Operating manual

Mixing pump RITMO L Eco
Overview - Operation

Article number of the operating manual: 00 62 15 20

Article number of the parts list-machine RITMO L Eco: 00 65 93 41

CE

Read the operating manual prior to starting any work!

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1 EC Declaration of Conformity

Company: Knauf PFT GmbH & Co. KG

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Germany

declares under our sole responsibility that the machine:

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 (**2014**/**30**/**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 Inspection

2.1 Inspection by machine operator

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

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 personnel 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/conveying pumps

Article number: 00 17 27 09

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

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.net.

Access to dealers with username and password.

1 Homepage

2 Business Login

Access

3 Operating manuals

4 Mixing pumps

4 Technical data

4.1 General information

Detail	Value	Unit
Weight of RITMO L Eco	103	kg
Length with pump	920	mm
Width	600	mm
Overall height	1420	mm

Individual weights

Detail	Value	Unit
Chassis	43	kg
Motor with protection grille	29	kg
Material hopper	18	kg

Hopper dimensions

Detail	Value	Unit
Filling height	930	mm
Hopper content	45	l

4.2 Electrical data of RITMO L Eco

Electric - 230V

Detail	Value	Unit
Voltage, alternating current 50 Hz	230	V
Power consumption, max.	9.5	A
Power input, max.	2.4	kW
Fuse protection	16	A
Drive pump motor	2.4	kW
Speed range of pump motor	74 - 492	rpm
Power consumption of pump motor	8.7	A

4.3 Output values of RITMO L Eco

Pump capacity

B4-2L

Detail	Value	Unit
Delivery rate can be regulated in a step-less manner	2 -14	l/min
Operating pressure, max.	20	bar
Grain size max.	2	mm
Feed range *, max. at 25 mm∅	20	m

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

4.4 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

4.5 Connection values of water

Fig. 1: Water connection

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

5 EMC test

The machine has been subjected to an EMC test and it fulfils the stringent requirements specified by the EMC directive.

6 Sound power level

Guaranteed sound power level LWA	78 dB (A)

7 Vibrations

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

8 Dimension sheet

Fig. 2: Dimension sheet

9 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

10 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 no / serial number
- Controller / signature
- Date of control

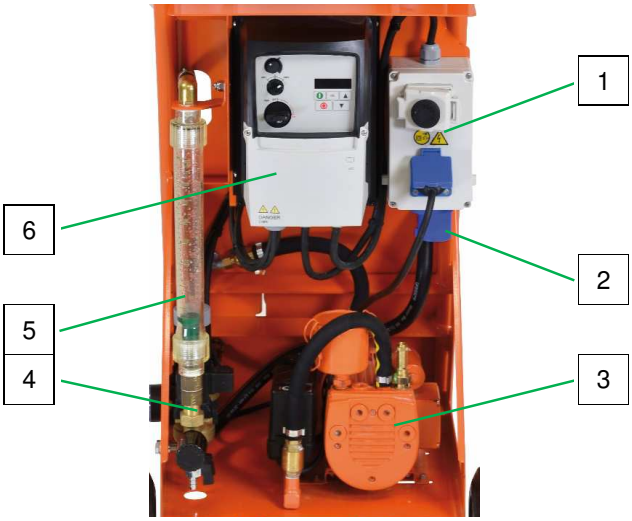
11 Structure of RITMO L Eco

11.1 Overview of RITMO L Eco

Fig. 5: Overview of RITMO L Eco

1 Motor protection handle
2 Gear motor
3 Slider handle
4 Water flow meter
5 Water from water manifold to mixing tube
6 Needle valve water quantity
7 Wheel
8 Compressed air from air compressor to spraying gun
9 Water inlet, water connection from water supply
10 Pump unit B4-2 L
11 Mortar pressure gauge
12 Connection for mortar hose
13 Tap, water extraction
14 Material hopper
15 Protection grille with sack opener

11.2 View from rear RITMO L Eco



1.On/off switch
2.Main terminal 230 V
3.Air compressor
4.Water manifold
5.Water flow meter (water manifold)
6.Frequency converter

Fig. 6: View from rear

12 Assembly units of RITMO

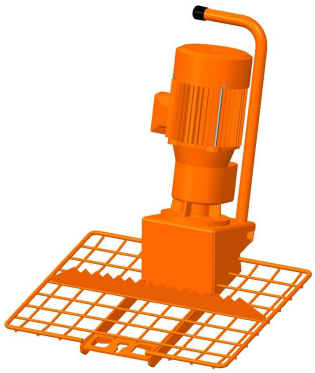
12.1 Mixing tube with material hopper

Fig.7: Assembly unit of gear motor with material hopper

The mixing pump PFT RTIMO L Eco consists of the following main components:

- Material hopper with pump and gear motor.
- The gear motor with tilt flange can be removed from the mixing tube for transport purposes.

12.2 Gear motor with tilt flange



- Gear motor with protection grille and tilt flange.

Fig.8: Gear motor with protection grille

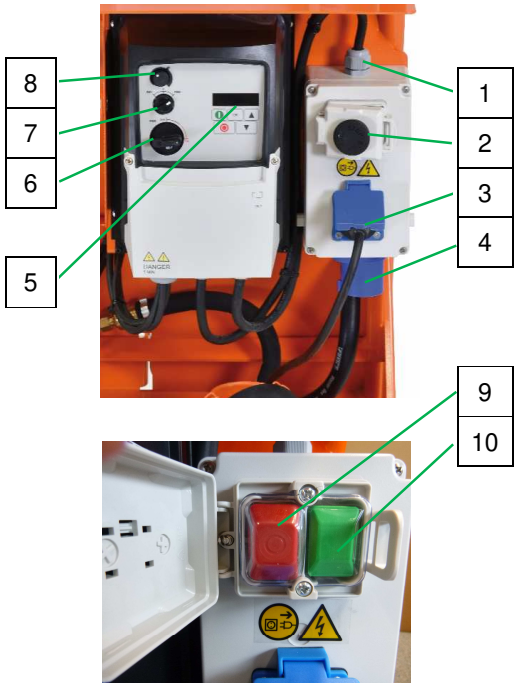
12.3 Chassis

- Chassis.

Fig. 9: Chassis

13 Description of assemblies

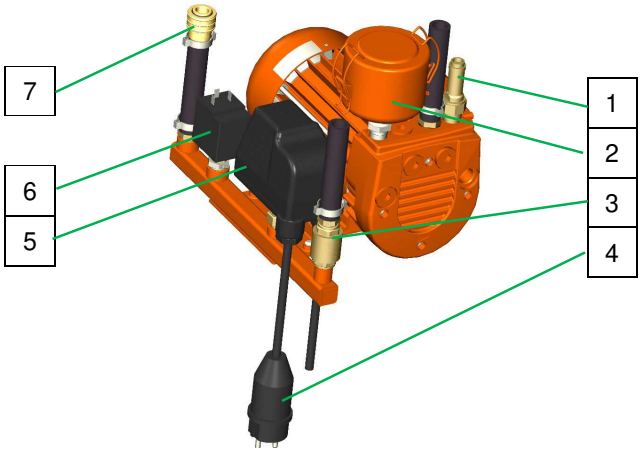
13.1 Overview of frequency converter and on/off switch



1. Connection cable to pump motor.
2. Emergency-stop button.
3. Connection for air compressor 230 V.
4. Connection for main current 230 V, 1Phase, 16 A.
5. Display for frequency converter.
6. Maintenance switch (always at position “ON”! Do not actuate maintenance switch!)
7. Selector switch of pump.
8. Potentiometer for motor speed / quantity of material.
9. Push-button green, machine is switched on.
10. Push-button red, machine is switched off.

