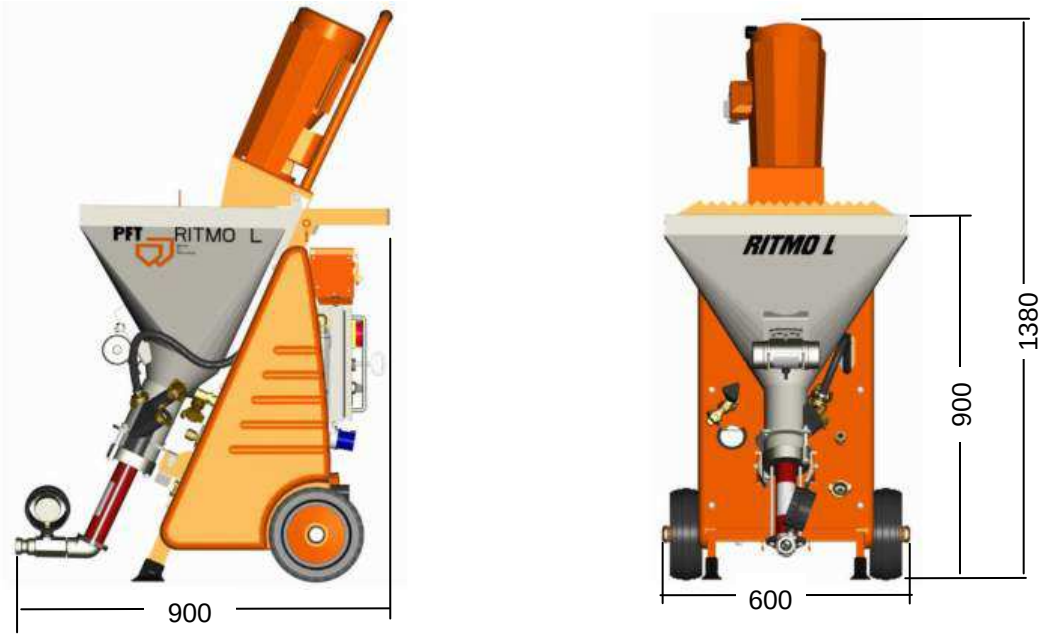


Fig. 2: Dimension sheet

5.1 Name plate

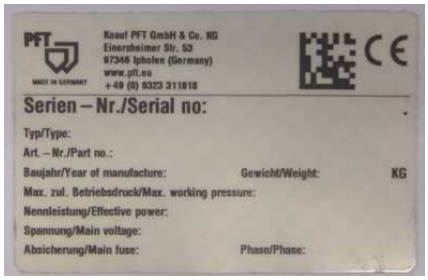


Fig.3: Name plate

The following details can be found on the name plate:

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

5.2 Quality Control sticker

Fig.4: Quality Control sticker

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

- CE confirmed as per EU directives
- Serial number
- Controller / signature
- Date of control

6 Assembly RITMO L

6.1 Overview RITMO L

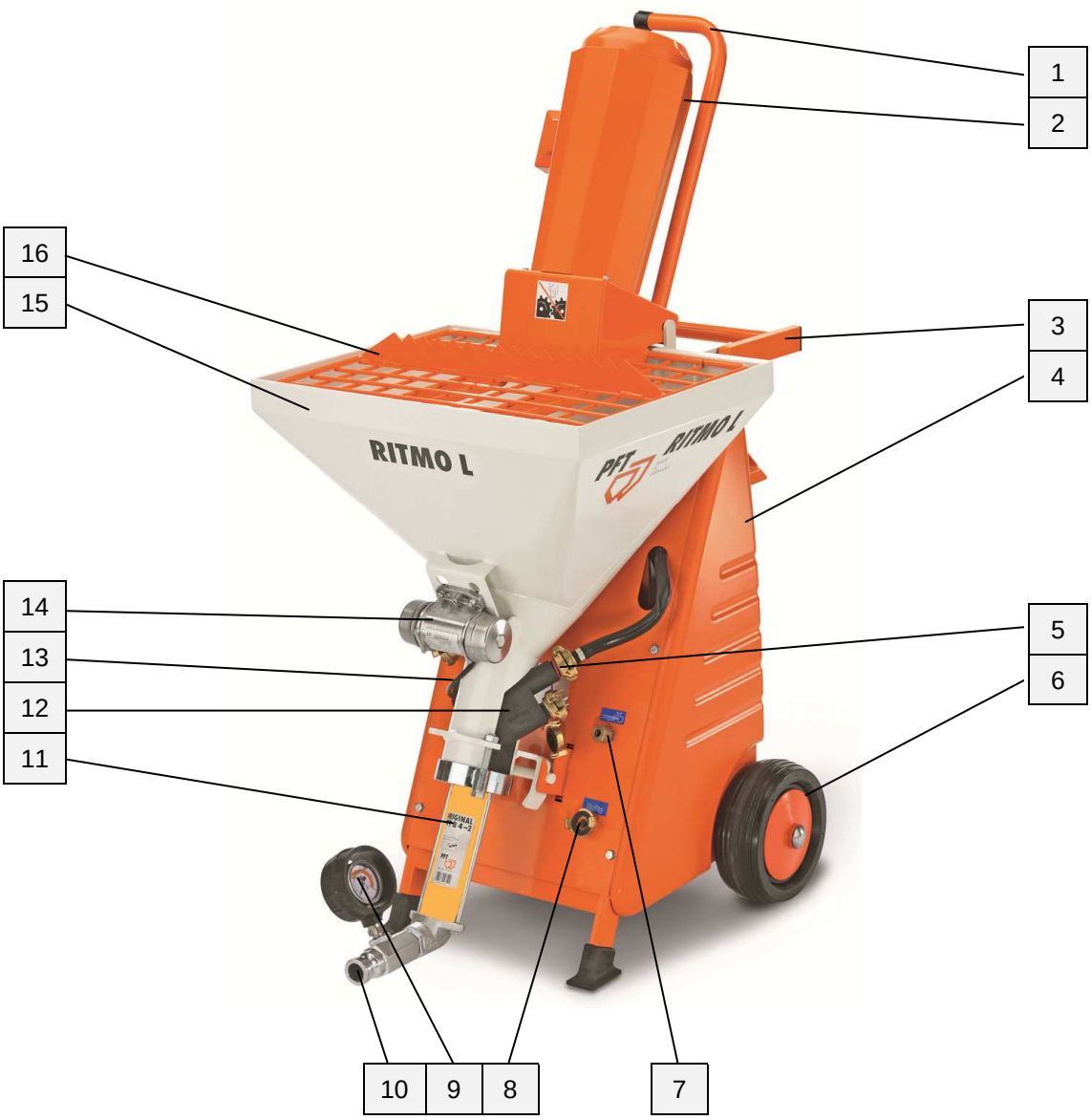
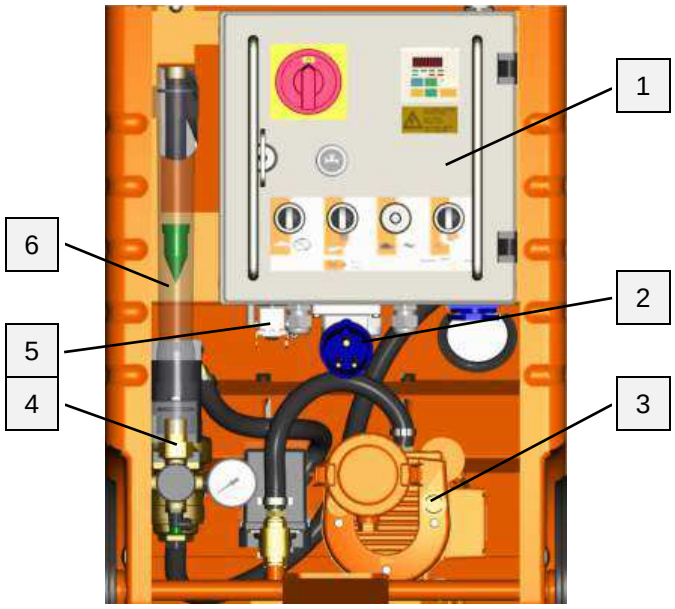


Fig. 5: Overview RITMO L

1 Motor protection handle
2 Gear motor
3 Slider handle
4 Plastic side panel
5 Water inlet at mixing tube / rubber mixing section
6 Wheel
7 Compressed air from air compressor to spraying gun
8 Water inlet, water connection from water supply
9 Mortar pressure gauge
10 Connection for mortar hose
11 Pump unit
12 Rubber mixing section
13 Water sampling valve
14 Vibrating unit (RITMO L)
15 Material container
16 Protective grille with sack opener

Assembly RITMO L

6.2 Rear view RITMO L



1.Control cabinet
2.Main terminal 230V
3.Air compressor
4.Water fitting
5.Dummy plug / connection remote control cable
6.Water flow meter (water tap)

Fig. 6: Rear view

6.3 Rear view RITMO M

1.Control cabinet
2.Main terminal 230V
3.Air compressor
4.Water fitting
5.Dummy plug / connection remote control cable
6.Water flow meter (water tap)

Fig. 7: Rear view

7 Assembly units RITMO

7.1 Mixing tube with material container

Fig.8: Assembly unit hopper

The mixing pumps PFT RTIMO L and RITMO M consist of the following main components:

- Mixing tube with material container, vibrating unit (RITMO L), pump and gear motor.
- The gear motor with tilt flange can also be removed from the mixing tube for transport purposes.

7.2 Undercarriage with compressor and control cabinet

Fig. 9: Undercarriage

- Undercarriage with water fitting and control cabinet.

8 Description of assemblies

8.1 Overview of the control cabinet RITMO L

Fig. 10: Assembly unit control cabinet

Fig. 11: Connections control cabinet

1. Inspection glass for frequency converter.
2. Poti for motor speed / material quantity.
3. Selector switch vibrating unit “ON / OFF”.
4. Selector switch pump.
5. Selector switch operation with water (as mixing pump), without water (only as pump).
6. Push button water inlet.
7. Master switch, is also emergency stop switch.
8. Connection for air compressor 230V (power socket blue continuous current).
9. Connection for vibrating unit 230V (power socket grey controlled).
10. Dummy plug / connection remote control.
11. Connection for main current 230V, 1Phase, 16A.

8.2 Overview of the control cabinet RITMO M

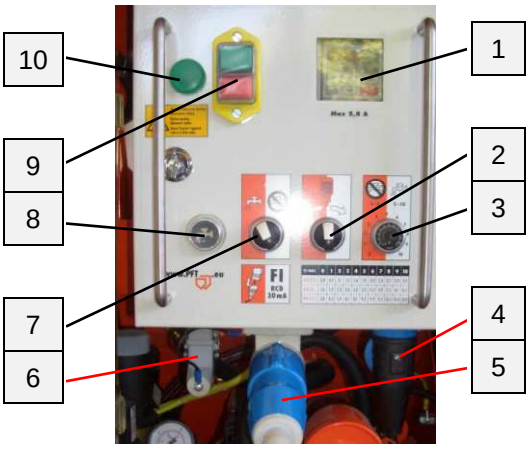


Fig. 12: Assembly unit control cabinet

1. Inspection glass for frequency converter.
2. Selector switch pump.
3. Poti for motor speed / material quantity.
4. Connection for air compressor 230V (power socket blue continuous current).
5. Connection for main current 230V, 1Phase, 16A.
6. Dummy plug / Connection for remote control.
7. Selector switch operation with water (as mixing pump), without water (only as pump).
8. Push button water inlet.
9. Press button operation “ON / OFF”.
10. Pilot lamp machine ready for operation.

