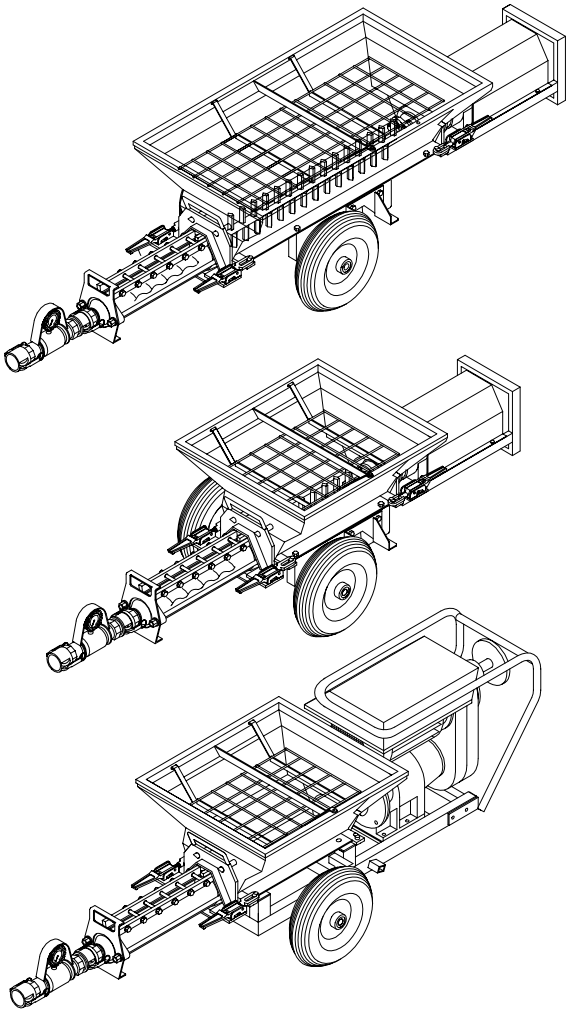
OPERATING INSTRUCTIONS

(Item number of the operating instructions 20099854

BOOSTER PUMP

PFT ZP3



WE KEEP THINGS MOVING

Dear Customer,

Congratulations on your purchase. You have made a wise choice, because you appreciate the quality of a brand from a company with a name that has exemplified quality.

The PFT ZP 3 booster pump uses state-of-the-art technology. It was designed in a task-optimized way so that it can be a trustworthy aid for rough construction site conditions.

These operating instructions should always be stored and kept at hand at the machine's application site. They give you information on the various functions of the system. Study the operating instructions thoroughly before starting up the machine, as we claim no responsibility for accidents or damage to the machine caused by incorrect operation.
The PFT ZP 3 booster pump will be a trustworthy aid, if it is operated correctly and handled with care.

Initial inspection after delivery

An important task of all technicians delivering the PFT ZP 3 booster pump is the inspection of the machine settings at the end of the first work phase. The factory settings can be changed during the first operation. If these changes are not corrected in time, immediately after initial start-up, then operating trouble can be expected.

After putting the PFT ZP 3 booster pump into service and giving appropriate instructions, after about two hours, the technician must always carry out the following checks / settings:

- ✓ Pump pressure, back pressure
- ✓ Pump shaft
- ✓ Remote control
- ✓ Pressure control
- ✓ Motor protection switch
- ✓ Fuses
- ✓ Cables
- ✓ Plug connections
- ✓ Pumping hoses
- ✓ Hose couplings
- ✓ Mortar pressure gauge

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Proper machine operation

The PFT ZP 3 is a continuously operating booster pump for machinable mortar with a particle size of up to 6 mm. The machine was designed for a permanent operating pressure of max. 30 bar. Follow all processing guidelines from the mortar manufacturer.
The machine was designed for processing the following materials:
Masonry mortar, reinforcing mortar, scratchwork, cement plaster, insulating plaster, screed mortar, filling compounds, reconstruction mortar, leveling compounds, liquid filler, bounding mortar, lime plaster, reconstruction plaster, floor mortar and joining mortar.

Functionality

The ZP 3 can be fed with pumpable mortar, masses and liquids. The material is transported to the screw conveyor through the pump shaft and then brought to the wall (masonry mortar) or the floor (screeds) by means of hose and nozzle.

