

Operating Manual

PFT Conveying Pump ZP 3 XL MIX

Part 2 Overview – Operation - Spare Parts Lists

Knauf PFT GmbH & Co. KG



Article number of Operating Manual: 00 17 51 91

Article number of machine Spare Parts List: 00 14 80 20



Read the Operating Manual before you begin working!

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1 General

1.1 About the Operating Manual

This Operating Manual gives important hints on how to handle the equipment. Precondition for working safely is to comply with all the safety notes and instructions provided.

In addition, the applicable local accident prevention regulations and general safety provisions for the area where the equipment is used must be observed.

Read the Operating Manual thoroughly before you start working! It is constituent part of the product and must always be kept near the equipment so that it is always at the disposal of the personnel.

When handing over the equipment to a third party, also hand over the Operating Manual.

The figures in this Operating manual are not necessarily drawn to scale, for better illustration of the fact of the matter, and can slightly deviate from the actual design of the equipment.

1.2 Subdivision

The Operating Manual consists of 2 books:

- Part 1: BAL-general safety notes on mixing pumps / feed pumps. Article number 00 14 21 56
- Part 2: Overview and Operation - Service and Spare Parts Lists (this book)

For safe operation of the equipment, the two parts must be read and observed; they apply together as one Operating Manual.

General**1.3 Technical Data****1.4 General Information**

Article number PFT ZP 3 XL MIX	00 14 80 20
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Item	Value	Unit
Weight	approx. 380	kg
Overall length	1150	mm
Overall width	1050	mm
Overall height	1500	mm
Tank volume PFT ZP 3 XL	130	Litres
Filling volume of mixing drum	145	Litres

1.5 Power Rating**Electrical**

Item	Value	Unit
Voltage, three-phase current 50	400	V
Current rating, maximum	32	A
Power rating, maximum	9.5	kW
Connection	32	A
Fuse	Min. 3 x 25	A

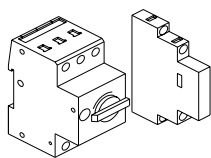
Motor Protection Switch

Fig. 1 Motor protection switch

Item	Power output	Set point value	Designation
Pump motor	7.5kW	15 A	Q2
Compressor	0.9kW	1.8 A	Q4
Vibrator	0.25kW	0.65A	Q3
Mixer	0.5kW	1.3A	

1.6 Operating Conditions

Environment

Item	Value	Unit
Temperature range	2-45	°C
Relative humidity, maximum	80	%

Duration

Item	Value	Unit
Maximum operation period (once)	8	hours

1.7 Power Rating

Pumping capacity 2 L 6

Item	Value	Unit
Pumping capacity*, approx.	30	l/min
Operating pressure, max	20	bar

* Guideline value depending upon pumping height, pump condition and version, mortar quality, composition and consistency

1.8 Sound Power Level

Sound power level LWA	95dB (A)
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1.9 Vibrations

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

1.10 Dimension Sheet

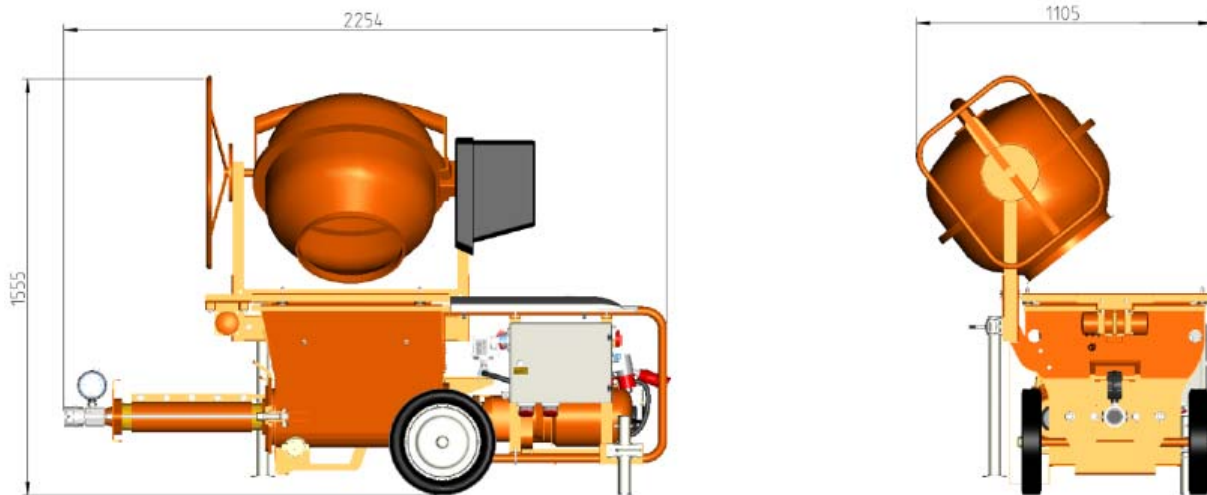


Fig. 2: Dimension Sheet

1.11 Type Plate



Fig. 3: Type plate

The type plate is located on the material container on the motor side and includes the following data:

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

2 Overview



Fig. 4: Overview of the subassemblies

- | | |
|-------------------------|---|
| 1. Hand wheel | 7. Pump stock tank |
| 2. Mixing drum | 8. Cleaning nozzle |
| 3. Motor housing | 9. Telescopic tube support |
| 4. Vibrating sieve | 10. Pump unit 2L6 |
| 5. Switch cabinet | 11. Mortar pressure manometer |
| 6. Wheel with steel rim | 12. Connection for material hose M-part |

Subassembly Description

3 Subassembly Description

3.1 Subassembly Description Switch Cabinet - Article Number: 00098601

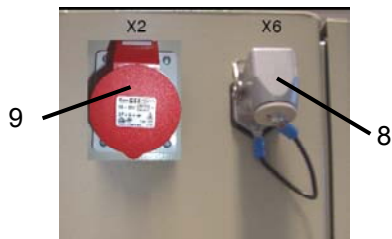


■ Switch cabinet

1. Control voltage ON / OFF
2. Main reversing switch is also Emergency OFF switch
3. Connection for mains power
4. Multiple-contact switch for vibrator, operating modes
5. Indicator light, motor protection switch activated



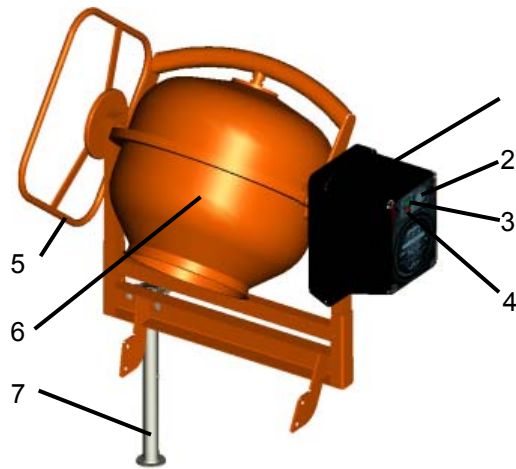
6. Connection for vibrator
7. Connection air compressor



8. Dummy plug (connection for remote control socket)
9. Connection for drum mixer

Fig. 5: Subassembly switch cabinet

3.2 Subassembly Description - Drum Mixer Article Number 00148389



■ Drum mixer

1. Motor housing
2. Socket outlet for power supply from the switch cabinet
3. Mixer switch On
4. Mixer switch Off
5. Hand wheel
6. Mixing drum
7. Telescopic tube support

Fig. 6: Subassembly - drum mixer

3.3 Subassembly Description - Frame and Vibrating Sieve

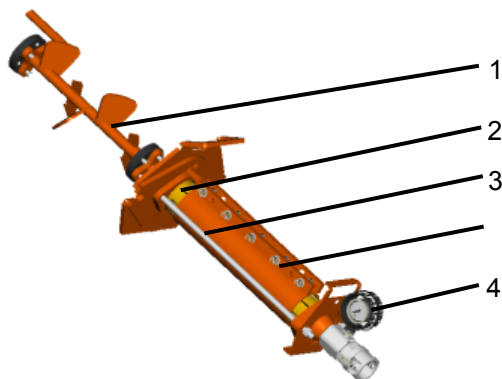


■ Frame and vibrating sieve

1. Covering hood
2. Material container with frame
3. Steel wheel rim
4. Vibrating sieve
5. External vibrator

Fig. 7: Subassembly - drum mixer

3.4 Subassembly Description of Pump Unit 2L6, Article Number 00147840



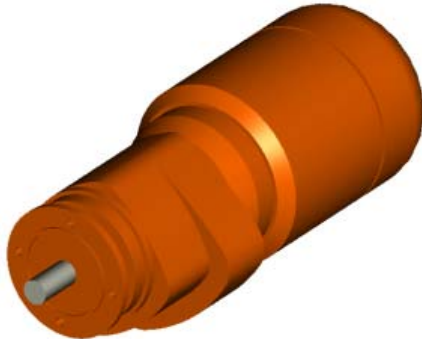
■ Pump unit

1. Pump shaft
2. Stator 2L6
3. Tie bar
4. Clamping clip 2L6
5. Mortar pressure manometer

Fig. 8: Subassembly of pump unit

Subassembly Description

3.5 Subassembly Description 7.5kW 175 (1/min)



- Geared motor 7.5kW 175 (1/min.)
- Article number 20143501

Fig. 9: Subassembly of geared motor

3.6 Subassembly Description of Air Compressor LK 250



- Air compressor with pressure switch off
- Article number 00007915

Fig. 9: Air compressor



- Retrofit set - pressure switch Off
- Article number 20135101

Fig. 9.1: Pressure switch off - air compressor

3.7 Description

The powerful feed pump with an attached drum mixer is used for construction site mixtures in traditional plastering trade.

Whenever individualised site mixtures are needed on site, the **PFT ZP 3 XL MIX** is the right choice.

The intermediate mortar pump conveys the plaster or mortar directly to the place of processing after admixing inside the attached drum mixer. The delivery capacity can be adjusted to the material requirement.

The **PFT ZP 3 XL MIX** can be switched on and off via a remote control unit.

3.8 Advantages at a Glance

- Large delivery capacity and –distance
- Remotely controllable
- Sealing unit between gearbox and tank
- Robust design
- Quickly removable pump
- Suitable for processing loam
- Integrated control unit
- Can be fed from a drum mixer
- Very portable
- Minimum maintenance and cleaning requirement
- Suitable for construction site mixtures

3.9 Operating Modes Multiple Contact Switch



Fig.11: Multiple contact switch "0"

The multiple contact switch for external vibrator can be switched in three different operating modes:

Position "0"

Vibrator is ready for operation, no function.



Fig.12: Multiple contact switch "Hand"

Position "Hand"

In position "Hand" (scanning) the vibrator operates continuously, so long as the switch is activated.



Fig.13: Multiple contact switch "Automatic"

Position "Automatic"

Vibrator runs on automatic pulse / pause.

3.10 Remote Control Operation

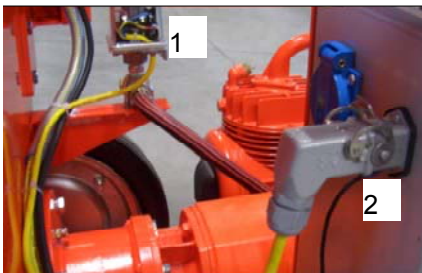


Fig.14: Remote control

Working with Spray Device:

If the control plug from the pressure switch (1) at the switch cabinet (2) is connected, the machine can be switched On or Off on the spray device.