Fig. 10: Assembly unit of frequency converter

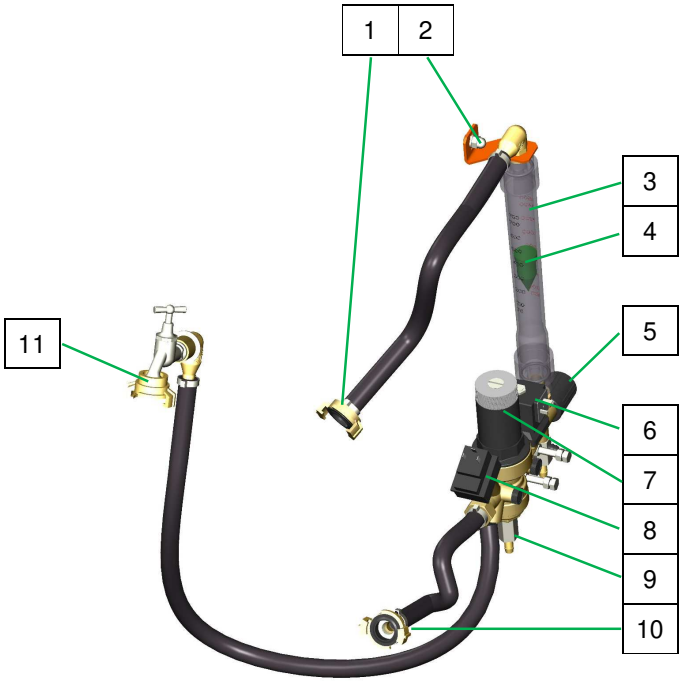
13.2 Overview of air compressor DT4.8 230 V



1. Safety valve up to 1.8 bar.
2. Air filter.
3. Non-return valve.
4. Power connection 230 V.
5. Pressure switch of compressor (switches the compressor ON/OFF).
6. Air pressure switch (switches the machine ON/OFF).
7. Air to spray gun.

Fig. 11: Air compressor

13.3 Overview of RITMO L Eco water manifold



1. Water to mixing tube.
2. Fastening angle for water flow meter.
3. Water flow meter.
4. Floater (water level indicator)
5. Needle valve for water quantity.
6. Solenoid valve.
7. Pressure reducer.
8. Pressure monitor of water pressure.
9. Drain tap for frost protection.
10. Connection of water from the mains.
11. Tap / water extraction, clean mortar pressure hose.

Fig. 12: Water manifold

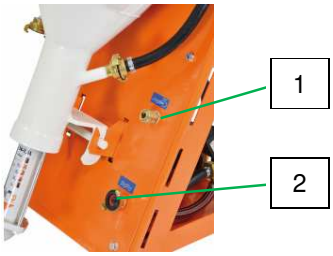
14 Connections of RITMO L Eco

14.1 Connection of current

1. Connection to AC network 230 V.

Fig. 13: Connection of current

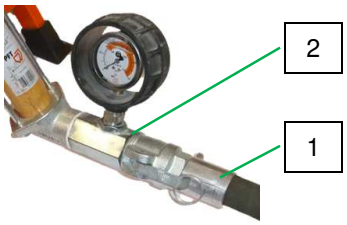
14.2 Connections of water and air



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

Fig. 14: Connection of water and air

14.3 Mortar hose connection



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

Fig. 15: Mortar hose connection

15 Operating modes

15.1 Selector switch pump motor

Fig. 16: 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 green push-button is pressed.

Left selector switch (toggle):

The pump motor runs backwards, thus the pump is relaxed. The water supply is not turned off.

15.2 Potentiometer

Fig. 17: Potentiometer

Potentiometer for motor speed / quantity of material:

By turning the potentiometer clockwise, the motor speed increases and thus the quantity of material.

16 Accessories

Water/air hose ½" 11 m art.no. 20211000

Fig. 18:

RONDO 25 mm 10 m hydraulic art.no. 00021100

Fig. 19:

Cleaner coupling 25 male part LW24 with Geka art. no. 20199500

Fig. 20:

Spraying gun art. no. 00612838

Fig. 21:

17 Intended use control panel

17.1 Intended use 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 horizontal.

17.2 Intended use solenoid valve

Scope of application:

Solenoid valves for liquid and gaseous media, aggressive or neutral, can be used in 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.

17.3 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 solely responsible for any damage arising from improper use.

18 Intended use air compressor

18.1 Intended use 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 considered as not intended. Connected implements or components are to be designed for the maximum generated pressure of 1.8 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.

18.2 Safety systems air compressor

WARNING!
Danger to life 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.

18.3 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 does not exist.

18.4 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.

19 Description PFT booster pump (accessory)

19.1 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. *22*: 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

19.2 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.

20 Preparation booster pump (accessory)

Electrical system

Caution!

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

Line connection

Caution!

It must be ensured that the suction line or supply line is connected to the marked position.

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

21 Initial start-up, fill pump

Fig. 23: 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 water filling plug (1) or 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.

21.1 Commissioning 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, the suction line as well as the pressure line must 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 avoid air being sucked in.

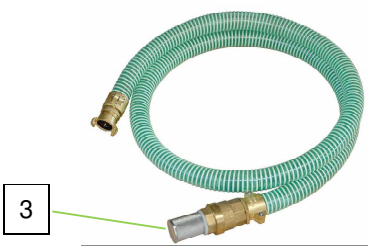


Fig. 24: Suction strainer with filter screen

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 few seconds. If the pump does not deliver after a short time, 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.

22 Brief description of RITMO L Eco

Fig. 25: RITMO L Eco

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

Depending on the requirement, the pump capacity can be adjusted electronically in a step-less manner.

The machine is made up of portable individual components, which facilitate speedy and convenient transport when the dimensions are manageable and the weight is at a low level.

23 Material:

23.1 Flowability / Flow characteristic RITMO L Eco

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, fillers, paints etc. have good flow characteristics.
- If 20 bar operating pressure are exceeded the mortar hose length has to be reduced.
- In order to avoid machine faults and increased wear of the pump motor, mixing shaft and the pump itself, only original PFT spare parts such as
- PFT rotors
- PFT stators
- PFT mixing shafts
- PFT - Material hoses should be used.
- 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.

24 Mortar pressure gauge

Fig. 26: 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.

25 Safety rules

Caution!

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

26 Transport, packing and storage

26.1 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.

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.

26.2 Tighten the nuts before transport

Fig. 27: Tighten the nuts

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

26.3 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.

26.4 Transport in individual parts

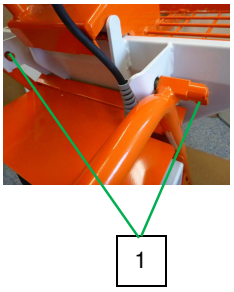


Fig. 28: Open turning bolts

Fig. 29:Individual 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 cable and hose connections. Open turning bolts (1) on both the sides (fig. 28).
4. Remove mixing tube with material hopper from chassis.

26.5 Transport with passenger car

Fig. 30: 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 in charge of the operational loading.

26.6 Transport of already running machine

DANGER!
Danger of injury from discharged mortar!

Injuries to face and eyes can occur.

Therefore:

- Before opening the couplings ensure that there is no more pressure on the hoses (observe display at mortar 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. In case of transport by crane, remove the loose parts.

27 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.

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

Handling packaging materials

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.

28 Operation

28.1 Safety

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.

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 during particular jobs will be pointed out separately in the warning instructions of this chapter.

29 Preparing the machine

Fig. 31: Grille cover

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

DANGER!
Rotating mixing shaft!

Risk of injury when reaching into the material hopper.

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

Fig. 32: Set-up

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.