The machine consists of carryable single components of handy dimensions and light weight that allow fast and convenient transport.
When operating the machine, the following aspects must be observed:

- Connection mains - control box
  Item no. 20 42 39 00 power cable 5 x 4mm², 50m with CEE plug and coupling 5 x 32A 6h red
- Connection control box - gearbox
- Connection mortar pressure gauge – mortar hose
  Item no. 00 02 11 19 RONDO mortar pressure hose 35mm 13.3m with hydraulic connection with 2 long handles

Basic safety instructions

The following terms and symbols are used in these operating instructions for particularly important information:

NOTE:
Special information for running the machine efficiently.

WARNING!
Precautionary information for preventing accidents.

WARNING!

The machine should only be used if it is in technically perfect condition and in compliance with the regulations. Pay attention to safety and the operating instructions. It is especially important to immediately rectify all faults that could impair safety.

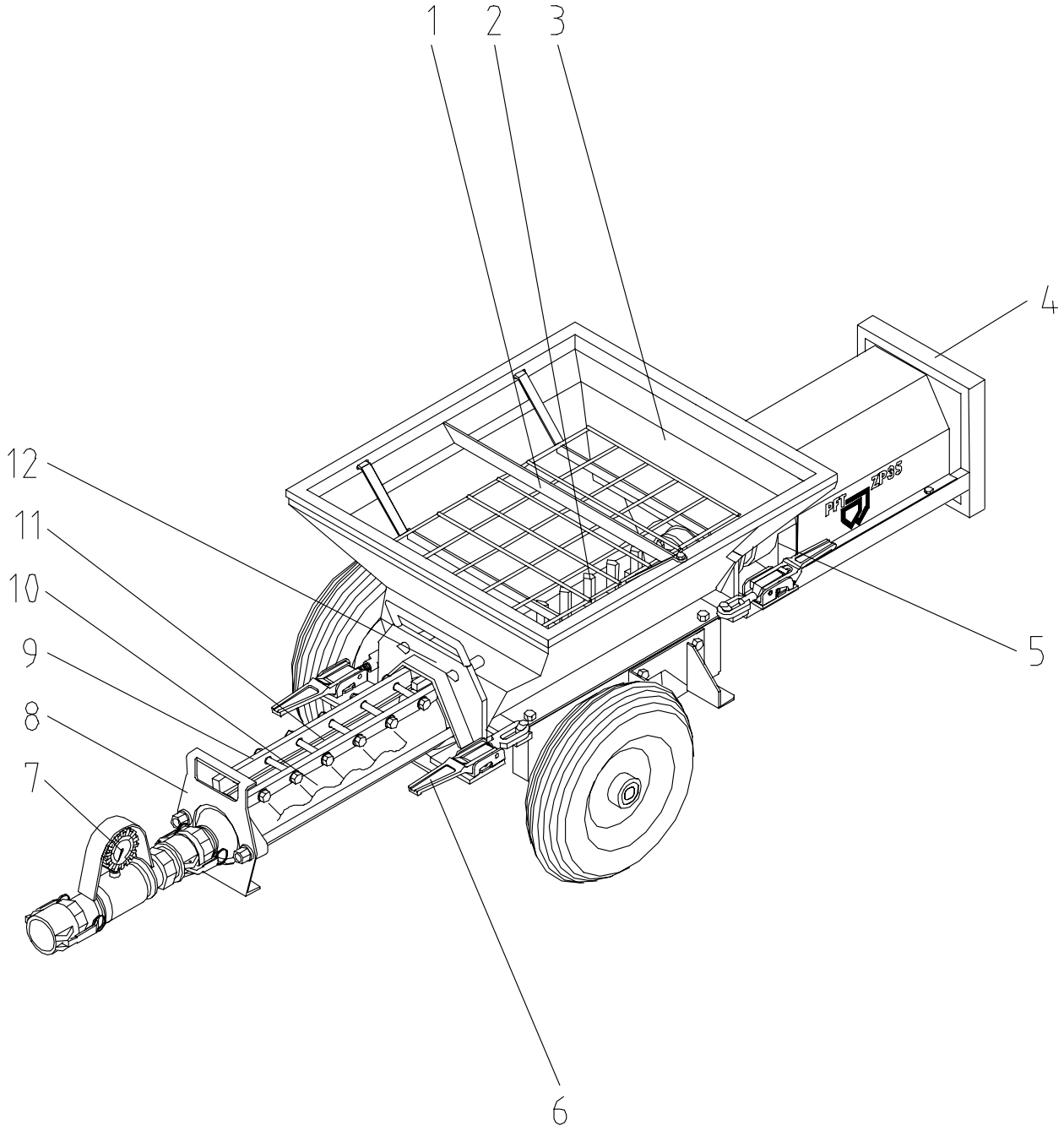
In order to make operating our machines as easy as possible for you, we would like to briefly inform you of the most important safety regulations. Compliance with these instructions will enable you to obtain long-lasting quality service from our machine.