Working with Remote Control Cable:

If the remote control cable is connected to the switch cabinet, the machine can be switched On or Off via the control cable.



Fig.15: Connect the dummy plug

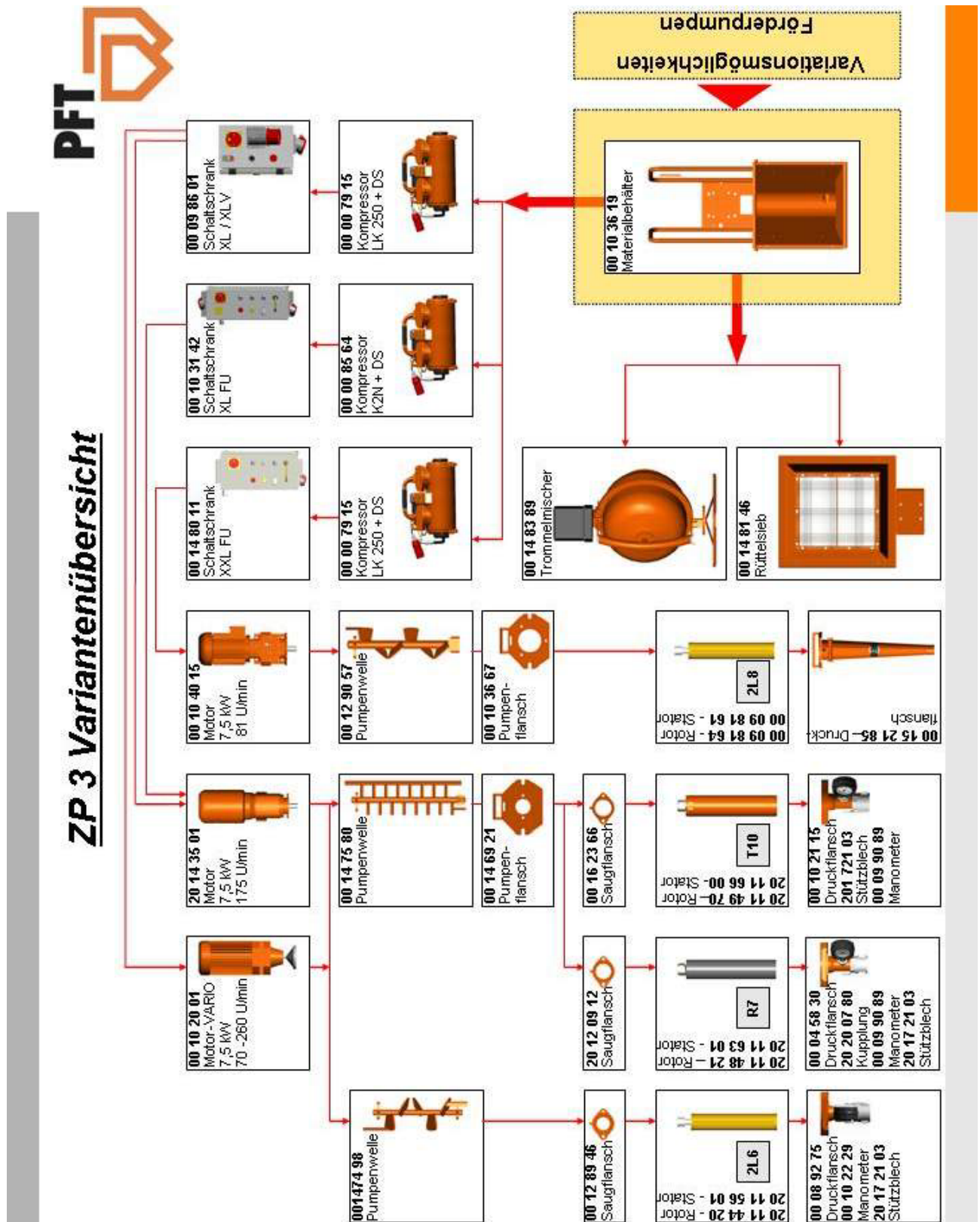
Operation without Remote Control:

Connect the dummy plug.

Machine must be turned On or Off per hand at the switch cabinet.

If the connector is pulled, the control current will be interrupted.

4 ZP 3 Variants Overview



5 Transport, Packaging and Storage

5.1 Safety Hint for Transportation

Improper Transportation



CAUTION!

Damages Through Improper Transportation!

In case of improper transportation considerable property damage can occur.

Therefore:

- When unloading packaged pieces during delivery and inner-factory transportation, proceed carefully and observe symbols and signs on the packaging material.
- Use only the provided hoisting points.
- Remove packaging just shortly prior to assembly.

Floating Loads



WARNING!

Life Hazard Through Floating Loads!

When lifting loads, life hazard may be posed by falling or uncontrolled swinging components.

Therefore:

- Do not tread under floating loads.
- Observe the information about provided hoisting points.
- Do not hoist with protruding machine parts or eyelets on attached components, but pay attention to safe connection of the hoisting means.
- Use only permissible hoisting means and those with sufficient load-bearing capacity.
- Do not use torn or chafed ropes and straps.
- You should neither lay ropes and belts on sharp edges and corners, nor tie knots nor twist them.

5.2 Transportation Inspection

Upon receiving delivery, check it immediately for completeness and transportation damages.

In case of externally visible transportation damages, proceed as follows:

- Do not accept the delivery or accept it only with reservation
- Remark the scope of damage on transportation documents or on the delivery note of the transporting company.
- Initiate complaint.

**HINT!**

Complain about every defect as soon as it is detected. Claims for compensation of damages can be raised only within the period set forth for lodging a complaint.

5.3 Transportation

Hoisting points

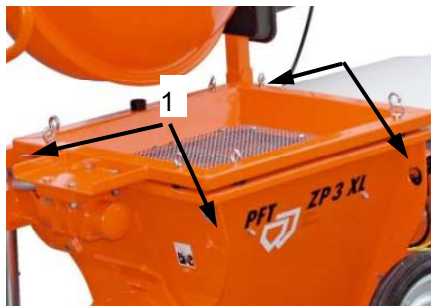


Fig.16: Hoisting points

For transportation by means of a crane, hoist the pump with a rope at the hoisting eyelets (1).

Note the following conditions:

- Crane and hoisting means must be dimensioned for the weight of the packaged pieces.
- The operator must be qualified to operate the crane.

Hoisting:

1. Tie the ropes or belts appropriately.
2. Guarantee that the packaged piece hangs straight, if necessary note the asymmetrical centre of gravity.

Transporting a Machine that is Already in Operation

**DANGER!****Risk of Injury by Discharged Mortar!**

Face and eyes can be injured.

Therefore:

- Prior to opening the couplings, ensure that the hoses are not pressurised (observe the mortar pressure manometer).



Fig.16a: Secure

1. Please observe before transport:
2. Disconnect the cable of the main current
3. Loosen all further cable connections
4. Remove loose parts, such as compressor, before transport
5. During transport on a car trailer or truck please fasten the plastic cover with a tension belt
6. Start transport

5.4 Packaging

About Packaging

Individual pieces are packaged appropriately based on the transportation conditions expected. Exclusively environmentally friendly materials are used for packaging.

The packaging shall protect individual components from transportation damages, corrosion, and other damages up to their assembly. Therefore, you should not destroy the packaging but remove it shortly prior to assembly.

Handling Packaging Materials

If no return agreement has been made for the packaging material, sort the materials based on type and size and deliver them for further utilization or recycling.



CAUTION!

Environmental Damages due to Incorrect Waste Disposal!

Packaging materials are valuable raw materials and can be used further in many cases, or they can be processed reasonably for further use.

Therefore:

- Dispose of the packaging materials in an environmentally compatible manner.
- Comply with locally valid waste disposal regulations. If necessary, entrust a professional firm with the task of waste disposal.

6 Safety

6.1 Safety Fundamentals

Personal Protective Equipment

Wear the following protective gear when performing any operation work:

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



HINT!

In the warning notes in this chapter, attention will be drawn separately to further protective gear to be worn when performing certain kinds of work.

Fundamentals



WARNING!

Risk of Injury due to Improper Operation!

Improper operation can lead to serious personal injury or property damages.

Therefore:

- Do all operational steps in accordance with the information in this Operating Manual.
- Prior to beginning work, ensure that all guards and protective equipment are installed and functioning properly.
- Never deactivate protective equipment during the operation.
- Pay attention to order and cleanliness in the working area! Loose piled or scattered components and tools are accident sources.
- Increased sound level can cause permanent ear damages. Depending on the operation, 95 dB (A) can be exceeded at close proximity of the machine. A distance under 5 meters from the machine is considered close proximity.

Preparation

7 Preparation

7.1 Erecting the Machine

Prior to machine operation, carry out the following preparatory steps of work:



Fig. 17: Injury danger



Danger!

Rotating Pump Shaft!

You risk injuring yourself if you touch inside the material container.

Therefore:

- During machine preparation and operation, the cover grating may not be removed
- Never touch inside the running machine



Fig. 18: Erecting

Set up machine by means of the telescopic tube support to stand in a stable manner on a level surface and secure it against unintentional movement:

If necessary, use pads when the support foot (1) is used so that the machine does not sink during operation.

- Set up the machine so that it cannot be hit by any falling object.
- Operating elements must be accessible freely

7.2 Switch Cabinet Preparation

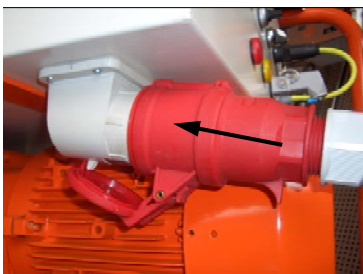
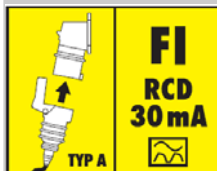


Fig. 19: Power connection



DANGER!

Life Hazard by Electric Current!

The connected power must be protected properly:

Only connect the machine to a power source with a permissible FI protection switch (30 mA) RCD (Residual Current Operated Device) type A.



Fig. 20: Connect vibrator and air compressor together

When working with lime- or clay plaster:

- Check whether the vibrator is connected

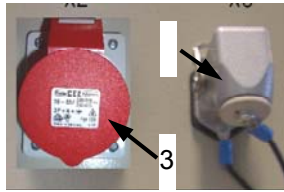


Fig. 21: Connecting the drum mixer

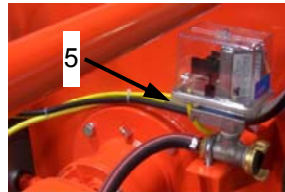


Fig. 22: Connecting the remote control

Connect the extension cable 5x16A (1.5 meters long) from the drum mixer to the attached socket outlet (1).

Pull off the dummy plug (2) and stick it into the control plug from the pressure switch (3).

7.3 Connecting the Drum Mixer



Fig. 22: Connecting the drum mixer

Connect the extension cable 5x16A (1.5 meters long) from the switch cabinet to the drum mixer (1).

7.4 Mortar Pressure Manometer



Fig. 23: Mortar pressure manometer



DANGER!