8.3 Overview air compressor DT4.8 230 V

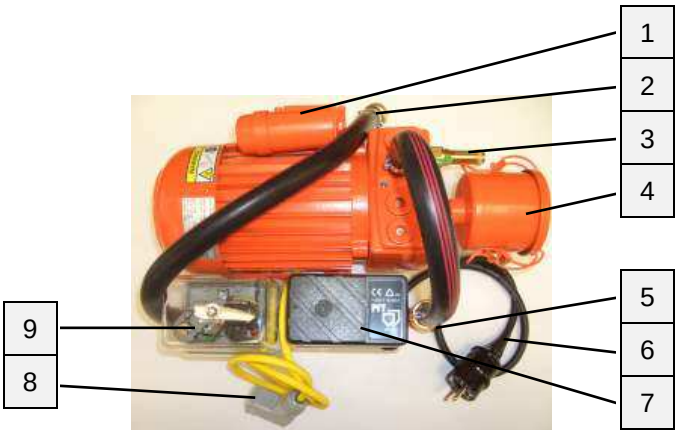


Fig. 13: Air compressor

1. Capacitor.
2. Air for spraying gun.
3. Safety valve up to 1.8 bar.
4. Air filter.
5. Non-return valve.
6. Power supply 230 V.
7. Pressure switch compressor (switches the compressor ON/OFF).
8. Connection pressure control.
9. Pressure switch air (switches the machine ON/OFF).

8.4 Overview water fitting RITMO L / RITMO M

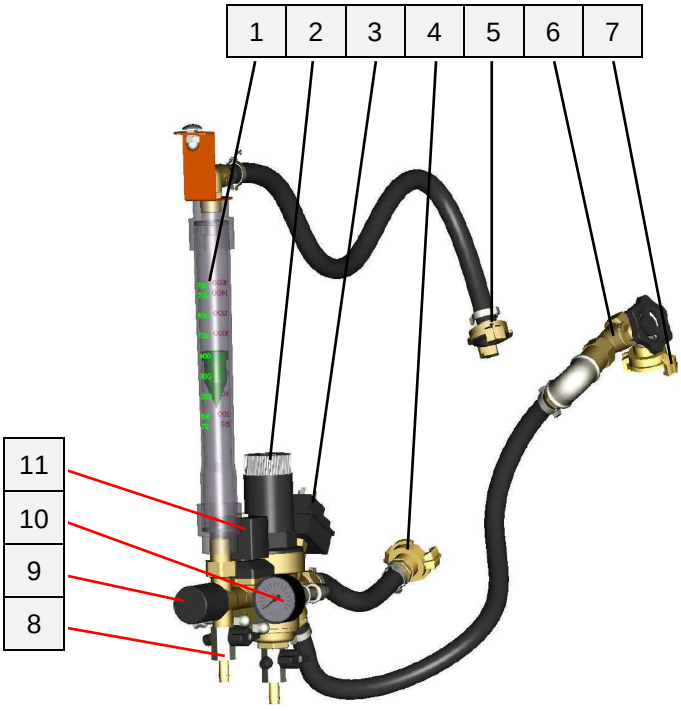
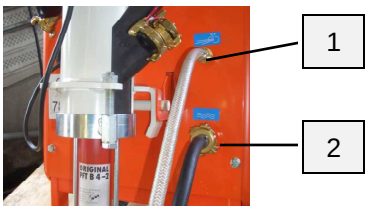


Fig. 14: Water fitting

1. Water flow meter.
2. Pressure reducer.
3. Pressure monitor Water pressure.
4. Connection of water from mains.
5. Water to mixing tube.
6. Stopcock / water removal.
7. Connection Water removal Cleaning mortar pressure hose.
8. Drain tap Frost protection.
9. Needle valve Water quantity.
10. Pressure gauge Inlet pressure Water.
11. Solenoid valve.

9 Connections RITMO L / RITMO M

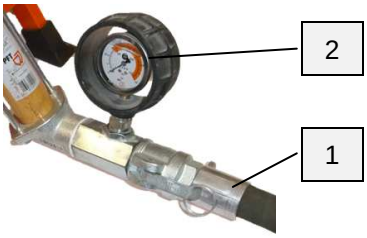
9.1 Water and air connections



1. Connection Air to spray gun (1).
2. Connection water supply from mains (2).

Fig. 15: Connection Water and Air

9.2 Connection Mortar hose



1. Connection mortar hose (1) at the mortar pressure gauge (2).

Fig. 16: Connection Mortar hose

10 Operating modes

10.1 Selector switch pump motor

Fig. 17: Operating modes pump motor

The pump motor has three operating modes:

Selector switch position “0”:

The machine is switched off.

Selector switch right (toggle):

The machine starts when the main switch is switched on.

Selector switch left (momentary contact):

The pump motor runs backwards, thus the pump is relaxed while all other functions are locked.

10.2 Selector switch water

Fig. 18: Selector switch Water

The RITMO has two fields of application:

Selector switch right (toggle):

The machine is operated without water.

Can be used as pump.

Selector switch left (toggle):

The machine is operated with water.

Can be used as mixing pump.

11 Accessories

12 Parts from the accessories pack

Fig. 19:

Power cable 3x2.5mm², 25m Schuko-CEE 16A Art.No.20423420

Fig. 20:

Water hose/air hose ½“ 11m Art.No.20211000

(Water hose/air hose ½“ 20 m Art.Nr.20212010 in the accessories pack Article number 00232031 NL)

Fig. 21:

RONDO 25mm 15m hydraulic Art. No. 00021101

RONDO 25mm 7.5m hydraulic Colour black Art. No. 00111799

RONDO mortar pressure hose 25mm 5m with hydraulically fitted couplings Art. No. 00021103

Fig. 22:

PVC fabric hose NW 9x3mm 15m with EWO-couplings V/ M-part Art.No. 00008521

PVC fabric hose NW 9x3mm 5m with EWO-couplings V/ M-part Art.No. 00077240

PVC fabric hose NW 9x3mm 8.5m with EWO Art.No. 00068935

Fig. 23:

Cleaner coupling 25V-part LW24 with Geka Art.No. 20199500

Fig. 24:

Fine plaster spraying nozzle S 10mm black (VPE 10) Art.No. 00063290 in the accessories pack article number 00232031 NL

Fig. 25:

Tool bag Mixing pump RITMO Art.No. 00097292

<u>Consisting of:</u>

Open-end wrench 13x17 Art.No. 00137015

Open-end wrench 17x19 Art.No. 20048512

Sponge ball 30mm fixed Art.No. 20210501

Round file 4.0mm diameter Art.No. 00073670

Electrical cabinet key Double bit 5mm Art.No. 20444500

13 Intended use control panel

13.1 Intended purpose control panel

The tool is conceptualised and designed exclusively for the purpose of use specified here.

Scope of application:

Primary use for water and neutral, non-adhesive liquids. Also suitable for air and neutral non-flammable gases.

Maximum operating pressure (inlet pressure) 16 bar.

Outlet pressure infinitely adjustable from 1.5 to 6 bar.

Smallest possible inlet pressure 2.5 bar.

Minimum pressure drop (inlet pressure/outlet pressure) 1 bar.

Maximum media and ambient temperature 75°C.

Assembly position as desired, preferable vertical.

13.2 Intended purpose solenoid valve

Scope of application:

Solenoid valves for liquid and gaseous media, aggressive or neutral, can be used different temperature and pressure ranges

Type 6213 is a 2/2 way solenoid valve with straight passage, normally closed, with a permanently coupled membrane system. It operates from 0 bar and can be used universally for liquids. A minimum pressure differential of 0.5 bar is required for the valve to fully open.

13.3 Intended purpose flow meter

Scope of application:

The flow meter is used for the volume measurement of transparent liquid and gaseous flows in closed pipelines. Optionally the devices can be used for flow monitoring.

WARNING!

Danger due to improper use!

Any case of use beyond the specified purpose of use and/ or any other sort of use of the tool can lead to dangerous situations.

Therefore:

- Use the tool only for the purpose specified.
- Always adhere to the usage directives of the material manufacturer.
- Strictly follow all instructions in this operating manual.

Claims of any kind due to damage caused by improper use will not be entertained.

The operator of the tool is alone responsible for any damage arising from improper use.

14 Intended use air compressor

14.1 Intended purpose air compressor

The tool is conceptualised and designed exclusively for the purpose of use specified here.

Attention!

The air compressor is intended exclusively for the generation of compressed air and is to be used with connected implement. Any other use or use beyond what is specified, such as with freely accessible and/or open hoses and pipelines, is deemed to be not for the intended purpose. Connected implements or components are to be designed for the maximum generated pressure of 5.5 bar.

The air compressor is to be used only in technically perfect condition as well as for its intended use and while taking into account the safety and hazard information in the operating instructions!

Particularly malfunctions that may compromise safety have to be eliminated immediately prior to putting the compressor back into operation.

14.2 Safety systems air compressor

WARNING!
Danger of death due to non-functioning safety equipment!

Safety equipment ensures highest level of safety in operation. Even if work processes become a little more complicated due to safety equipment, they must never be decommissioned. The safety is guaranteed only with intact safety equipment.

Therefore:

- Before starting work, check if the safety equipment is functioning properly and has been correctly installed.
- Use safety equipment at all times.
- Do not obstruct access to safety systems such as emergency stop buttons, pull cords etc.

14.3 General positioning of the air compressor

The air compressor complies with the national and international safety regulations and can therefore also be used in damp rooms and/or outdoors. Areas with clean and dry air should be preferred. Ensure that the device can freely suck in the air. This applies in particular if an installation is intended.

The air compressor should only be set up in such a way that no dangerous additives, such as solvents, vapours, dusts or other harmful substances can be sucked in. The device should be positioned only in rooms where the hazard of a potentially explosive atmosphere is not given.

14.4 Hot surface of the air compressor

General information

WARNING!
Danger of injury due to hot surface!

During operation the compressor can reach a surface temperature of up to 100 °C. Therefore it has to be ensured that the device does not get into contact with bare body parts during use as well as for some time after use in relation to the heating temperature.

15 Description PFT booster pump (accessory)

15.1 Scope of application booster pump

The PFT booster pump is mainly used as booster pump for interposing at the mortar mixer and mortar mixing pumps with insufficient water pressure. Moreover it can be used as suction pump to suck liquids from containers, to empty smaller pools and ponds, for cellar drainage and irrigation.

The constant water supply of the PFT machine technology is automatically ensured by means of water supply from a water reservoir by the PFT booster pump.

A flow pressure of at least 2.5 bar with the machine in operation on the construction side is guaranteed by means of suction from the water reservoir.

Configuration example

Fig. 26: Booster pump and water tank

00 49 36 86 Article number of booster pump Av3000/1

Accessories

Suction strainer with stainless steel filter screen, suction hose 1“, 2.5m

Art.-no. 00 13 66 19

15.2 Intended use

Attention!

The PFT booster pump is recommended only for pumping of clean water, of water containing a reasonable amount of impurities and non-aggressive chemical liquids. Media with fibrous and abrasive components should be avoided.

Their use is subject to the regulation of local legislation.

16 Preparation booster pump (accessory)

Electrical system

Caution!

Connect the pump only to power sockets with earthing contact. For increased safety we recommend a GFCI switch with a rated residual current of 30 mA for the circuit to which the pump will be connected. This applies particularly when setting up the device near water tanks, ponds etc.

Line connection

Caution!

It has to be ensured that the suction pipe and/or supply line is connected to the earmarked position.