General safety instructions

1. Follow the safety instructions on the machine. Ensure that all instructions are legible!
2. Observe all instructions for turning the machine on and off, control indicators and signal lamps.
3. Set up the machine on stable and even ground and secure it against unintentional movements. It may neither tilt nor roll away. The machine must be set up in such a way that it cannot be hit by any falling objects. The controls must be freely accessible.
4. Inspect the machine for visible damage and defects at least once every shift! When doing so, pay special attention to electrical power supplies, couplings, plugs, air, water and conveying lines. Any faults detected must be rectified immediately.
5. All spare parts must comply with the technical requirements of the manufacturer. This is guarantied for all original PFT parts!
6. The machine may only be connected to a worksite switchgear assembly with a 30 mA FI safety switch. If the machine has a 3-phase frequency converter, then the 30 mA FI safety switch of the worksite switchgear assembly must be sensitive to all currents.
7. The machine may only be put into service by trained or authorized personnel. Clearly define all lines of responsibility for operation, equipping, service and maintenance!
8. Personnel undergoing training should only be allowed to operate the machine under the supervision of experienced personnel!
9. All electrical work should be carried out by a qualified electrician or by trained personnel under the supervision of a qualified electrician and should comply with electro-technical regulations.
10. The machine must be completely switched off for maintenance and repair work. It must be ensured that it cannot be switched back on accidentally (for example, lock the main switch and remove the key, or attach a warning sign to the main switch).
11. If work must be carried out on voltage-carrying parts, a second technician should stand by to switch off the mains in case of emergency.
12. Depressurize all conveying systems before opening conveying lines!
13. Before cleaning the machine with a water jet, seal all openings through which water could enter, thereby impairing the safety and proper functioning of the machine (e.g.: electric motors and control boxes). After cleaning, remove all covers.
14. Only use original fuses with prescribed amps!
15. Disconnect the machine from any external power supply before you relocate it, even if you are only moving it a short distance. Reconnect the machine to the mains properly before starting it up again.
16. The machine may always only be moved by crane if it is firmly strapped to a europallet. All removable parts must be dismantled first. No-one should be present in the vicinity of the crane's danger area. All precautions must be taken to prevent parts from falling down.
17. Safety devices such as e.g. inclination switches, protective grills, etc. must not be manipulated. Before starting work, the safety devices should be inspected separately.
18. Longer work breaks will cause the mortar to set, which would result in operating trouble. This is why the machine should always swept and cleaned (incl. spraying equipment and conveying hoses) during long breaks.
19. No objects should be placed in the dry mortar container or pump container.
20. If the permanent noise level exceeds 85 dB(A), appropriate noise protection devices must be provided.
21. The machine must be inspected by a specialist once a year. This inspection must be documented and include the following aspects: Visual inspection for damage, functional check, inspection of safety devices, high-voltage check of control box.
22. In case of temperatures freezing, safety-relevant components could be damaged. If there is the danger of temperatures freezing, always drain water.
23. The machine's lubrication and maintenance schedule must be complied with, otherwise the warranty claim will no longer be valid.
24. Changes to the machine are not permitted and will result in the exclusion of any responsibility by Knauf PFT GmbH & Co. KG.