29.1 Open the protection grille

Fig. 33: Open the protection grille

1. Loosen nuts (1) of the protection grille.
2. Tilt the protection grille with motor (2) backwards.
3. Remove the mixing shaft (3).
4. Close the protection grille with motor (2).
5. Firmly tighten the nuts (3) of the protection grille.

29.2 Connecting the power supply 230 V

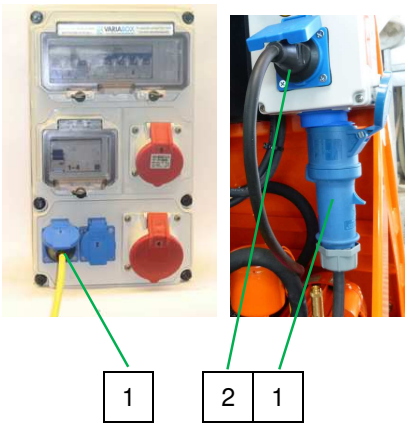
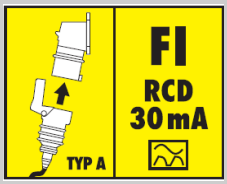


Fig. 34: Power connection

1. Connect the machine (1) only to the instructed power distributor.



DANGER!
Danger to life 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. Pull the connector of air compressor (2) from the on/off switch.

29.3 Motor connection cable of pump motor

Fig. 35: Motor connection cable

WARNING!
Danger to life from rotating parts!

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

- The respective drives (motors) must be operated only with the help of the associated on/off switch of the machine.

1. Connect the motor connection cable (1) to the gear motor.

29.4 Connecting the water supply

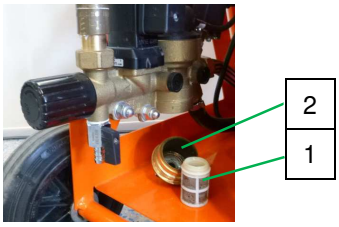


Fig. 36: Water inlet filter

1. Remove the brass screen cup (1) with drain tap from the pressure reducer.
2. Check whether the water inlet filter (2) in the pressure reducer is clean.

   Screen for pressure reducer: Article number 20156000
3. Screw the brass screen cup (1) back.

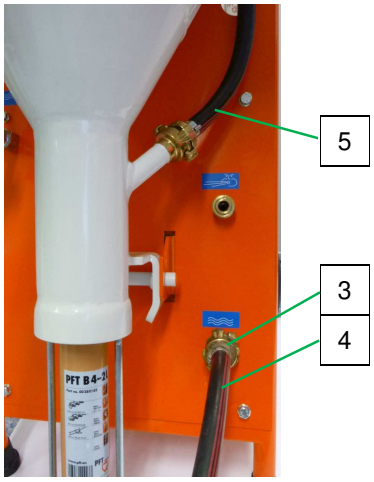


Fig. 37: Connecting the water hose

4. Check if water inlet screen in the water inlet (3) is clean.
5. Clean and vent the water hose (4) of the water supply network.
6. Connect the water hose (4) to the water inlet (3).
7. Remove the water hose (5) from the mixing tube and put it in a bucket or pan.

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 Regulation in part 1.

NOTE!

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

29.5 Connection of water from water tank

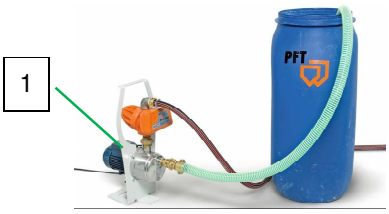


Fig. 38: Booster pump

Fig. 39: Suction strainer complete with filter screen

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.

30 Switching on RITMO L Eco

30.1 Activating RITMO L Eco

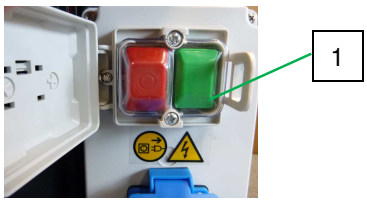


Fig. 40: Putting into service

1. Open cover of the on/off switch.
2. Press green push-button (1) for operation “ON”.

30.2 Connect water draining cocks

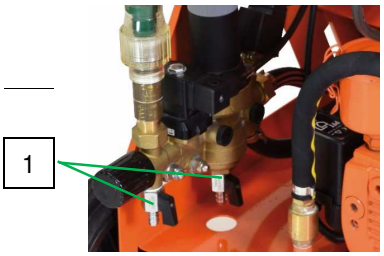


Fig. 41: Water draining cocks

1. Close the water draining cocks (1) at the water manifold.
2. Open water cock of water supply network.

30.3 Switching on RITMO L Eco

Fig. 42: Switching on

1. Turn the selector switch (1) clockwise to position "FWD".

30.4 Pre-setting the water flow rate

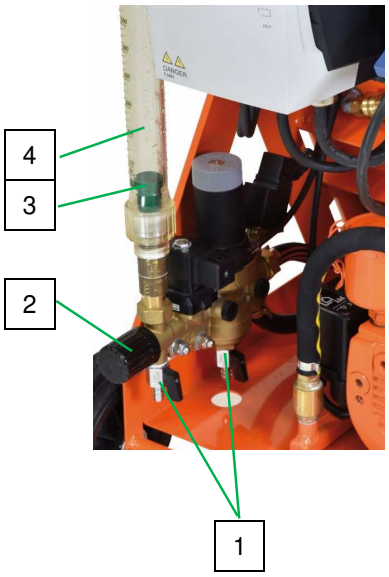


Fig. 43: Pre-setting

3. Water emerges from the mixing tube at the water hose.
4. Adjust the expected amount of water at the needle valve (2).
5. Evident on the floater (3) in the inspection glass of water flow meter (4).

NOTE!

The specifications of the material manufacturer must 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.

30.5 Switching off RITMO L Eco

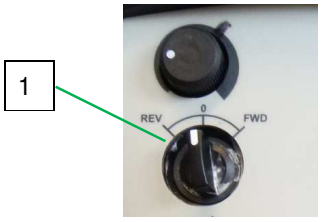


Fig. 44: Switching off

1. Switch off the machine at selector switch (4) (middle position).

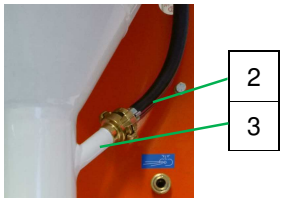


Fig. 45: Connecting the water hose

2. Connect the water hose (2) to the water inlet (3) of the mixing tube.

30.6 Soaking of the mixing section

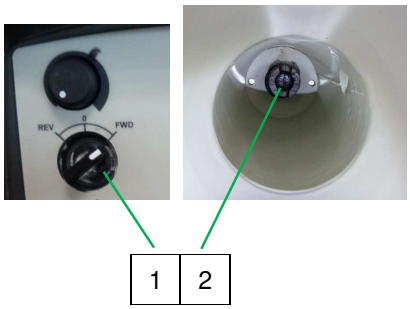


Fig. 46: Soaking of the mixing section

NOTE!

As a rule, the pump has to be soaked. The soaking makes it easier to start the pump.

1. Turn the selector switch (1) slightly clockwise to position "FWD" till the head of the rotor (2) is immersed in water.
2. Turn the selector switch (1) to the '0' position (middle position).

30.7 Detach motor connection cable of the gear motor

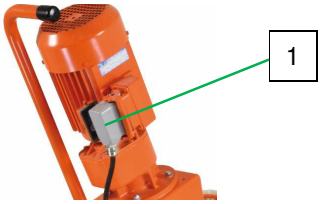


Fig. 47: Motor connection cable

1. Detach motor connection cable (1) of the gear motor.

30.8 Open the protection grille

Fig. 48: Open the protection grille

1. Loosen nuts (1) of the protection grille.
2. Tilt the protection grille with motor (2) backwards.

30.9 Close the protection grille with motor

Fig. 49: Open the protection grille

NOTE!