If the pump runs in suction mode, it has to be ensured that the suction line is kept as short as possible.

17 Initial start-up, fill pump

Fig. 27: Fill pump

Fill the PFT booster pump with water prior to initial start-up to let the air escape from the pump housing.

Fill in water via the water filling screw (1) or the water inlet (2).

The filling should not be carried out too quickly to let the air escape completely from the housing.

It is best if the suction hose is also filled at that time.

17.1 Start-up booster pump

The following instructions have to be observed before operating the pump.

The pump has to be installed in a horizontal position.

Before start-up both the suction line and the pressure line have to be connected. It is important that the lines are of adequate dimensions:

- At least 1“ for the suction line
- At least 3/4" for the pressure line

The hose must be completely airtight and immersed in the liquid to be pumped to void air being sucked in.

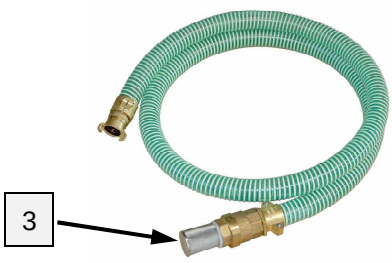


Fig. 28: Suction strainer with filter screen

The end of the suction line (3) has to be equipped with a suction strainer with filter screen and built-in non-return valve.

We recommend an additional filter for fine particles in the suction line.

NOTE!

The flow rate of the pump decreases with increasing length of the suction line. Connect the booster pump as close as possible to the water sampling point (pressure is better than suction).

If all these points have been observed, the pump can be switched on. Depending on the length of the suction line, the suction time can be up to a couple of seconds. If the pump does not deliver after a brief period, this might be due to the following reasons:

- There is still air in the pump and it has to be vented completely once again.
- The suction line has a leak and the pump draws air.
- The suction strainer is clogged.
- There is a kink in the suction hose.
- The maximum suction height is exceeded.

Caution!

The pump must not run dry to avoid any damage.

18 Brief description

The compact mixing pump RITMO L / RITMO M with 230V AC drive was specially developed for pumping, spraying and applying of dry mortar, pasty materials for machine use and much more up to 2 mm grain size.

The pump output can be continuously adjusted electronically depending on the requirements.

The machine consist of portable individual components which allow quick and comfortable transport with handy dimensions and less weight.

19 Material

19.1 Flowability / Flow characteristics RITMO L

NOTE!

- The pump B4-2 L can be used up to 20 bar operating pressure.
- The possible conveying distance depends mainly on the flowability of the material.
- Runny materials, spattling compound, colours, 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 - To use material 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.

19.2 Flowability / Flow characteristics RITMO M

NOTE!

- The pump B4-1.5 can be used up to 15 bar operating pressure.
- The possible conveying distance depends mainly on the flowability of the material.
- Runny materials, spattling compound, colours, etc. have good flow characteristics.
- If 15 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 - To use material 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.

20 Mortar pressure gauge

Fig. 29: Mortar pressure gauge

Caution!

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

PFT mortar pressure gauge

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.
- Is a major contribution to the safety of the operators.
- Long service life of the PFT pump parts.

21 Safety rules

Caution!

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

22 Transport, packing and storage

22.1 Safety instructions for transport

Improper transport

ATTENTION!
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.

Transport, packing and storage

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 fix at projecting machine parts or eyelets of attached components and ensure safe fit of the sling gear.
- Use only approved lifting gear and sling gear with sufficient lifting capacity.

22.2 Tighten the nut before beginning the transport

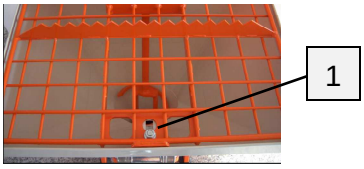


Fig. 30: Tighten screw

ATTENTION!
Generally ensure that the nut (1) for the protective grille is tightened when moving the machine.

22.3 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.

22.4 Transport in individual parts

Fig. 31: Open the turning bolt

Fig. 32: Spare parts

1. Take the machine apart for easier transport.
2. The units mixing tube with material container and pump, gear motor with tilt flange and undercarriage.
3. Loosen lever and hose connections. Open turning bolt (1) (*Fig. 31*).
4. Remove mixing tube with material container from undercarriage.

22.5 Transport with passenger car

Fig. 33: Transport

DANGER!
Danger of injury by unsecured loads!

In case of road transport, all persons involved in the loading process are responsible for the proper securing of the load. The responsible driver is responsible for the operational loading.

22.6 Transport of already running machine

DANGER!
Risk 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 pressure gauge).

1. Carry out the following steps before beginning the transport:
2. First unplug the mains cable.
3. Unplug all other cable connections.
4. Remove water supply line.
5. Start transport.
6. Remove loose parts during crane transport.

23 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.

ATTENTION!

Environmental damage due to wrong disposal!

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

Therefore:

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

24 Operation

24.1 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

NOTE!

Further protective equipment that is to be worn when effective 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 covers and protection devices are installed and work as intended.
- Never deactivate protection 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.

25 Preparing the machine

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

Fig. 34*: Grille cover*

DANGER!
Rotating mixing shaft!

Risk of injury when reaching into the material container.

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

Fig. 35*: Position*

Put up the machine on a stable, even surface and secure against unwanted movements:

- Neither tilt nor roll off the machine.
- Put up the machine in such a way that it cannot be hit by falling objects.
- The operating elements have to be freely accessible.
- Maintain a clearance of approx. 1.5 metres around the machine.

Preparing the machine

25.1 Connecting the power supply 230 V

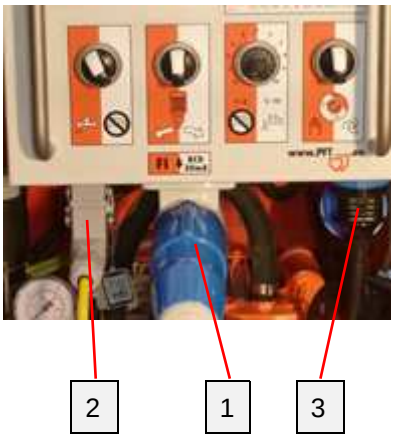
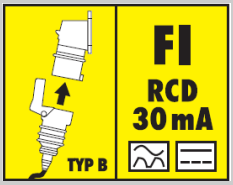


Fig. 36*: Power connection*

1. Connect machine (1) only to a 230V AC network.



DANGER!
Danger of death from electric current!

The connection line has to be fused properly:

Connect the machine only to a power source with permissible 30 mA FI protection switch RCD (residual current operated device) of type “B” that is sensitive to all currents that are required for the operation of frequency converters.

2. Interrupt the control circuit by removing the plugs (2) from the control cabinet.
3. Remove connector Air compressor (3) from control cabinet.

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 cabinet of the machine.

25.2 Connecting the water supply

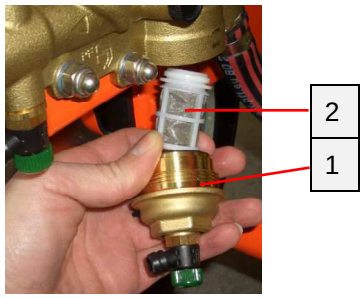


Fig. 37: Strainer screen

1. Unscrew brass sieve cup (1) with drain tap from pressure reducer.
2. Check whether the strainer screen (2) in the pressure reducer is clean.

   Screen for pressure reducer: Article number 20156000
3. Screw the brass sieve cup (1) again.
4. Close all water drain taps.

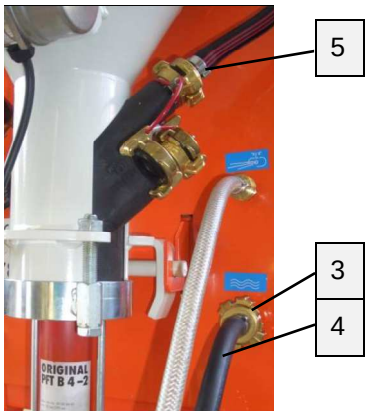


Fig. 38: Connecting the water

5. Check whether the water inlet sieve in the water inlet (3) is clean.
6. Clean the water hose (4) from the water supply network and bleed.
7. Connect the water hose (4) to the water inlet (3).
8. Remove the water hose (5) from the mixing tube.

NOTE!

Use only clean water free of solids. The minimum pressure is 2.5 bar when the machine is running.

Pay attention to the Drinking Water Ordinance in part 1.

NOTE!

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

25.3 Connection of water from water tank

Fig. 39: Booster pump

Fig. 40: Suction strainer with filter screen coupl.

Booster pump AV3000/1 (1) Article number 00493686

The connected booster pump ensures the required water pressure of at least 2.5 bar.

NOTE!

When working from the water tank, the strainer with filter screen (article number 00136619) has to be positioned upstream (bleed booster pump).

NOTE!

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

26 Switching on RITMO L

26.1 Putting RITMO L into operation

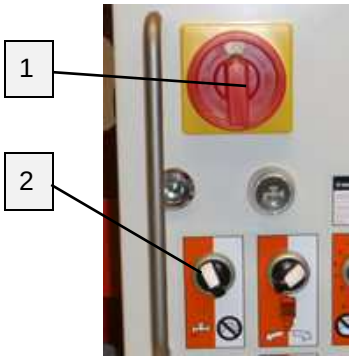


Fig. 41: Switching on

1. Turn main switch (1) to position "I".
2. Switch the selector switch (2) “Operation with water” towards the left to the position with water.

26.2 Presetting the water flow rate.

Fig. 42: Water sampling valve

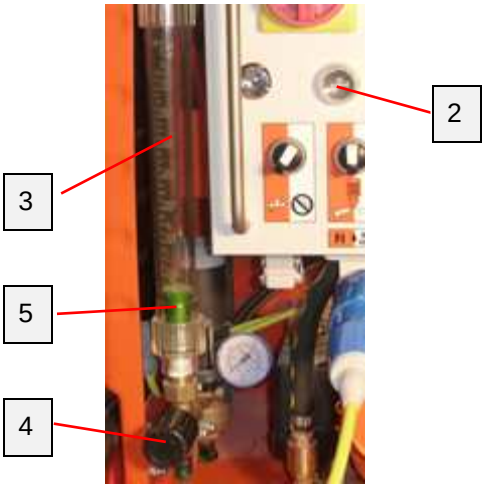


Fig. 43: Presetting

1. Close all water drain taps at the water fittings block.
2. Open the water tap for water feed.
3. Open stopcock (1) until the water appears without bubbles. Close the stopcock (1) again.
4. Press the water supply button (2) *(Fig. 43)* as long as no air bubbles are to be seen in the water flow meter (3) any longer.
5. Adjust the expected amount of water at the needle valve (4). Evident with the ball in the inspection glass of the water flow meter (5).

NOTE!

The specifications of the material manufacturer are to be observed here.

NOTE!

Any interruption of the spray operation results in a slight irregularity in the consistency of the material. This irregularity normalises by itself as soon as the machine has been working for a short while.

Therefore it is important not to change the water quantity for each irregularity. Wait until the consistency of the material has set again.

6. Connect the water hose (6) *(Fig. 42)* to the water inlet (7) of the rubber mixing section.

27 Switching on RITMO M

27.1 Putting RITMO M into operation

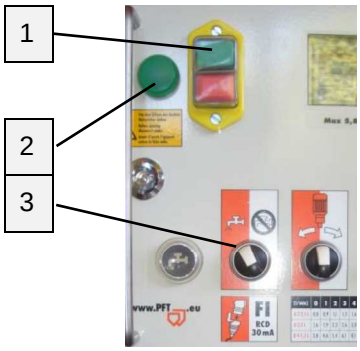


Fig. 44: Switching on

1. Press the green push button (1) operation “ON”.
2. The green control lamp (2) illuminates.
3. Switch the selector switch (3) “Operation with water” towards the left to the position with water.