Operation Pressure too High!

Machine parts can burst open uncontrollably and hurt the operator.

Therefore:

- Do not operate the machine without a mortar pressure manometer
- Only use pump hoses with a permissible operating pressure of min. 40 bar
- The bursting pressure of the mortar hose must be at least 2.5-times the value of the operating pressure

Putting the Drum Mixer into Operation

7.5 Material Hose Connection

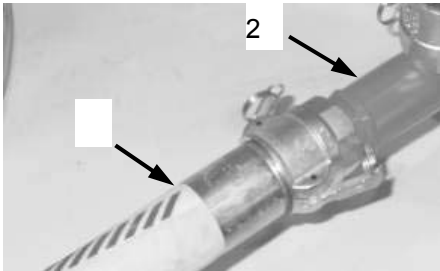


Fig. 24: Material hose connection

Pour approx. two litres of lime slurry into the first material tube (1). Connect all required material hoses together and moisten them internally with the lime slurry.

Connect the material hose (1) to the pressure flange/mortar pressure manometer (2).



HINT!

Pay attention to clean and correct connection of the couplings!

Carefully fasten the riser pipes so that they do not rupture under their own weight!



DANGER!

Ruptured hoses can strike around and injure the bystanders!



Fig. 25: Ready for operation

Turn the main reversing switch on "I".

Machine is operative.

8 Putting the Drum Mixer into Operation

8.1 Mixing Position for Drum Mixer



Fig. 26: Locking disk

To mix mortar, the drum mixer must be in a certain mixing position (inclination). The drum mixer is equipped with a locking disk with slits. In the required mixing position, both noses must engage with corresponding slits in the hand-wheel spokes (Fig. 26). The noses are unlocked out of the slits and/or locked again into the slits, which is done by tilting the hand wheel around its swivel axis.



HINT!

Do not place the drum mixer more steeply than prescribed.

Only a correctly set up mixer and the correct mixing positions ensure the best mixing results and guarantee undisturbed workflow.

Filling and emptying may be undertaken only in a running drum mixer.

**ATTENTION!**

Never touch inside the running machine.

Keep the supply and exhaust air openings of the motor housing free during operation!

Remove deposits and never cover openings in any case.

Danger of the motor overheating!

8.2 Hints for Mortar Mixing

**HINT!**

With the drum mixer, one can produce wall mortar, cement plaster, loam plaster, lime plaster and much more.

To manufacture the plaster, seek specialist expertise due to the variety of the bonding agents and locally differing extra additive materials (sand types).

The following short information about mortar mixing can only be non-binding.

8.3 Necessary Information about Mortar Mixing

- Mortar consists of bonding agents (e.g. lime, cement, anhydrite), water and extra charge materials (sand types).
- Always use only the best additive materials, for example washed sand. Consult with a specialist on this.
- Additives may not contain earthly decaying components.
- Use clean water. Do not add any slurry water nor factory waste water
- Store the bonding material in dry place. In every case, observe the specifications by the manufacturer.
- Bonding agents, water and additive materials must be metered as accurately as possible. Already one to two litres of water too much or too little change the consistence and thus the pumping capability. This applies correspondingly to bonding agents also and additive materials.
- The water content of the additives can change due to weather or also from one delivery to the other.
- Fill and empty only whilst the drum mixer is running.
- Based on the mixture ratio, first pour water and some shovels of additive materials, then add bonding agents and the remaining additive materials.

Putting the Drum Mixer into Operation

- After the last shovel mix, let at least 30 seconds to pass until the filling is uniformly mixed through.
- Pay attention to correct mortar consistency. Consult with a specialist on this.
- Clean the interior and exterior of the drum mixer thoroughly before every long work recess.

Wall- and plaster mortar usually consist of one part lime and/or cement and three to four parts sand. The water addition should occur based on the required consistency. Consult with a specialist on this.

8.4 Turning on the Drum mixer

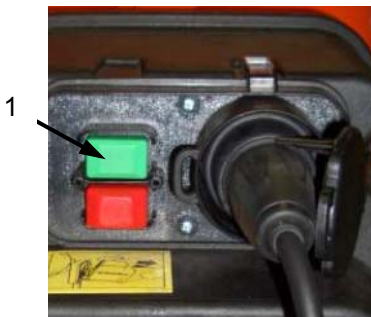


Fig. 27: Turning on the drum mixer

Switch On the mixer.

As for the mixer with a three-phase current motor, the rotating direction of a drum mixer must be checked after turning On. It must rotate in anticlockwise direction, viewed towards the opening (to the left). If this is not the case, the phases of the supply line must be reversed.



CAUTION!

The reversal of the terminal phases may be carried only by an electrical specialist.



HINT!

If the drum mixer is blocked longer than a minute, the thermal protection of the motor responds and interrupts the circuit.

To put the mixer again into operation, deactivate the mixer, let it cool down and turn it on again.

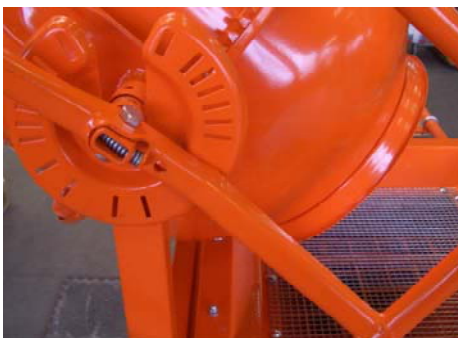


Fig. 28: Emptying the drum-type mixer

To empty the mixer, tilt the running drum downwards and lock it in the respective emptying position.

We recommend that you empty the drum mixer slowly.

After emptying, swing the drum mixer again towards the top.



Fig. 29: Turning on the vibrator

In the first mixing process, turn the multiple-contact switch in position "Hand" and hold the switch for so long until the material falls on the vibrator sieve.

Subsequently turn the multiple-contact switch for vibrator (vibrator sieve) on position "Automatic".

9 Putting the Pump into Operation

9.1 Turning on ZP 3 XL

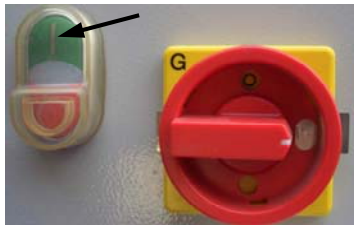


Fig. 30: Turning On ZP 3 XL

After Emptying the Drum Mixer:

Turn on the control voltage of ZP 3 XL MIX via the green press button and let it run for so long until mortar is discharged at the mortar hose end.



HINT!

Never let the pump run dry, since the service life of the pump will be shortened.

9.2 Connecting the Spray Device

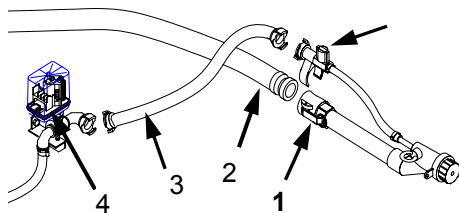


Fig. 33: Connect the spray device and air hose

1. Turn off the control voltage via the red pressure sensor.
2. Connect the spray device (1) to the mortar hose (2).
3. Connect the air hose (3) to the spray device (1) and to the pressure switch (4). Guarantee that the air cock (5) is closed at the spray device (1).
4. Turn on the control voltage on the green press button.



DANGER!

Never loosen the hose couplings as long as the material hoses are not pressure-less (check the mortar pressure manometer)! Mix material could escape under pressure and lead to serious injury, especially to the eyes.



Fig. 34 Open the spray device air cock

5. Turn on the control voltage via the green press button.

Putting the Pump into Operation

9.3 Spattering the Material



DANGER! **Risk of Injury by Exiting Mortar!**

Exiting mortar can lead to injuries to the eyes and face.

Therefore:

- Never look into the spraying device
- Always wear protective goggles
- Always position the machine such that one cannot be hit by exiting mortar



HINT!

Possible pumping distance decisively depends on the flowing capability of the mortar. Heavy, sharp edged mortar has poor pumping properties. Watery materials have good pumping properties.

When 30 bar operating pressure are exceeded, thicker mortar hoses must be used.

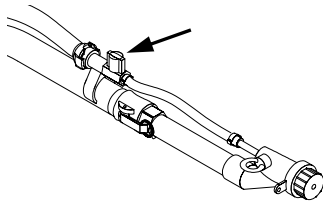


Fig. 33: Open the air cock

9.4 Switching Off

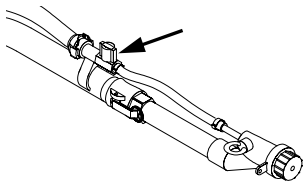


Fig. 34: Close the air cock

6. Hold the spray device towards the wall to be plastered.
7. Guarantee that no persons are in the exit area of mortar.
8. Open air cock (1) on the spray device. The machine starts automatically and the mortar exits.
9. Close the air cock (5) for brief interruption of work.

10. Pump out the remaining material
11. Close the air cock (5) on the spray device
12. Turn Off the compressor
13. Turn off the control voltage via the red press button.

9.5 Mortar Consistency

The correct mortar consistency is attained if the material mingles on the area to be sprayed (we recommend to apply the spray from the top to the bottom wall surface). If the material is too dry, uniform pumping is no longer guaranteed; clogging can occur in the hose and much wear on pump parts.

**HINT!****Tunnel formation:**

Owing to the physical property of the material, it tends to stick partly on the sidewall of the container, which can lead to tunnel formation. The mortar level in the material container should not be higher than is reasonably required.

9.6 Spray Devices and Nozzles

Spray Devices and Nozzles

Larger nozzles yield slighter throw velocity and hence less rebound. Smaller nozzles yield better atomisation. It is important that the distance between air-nozzle pipe and nozzle opening corresponds to the diameter of the nozzle.

9.7 Applying the Wall Mortar

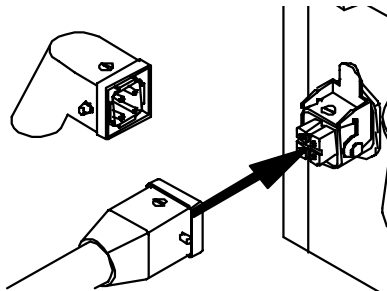


Fig.: 35 Remote control

**HINT!**

When working without air (e.g. when pumping wall mortar) then the machine is turned On and Off over a 42V-remote controlled clutch. To do this, the dummy plug of the attachment coupling must be removed and the control connector of the remote control connected.

9.8 Interruption or End of Work

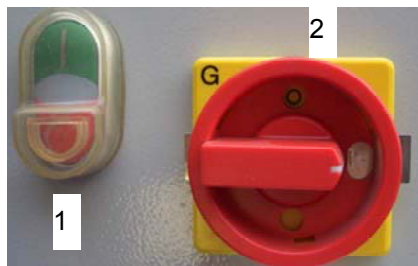


Fig. 36: Switching off

The machine can be turned off via the air cock on the spray device, via the press button (1) or via the main switch (2).

**HINT!**

As regards the pauses, the guidelines specified by the material manufacturer must be observed.

Prior to longer period of interruption, it is appropriate to clean the pump.

See "Measures at the end of work and cleaning."

9.9 Decommissioning in Emergency

In dangerous situations, machine motions must be stopped very quickly and the power supply cut out.