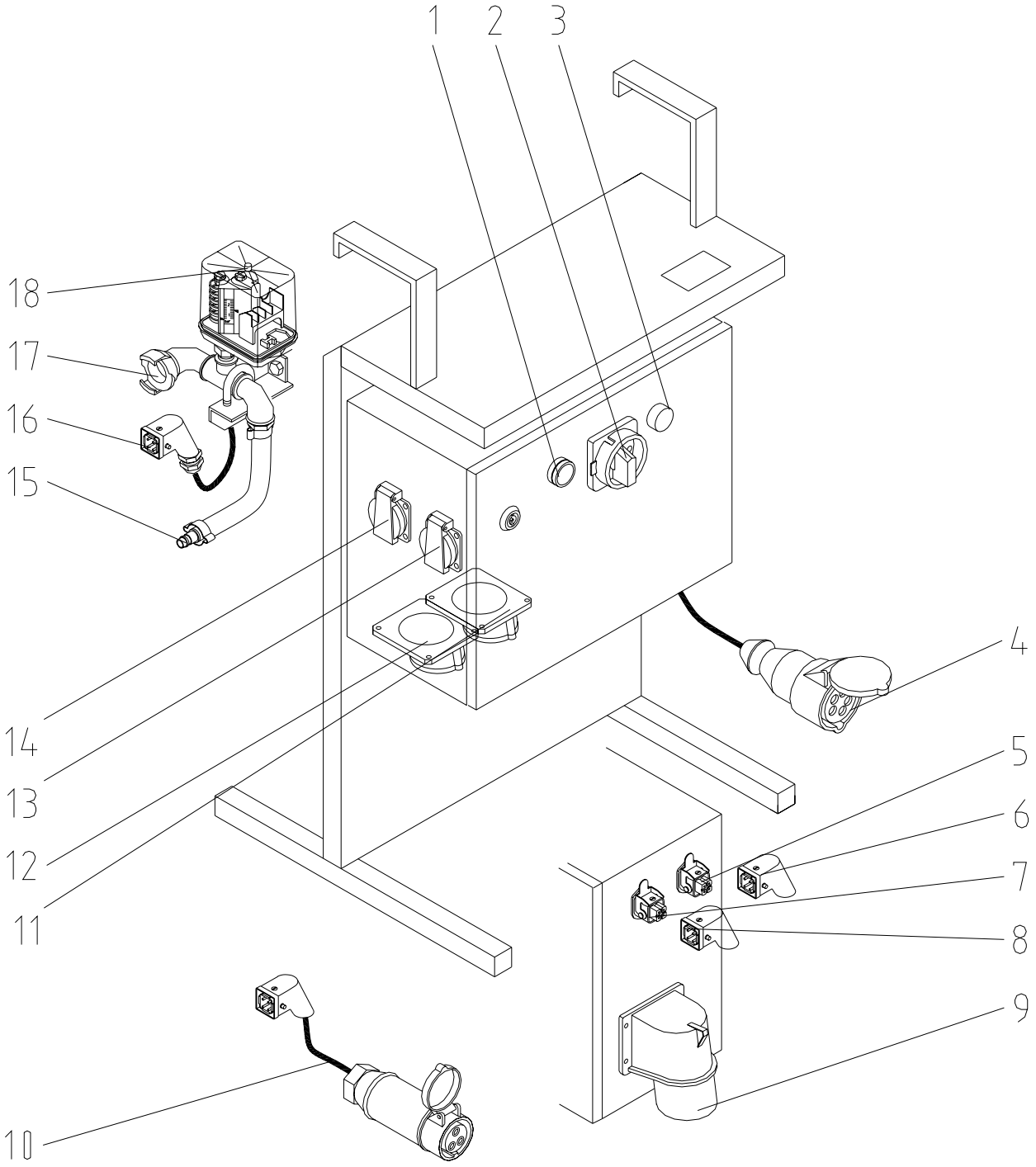
25. For pumps and booster pumps, the following additional safety precautions must also be observed: Wear the following protective clothing while spraying: Safety goggles, safety shoes, safety clothing, gloves, protective skin cream and respirator mask.
    When unblocking hoses, stand away from the machine to avoid injury through high-pressure discharges of mortar. Always wear safety goggles. No other persons should be near the machine during this procedure.
    Only pumping hoses with an approved operating pressure of min. 30 bar may be used. The burst pressure of the conveying hose must exceed the 2.5 fold operating pressure value. The machine may not be operated without a mortar pressure gauge.
    Depressurize all conveying systems before opening mortar pressure hoses. If the machine is remote-controlled using a spraying gun or remote control, the machine can be switched on and off at all times, without it being necessary for anyone to work directly at the machine.