27.2 Presetting the water flow rate

Fig. 45: Stopcock

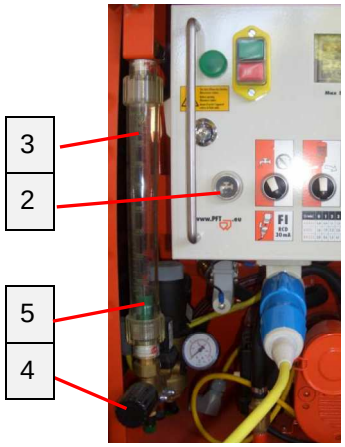


Fig. 46: Presetting

1. Close all water drain taps at the water fittings block.
2. Open the water tap for water feed.
3. Open stopcock (1) until the water appears without bubbles. Close the stopcock again.
4. Press the water supply button (2) *(Fig. 46)* as long as no air bubbles are to be seen in the water flow meter (3) any longer.
5. Adjust the expected amount of water at the needle valve (4). Evident with the ball in the inspection glass of the water flow meter (5).

NOTE!

The specifications of the material manufacturer are to be observed here.

NOTE!

Any interruption of the spray operation results in a slight irregularity in the consistency of the material. This irregularity normalises by itself as soon as the machine has been working for a short while.

Therefore it is important not to change the water quantity for each irregularity. Wait until the consistency of the material has set again.

6. Connect the water hose (6) to the water inlet (7) for the rubber mixing section.

28 Mortar pressure gauge

Fig. 47: Mortar pressure gauge

DANGER!
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.
- Use only 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.

28.1 Hazardous dusts

Fig. 48: Dust protection

Warning!
Health hazard caused by dust!
In the long term, inhaled dust can lead to lung damage or have other adverse health effects.

NOTE!

The machine operator or the person working in the dusty area always have 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).

29 Feeding dry material to the machine

Fig. 49: Bagged goods

Feeding the machine with bagged goods:

DANGER!
Risk of injury at the sack opener!
The sharp edges of the sack opener pose a risk of injury.

- Wear safety gloves.

NOTE!

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

30 Monitoring the machine

DANGER!
Access by unauthorised persons!
The machine must be operated only if monitored.

31 Putting the machine into operation

31.1 Check consistency of mortar

Fig. 50: Consistency test tube

1. Connect consistency test tube at the mortar pressure gauge.
2. Place a bucket or pan under the consistency test tube.

Article number: 20104301 Consistency test tube 25m piece

31.2 Start RITMO L in “flying mode”

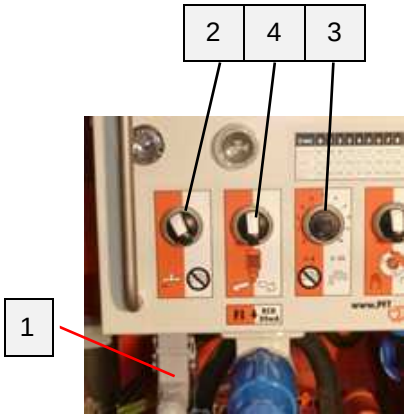
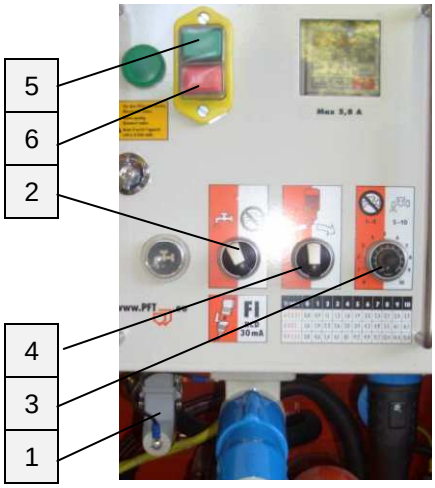


Fig. 51: Switching on

1. Close the control circuit by inserting the plug (1) in the control cabinet.
2. Turn the selector switch (2) to the “With water” position towards the left.
3. Turn poti (3) for motor speed / material quantity to position 7 (adjust as required).
4. Turn the selector switch (4) directions of rotation of the pump motor clockwise (machine starts).
5. Check material consistency at the consistency test tube.
6. Switch off the machine at selector switch (4) (centre position).
7. Remove consistency test tube and clean it.

31.3 Start RITMO M in “flying mode”



1. Close the control circuit by inserting the dummy plug (1) in the control cabinet.
2. Turn the selector switch Operation with water (2) to the “With water” position towards the left.
3. Turn poti (3) for motor speed / material quantity to position 7 (adjust as required).
4. Turn the selector switch (4) directions of rotation of the pump motor clockwise.
5. Check material consistency at the consistency test tube.
6. Switch off the machine at selector switch (4) (centre position).
7. Remove consistency test tube and clean it.

Fig. 52: Switching on

32 Potentiometer

Fig. 53: Potentiometer

If the Ritmo is switched on/off with the remote control within brief time intervals, it leads to fluctuations in the mortar consistency.

The solenoid valve opens from 40 Hz. This however also means that with Poti position 1-4, water feed is not possible.

A pictogram above the poti attracts the attention of the processor to this setting.

(Value Parameter 10 – 87 Hz)

33 Mortar hoses

33.1 Prepare mortar hoses

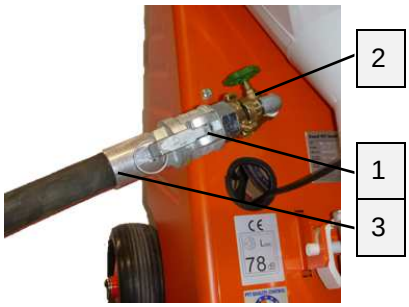


Fig. 54: Prepare mortar hose

1. Connect the cleaner coupling (1) to the stopcock (2).
2. Open the stopcock (2) and water the mortar hose (3).
3. Remove mortar hose and cleaner coupling again and separate from one another.
4. Remove all the water from the mortar hose.
5. Pre-lubricate the mortar hose with about two l of wallpaper paste.

DANGER!

Never loosen the hose couplings as long as there is pressure on the mortar hoses (check mortar pressure gauge)! The mix could burst out under pressure and result in serious injuries, especially injuries to the eyes.

Torn off hoses can beat about and injure bystanders!

33.2 Connect mortar hose

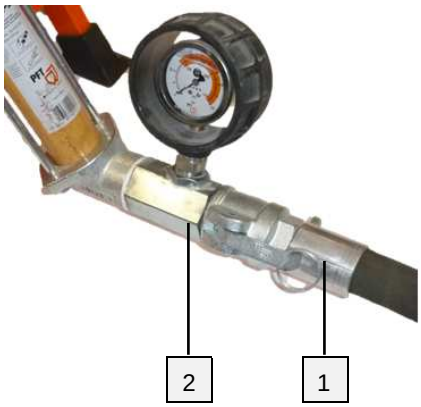


Fig. 55: Connect mortar hose

1. Connect mortar hose (1) at 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 in large radius so that no kinks form in the hoses.
3. Attach risers carefully in order to prevent them from tearing off under their own weight.

34 Compressed air supply

34.1 Connect and fix the air

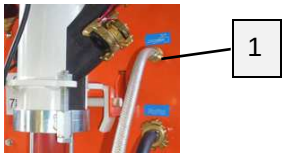


Fig. 56: Connect and fix the air

1. Connect compressed air hose (1) at the air fitting  ..

DANGER!
Never loosen the hose couplings as long as the compressed air hose is not depressurised.

34.2 Connecting the spraying gun

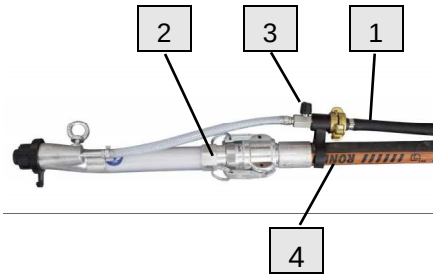


Fig. 57: Spraying gun

1. Connect the compressed air hose (1) at the spraying gun (2).
2. Ensure that the air tap (3) is connected to the spraying gun.
3. Connect the spraying gun (2) at the mortar hose (4).

34.3 Switch on air compressor

Fig. 58: Switch on air compressor

1. Insert the connector Air compressor (1) into the blue Schuko socket outlet (2).

NOTE!
This small compressor may only be operated with the fine plaster spraying nozzle 25 mm, 25-M-part 4 mm air nozzle for DT4.8 short Article number 00111804 or with the fine plaster spraying nozzle 25 mm 25-M-part 4 mm air nozzle 30° 600lg article number 00097283.

34.4 Switching on vibrating unit (RITMO L)

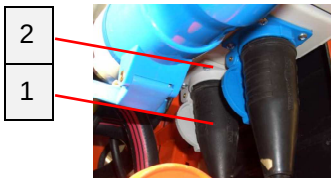


Fig. 59: Connect vibrating unit

NOTE!
If the material in the material container does not shift, the vibrating unit can be switched off.

1. Insert the plug from the vibrating unit (1) into the grey Schuko socket outlet (2).

Fig. 60: Switching on vibrating unit

2. Turn the selector switch (2) clockwise.
3. The vibrating unit runs after the set intervals, 3 seconds pause – 3 seconds run time.

35 Apply mortar

DANGER!
Risk of injury from discharged mortar!
Discharged mortar may lead to injuries to eyes and face.
– Never look into the spraying device.
– Always wear protective goggles.
– Always position yourself in such a way that you are not hit by the mortar being discharged.

NOTE!
The possible conveying distance depends mainly on the flowability of the mortar. Heavy, sharp-edged mortar has poor flow characteristics. Runny materials have good flow characteristics.
If 15 bar or 20 bar operating pressure are exceeded, the hose length must be reduced.

35.1 Open the air tap at the spraying gun

Fig. 61: Switching on

Fig. 62: Opening the air tap

1. Turn the selector switch direction of rotation of the pump motor (1) clockwise.
2. Aim the spray gun at the wall to be plastered.
3. Ensure that nobody is in the discharge area of the spraying gun.
4. Open the air tap (2) at the spraying gun.
5. The machine will start-up automatically via the pressure switch-off and the mortar emerges at the spraying gun.

NOTE!
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). If the water quantity is too little even mixing and spraying is no longer guaranteed; blockages may form inside the hose and high wear of the pump parts will become an issue.

Apply mortar

NOTE!

It is also possible to operate the machine without compressed air, e.g. for pouring screed. Switch off air compressor and work without spraying gun. The machine is then switched on and off via an optional remote control cable.

35.2 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.

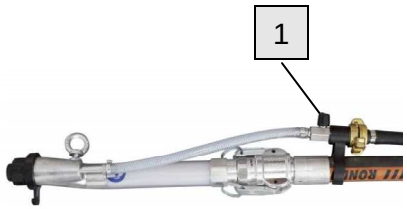


Fig. 63: Closing the air tap

1. Close the air tap (1) if you interrupt your work for a short while.
2. The machine stops.
3. Once you open the air tap (1), the machine will start-up again.