Decommissioning in Emergency

In dangerous cases, proceed as follows:

1. Turn Off the main switch immediately
2. Secure the main switch with lock against reactivation
3. Inform the person responsible at the operation site.
4. If necessary, alarm a medical practitioner and firemen.
5. Rescue persons from the danger zone, initiate first aid measures.
6. Keep access roads free for rescue vehicles

After the Rescue Measures

7. If the severity of the emergency so-requires, inform the responsible authorities.
8. Commission professional personnel with the elimination of the fault



WARNING!

Danger Through Premature Reactivation!

Reactivation poses life hazard for all persons within the danger zone

Therefore:

- Prior to reactivation, ensure that no more persons are within the danger zone.

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

10 Troubleshooting Tasks

10.1 Procedure in case of Trouble



Procedure in case of trouble

It applies basically that:

1. In the case of faults that pose direct danger for persons or property, perform the emergency-stop function immediately.
2. Establish the cause of fault.
3. In case the elimination of fault requires work in the danger zone, switch off the system and secure it against reactivation.
4. Immediately inform the person responsible at the operation site about the fault.
5. Depending upon the kind of fault, let it to be eliminated by authorised professional personnel or eliminate it yourself.



HINT!

The following troubleshooting table gives information about who is entitled to eliminate a fault.

10.2 Trouble Indications

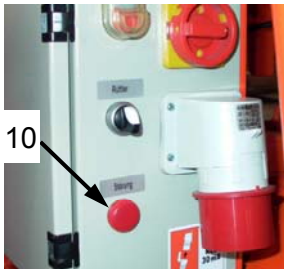


Fig. 37: Fault indications

The following device indicates fault:

Pos.	Lamp signal	Description
1	Control lamp red	Motor protection switch illuminates in case of fault. Check the motor protection switches Q2 - Q4

10.3 Faults

In the following chapter, possible causes of faults and the tasks of eliminating them are described.

Due to increasingly occurring faults, shorten the maintenance intervals according to the actual load.

Due to the faults that may not be eliminated by the following hints, contact the dealer.

Troubleshooting Tasks

Knauf PFT GmbH & Co. KG



10.4 Safety

Personnel

- The work described here for eliminating a fault can be done by the operator provided it is not indicated otherwise.
- Several tasks may be executed only by specially trained professional personnel or exclusively by the manufacturer; this is separately indicated in the description of the individual faults.
- Work on the electrical system may only be carried out by electricians.

Personal Protective Equipment

Wear the following protective gear when doing all kinds of maintenance work:

- Safety clothing
- Protective goggles, safety gloves, safety shoes, hearing protection.

10.5 Troubleshooting Table

Fault	Possible cause	Fault elimination	Elimination by
Machine does not start: Power	Main switch not activated	Activate the main switch	Operator
	Power line not in order	Repair the power line	Service fitter
	Protection switch was released	Reset the FI-safety switch	Service fitter
	Motor protection switches released	In the switch cabinet, turn the motor protection switch to Position 1	Service fitter
	"Operation button On" not pressed	Press "Operation button On"	Operator
	Protection defective	Change protection	Service fitter
	Control connector is missing	Plug in the control connector	Operator
	Safety fuse is defective	Replace the safety fuse	Service fitter
Machine does not start: Material	Too much solidified material in the container. Possible tunnel formation	Attention: Main switch OFF - pull off the main power cable. Empty the material container to half level. Start the machine anew.	Operator
	Hardened material blocks, the pump unit (rotor/stator)	Attention: Main switch OFF - pull off the main power cable. Dismount the pump, clean it and mount it back.	Operator
	Too dry material in the pump	Attention: Main switch OFF - pull off the main power cable. Clean the material container	Operator
Machine does, not start:	Fine fuse on the transformer defective	Replace the fine fuse	Service fitter
pump does not start	Pump motor defective	Replace the pump motor	Service fitter
	Connection cable defective	Replace the connection cable	Service fitter

Fault	Possible cause	Fault elimination	Elimination by
	Rotor worn out or defective	Replace the rotor	Service fitter
	Stator worn out or tensioning clip too loose	Replace the stator or tighten the tensioning clip	Service fitter
	Non-original PFT spare parts	Use original PFT- spare parts	Service fitter
Drum mixer does not start	Main reversal switch not turned on	Activate the main switch	Operator
	Drum mixer not turned on	Turning on the drum mixer	Operator
	Extension cable between switch cabinet and mixer is missing	Attach the extension cable	Operator
	Mixer motor defective	Replace mixer motor	Service fitter
	Foreign object between gear rim and drive pinion	Remove foreign object	Operator
Indicator light is red, fault is lighted	Overload due to blocked pump with dried material	Let the machine run backwards, remove and clean pump	Operator

10.6 Signs for Hose Blockage:

- Task done by operator:
- Blockage can occur inside the pressure flange or inside material hoses
- Signs for this are:
- Rapidly increasing pump pressure
- Blocking of pump,
- Heavy or blocked pump motor
- Expansion and rotation of material hose
- No material exit at hose end

10.7 Possible Causes:

- Severely worn out material hoses
- Poorly lubricated material hoses
- Rest water in the material hose,
- Clogging of the pressure flange,
- Strong narrowing of the coupling,
- Kink in material hose,
- Leakage on the couplings,
- Poorly pumping capable and segregated materials

10.8 Turning Off

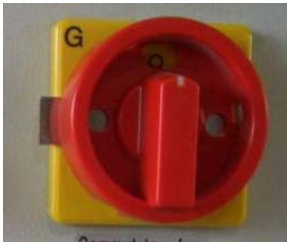


Fig. 38: Turning Off



DANGER!

Danger due to Exiting Material!

According to accident prevention regulation of the employer's insurance association, persons allocated the task of eliminating blockage must wear personal protective gear (protective goggles, safety gloves) for safety reasons and must position themselves such that they cannot be hit by exiting material. Other persons may not linger around.

Turn the main reversal switch to position "0".

10.9 Changing the Rotation Direction of Pump Motor

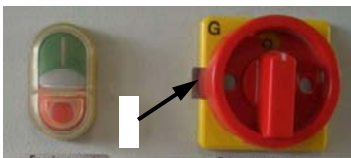


Fig. 39: Changing the rotation direction

The main reversal switch is locked in position "0" by pushing the selection slide (1) to the left as preset and thus the rotation direction is preselected.

If the switch is on the left, the switch can be turned back to zero, but it is blocked in the right position.

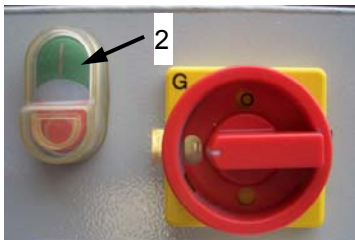


Fig. 40: Turning Off

Switch on the press button - operation ON / OFF (2).

Let the pump motor shortly run backwards until the pressure on the mortar pressure manometer drops to 0 bar.

Switch off the main reversal switch.

Push the selector slide to the right.

10.10 Loosening the Coupling Connections



Fig. 41: Hose blockage

Cover the coupling connections with a strong plastic film.

Release the cam lever and hose connections.



HINT!

The mortar hose must be cleaned immediately.

Release the clogged material by knocking or shaking.

In case of emergency, rinse the material hoses with a rinsing hose and finally apply slurry anew.

Then connect the hoses with one another again.

10.11 Earlier Damage to Material Hose



HINT!

Should the pressure in the material hose exceed 60 bar briefly, exchanging the mortar hose is recommended because externally invisible initial damage could occur to the tube.

10.12 Pauses



Fig. 42: Turning Off



HINT!

Generally observe the curing time of the material to be processed.

Working pauses under 10 minutes:

Switch off the equipment via the press button - operation ON/OFF.

Longer pauses:

Switch off the system using the main switch.

Clean the system and material hoses depending on the curing time of material.

While doing so, observe the ambient temperature.

11 Cleaning

11.1 Cleaning the Drum Mixer and ZP 3 XL



Fig.43: Clean ZP 3 XL MIX

Cleaning:

Prior to every lengthy working pause and at the end of daily work, the feed pump ZP 3 XL must be cleaned thoroughly.



DANGER!

Excess Pressure on the Machine!

Before cleaning work, switch off the mixer by doing the following (with brush, rag, scraper, etc.) manually.

Do not touch inside the drum by hand.

While doing cleaning work, do not put ZP 3 XL MIX into operation.

When protective covers are removed for cleaning, they must be reinstalled properly at the end of work.

During indirect cleaning, do not direct the water jet on the motor.

Cleaning



HINT!

Clean the mixer externally with water and brush. Scrape solidified mortar crusts.

Mortar crusts should not form in the drum's interior and on the drive gear teeth.

The drum's interior can be cleaned in a better way if some shovels gravel with water are let rotate inside the drum prior to a longer work recess and/or after terminating work. This prevents residue mortar inside the drum and on mixer combs from solidifying. Do **not** empty rest material with gravel into the vibrator sieve!

Do not knock the drum mixer with hard objects such as hammer, shovel etc.

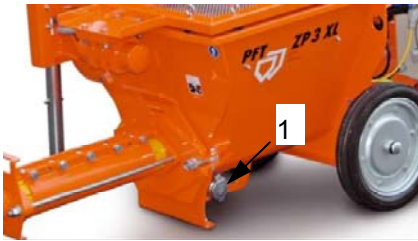


Fig. 44: Opening the cleaning cover

At the end of work, empty ZP 3 XL.

Clean the protective grating and material container from rest material, with water jet and pump away.

Fill the material container half-full with water and switch on the machine so that the pump is rinsed with water.

Remove the cleaning cover (1) and drain the water.

11.2 Decoupling Material Hoses



Fig. 45: Mortar pressure on "0"

Check on the mortar pressure manometer (1), whether the mortar pressure has dropped to "0".



DANGER!

Excess Pressure on the Machine!

When machine parts are open, this can burst open uncontrollably fast and injure the operator.

Therefore:

- Wear protective clothing and goggles
- Only open the mortar hoses when the pressure has dropped down to "0".



Fig. 46: Loosening the connection

Release the cam lever and detach material hoses.

11.3 Cleaning Material Hose

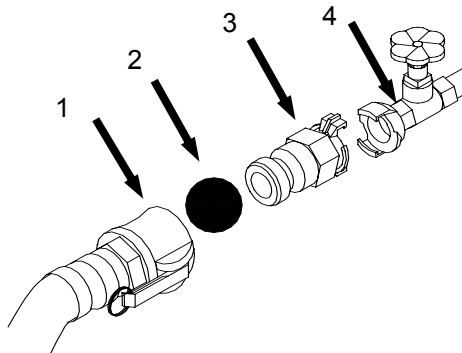


Fig. 47: Cleaning material hoses

The mortar hose must be cleaned immediately.

Connect the hoses to the external water pump or tap.

To do this, press the sponge ball (2) into the mortar hose (1).

First connect the cleaning piece (3) to the mortar hose (1) and then to the water cock (4).

Open the water cock until the sponge ball exits at the hose end. Repeat this process at least twice.

Hint:

For different hose diameters, the corresponding sponge balls should be used.

Sponge ball for Ø 35 hoses - Article Number 20210600

Sponge ball for Ø 35 hoses - Article Number 20210700

12 Measures Taken if Power Fails



Fig. 48: ON/OFF button



HINT!