Overview ZP3



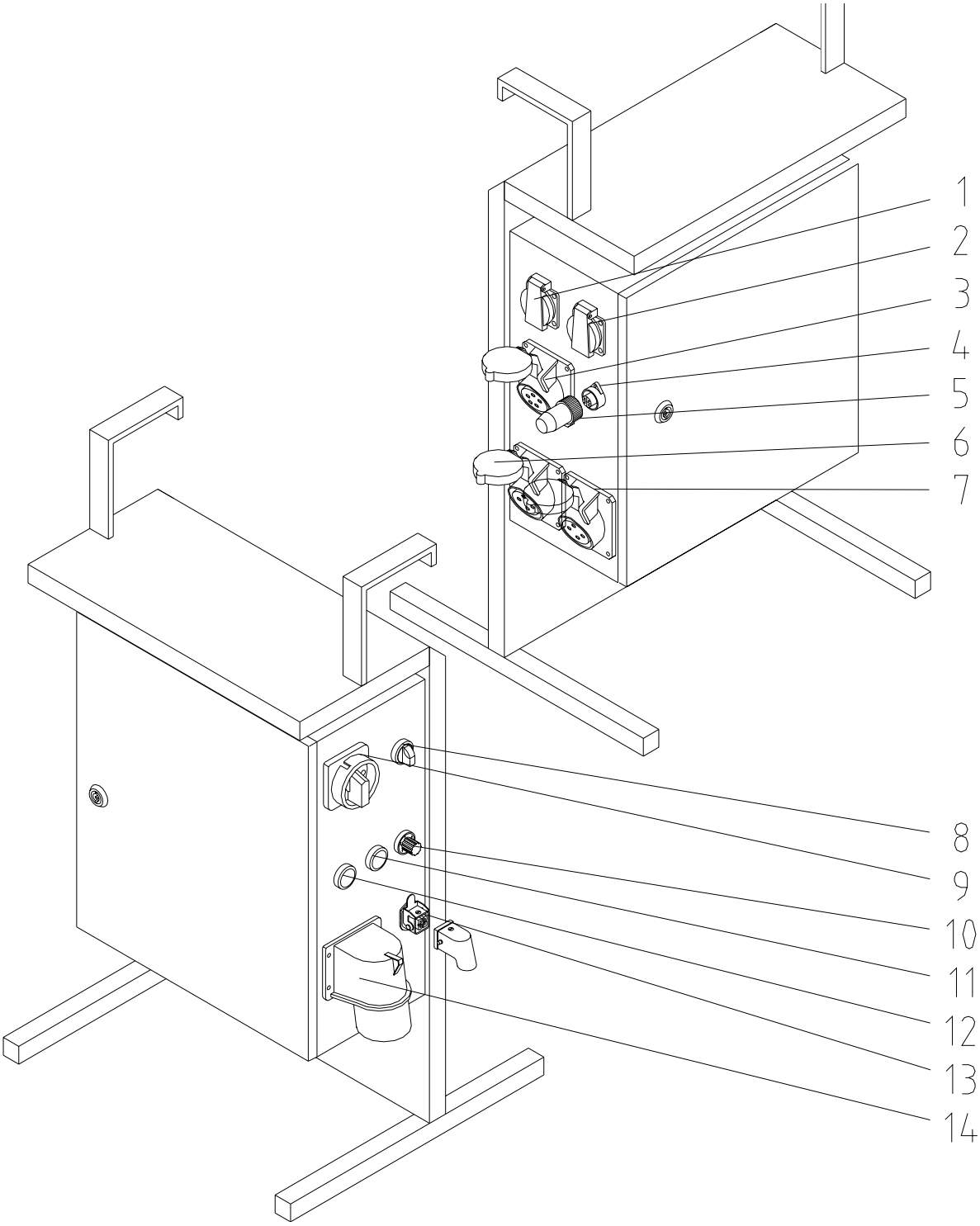
1. Protective grill	7. Mortar pressure gauge
2. Pump shaft	8. Support plate
3. Hopper	9. Clamp
4. Protection bail for motor	10. Rotor
5. Gearbox	11. Stator
6. Snap lock	12. Pump flange