35.3 In case of longer interruption of work/break

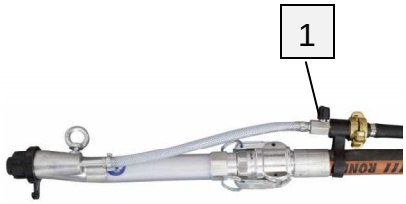


Fig. 64: Closing the air tap

1. Close air tap (1).
2. Turn the selector switch (2) to the “Null” position towards the left.(centre position).

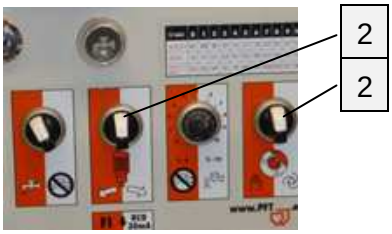


Fig. 65: Switching off

35.4 Switch off air compressor

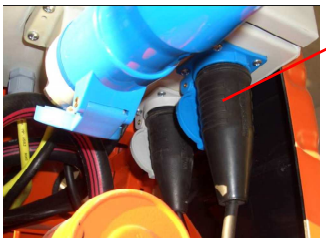


Fig. 66: Air compressor

1. Remove connector Air compressor (1).
2. Open the air tap at the spraying gun so that the remaining pressure can escape completely.

DANGER!
Risk of injury from discharged mortar!
Discharged mortar may lead to injuries to eyes and face.
- Attention, residual pressure.

36 Remote control

36.1 Working with the remote control

Fig. 67: Remote control

1. Remove the dummy plug from the control cabinet and connect remote control (1).
2. The RITMO can be switched on or off using the remote control.

37 Process pasty material

37.1 Recommended accessories for pasty material

Fig. 68: Air compressor

Article number: 00 23 31 74

Description: Air compressor LK 402 IV

Fig. 69: Spraying gun

Article number: 20 19 59 00

Description: Spraying gun Ornamental and reinforcement plaster

Stopping in case of emergency RITMO L / RITMO M

Fig. 70: Mortar hose

Article number: 00021103

Description: RONDO mortar pressure hose 25mm 5m with hydraulically fitted couplings

Article number: 00021100

Description: RONDO mortar pressure hose 25mm 10m Hydraulically fitted couplings

Article number: 00037491

Description: RONDO 25mm 10m with rotating coupling

Further mortar hose accessories can be found at www.pft.eu

37.2 Process pasty material

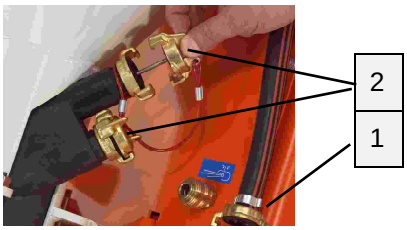


Fig. 71: Blind cover

1. Remove connector Air compressor.
2. Remove the water hose (1) from the mixing tube and connect both water inlets at the mixing tube with blind covers (2).
3. The pasty material can be filled in the material container.

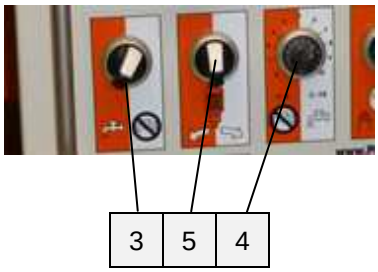


Fig. 72: Pasty material

4. Turn the selector switch (3) clockwise to the “Without water” position.
5. Turn poti (4) for motor speed / material quantity to position 3 (adjust as required).
6. Turn the selector switch (5) directions of rotation of the pump motor clockwise (machine starts).

38 Stopping in case of emergency RITMO L / RITMO M

38.1 Emergency-stop switch

Stopping in case of emergency

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

Fig. 73: Stopping

In case of danger proceed as follows:

1. Turn the main switch to position “**0**” (RITMO L).
2. Secure the main switch against start-up using a lock.
3. Press the red push button (RITMO M).
4. Inform responsible person at the operational site.
5. If necessary, call for medical assistance and a fire brigade.
6. Recover persons from the danger zone, initiate First Aid measures.
7. Keep access routes free for emergency vehicles.

After the rescue operations

7. If the severity of the emergency permits inform the competent authorities.
8. Assign specialised personnel with the troubleshooting.

WARNING!
Danger to life from premature reactivation!
On reactivation there is danger to life for all persons in the danger zone.
- Before reactivation ensure that there are no persons in the danger zone anymore.

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

39 Action in case of water outage

NOTE!

With the help of a strainer (article number 00136619), the machine can be supplied with clean water from a container (see page 23 Fig. 26).

40 Action in case of power cut

40.1 Main switch to position “0”

Fig. 74: Selector switch position “0”:

1. Close the air tap at the spraying gun.
2. Turn the main switch to position “**0**” (RITMO L).
3. Press the red push button (RITMO M).
4. Remove connector from air compressor.
5. Let qualified staff check the power supply.

Action in case of power cut

40.2 Relieve mortar pressure

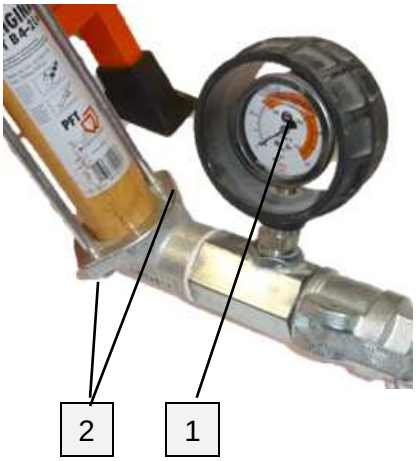


Fig. 75: Check mortar pressure

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

- Open machine only when the pressure is at "0 bar".

DANGER!
Risk of injury from discharged mortar!
Discharged mortar may lead to injuries to eyes and face.

Therefore:

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

1. Open the air tap at the spraying gun.
2. Check the mortar pressure gauge (1) if the mortar pressure has lowered to "0 bar". If required relieve the mortar pressure by lightly loosening the screws (2). In doing so, cover the work area with film.
3. Firmly tighten the screws (2) again.

40.3 Switching on RITMO L again after power failure

Fig. 76: Undervoltage trigger

NOTE!
The RITMO L is equipped with an undervoltage trigger. In case of a power cut, the system has to be started as follows.

1. Turn the selector switch (1) to the “Null” position towards the left.(centre position).
2. Close the air tap at the spraying gun.
3. Switch main switch (2) to position **“I”**.
4. Turn poti (3) for motor speed / material quantity to position 7 (adjust as required).
5. Turn the selector switch (1) clockwise.
6. The RITMO L starts again as soon as the air tap at the spray gun is opened again.

NOTE!
In case of a longer power cut, the RITMO L and the material hoses have to be cleaned immediately.

40.4 Switching on RITMO M again after power failure

Fig. 77: Undervoltage trigger

NOTE!

The RITMO M is equipped with an undervoltage trigger. In case of a power cut, the system has to be started as follows.

1. Turn the selector switch (1) to the “Null” position towards the left.(centre position).
2. Close the air tap at the spraying gun.
3. Press the green push button (2) Operation “ON”.
4. Turn poti (3) for motor speed / material quantity to position 7 (adjust as required).
5. Turn the selector switch (1) clockwise.
6. The RITMO M starts again as soon as the air tap at the spray gun is opened again.

NOTE!

In case of a longer power cut, the RITMO M and the material hoses have to be cleaned immediately.

41 Work on troubleshooting

41.1 Reaction in the event of faults

The following strictly applies:

1. In the event of faults presenting immediate danger to persons or property, activate the emergency OFF function immediately.
2. Determine cause for 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.

NOTE!

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

41.2 Fault displays

The following installation indicates faults:

Faults of the frequency converter are displayed in Display (1).

Corrective measures are described in the enclosed quick guide.

Fig. 78: Fault rectification

41.3 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.

In the event of faults that cannot be rectified by means of the following notes, kindly contact the dealer.

41.4 Safety

Personal protective equipment

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

- Protective clothing.
- Protective goggles, protective gloves, safety shoes, ear protection.

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 the electrical system must, in principle, be carried out only by electricians.

41.5 Table of faults

Fault	Possible cause	Solution	Rectification by
Machine does not start with **Water**	Water pressure too low	Check water supply, clean strainer screen	Operator
	Pressure gauge shows less than 2.2 bar	Check booster pump	Service engineer

41.6 Table of faults

Fault	Possible cause	Solution	Rectification by
Machine does not start **Current**	Power supply not in order	Repair power supply	Service engineer
	Main switch not activated	Activate main switch	Operator
	RCCB was triggered	Reset RCCB	Service engineer
	Motor protection switch triggered	Turn motor protection switch in control cabinet to position 1	Service engineer
	Contactor defective	Change contactor	Service engineer
	Fuse defective	Change fuse	Service engineer
Machine does not start with **Air**	Insufficient drop in pressure in the remote control due to blocked air duct or air nozzle pipe	Clean blocked air duct or air nozzle pipe	Operator
	Air safety switch set wrongly	Set air safety switch	Service engineer
	Air compressor not switched on	Switch on air compressor	Operator
Machine does not start **Material**	Too much thickened material in hopper or mixing section	Empty half of the hopper and start again	Operator
	Excessively dry material in pump part	Run the machine in backward mode, otherwise remove pump and clean it	Service engineer
Water does not run (flow meter does not show anything)	Solenoid valve (hole in membrane blocked)	Clean solenoid valve	Service engineer
	Solenoid coil defective	Change solenoid coil	Service engineer
	Pressure reducing valve closed	Open pressure reducing valve	Operator
	Water inlet at pump tube blocked	Clean water inlet at pump tube	Operator
	Needle valve closed	Open needle valve	Operator
	Cable to solenoid valve defective	Replace cable to solenoid valve	Service engineer
Pump motor does not start	Pump motor defective	Exchange pump motor	Service engineer
	Connection cable defective	Change connection cable	Service engineer
	Plug or inbuilt socket defective	Change plug or inbuilt socket	Service engineer
	Motor protection switch defective or triggered	Change motor protection switch or reset	Service engineer

Work on troubleshooting

Fault	Possible cause	Solution	Rectification by
Machine stops after a short while	Strainer screen contaminated	Clean or replace strainer	Operator
	Strainer sieve of pressure relieve	Clean or replace strainer	Operator
	Hose connection or water pipe too small	Increase dimensions of hose connection or water pipe	Operator
	Water suction tube too long or suction pressure too low	if required, connect additional pressure booster pump upstream	Service engineer
Machine does not switch off	Air pressure safety switch set incorrectly or defective	Adjust or replace air pressure safety switch	Service engineer
	Air pressure hose defective or seals defective	Replace air pressure hose, replace seals or check compressor	Service engineer
	Air tap at the spraying gun defective	Replace air tap	Service engineer
	Power provided by compressor is too low.	Check compressor	Service engineer
	Air duct is not connected to the compressor	Connect air duct to the compressor	Operator
Mortar flow ceases (air bubbles)	Bad mixture in mixing tube	Add more water	Operator
	Material is clumped and narrows the mixing tube inlet	Add more water or clean agitator or replace	Operator
	Material in mixing tube has become wet	Empty mixing tube, dry it and start again	Operator
	Agitator defective	Replace agitator	Operator
	Driving dog defective	Replace driving dog	Service engineer
Mortar flow "thick-thin"	Too little water	Increase the water quantity by 10% for approx. ½ minute and then turn down slowly	Operator
	Water safety switch set incorrectly or defective	Adjust or replace water safety switch	Service engineer
	Agitator defective; no original PFT agitator	Replace agitator with original PFT agitator	Operator
	Pressure reducer set incorrectly or defective	Adjust or replace pressure reducer	Service engineer
	Rotor worn or defective	Replace rotor	Service engineer
	Stator worn or clamping bracket tightened too little	Replace stator or re-tighten clamping bracket	Service engineer
	Clamping bracket defective (oval)	Replace clamping bracket	Service engineer
	Inner wall of mortar hose defective	Replace mortar hose	Operator
	Rotor too deep in pressure flange	Replace pressure flange	Service engineer
	No original PFT spare parts	Use original PFT spare parts	Service engineer

Fault	Possible cause	Solution	Rectification by
During operation water rises in the mixing tube	Backpressure in mortar hose higher than pump pressure	Retighten or replace stator	Service engineer
	Rotor or stator worn	Replace rotor or stator	Service engineer
	Hose is blocked by mortar that is too thick (high pressure by low water factor)	Remove blockage, increase water factor	Service engineer

42 Conveyor stands still / clogging

Clogging might form in the conveying hoses for several reasons. This means that the material to be conveyed remains stuck in the conveying hoses and cannot be pumped to the hose end.