The material container must be dry inside.

1. Insert mixing shaft (1).
2. Close the protection grille with motor (2).
3. Firmly tighten the nuts (3) of the protection grille.
4. Connect the motor connection cable to the gear motor.

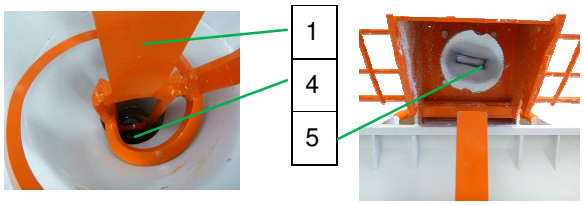


Fig. 50: Fit of the mixing shaft

NOTE!

When inserting the mixing shaft (1) ensure that the mixing shaft engages with the head of the rotor (4) and grips properly into the hauling bracket (5) when closing the motor flange.

31 Mortar pressure gauge

Fig. 51: 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.

32 Hazardous dusts

Fig. 52: 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).

33 Feeding dry material to the machine

Fig. 53: Bagged goods

Feeding the machine with bagged goods:

DANGER!
Danger 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 hopper!

34 Monitoring the machine

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

35 Putting the machine into operation

35.1 Check consistency of mortar

Fig. 54: Consistency checking tube

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

Article number: 20104301 Consistency checking tube 25 female-part piece

35.2 Switching onRITMO L Eco with material

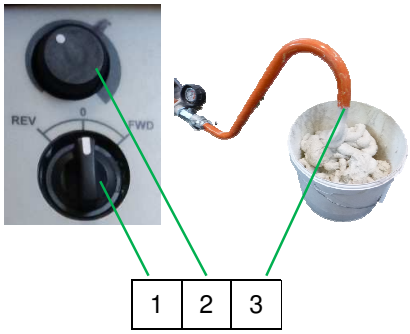


Fig. 55: Switching on

1. Turn the selector switch (1) clockwise to position "FWD".
2. The machine starts.

NOTE!

During daytime operation, switch the machine on or off only at the selector switch (1).

3. Adjust the potentiometer (2) for motor speed / material quantity as required.
4. Check material consistency at the consistency checking tube (3).
5. Switch off the machine at selector switch (1) (middle position).
6. Remove consistency checking tube and clean it.

36 Mortar hoses

36.1 Prepare mortar hoses

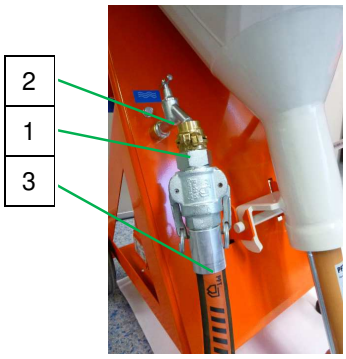


Fig. 56: Prepare mortar hose

1. Connect the cleaner coupling (1) to the tap (2).
2. Connect mortar hose (3) to the tap.
3. Open the tap (2) and soak the mortar hose (3).
4. Remove mortar hose and cleaner coupling again and separate.
5. Remove all the water from the mortar hose.
6. Pre-lubricate the mortar hose with about 1 litres 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!

36.2 Connect mortar hose

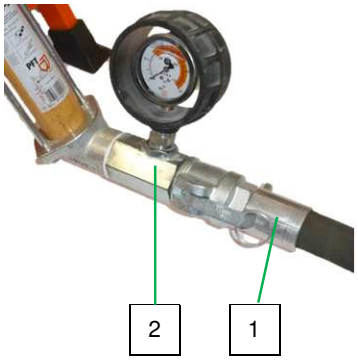


Fig. 57: Connect mortar hose

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.

37 Compressed air supply

37.1 Connect the air hose

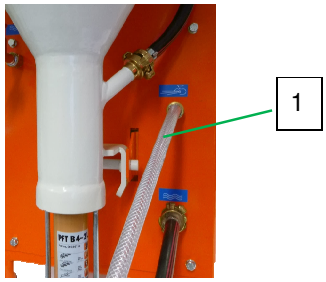


Fig. 58: Connect the air hose

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

DANGER!

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

37.2 Detach the spraying gun

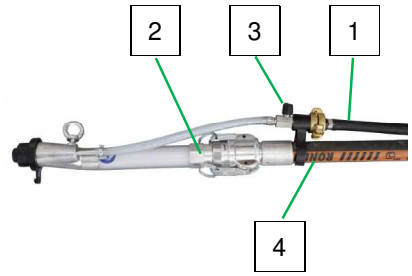


Fig. 59: Spraying gun

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).

37.3 Switch on air compressor

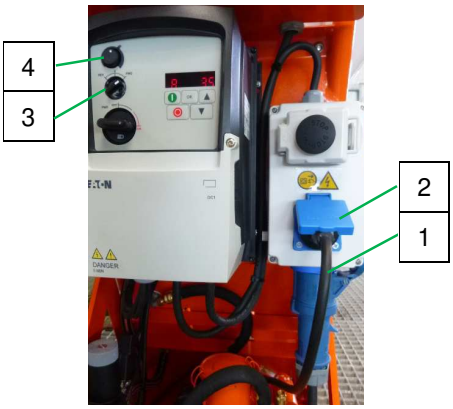


Fig. 60: Switch on air compressor

1. Insert the connector of air compressor (1) into the blue Schuko socket (2).
2. Turn the selector switch (3) clockwise to position "FWD".

NOTE!

During daytime operation, switch the machine on or off only at the selector switch (3).

3. Adjust the potentiometer (4) for motor speed / material quantity as required.

NOTE!

This small compressor may only be operated with spraying gun 25 mm, 25-female part 4 mm air nozzle for DT4.8 article number 00111804, with spraying gun smartline article number 00612838 or with spraying gun 25 mm 25-female part 4 mm air nozzle 30° 600lg article number 00097283.

38 Apply mortar

DANGER!
Danger of injury from discharged mortar!

Discharged mortar may lead to injuries to eyes and face.

- Never look into the spraying gun.
- 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 20 bar operating pressure are exceeded the hose length must be reduced.

38.1 Open the air tap at the spraying gun

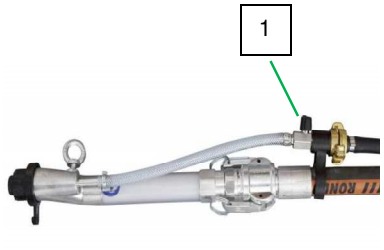


Fig. 61: Opening the air tap

1. Aim the spray gun at the wall to be plastered.
2. Ensure that nobody is in the discharge area of the spraying gun.
3. Open the air tap (1) at the spraying gun.
4. 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.

NOTE!

It is also possible to operate the machine without compressed air, e.g. for filling screed. To this end, pull the connector of the air compressor and operated without the spraying gun. Switch the machine on or off via the selector switch.

38.2 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. 62: 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.

38.3 In case of longer interruption of work/break

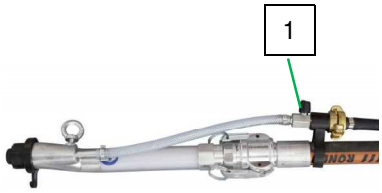


Fig. 63: Closing the air tap

Fig. 64: Switching off

1. Close air tap (1).
2. Turn the selector switch (2) to “0” position (middle position).
3. Detach connector of air compressor (3).
4. Open the air tap (1) at the spraying gun so that remaining pressure can escape.

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

5. If the spraying gun is depressurised, close the air tap (1) at the spraying gun.
6. Insert the connector of air compressor (3) into the blue socket.

NOTE!