The ZP 3 XL MIX is equipped with anti restart lock. In the event of power failure, the equipment must be restarted by pressing the press button ON/OFF again.



HINT!

For lengthy power failure, the material hoses must be cleaned immediately (Fig. 49).

Prior to opening the couplings, ensure that the hoses are pressure-less (observe the mortar pressure manometer)!

13 Maintenance

13.1 Maintenance ZP 3 XL and Drum Mixer

Fundamental



WARNING!

Injury Hazard by Improper Maintenance!

Improper operation can lead to serious personal injury or property damages.

Therefore:

- Prior to starting work, cater for sufficient assembly freedom.
- Pay attention to orderliness and cleanliness at the assembly place! Loose, piled or scattered components and tools are accident sources.
- When components were removed, pay attention to correct assembly, reinstall fastening elements.

Electrical System

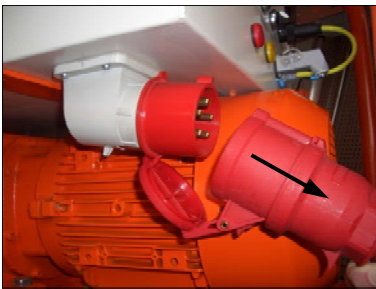


Fig. 49: Remove connection cable



DANGER!

Life Hazard by Electric Current!

Contact with components under voltage poses life hazard. Activated electrical components can execute uncontrolled motions and lead to severe injuries.

Therefore:

- Prior to starting work, switch off electrical supply and secure it from reactivation.
- Power supply is interrupted by removing the connection cable.

Securing against Reactivation



DANGER!

Danger by Premature Reactivation!

For work to eliminate interference, danger exists that the energy supply system may be turned on inadvertently. Through this, there is danger to persons within the danger area.

Therefore:

- Prior to starting work, switch off all power supplies, and secure them from premature reactivation.



HINT!

The maintenance of ZP 3 XL MIX is restricted to few inspections. The most important maintenance is thorough cleaning after the use.

13.2 Changing the Suction Filter Upstream of Air-compressor



Fig. 50: Changing filter insert

In order to avoid damages or the pasting of the valves with dirt, the filter inserts must be changed on time whilst the machine is turned Off.

Remove screws and the silencer. Pull filter insert out of the housing and use a new filter. Screw the silencers on.

The porous side of the filter insert must point outwards.

Filter insert D=100 Article Number: 20 13 40 00

13.3 Lubricating the Sealing Unit

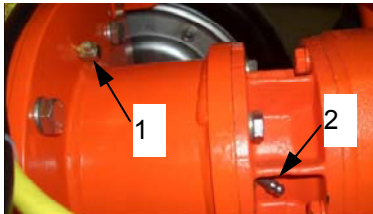


Fig. 51: Lubricating

Weekly grease (1) the seal for material container.

Monthly grease (2) the transmission seal.

13.4 Lubricating the Swivel Bearing and Gear Rim

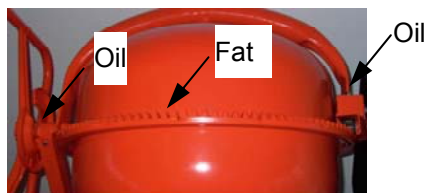


Fig. 52: Greasing the swivel bearing

Drum mixer and drive shaft of the mixer have ball bearings with permanent lubrication and are thus maintenance-free.

We recommend, nevertheless, lubricating the gear rim with thick fat, from time to time.

13.5 Environmental Protection

Observe the following hints on environmental protection during maintenance work:

- On all points of lubrication lubricated by hand, remove any leaking, or used, or excess grease and dispose of them according to valid local provisions.
- Lubricants may not be mixed. This applies especially to mineral and synthetic lubricants. When using synthetic lubricant, pay attention to compatibility with the seal ring materials. Overfilled spur gear system can lead to impermissible rise in temperature.

13.6 Retighten the Pump Unit

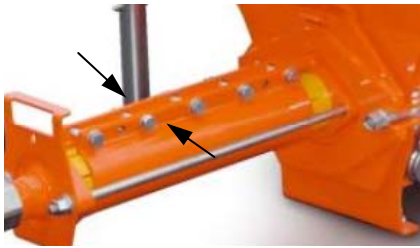


Fig. 53: Retention for the pump

The ZP 3 XL MIX is equipped with a stator that can be retightened. With diminishing feed pressure, the stator can be tightened.

Tighten all screws of the tightening clamp uniformly.

**HINT!**

Do not tighten pump during the operation.

13.7 Detaching the Pump

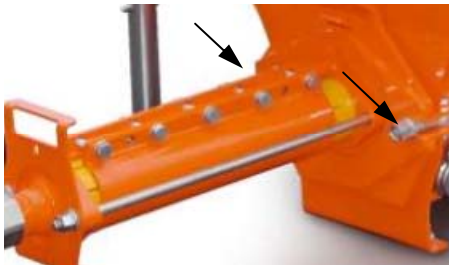


Fig. 54: Loosen collar nuts

Loosen the nuts on both sides of the pump flange.

**DANGER!****Excess Pressure on the Machine!**

When machine parts are open, this can burst open uncontrollably fast and injure the operator.

Therefore:

- Only open the mortar hoses when the pressure has dropped down to "0".
- Interrupt energy supply
- Wear protective clothing and goggles

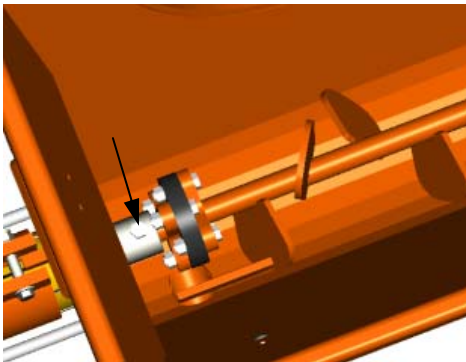


Fig. 55: Detaching the Pump

Loosening the screw on the driving dog.

**HINT!**

When removing the pump unit, note the weight of the pump.

13.8 Measures Taken after Maintenance

After ending the maintenance work and before switching on the machine for the first time, perform the following steps:

1. Check all initially unscrewed fasteners for tight seat.
2. Check whether all initially removed protective devices and guards are installed again properly.
3. Ensure that all utilised tools, materials and other equipment are removed from the work area.
4. Clean the work area and remove possibly leaked materials, e.g. liquids, processing material, etc.
5. Ascertain that all safety devices of the equipment are functioning flawlessly.

13.9 Decommissioning in Emergency

In danger situations, machine motions must be stopped very quickly and power supply cut out.

Decommissioning in Emergency



After the Rescue Measures

In danger cases, proceed as follows:

1. Turn off the main switch immediately.
2. Secure the main switch with a lock against reactivation.
3. Inform the person responsible at the operation site.
4. Alarm a medical practitioner and fire fighters.
5. Rescue persons from the danger zone, initiate first aid measures.
6. Keep access roads free for rescue vehicles
7. If the severity of the emergency so-requires, inform the responsible authorities.
8. Commission professionals with the task of eliminating the fault.



WARNING!

Danger Through Premature Reactivation!

Reactivation poses life hazard for all persons within the danger zone.

Therefore:

- Prior to reactivation, ensure that no more persons are within the danger zone.

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

14 Dismounting

At the end of service life, the equipment must be dismantled and disposed of in an environmentally compatible manner.

14.1 Safety

Personnel

- Only specially trained professional personnel may dismantle the equipment.
- Work on the electrical system may only be carried out by electricians.

Fundamental

**WARNING!****Risk of Injury due to Improper Dismounting!**

Stored rest energy, sharp components, sharp points and corners on and inside the equipment or on the required tools can cause injuries.

Therefore:

- Prior to starting work, cater for sufficient space.
- Handle open sharp-edged components cautiously.
- Pay attention to orderliness and cleanliness at the workplace! Loose, piled, or scattered components and tools are accident sources.
- Correctly dismantle components. Partially note the net weight of the component. If required use hoisting means.
- Secure components so that they do not drop down or topple over.
- In case of doubt, consult the dealer.

Electrical System

**DANGER!****Life Hazard by Electric Current!**

Contact with components under voltage poses life hazard. Activated electrical components can execute uncontrolled motions and lead to severe injuries.

Therefore:

- Prior to beginning the dismantling task, switch off the electric supply and detach the system completely.

14.2 Dismounting

For elimination purposes, clean the equipment and dismantle it in compliance with applicable occupational safety and environmental protection regulations.

Prior to beginning the dismounting task:

- Deactivate the equipment and secure it against reactivation.
- Physically detach the entire power supply from the equipment, discharge stored rest energy.
- Remove operational and auxiliary materials as well as the rest processing materials and dispose of them in an environmentally compatible manner.

14.3 Waste Disposal

Provided no return nor disposal agreement has been made, deliver dismantled components to the recycling process:

- Scrap metals
- Handover plastic elements to the recycling process
- Dispose of the rest components, sorted according to material finish



CAUTION!

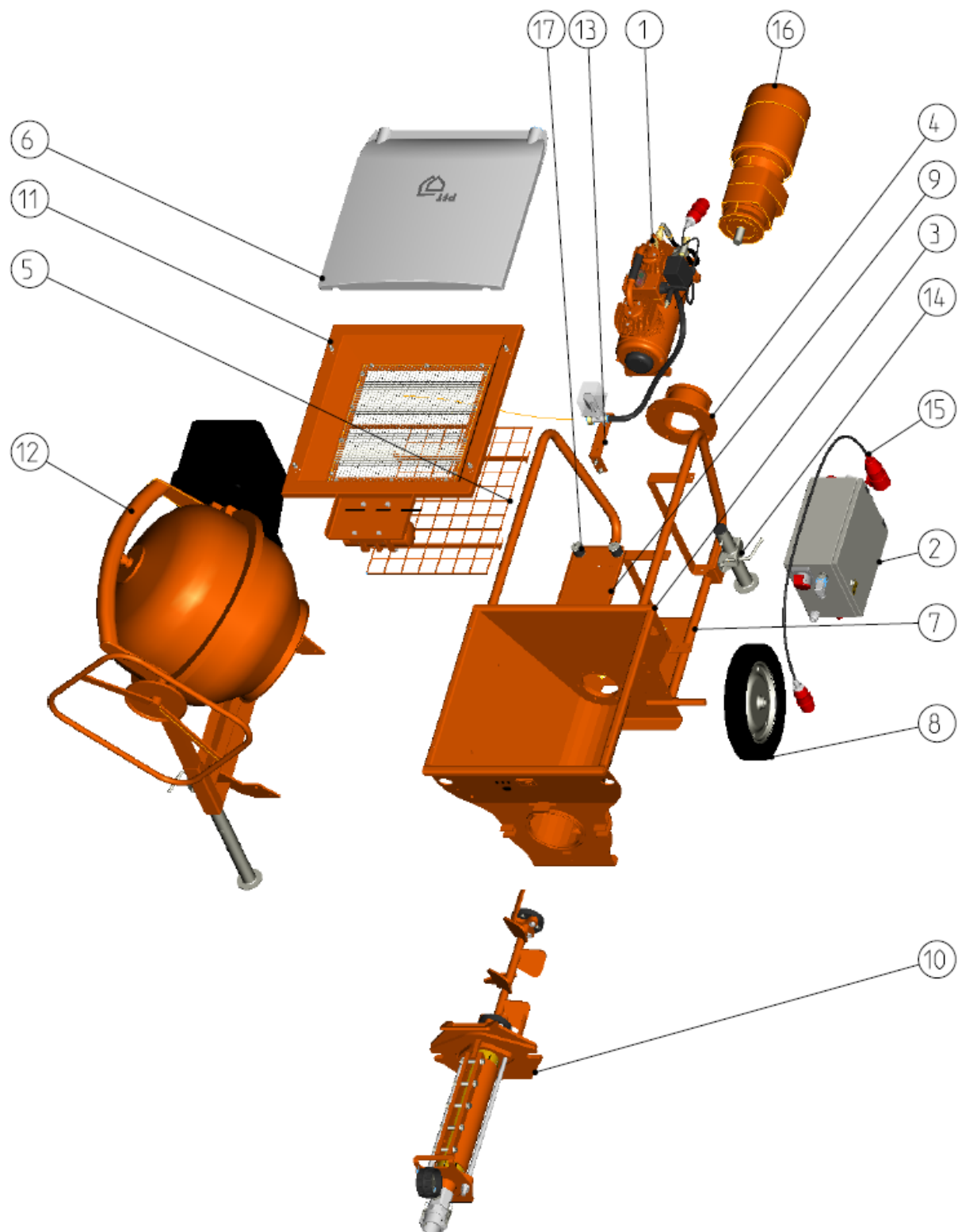
Damage to the Environment due to Wrong Waste Disposal!