42.1 Removal of clogging in hoses / signs for clogging

Implementation by operator:

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

Indications are:

- rapidly increasing conveying pressure,
- blocking of pump,
- running difficulties or blockage of the pump motor,
- expansion and turning of the mortar hose,
- no material discharge at the hose end.

42.2 Causes for clogging:

- Highly worn mortar hoses,
- work interruptions,
- badly lubricated mortar hoses,
- residual water in mortar hose,
- clogging of the pressure flange,
- strong tapering at the couplings,
- kink in mortar hose,
- badly pumpable and demixed materials.

42.3 Earlier damage to the mortar hose

NOTE!

If in the event of a machine fault by clogging the pressure in the mortar hose exceeds 60 bar, even only temporarily, replacement of the mortar hose is recommended as there might be damage in the hose that is not externally visible.

43 Removal of clogging in hoses

Fig. 79: Switching off

DANGER!
Danger from discharged material!

Never loosen the hose couplings till there is no supply pressure at all! 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 to position themselves in such a way that they cannot be hit by discharged material. Other persons have to clear the area.

43.1 Run the pump motor in the backward mode

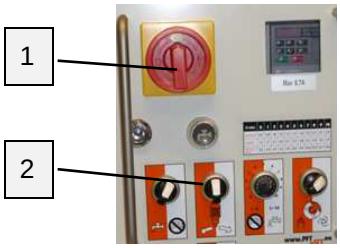


Fig. 80: Backward run RITMO L

RITMO L

1. Switch main switch (1) to position “I”.
2. Turn selector switch (2) direction of rotation of the pump motor anti-clockwise, until the pressure at the mortar pressure gauge has dropped to “0 bar”.

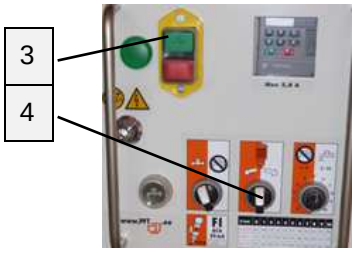


Fig. 81: Backward run RITMO M

RITMO M

3. Press the green push button (3) operation “ON”.
4. Turn selector switch (4) direction of rotation of the pump motor anti-clockwise, until the pressure at the mortar pressure gauge has dropped to “0 bar”.

43.2 Blockage cannot be cleared

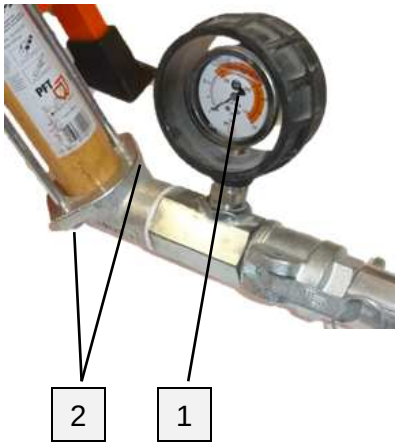


Fig. 82: Check mortar pressure

DANGER!
Overpressure on the machine!

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

- Open the mortar hoses only when the pressure at the mortar pressure gauge (1) has dropped to "0 bar".

DANGER!
Risk of injury from discharged mortar!

Discharged mortar may lead to injuries to eyes and face.

Therefore:

- Always wear protective goggles.
- Always position yourself in such a way that you are not hit by the mortar being discharged.

1. Slightly loosen both screws (2) at the tie rod so that the remaining pressure can escape completely.
2. As soon as the pressure is down to “0 bar”, tighten the screws (2) again.

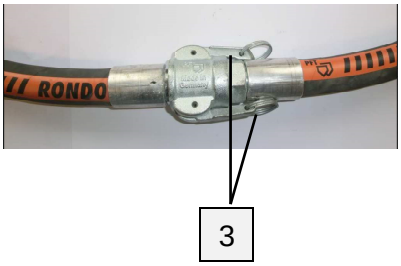


Fig. 83: Loosen coupling

NOTE!
Clean mortar hoses immediately

1. Cover coupling connections with tear-proof film.
2. Loosen cam leaver (3) and hose connections.
3. Dislodge the blockage by tapping or shaking at the place where the blockage is located.
4. If required, insert a rinsing hose into the mortar hose and flush out the material (PFT rinsing hose art. no. 00113856).

Removal of clogging in hoses

43.3 Switch machine back on after blockage has been cleared RITMO L

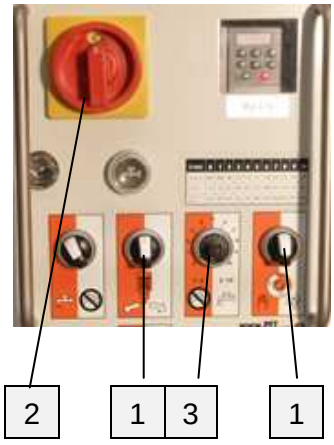


Fig. 84: Switching on RITMO L

1. Turn the selector switch (1) to the “Null” position towards the left.(centre position).
2. Close the air tap at the spraying gun.
3. Turn main switch (2) to position **“I”**.
4. Turn poti (3) for motor speed / material quantity to position 7 (adjust as required).
5. Turn the selector switch (1) clockwise.
6. The RITMO L starts again as soon as the air tap at the spray gun is opened again.

43.4 Switch machine back on after blockage has been cleared RITMO M

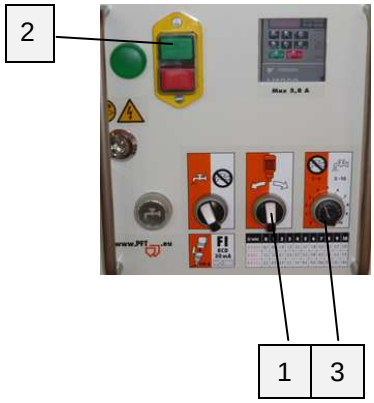


Fig. 85: Switching on RITMO M

1. Turn the selector switch (1) to the “Null” position towards the left.(centre position).
2. Close the air tap at the spraying gun.
3. Press the green push button (2) Operation “ON”.
4. Turn poti (3) for motor speed / material quantity to position 7 (adjust as required).
5. Turn the selector switch (1) clockwise.
6. The RITMO M starts again as soon as the air tap at the spray gun is opened again.

44 End of work / Cleaning

44.1 Switching off power supplies

Secure against restarting

DANGER!
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.

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

The machine has to be cleaned daily after work and before longer breaks.

44.2 Check mortar pressure RITMO L

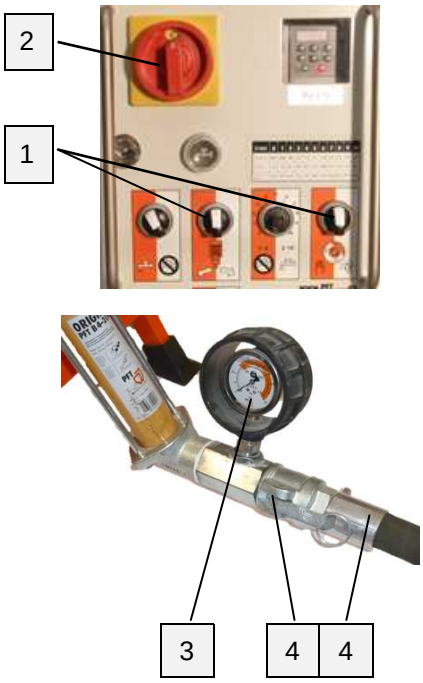


Fig. 86: Mortar pressure to “0 bar"

Switching off the machine:

1. Turn the selector switch (1) to the “Null” position towards the left.(centre position).
2. Turn the main switch (2) to position **“0”**.
3. Check the mortar pressure gauge (3) if the mortar pressure has lowered to "0 bar".

DANGER!
Overpressure on the machine!

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

- Open machine only when the pressure is at "0 bar".

NOTE!

Mortar hoses and spraying device have to be cleaned immediately after finishing work.

4. Loosen the cam lever (4) and disconnect mortar hose (5) from mortar pressure gauge (3).
5. Disconnect air hose from spraying gun.

44.3 Check mortar pressure RITMO M

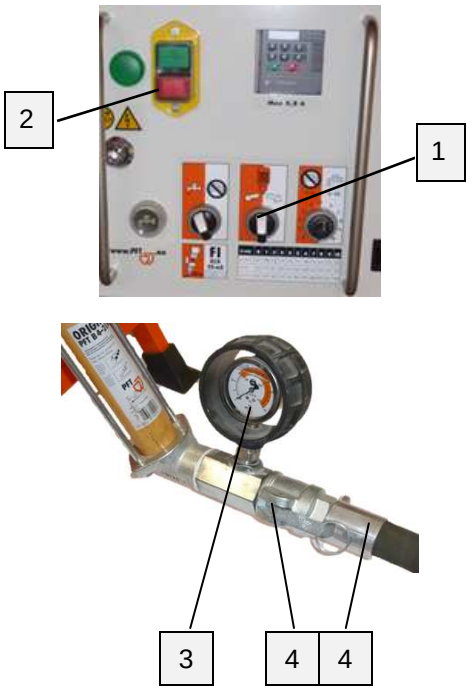


Fig. 87: Mortar pressure to “0 bar"

Switching off the machine:

1. Turn the selector switch (1) to the “Null” position towards the left.(centre position).
2. Switch the machine off by pressing the red push button (2) control voltage “OFF”.
3. Check the mortar pressure gauge (3) if the mortar pressure has lowered to "0 bar".

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

- Open machine only when the pressure is at "0 bar".

NOTE!
Mortar hoses and spraying device have to be cleaned immediately after finishing work.

4. Loosen the cam lever (4) and disconnect mortar hose (5) from mortar pressure gauge (3).
5. Disconnect air hose from spraying gun.

44.4 Cleaning RITMO

ATTENTION!
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).

NOTE!
Do not direct the water jet on electrical parts, such as gear motor or control cabinet.

44.5 Clean mortar hose

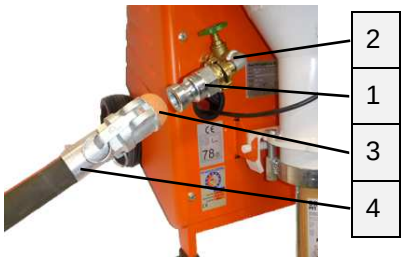


Fig. 88: Connect the cleaner coupling

1. Connect the cleaner coupling (1) at the water extraction valve (2).
2. Press the water saturated sponge ball (3) into the mortar hose (4).
3. Connect the mortar hose (4) with the sponge ball to the cleaner coupling (1).