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

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

39 Process pasty material

39.1 Recommended accessories for pasty material

Fig. 65: Air compressor

Article number: 00 23 31 74

Description: Air compressor LK 402 IV

Fig. 66: Spraying gun

Article number: 20 19 59 00

Description: Spraying gun for ornamental and reinforcement plasters.

Fig. 67: Mortar hose

Article number: 00021103
Description: RONDO mortar pressure hose 25 mm 5 m with hydraulic connection
Article number: 00021100
Description: RONDO mortar pressure hose 25 mm 10 m Hydraulic connection
Article number: 00037491
Description: RONDO 25 mm 10 m with rotary coupling
Additional mortar hose accessories available at www.pft.eu

39.2 Process pasty material

Fig. 68: Blind cover

1. Detach connector of air compressor from the on/off switch.
2. Remove the water hose (1) from the mixing tube and close the mixing tube using blind cover.
3. Connect compressed air hose (2) at the air manifold.
4. The water hose (3) of the water supply network must be connected.
5. Close the needle valve (4) at the water manifold completely.

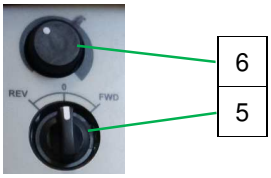


Fig. 69: Pasty material

6. The pasty material can be filled in the material hopper.
7. Turn the selector switch (5) clockwise to position "FWD" (machine starts).
8. Adjust the potentiometer (6) for motor speed / material quantity as required.

40 Stopping in case of an emergency RITMO L Eco

40.1 Stop function

Stopping in case of an emergency

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

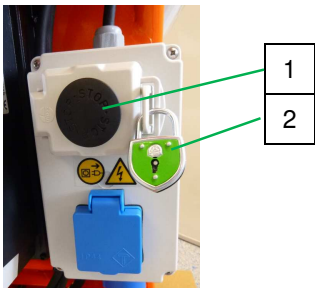


Fig. 70: Stopping

In case of danger proceed as follows:

1. Actuate the stop function (1) at the on/off switch.
2. With the help of the stop function, secure the hinged lid against start-up using a lock (2).
3. Disconnect the power supply by removing the connection cable
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.

41 Measures to be taken in case of water outage

NOTE!
Clean water can be supplied to the machine from a container by means of a suction strainer (article number 00136619) (see page 23 point 22).

42 Action in case of power failure

42.1 Turn the main switch to position “0”

Fig. 71: Selector switch at position “0”

1. Close the air tap at the spraying gun.
2. Turn the selector switch to position “0” (middle position).
3. Pull the connector of the air compressor.
4. Let qualified staff check the power supply.

42.2 Relieve mortar pressure

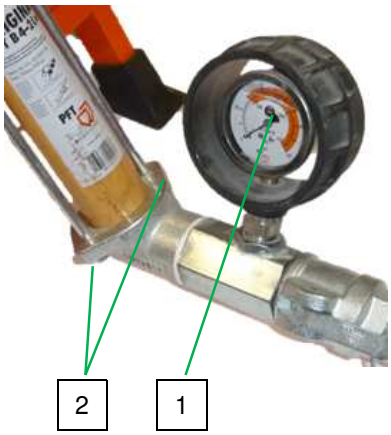


Fig. 72: Check mortar pressure

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!
Danger 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 slowly and slightly loosening the screws (2). In doing so, cover the work area with film.
3. Firmly tighten the screws (2) again.

42.3 Restarting after power failure

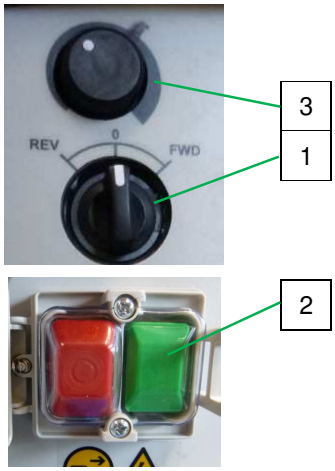


Fig. 73: Under-voltage release

NOTE!
The RITMO L Eco is equipped with an under-voltage release. In case of a power failure, the system has to be started as follows.

1. Turn the selector switch (1) to “0” position (middle position).
2. Close the air tap at the spraying gun.
3. Insert the connector of air compressor into the blue socket.
4. Press green push-button (2) for operation “ON”.
5. Turn the potentiometer (3) for the motor speed / material quantity to the desired position (re-adjust if necessary).
6. Turn the selector switch (1) clockwise.
7. The RITMO L Eco starts again as soon as the air tap at the spraying gun is re-opened.

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

43 Work on troubleshooting

43.1 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.

43.2 Fault display of frequency converter

Fig. 74: Fault rectification

The following installation indicates faults:

- Faults in the frequency converter are displayed on the display (1).
- In case of recurring problems, contact the dealer.

43.3 Faults

Notification	Possible cause and remedy
Stop	Ready to start.
	The drive is not released.
	There is no error message.
0-1	Overcurrent at the outlet of the frequency converter. Occurrence directly when switching on:
	➢ Check the cable connection between the converter and the motor.
	➢ Check the motor short circuit in the coil or short circuit to earth.
	➢ Check whether the motor can rotate freely and ensure that there is no mechanical blocking.

Notification	Possible cause and remedy
I.t-trP	Motor overload The thermal protection has triggered because the device has been operated beyond the motor rated current for a certain time.
	➢ Check the connection of the motor (e.g. star/triangle)
	➢ Ensure that there are no mechanical blockages or additional loads on the motor.
0 Volt	Overvoltage in intermediate circuit
	➢ Check whether the voltage supply is available in the area for which the frequency converter is measured.
V Volt	Undervoltage in intermediate circuit
	Note: *This message appears when voltage supply to the device is disconnected and the intermediate circuit voltage is reduced.* *This is not an error.*
	If the message appears during operation:
	➢ Check whether the supply voltage is too low.
0-t	Temperature of cooling element.
	The drive is too hot.
	➢ Check whether the frequency converter may be operated at ambient temperature.

43.4 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.

43.5 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.

Work on troubleshooting

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.

43.6 Table of faults

Fault	Possible cause	Troubleshooting	Rectification by
Machine does not start 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
Machine does not start current	Power supply not in order	Repair power supply	Service engineer
	Green push-button not pressed	Press green push-button	Operator
	Selector switch at the middle	Turn the selector switch clockwise.	Operator
Machine does not start 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 is obstructed	Adjust the air safety switch	Service engineer
	Air compressor not connected	Connect 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

43.7 Table of faults

Fault	Possible cause	Troubleshooting	Rectification by
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
Machine stops after a short while	Water inlet filter contaminated	Clean or replace filter	Operator
	Filter of pressure relieve device contaminated	Clean or replace filter	Operator
	Hose connection or water pipe too small	Increase dimensions of hose connection or water pipe	Operator
	Water inlet pipe too long or inlet pressure too low	if possible, attach an additional booster pump	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 mixing shaft or replace	Operator
	Material in mixing tube has become wet	Empty mixing tube, dry it and start again	Operator
	Mixing shaft defective	Replace mixing shaft	Operator
	Driving dog defective	Replace driving dog	Service engineer
During operation water rises in the mixing tube	Backpressure in mortar hose higher than pump pressure	Replace rotor or 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

Solenoid valve does not open

Fault	Possible cause	Troubleshooting	Rectification by
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
	Mixing shaft defective; no original PFT mixing shaft	Replace mixing shaft with original PFT mixing shaft	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 clamp tightened too little	Replace stator or re-tighten clamp	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

44 Solenoid valve does not open

44.1 Remove connection cable

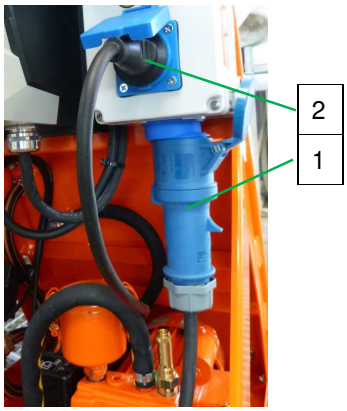


Fig. 75: Remove connection cable

DANGER!
Danger to life from electric current!