Electrical scrap, electronic components, lubricants and other auxiliary substances are subject to special waste treatment and may only be disposed of by approved professional firms!

The local communal authorities or special waste disposal professional firms will provide information about environmentally compatible waste disposal.

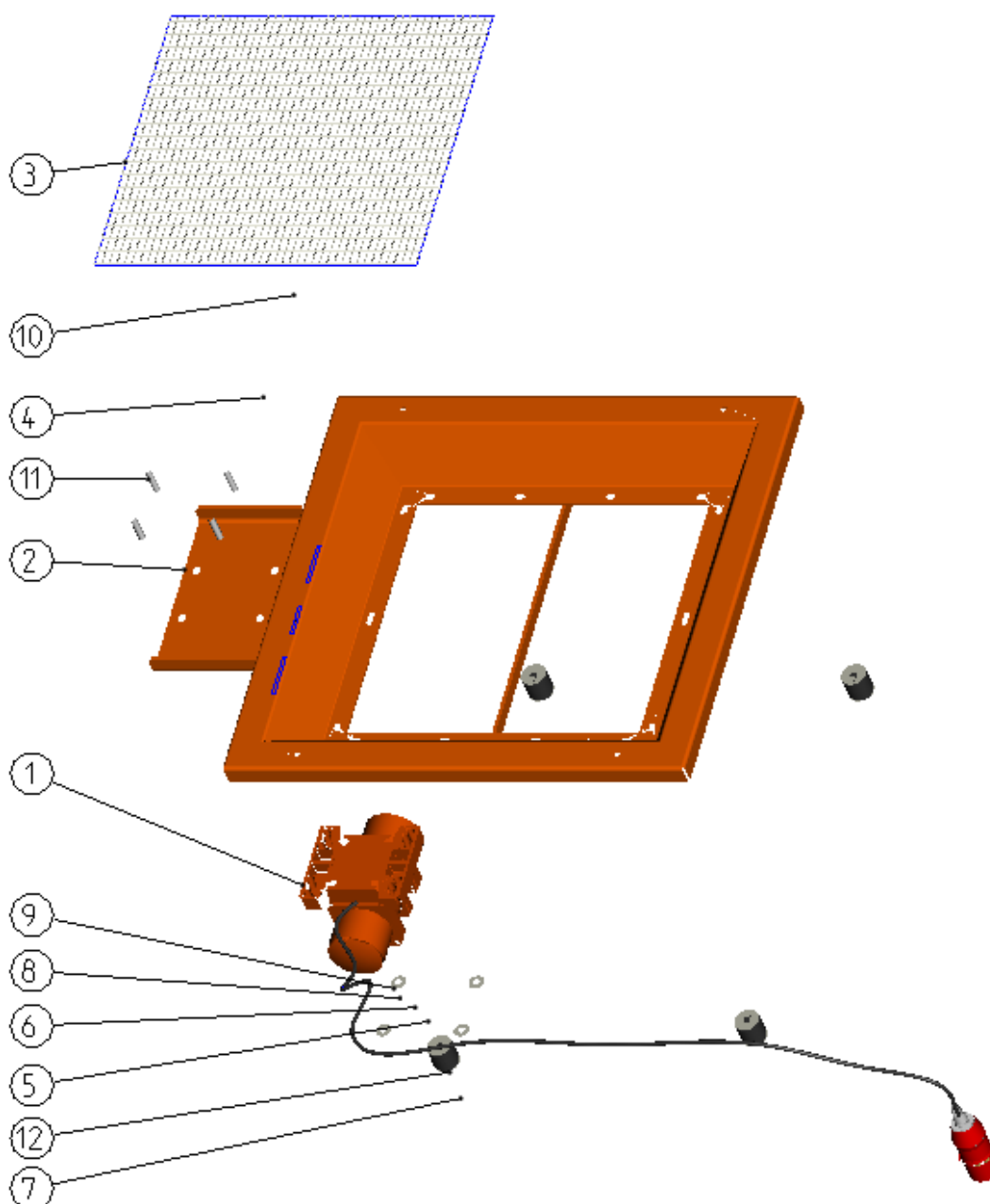
15 Spare Parts Drawing, Spare Parts List

15.1 Overview of Subassemblies



POS	Pcs.	Article No.	Article Designation
1	1	00 00 79 15	Compressor
2	1	00 09 86 01	Switch cabinet
3	2	00 10 18 53	Fixture for switch cabinet
4	1	00 10 19 98	Housing motor seal
5	1	00 10 21 27	Protective grating
6	1	00 10 24 92	Plastic hood
7	1	00 10 36 19	Material container with frame
8	2	00 14 66 94	Wheel
9	1	00 14 70 77	Fixture compressor
10	1	00 14 78 40	Pump unit with shaft
11	1	00 14 81 46	Vibrator sieve, complete
12	1	00 14 83 89	Drum mixer
13	1	00 14 85 11	Pressure control
14	1	00 15 06 70	Telescopic tube support, complete
15	1	00 15 36 13	Extension cable
16	1	20 14 35 01	Geared motor 7.5kW 175 (1/min.)
17	4	20 44 48 00	Rubber metal buffer

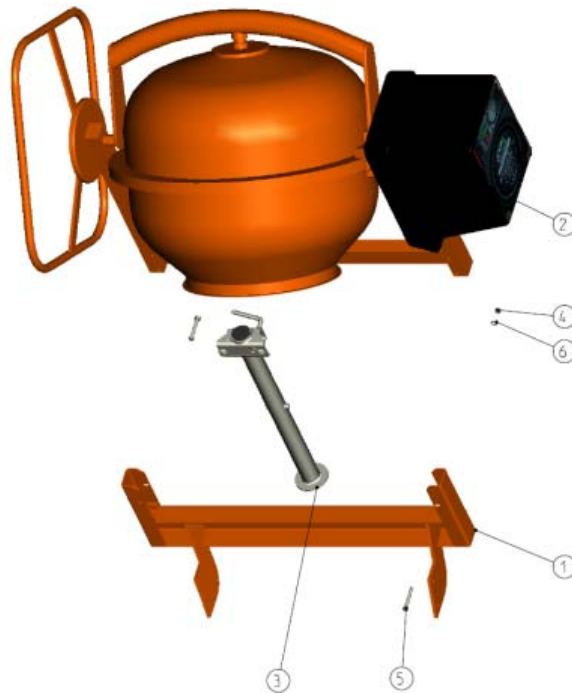
15.2 Vibrator Sieve with External Vibrator



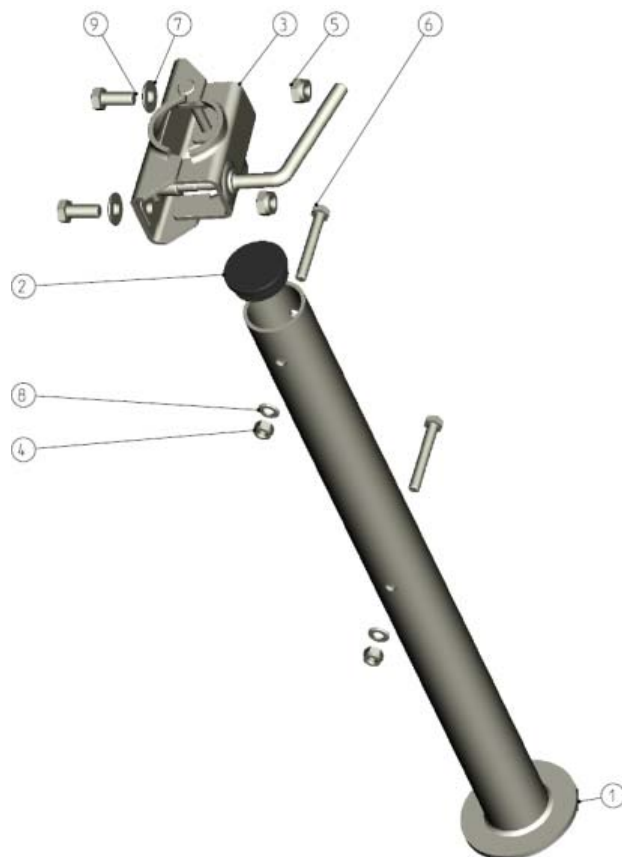
POS	Pcs.	Article No.	Article Designation
1	1	00 12 86 06	External vibrator
2	1	00 14 81 47	Vibrating sieve
3	1	00 14 81 49	Galvanized wire grating
4	14	20 20 61 00	Screw
5	4	20 20 64 00	Nut
6	4	20 20 66 03	Safety cap nut
7	18	20 20 72 00	Safety nut
8	4	20 20 72 10	Safety nut
9	4	20 20 90 10	U-washer
10	36	20 20 93 13	U-washer
11	4	20 20 96 01	Screw
12	4	20 44 48 00	Rubber metal buffer