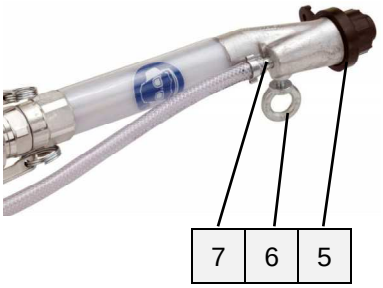


Fig. 89: Cleaning the spraying gun

4. Remove the fine plaster spraying nozzle (5) from the spraying gun.
5. Loosen the ring screw (6) and pull the air nozzle tube (7) out of the spray head.
6. Open the water extraction valve *Pos. 2 Fig. 88* until the sponge ball exits the spraying device.
7. In case of strong soiling repeat this process again and again.
8. In case of different hose diameters, the mortar hoses have to be cleaned separately with the matching sponge balls.
9. Hose the spraying gun with a water jet.
10. Clear the air nozzle tube (7) from the front using a round file.
11. Switch on the compressor and purge the air nozzle tube.
12. Reassemble the spraying gun.

44.6 Remove the water hose

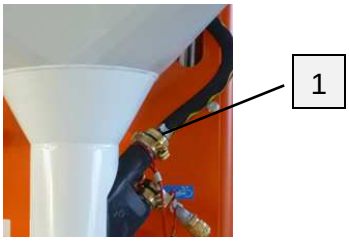


Fig. 90: Water hose

1. Remove the water hose (1) from the mixing tube.

44.7 Cleaning the mixing tube

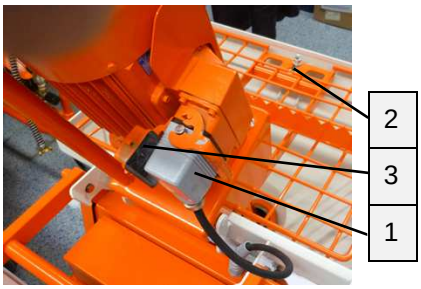


Fig. 91: Open motor tilt flange

NOTE!

Material no longer be present in the material container and in the mixing tube.

1. Remove the 10-pole plug (1).
2. Remove the nut (2) at the protective grille and tilt backwards with the motor.

NOTE!

During cleaning work and during the transport of the motor, connect the socket housing with the protective cover (3) (protection from moisture).

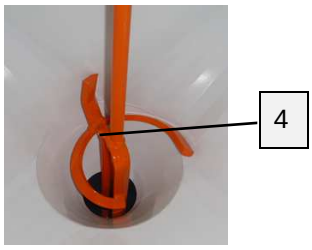


Fig. 92: Remove the agitator.

3. Remove the mixing shaft (4) and clean it.
4. Cleaning the mixing zone with a spatula.

44.8 Insert the mixing tube cleaner

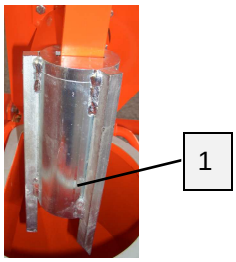


Fig. 93: Insert the mixing tube cleaner

1. Insert the cleaning shaft and mixing tube cleaner (1) into the mixing tube.

NOTE!

Insert the mixing tube cleaner (1) with the scrapers pointing downward.

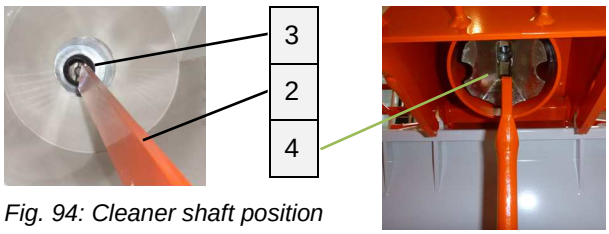


Fig. 94: Cleaner shaft position

NOTE!

When inserting the cleaner shaft ensure that the cleaner shaft (2) engages correctly in the drive dog in the head of the rotor (3) and when closing the motor flange (4).

44.9 Cleaning mixing tube RITMO L

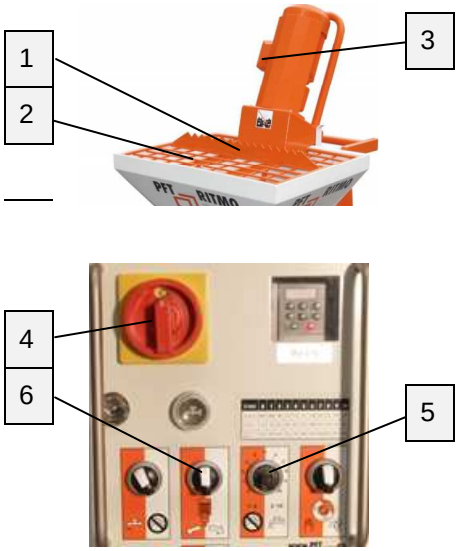


Fig. 95: Cleaning RITMO L

1. Close the motor flange (1).
2. Firmly tighten the nut (2) at the protective grille.
3. Insert the 10-pole plug (3).
4. Turn main switch (4) to position “I”.
5. Turn poti (5) for motor speed / material quantity to position 3 (adjust as required).
6. Turn the selector switch (6) directions of rotation of the pump motor clockwise (machine starts).
7. Let the machine run for about 5-10 seconds until the mixing tube has been cleaned.
8. Turn the selector switch (6) to the “Null” position (centre position).
9. Remove the 10-pole plug (3).
10. Remove the nut (2) at the protective grille and tilt backwards with the motor.
11. Remove the mixing tube cleaner with the cleaner shaft from the material container.

44.10 Cleaning mixing tube RITMO M

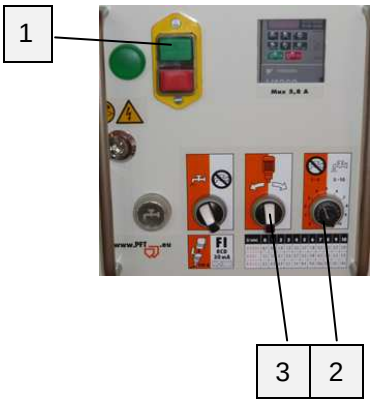


Fig. 96: Cleaning RITMO M

1. Close motor flange *(Fig.95)*.
2. Firmly tighten the nut at the protective grille *(Fig.95)*.
3. Insert the 10-pole plug *(Fig.95)*.
4. Press the green push button (1) operation “ON”.
5. Turn poti (2) for motor speed / material quantity to position 3 (adjust as required).
6. Turn the selector switch (3) directions of rotation of the pump motor clockwise (machine starts).
7. Let the machine run for about 5-10 seconds until the mixing tube has been cleaned.
8. Turn the selector switch (3) to the “Null” position.(centre position).
9. Remove the 10-pole plug *(Fig.95)*.
10. Remove the nut at the protective grille and tilt backwards with the motor.*(Fig.95)*
11. Remove the mixing tube cleaner with the cleaner shaft from the material container

44.11 Cleaning rubber mixing section

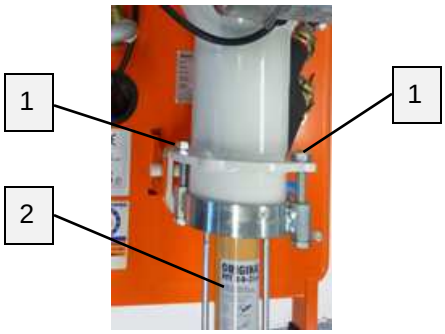


Fig. 97: Remove pump unit

1. Loosen the nuts (1).
2. Remove the pump unit (2) with mortar pressure gauge and clean it.

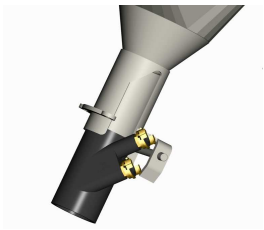


Fig. 98: Cleaning rubber mixing section

4. Remove the rubber mixing section from the material container and clean it.
5. Insert and attach the rubber mixing section and pump unit after cleaning.
6. Ensure correct position of the parts.

44.12 Insert agitator

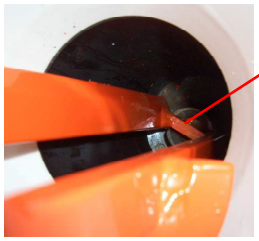


Fig. 99: Rotor position

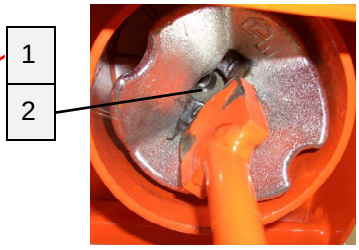


Fig. 100: Drive dog position

1. Pay attention to wear at the agitator (1) and at the drive dog (2).
2. Insert agitator and ensure correct position at the rotor (*Fig. 99*) and in the drive dog (*Fig. 100*).
3. Close the motor flange.

44.13 Clean the hopper

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

45 Changing the pump / cleaning the pump

45.1 Place the machine on the back side

Fig. 101: *Move the machine*

1. Secure the machine against switching on by removing the connection cable.

> *NOTE!*
> *For changing the pump slightly / cleaning the pump, place the RITMO on the back side.*

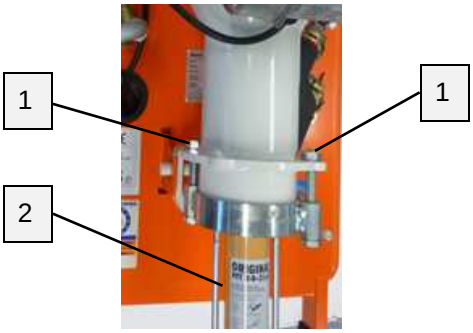


Fig. 102: *Remove pump unit*

2. Loosen the nuts (1).
3. Remove the pump unit (2) with mortar pressure gauge and clean it.
4. Insert new rotor and stator or the cleaned pump unit and tighten nuts.

> *NOTE!*
> *Assembled pump (rotor in stator) are stored for a few days only as rotor and stator can get connected inseparably in case of prolonged storage.*

46 Switching off RITMO L

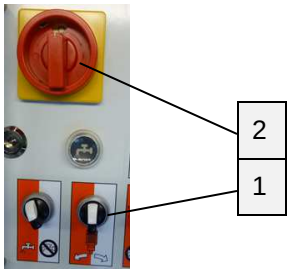


Fig. 103: *Switching off RITMO L*

1. Turn the selector switch (1) to the “Null” position (centre position).
2. Turn the main switch (2) to position **“0”**.

47 Switching off RITMO M

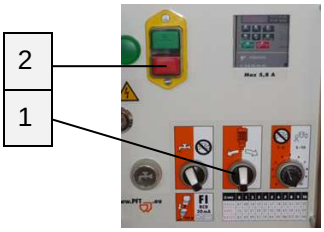


Fig. 104: *Switching off RITMO M*

1. Turn the selector switch (1) to the “Null” position (centre position).
2. Press the red push button (2) operation “OFF”.

48 Measures in case of risk of frost

ATTENTION!
Damage by frost!

Water that expands inside the machine during frost can cause severe damage.

Therefore:

➢ The following steps are to be carried out if the machine stands still in case of risk of frost.

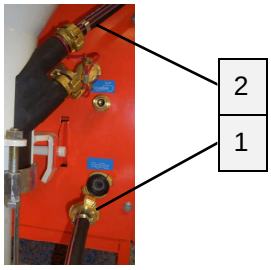


Fig. 105: Disconnect water supply

1. Remove the water hose (1) from the water inlet.
2. Remove the water hose (2) from the water nozzle at the rubber mixing section.