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

Therefore:

- Switch off the energy supply before starting any work and secure against restarting.
- Disconnect the power supply by removing the connection cable (1).

Pull the connector of air compressor (2) from the on/off switch.

44.2 Check fuse in frequency converter

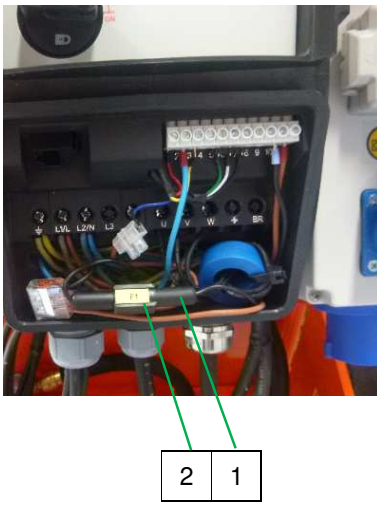


Fig. 76: Check the fuse

DANGER!
Danger to life from electric current!

After disconnecting the voltage supply, the components in the power section of the frequency converter are still voltage-carrying for up to 6 minutes (discharging time of intermediate circuit capacitors).

When working on live frequency converters, the national accident prevention regulations applicable must be observed.

NOTE!

If the solenoid valve does not open, the fuse (2) of the frequency converter in the fuse holder (1) must be checked.

All activities carried out on the device for installation, start-up and maintenance must be carried out by qualified personnel only.

45 Transport is at a standstill / Blockage

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.

45.1 Removal of clogging in hoses / Signs of blockages

Implementation by operator:

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

Indications are:

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

45.2 Causes of blockages:

- Highly worn mortar hoses,
- work interruptions,
- badly greased 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.

45.3 Earlier damage to the mortar hose

NOTE!

If, in the event of a machine fault caused by blockages, the pressure in the mortar hose exceeds 40 bar, even only temporarily, replacement of the mortar hose is recommended as there might be damage in the hose that is not externally visible.

46 Removal of clogging in hoses

Fig. 77: Mortar pressure

DANGER!
Danger from discharged material!

Never loosen the hose couplings as long as the pressure head is reduced! 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.

46.1 Let the pump motor run backwards

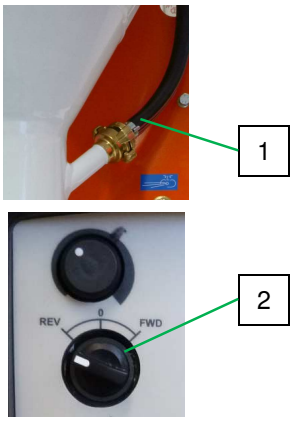


Fig. 78: Reverse operation

NOTE!

During reverse operation of the pump, water for the mixing section is not disconnected.

The air tap must not be opened for the reverse operation.

1. Remove the water hose (1) from the mixing tube and put it in a bucket or pan.
2. Turn the selector switch (2) anticlockwise to position “REV” (machine runs backwards).
3. Let the machine run backwards briefly till the pressure at the mortar pressure gauge has dropped to "0 bar".
4. Turn the selector switch (1) to “0” position (middle position).
5. Connect the water hose (1) to the mixing tube.
6. Turn the selector switch (2) clockwise to position "FWD".
7. The RITMO L Eco starts again as soon as the air tap at the spraying gun is re-opened.

46.2 Blockage cannot be cleared

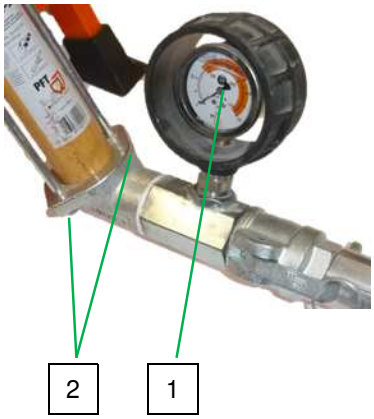


Fig. 79: Check mortar pressure

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!
Danger 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. Cover coupling connections with tear-proof film.
2. Slightly loosen both screws (2) at the tie rod slowly so that the remaining pressure can escape completely.
3. As soon as the pressure has dropped to "0" bar, tighten the screws (2) again.

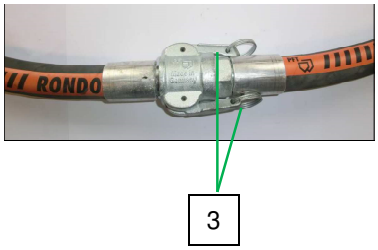


Fig. 80: Loosen coupling

NOTE!
Clean the mortar hoses and spraying gun immediately.

4. Loosen cam leaver (3) and hose connections.
5. Dislodge the blockage by tapping or shaking at the place where the blockage is located.
6. If required, insert a purging hose into the mortar hose and flush out the material (PFT purging hose art. no. 00113856).

46.3 Switch machine back on after blockage has been cleared

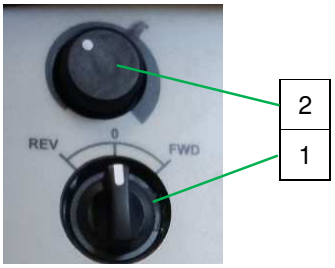


Fig. 81: Switching on

1. Selector switch (1) to “0” position (middle position).
2. Close the air tap at the spraying gun.
3. Turn the potentiometer (2) for the motor speed / material quantity to the desired position (re-adjust if necessary).
4. Turn the selector switch (1) clockwise to position "FWD".
5. Let the machine run for a short while without mortar hoses.
6. As soon as the material emerges at the pressure flange, turn the selector switch (1) to the ‘0’ position (middle position).
7. Apply wallpaper paste to the cleaned mortar hoses and connect to the machine and spray gun.
8. Insert the connector of air compressor into the blue socket.
9. The RITMO L Eco starts again as soon as the air tap at the spraying gun is re-opened.

47 End of work / Cleaning

47.1 Disconnecting energy 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.

47.2 Check the mortar pressure

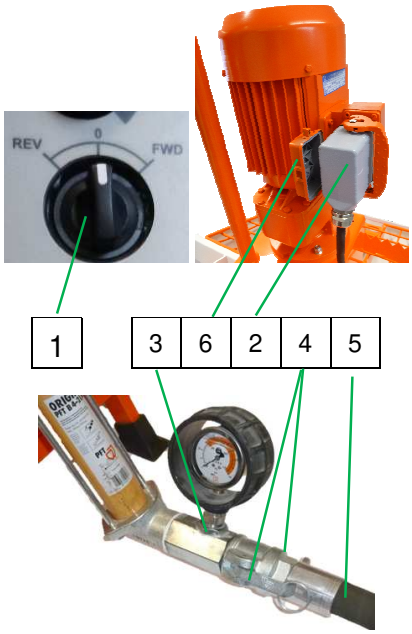


Fig. 82: Mortar pressure to “0 bar”.

Switching off the machine:

1. Turn the selector switch (1) to “0” position (middle position).
2. Open the air tap at the spraying gun.
3. Pull the connector of the air compressor.
4. Detach motor connection cable (2) of the gear motor.
5. 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.

6. Loosen the cam lever (4) and de-couple the mortar hose (5) from the mortar pressure gauge (3).
7. De-couple the air hose from the spraying gun.
8. Close cover (6) of the socket housing.