Spare Parts Drawing, Spare Parts List

15.3 Drum Mixer



15.4 Telescopic tube support D48, 600/300lg



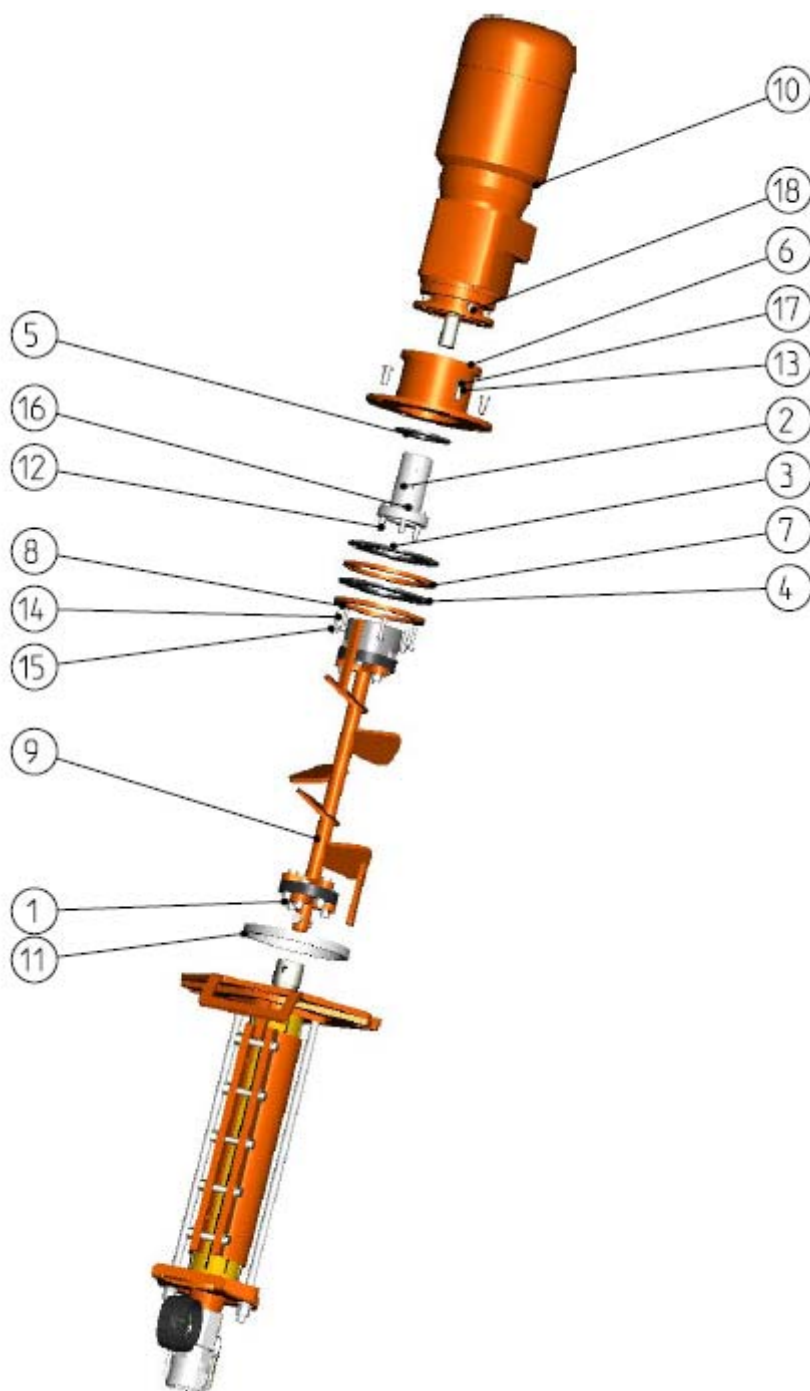
Drum Mixer

POS	Pcs.	Article No.	Article Designation
1	1	00 14 70 79	Fixture for drum mixer
2	1	00 14 83 86	Drum mixer
3	1	00 15 06 55	Telescopic tube support, complete
4	2	20 20 72 00	Safety nut
5	2	20 20 77 10	Screw
6	2	20 20 93 13	U-washer

Telescopic Tube Support

POS	Pcs.	Article No.	Article Designation
1	1	00 14 84 39	Telescopic tube support 600lg
	1	00 14 84 45	Telescopic tube support 300lg
2	1	00 14 86 38	Disc plugs
3	1	20 17 17 51	Clamp fixture
4	2	20 20 72 00	Safety nut
5	2	20 20 72 10	Safety nut
6	2	20 20 77 00	Hexagon screw
7	2	20 20 90 10	U-washer
8	2	20 20 93 13	U-washer
9	2	20 20 99 31	Hexagon screw

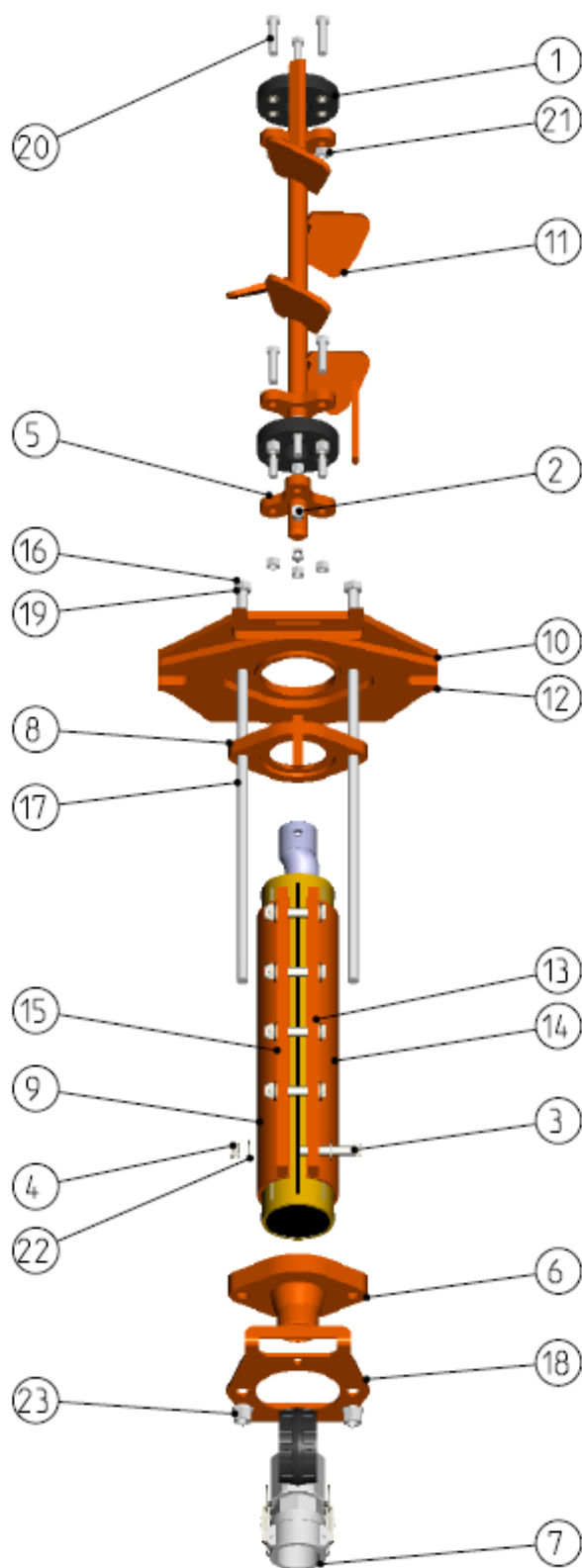
15.5 Gear Motor with Pump Unit



POS	Pcs.	Article No.	Article Designation
1	1	00 06 16 90	Driving dog for pump shaft
2	1	00 09 87 18	Hollow shaft
3	1	00 09 88 21	Seal with hole
4	1	00 09 88 22	Seal without hole
5	1	00 09 88 23	Seal
6	1	00 10 19 98	Housing for motor seal
7	1	00 10 41 30	Clamping flange with grease groove
8	1	00 10 41 38	Clamping flange without grease groove
9	1	00 14 74 98	Pump shaft
10	1	20 14 35 01	Geared motor 7.5kW 175 (1/min)
11	1	20 17 21 05	Seal for material container
12	9	20 20 59 00	Hexagon screw
13	4	20 20 68 01	Hexagon screw
14	6	20 20 78 05	Hexagon screw
15	6	20 20 91 00	Spring washer
16	3	20 20 91 10	Spring washer
17	8	20 20 91 11	Spring washer
18	4	20 20 96 00	Hexagon screw