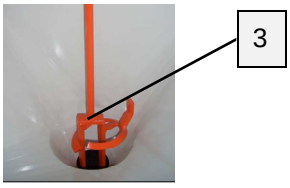


Fig. 106: Remove the agitator

3. Remove the agitator (3) from the mixing zone.

Fig. 107: Open the drain tap

4. Open the drain taps (4) at the fittings block.
5. Let the water flow and close drain taps again.

48.1 Blow dry water fitting

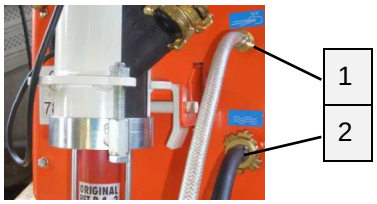


Fig. 108: Connect and fix the air

1. Connect air hose with Geka-coupling and EWO-coupling at the compressed air connection (1) and to the water connection (2).

48.2 Blow dry water fitting RITMO L

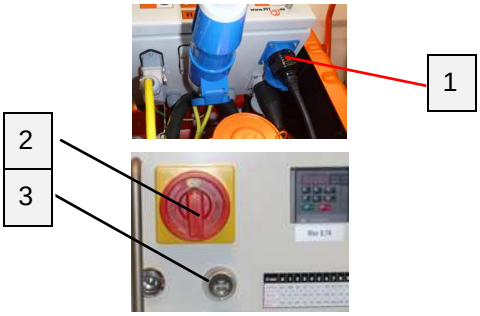


Fig. 109: Blow dry water fitting

1. Insert the connector air compressor (1) into the blue socket outlet.
2. Switch main switch (2) clockwise to position “I”.
3. Keep water supply button (3) pressed for about 15 seconds.
4. The water is blown out of the fitting using compressed air.
5. Open all water valves and blow once again with compressed air.
6. Remove the plug (1).
7. Turn the main switch (2) to position “0”.

48.3 Blow dry water fitting RITMO M

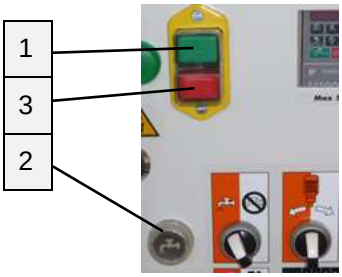


Fig. 110: Blow dry water fitting

1. Insert the connector Air compressor into the blue socket outlet.
2. Press the green push button (1) operation “ON”.
3. Keep water supply button (2) pressed for about 15 seconds.
4. The water is blown out of the fitting using compressed air.
5. Open all water valves and blow once again with compressed air.
6. Remove connector air compressor.
7. Press the red push button (3) operation “OFF”.

49 Maintenance

49.1 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 the electrical system must, in principle, be carried out only by 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.

Therefore:

- Ensure order and safety at the assembly site! Loose, stacked components or components lying about can cause accidents.
- If components were removed, ensure proper assembly, put back all fastening elements and observe torque indications for screws.

49.2 Remove connection cable

Electrical system

Fig. 111: Remove connection cable

DANGER!
Danger of death 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

DANGER!

DANGER!
Danger to life from unauthorised restarting!

When carrying out troubleshooting work, 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

49.3 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 replaced oil in suitable containers and dispose of in accordance with the local applicable regulations.

49.4 Maintenance plan

The following paragraphs describe the maintenance works that are require for an ideal 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 page 2 for service addresses.

NOTE!

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	Clean/replace strainer screen in water inlet.	Operator
weekly	Clean/replace suction filter of compressor.	Service engineer
2 weeks	Clean/replace strainer screen in pressure reducer.	Service engineer

50 Maintenance work

50.1 Strainer screen

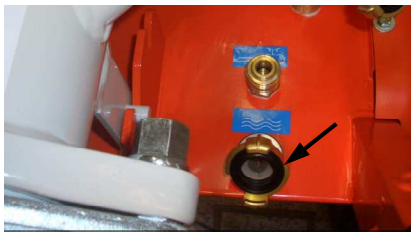


Fig. 112: Strainer screen in water inlet.

Check strainer screen in water inlet daily:

1. Remove the strainer screen from Geka-coupling.
2. Cleaning strainer screen.
3. Replace the sieve in case of heavy contamination.
4. Reinsert strainer screen.

Strainer screen Geka-coupling: Article number 20152000

- Implementation by operator.

50.1.1 Strainer screen

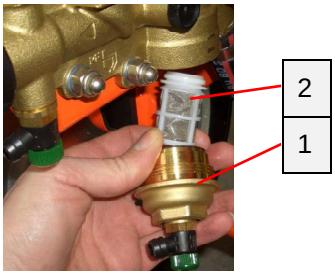


Fig. 113: Strainer screen

1. Remove the locking screw (1) of the pressure reducer valve.
2. Remove the strainer screen (2) and clean it (every two weeks).
3. Replace the screen in case of heavy contamination.
4. Insert strainer screen and screw on the locking screw.

Strainer screen for pressure reducer: Article number 20156000

- Execution by service technician.

50.2 Pressure reducing valve

Fig. 114: Pressure reducing valve

Check the setting of the pressure reducer valve:

1.4 bar at maximum flow.

Needle valve (1) opened completely.

50.3 Check pressure switch

50.4 Pressure switch water

Fig. 115: Pressure switch

If faults occur increasingly, replace the water pressure switch (1). The pressure switch is firmly engaged and cannot be readjusted.

- Execution by service technician.

Pressure switch water (1)	Machine switches “ON”	Machine switches “OFF”
Water	1.7 bar	1.4 bar

50.5 Pressure switch Compressor

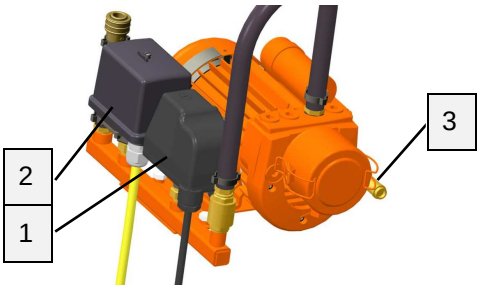


Fig. 116: Pressure switch

Pressure switch-off for compressor (1)	Compressor switches “ON”	Compressor switches “OFF”
Compressor	1.1 bar	1.4 bar
Pressure switch-off for cleaning machine (2)	Machine switches “ON”	Machine switches “OFF”
Cleaning machine	0.9 bar	1.2 bar

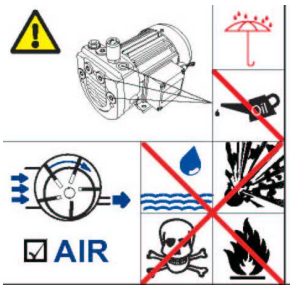
The safety valve (3) for the air compressor is set to 1.8 bar.

50.6 Air compressor slider control / air filter cleaning

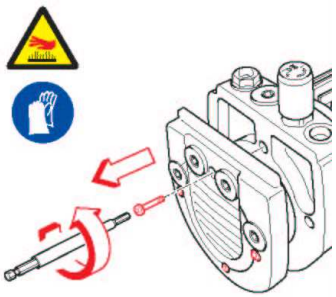
Fig. 117: Air filter

1. Clean the prefilter weekly.
2. Loosen the tension springs and remove the filter insert.
3. Blow through the prefilter with compressed air from inside to outside (see Figure below).
4. Replace clogged, oily, greasy or damaged filter cartridges at any cost.

   Article number for filter cartridge D050x58: 00 08 75 47



5. The compressor works without oil and should not suck oil mist.
6. The ambient temperature may not exceed 45°C.
7. It is essential to store the compressor dry and to avoid the condensate through water vapour.
8. It is prohibited to use the machine in explosive atmosphere.

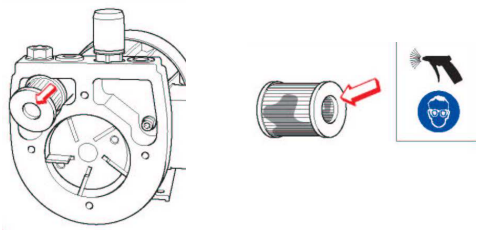


High temperatures are generated on the compressor due to air compression.

- Protection from contact with hot surfaces
- or protect the traffic area
- or attach warning signs.

If a prefilter has not been mounted yet, clean the filter of the compressor weekly.

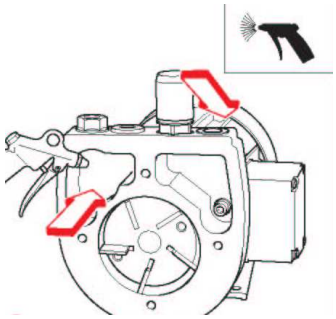
1. With the prefilter, clean the filter integrated in the compressor only every four weeks. Loosen the screws at the side cover.



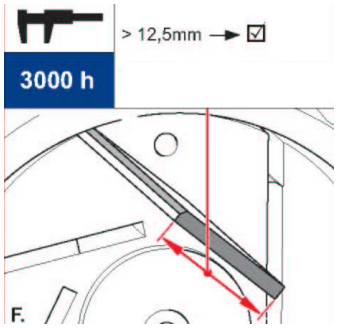
2. Take the filter out, and blow through with compressed air from inside to outside (do not wash out).
3. Replace clogged, oily, greasy or damaged filter cartridges at any cost.

   Article number for filter cartridge: 00 07 77 66

Maintenance work



4. Also blow out the air filter housing with compressed air, so as to remove dirt particles.



5. Abrasion at the housing wall subjects the sliders to wear and tear.
6. Check the slider width after 3000 operating hours or annually; it should be at least 12.5 mm.
7. At the time of replacing, blow the housing with dry compressed air.

50.7 Actions after completed maintenance

1. After finishing the maintenance works and prior to switching on the machine, the following steps have to be carried out:
2. Check all previously loosened screw connections for secure fit.
3. Check if all previously removed safety systems and covers are properly reinstalled.
4. Ensure that all used tools, materials and other equipments were removed from the work area.
5. Clean the work area and remove any spilled materials such as liquids, processing material or similar.
6. Ensure that all safety systems of the installation work perfectly.

51 Disassembly

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

51.1 Safety

Personnel

- Disassembly must be carried out only by specially trained technical personnel.
- 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 at 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 fall over.
- In case of doubt, consult the dealer.

Electrical system

DANGER!
Danger of death 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:

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

51.2 Disassembly

Clean the device for phasing out and disassemble under observance of applicable health and safety rules as well as environmental regulations.

Prior to starting the disassembly:

- Switch off device and secure against restarting.
- Physically separate the complete energy supply to the device, discharge stored residual power.
- Remove operating supplies as well as remaining processing materials and dispose off in an environment-friendly way.

52 Disposal

If no agreement for the recovery or the disposal was made, recycle the disassembled components:

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

ATTENTION!
Environmental damage in case of incorrect disposal!

Waste from electronic and electrical equipment, electronic components, lubricants and other auxiliary materials are subject to hazardous waste treatment and must be disposed of by specialised companies only!

The local authority or special waste management operators can supply information on environmentally-friendly disposal.

Disposal

53 Index

Index

Index

54 Notes

THE FLOW OF PRODUCTIVITY

Knauf PFT GmbH & Co. KG
P.O. Box no. 60 97343 Iphofen
Einersheimer Straße 53 97346 Iphofen
Germany

Phone +49 9323 31-760
Fax +49 9323 31-770
Technical hotline +49 9323 31-1818
info@pft-iphofen.de
www.pft.eu