47.3 Cleaning the 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 boxes).

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

47.4 Clean mortar hose

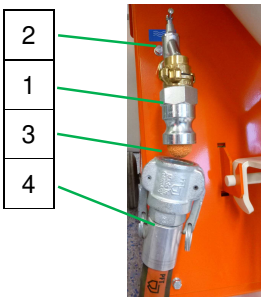


Fig. 83: Connecting cleaner coupling

1. Connect the cleaner coupling (1) to the tap (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).

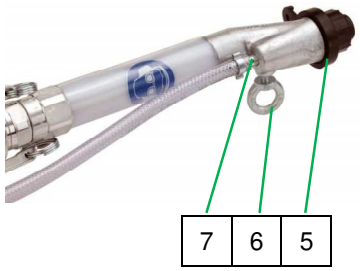


Fig. 84: Cleaning the spraying gun

4. Remove the spraying cap (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 tap Pos. 2 Fig. 83, until the sponge ball emerges from the spraying gun.
7. In case of strong soiling repeat this process.
8. In case of different hose diameters, the mortar hoses have to be cleaned separately with the matching sponge balls.
9. Wash 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.

47.5 Connect the water hose

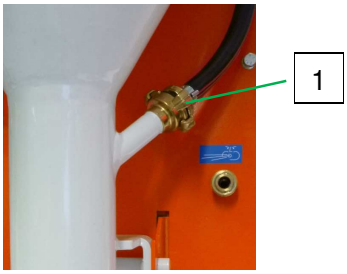


Fig. 85: Water hose

1. Connect the water hose (1) to the mixing tube.

47.6 Cleaning the mixing tube

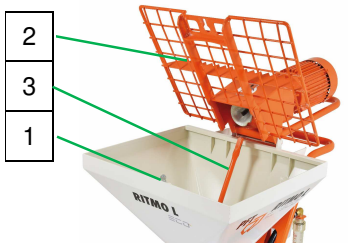


Fig. 86: Open the protection grille

NOTE!

There must be no material inside the material hopper and the mixing tube.

1. Loosen nuts (1) of the protection grille.
2. Tilt the protection grille with motor (2) backwards.
3. Remove the mixing shaft (3) and clean it.
4. Clean the mixing section with a spatula.

NOTE!

During cleaning activities and transport of the motor, the socket housing must be closed with a protective cover (3) (protection from moisture).

47.7 Insert the mixing tube cleaner

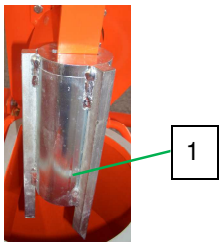


Fig. *87*: Insert the mixing tube cleaner

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

NOTE!

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

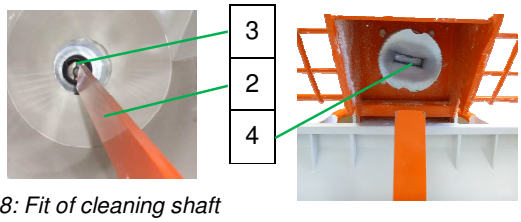


Fig. 88: Fit of cleaning shaft

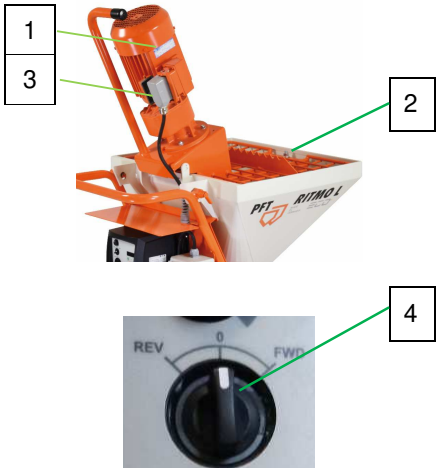
NOTE!

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

47.8 Clean the material container

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

47.9 Cleaning the mixing tube



1. Close the protection grille with motor (1).
2. Firmly tighten the nuts (2) at the protection grille.
3. Insert 10-pin connector (3).
4. Turn the selector switch (4) clockwise to position "FWD".
5. Let the machine run for about 5 - 10 seconds until the mixing tube has been cleaned.
6. Turn the selector switch (4) to “0” position (middle position).
7. Remove the 10-pin connector (3).
8. Loosen the nuts (2) at the protection grille and tilt backwards.
9. Take the mixing tube cleaner with cleaning shaft from the material hopper.

Fig. 89: Cleaning

47.10 Close the protection grille with motor

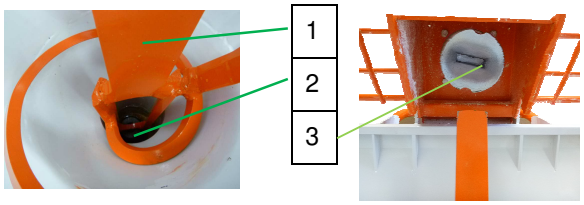


Fig. 90: Fit of the mixing shaft

NOTE!

When inserting the mixing shaft (1) ensure that the mixing shaft engages with the head of the rotor (2) and grips properly into the hauling bracket (3) when closing the motor flange.

48 Switching off RITMO L Eco

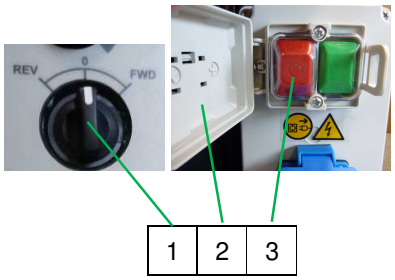


Fig. 91: Switching off the machine

1. Turn the selector switch (1) to “0” position (middle position).
2. Open the cover (2) of the on/off switch.
3. Press the red push-button (3) for “OFF” mode.
4. Close cover (2) of the on/off switch.

49 Changing the pump / Cleaning the pump

49.1 Lay the machine on its back

Fig. 92: Tilting the machine

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

> *NOTE!*
>
> *For easier pump replacement or to clean the pump, RITMO can be laid on its back.*

Fig. 93: Remove pump unit

2. Loosen the screws (1).
3. Remove and clean the pump unit (2) with mortar pressure gauge.
4. Insert the cleaned rotor and stator or the new pump unit and fasten the screws back on.
5. Ensure that the stator in the material container is properly fitted.

> *NOTE!*
>
> *Only store assembled pump (rotor in stator) for a few days as rotor and stator can get connected inseparably in case of prolonged storage.*

50 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.

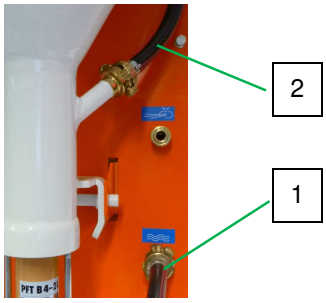


Fig. 94: Disconnect water supply

1. Take the water hose (1) from the water inlet.
2. Take the water hose (2) from the water nozzle in the rubber mixing section.

Fig. 95: Opening the drain tap

3. Open the drain taps (3) at the fitting block.
4. Let the water drain and close the drain tap.

NOTE!
Ensure that water is completely drained from the water manifold.

51 Maintenance

51.1 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 components and tools on top of one another or lying about pose potential accident risks.
- If components were removed, ensure proper assembly, put back all fastening elements and observe torque indications for screws.

51.2 Remove connection cable

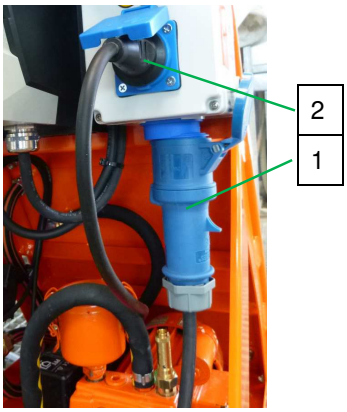


Fig. 96: Remove connection cable

DANGER!
Danger to life from electric current!