Spare Parts Drawing, Spare Parts List

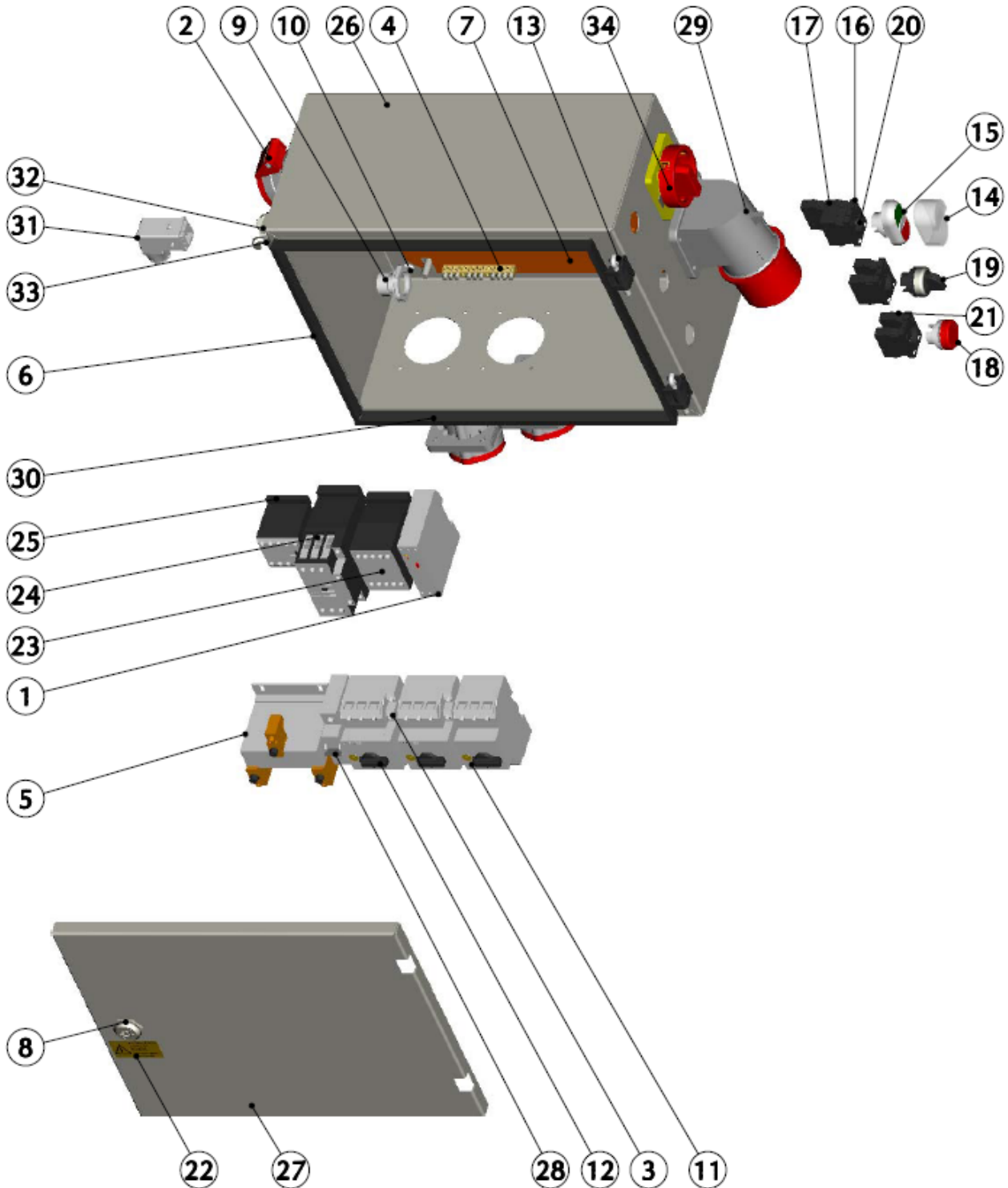
15.6 Pump Unit 2 L6



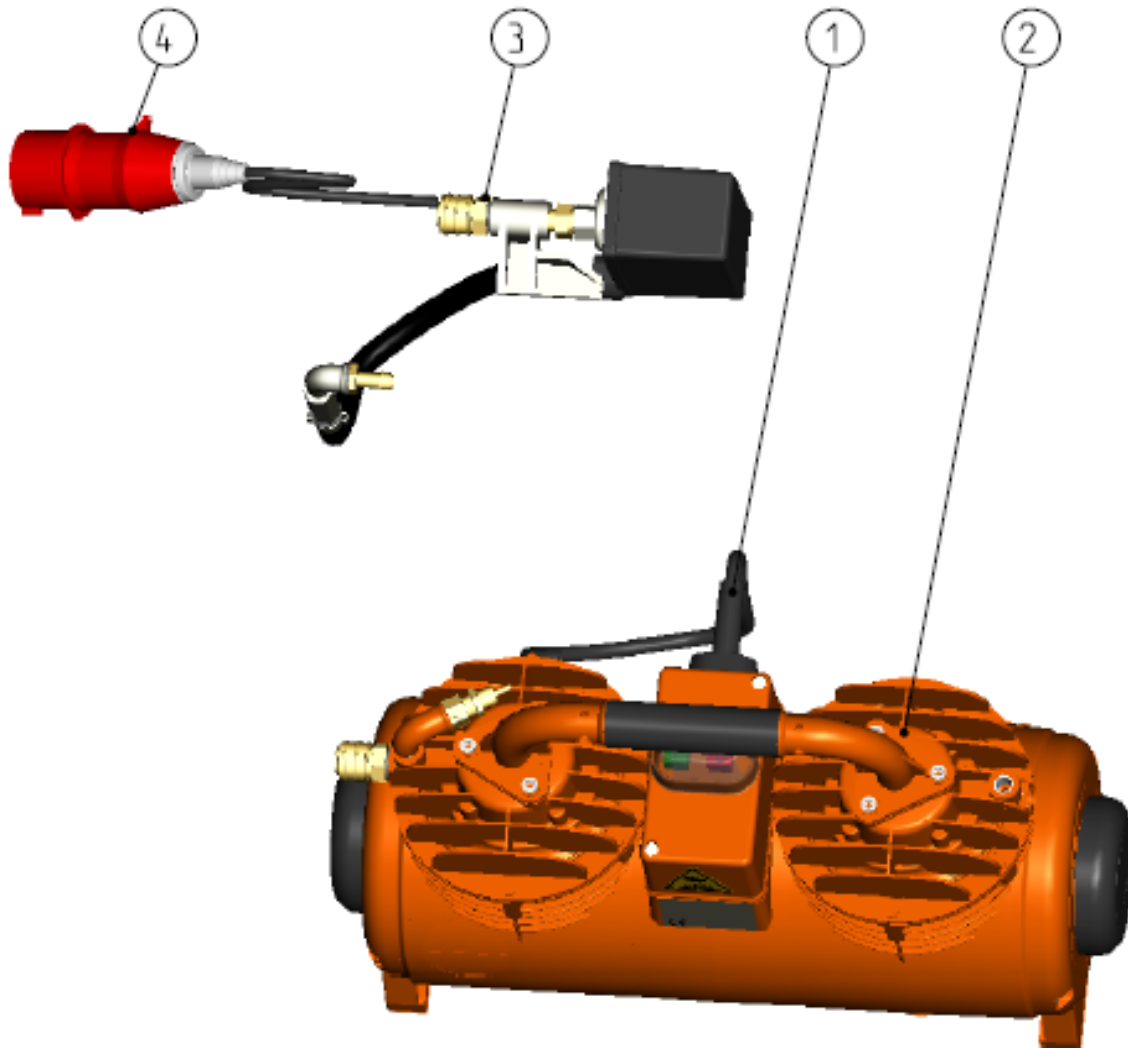
POS	Pcs.	Article No.	Article Designation
1	2	00 00 20 64	Joint disc
2	1	00 02 32 26	Screw
3	5	00 02 32 49	Screw
4	5	00 02 33 50	Safety nut
5	1	00 06 16 90	Driving dog for pump shaft
6	1	00 08 92 75	Pressure flange
7	1	00 10 22 29	Mortar pressure manometer
8	1	00 12 89 46	Suction flange
9	1	00 13 92 41	Clamping clip 2 L6
10	1	00 14 69 21	Pump flange
11	1	00 14 74 98	Pump shaft
12	1	00 14 91 74	Pump unit 2L6 cpl. without pump shaft
13	1	20 11 44 20	Rotor 2L 6
14	1	20 11 56 01	Stator 2L6
15	1	20 11 76 00	Clamping clip with screws
16	2	20 11 89 10	Tie bar
17	2	20 11 89 12	Screw
18	1	20 17 21 03	Support sheet metal
19	2	20 17 28 00	O-ring
20	9	20 20 59 00	Screw
21	10	20 20 89 00	Nut
22	10	20 20 90 11	U-washer
23	2	20 20 99 21	Collar nut

Spare Parts Drawing, Spare Parts List

15.7 Switch Cabinet - Article Number 00 09 86 01

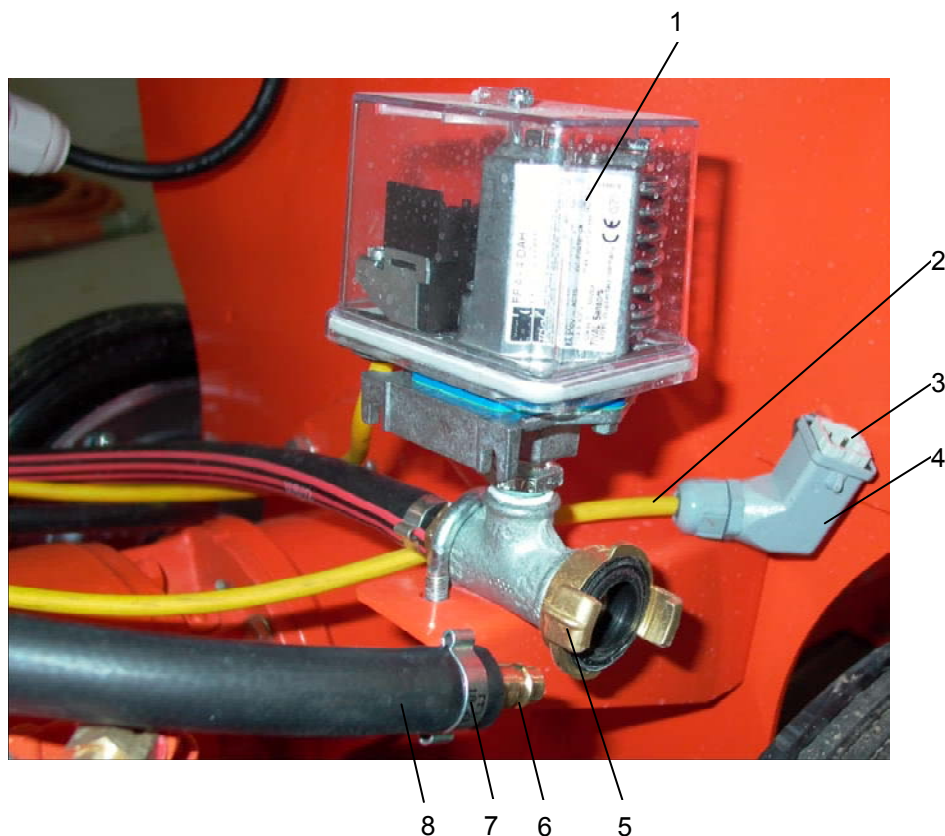


POS	Pcs.	Article No.	Article Designation
1	1	00 00 17 58	Impulse pause relay
2	1	00 01 94 16	CEE attachment socket outlet
3	2	00 02 14 01	Auxiliary contact
4	1	00 02 19 76	Earth bar
5	1	00 02 21 38	Control transformer
6	1	00 02 34 95	Sealing profile
7	1	00 03 35 81	Assembly plate
8	1	00 03 62 49	Cap
9	1	00 04 11 42	Skintop screw connector
10	1	00 04 11 46	Counter nut
11	1	00 04 26 00	Motor protection switch
12	2	00 04 26 02	Motor protection switch
13	2	00 05 37 67	Hinge
14	1	00 05 38 31	Operation On - Off
15	1	00 05 38 32	On - Off button
16	3	00 05 38 34	Fastening adapter
17	3	00 05 38 35	Contact element
18	1	00 05 38 75	Indicator light attachment
19	1	00 05 38 76	Selector switch
20	1	00 05 38 81	Lamp element
21	4	00 05 38 86	LED resistor
22	1	00 08 32 03	Sticker
23	1	00 09 42 68	Air-break contact
24	1	00 09 42 71	Air-break contact
25	1	00 09 42 73	Air-break contact
26	1	00 09 86 03	Empty casing
27	1	00 14 87 64	Door
28	1	20 41 93 10	Automatic circuit breaker
29	1	20 42 51 00	CEE device connector
30	2	20 42 66 10	Attachment socket outlet
31	1	20 42 85 01	Dummy plug
32	1	20 42 86 04	Installation casing
33	1	20 42 86 07	Socket insert
34	1	20 45 52 00	Main reversal switch

Spare Parts Drawing, Spare Parts List**15.8 Air Compressor**

POS	Pcs.	Article No.	Article Designation
1	1	00 00 79 15	Compressor
2	1	20 13 41 00	Handle
3	1	20 13 51 01	Retrofit set - pressure switch off
4	1	20 42 41 11	Motor connection cable

15.9 Pressure Control ZP 3 XL + XLV



POS	Pcs.	Article No.	Article Designation
1	1	20 44 76 00	Pressure switch type FF4-4 0.22-4bar
2	1	20 44 76 33	Connection cable for pressure switch ZP3/MONOJET
3	1	20 42 86 06	Pin insert 4-pole HAN 3A
4	1	20 42 86 05	Grommet casing 4 + 5-pole, bent
5	1	20 20 09 00	Geka coupling 1/2" AG (VPE 10)
6	1	20 20 21 04	EWO coupling V part 1/2" grommet (P)
7	1	00 05 91 96	Hose clamp 19-21
8	1	20 21 35 02	Water/air hose 1/2" x 960mm

The diagram illustrates the electrical control system for a pump and vibrator. Key components include:

- Power Supply:** A 400V transformer (T1) with fuses F2 (0.53A) and F3 (0.53A). A 70VA transformer (T2) provides 42V and 2A for the remote control.
- Remote Control:** A bell (S2) and a remote control unit (R1) with a 2A fuse (F4).
- Pump Section:** A pump (P1) controlled by a pump (P1) and a pump (P1) with a 2A fuse (F4).
- Vibrator Section:** A vibrator (V1) controlled by a vibrator (V1) and a vibrator (V1) with a 2A fuse (F4).
- Control Unit:** A central unit (ZP3) and a remote control unit (R1) with a 2A fuse (F4).

Circuit Diagram

Circuit Diagram

WE CATER FOR THE FLOW OF THINGS



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