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

Therefore:

- Switch off the energy supply before starting any work and secure against restarting.
- Disconnect the power supply by removing the connection cable (1).

Pull the connector of air compressor (2) from the on/off switch.

Secure against restarting

Fig. 97: Secure against restarting

DANGER!
Danger to life from unauthorised restarting!

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

Therefore:

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

51.3 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.

51.4 Maintenance plan

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

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

Should you have any queries regarding maintenance works and intervals contact the manufacturer, see 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 water inlet filter in water inlet.	Operator
weekly	Clean/replace suction filter of compressor.	Service engineer
2 weeks	Clean/replace water inlet filter in pressure reducer.	Service engineer

52 Maintenance work

52.1 Water inlet filter

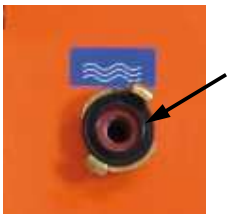


Fig. 98: Water inlet filter in water inlet.

Check the water inlet filter in water inlet daily:

1. Remove the water inlet filter from Geka coupling.
2. Clean the water inlet filter.
3. Replace the sieve in case of heavy contamination.
4. Reinsert the water inlet filter.

Water inlet filter with Geka coupling: Article number 20152000

- Implementation by operator.

52.2 Water inlet filter

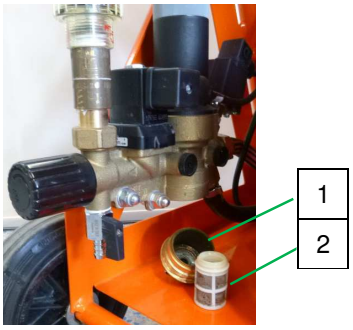


Fig. 99: Water inlet filter

1. Unscrew the locking screw (1) of the pressure reducer valve.
2. Take out and clean the water inlet filter (2) (every two weeks).
3. Replace the water inlet filter in case of heavy contamination.
4. Insert water inlet filter and screw in the locking screw.

Water inlet filter for pressure reducer: Article number 20156000

- Execution by a service technician.

52.3 Pressure reducing valve

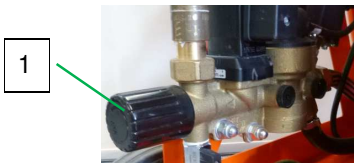


Fig. 100: Pressure reducing valve

Check setting of pressure reducing valve:

1.4 bar at maximum flow.

Needle valve (1) completely turned.

52.4 Check pressure switch

52.5 Pressure switch water

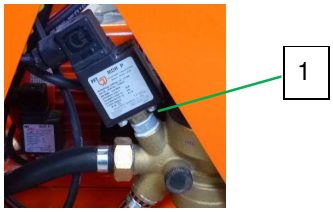


Fig. 101: Pressure switch

If increased faults occur, the water pressure switch (1) must be replaced. The pressure switch is non-adjustable.

- Execution by a service technician.

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

52.6 Pressure switch of compressor

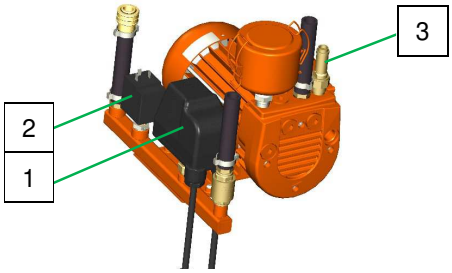


Fig. 102: Pressure switch

Pressure switch-off of compressor (1)	Compressor switches “ON”	Compressor switches “OFF”
Compressor	1.1 bar	1.4 bar
Pressure switch-off of plaster machine (2)	Machine switches “ON”	Machine switches “OFF”
Plaster machine	0.9 bar	1.2 bar

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

52.7 Air compressor slider check / air filter cleaning

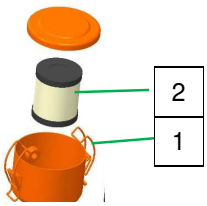
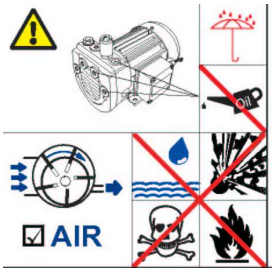


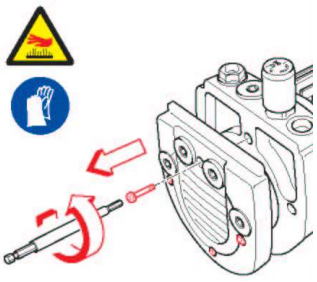
Fig. 103: Air filter

1. Clean the pre-filter weekly.
2. Loosen the tension springs (1) and remove filter insert (2).
3. Blow compressed air through the pre-filter from inside to outside (see figure below).
4. Replace blocked, oily, greasy or damaged filter cartridges immediately.

   Article number for filter cartridge D=50x58: 00087547



5. The compressor works without oil and should not suck oil mist.
6. The surrounding temperature must not exceed 45 °C.
7. Store the compressor in a dry place and avoid condensation due to water vapour.
8. Using the machine in an explosive atmosphere is forbidden.

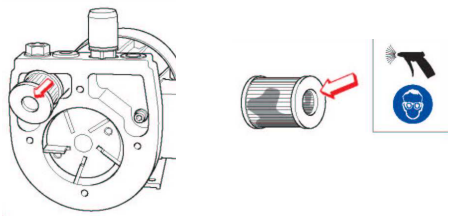


High temperatures are generated on the compressor due to air compression.

- Protect people from touching hot surfaces
- or protect the transport section
- or affix warning signs.

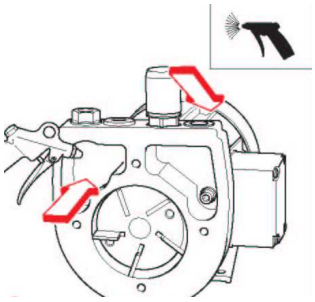
If a pre-filter has not been installed, the filter of the compressor must be cleaned weekly.

1. If a pre-filter has been installed, the filter integrated into the compressor must be cleaned every four weeks. Loosen the screws of the side cover.

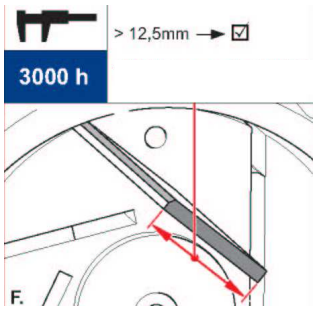


2. Remove the filter and blow compressed air through it from inside to outside (do not rinse).
3. Replace blocked, oily, greasy or damaged filter cartridges immediately.

   Article number for filter cartridge: 00077766



4. Blow compressed air through the air filter housing to remove dirt particles.



5. Due to friction with the housing wall, the slider is subject to wear.
6. Check the slider width after 3000 operating hours or annually. It should be at least 12.5 mm.
7. Blow dry compressed air through the housing during replacement.

52.8 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 tools, materials and other equipment used have been 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.

53 Disassembly

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

53.1 Safety

Personnel

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

Basic information

WARNING!
Risk of injury in case of improper disassembly!
Stored residual energies, sharp components, points or edges at and inside the device or 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 to life from electric current!
There is danger to life if you come in contact with live parts. Activated electrical components can carry out uncontrolled movements and cause serious injuries.
Therefore:

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

53.2 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 of in an environment-friendly way.

54 Disposal

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

- Scrap metals.
- Recycle plastic elements.
- Dispose of 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.

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