Overview control box ZP3 S and V 20171000 and 20171200



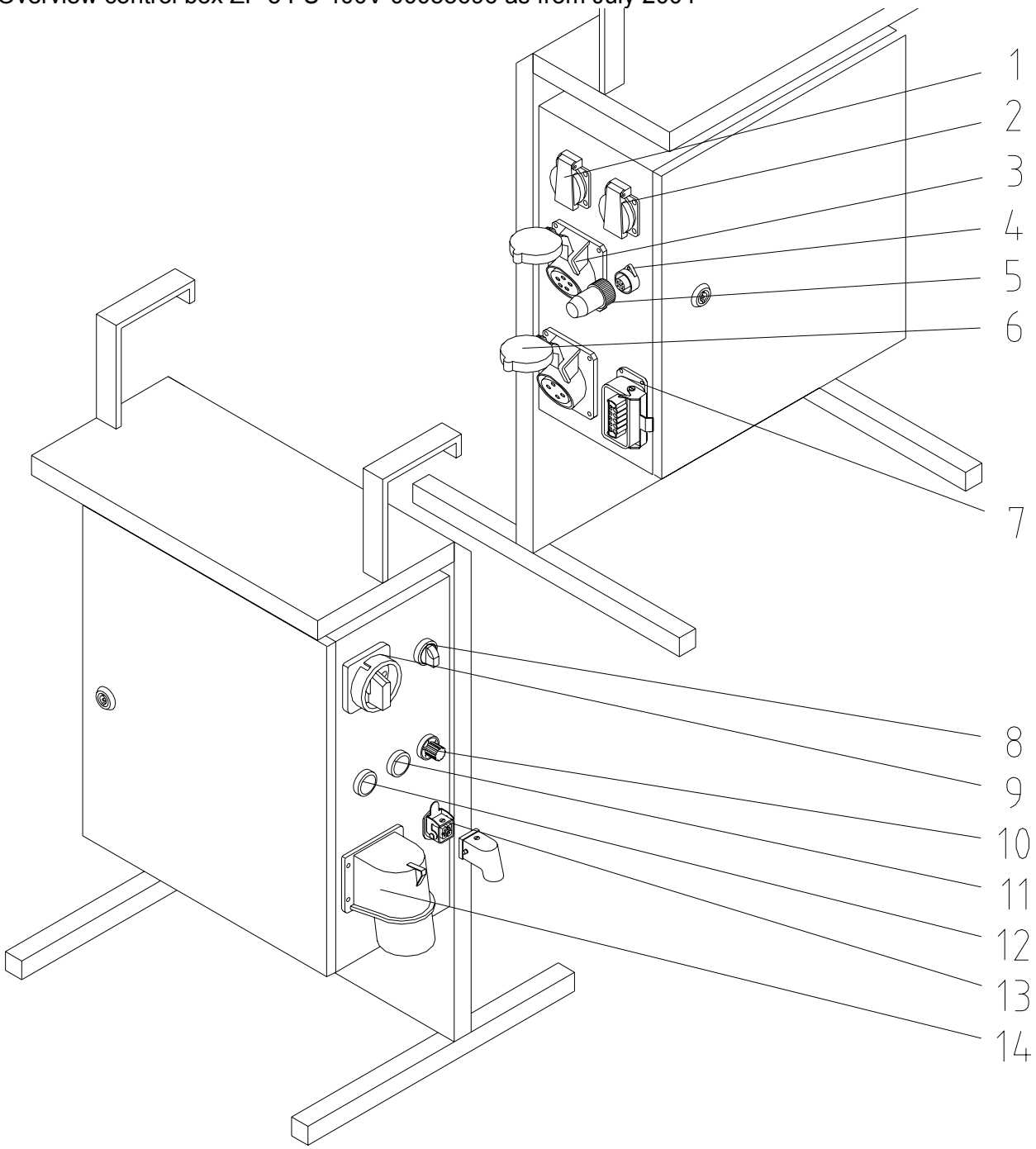
1. Operation On	2. Main reversing switch
3. Control lamp fault	4. Connection cable mixer
5. Mortar pressure automatic switch-off device without level sensor	6. Blind plug
7. Remote control / air pressure switch	8. Blind plug
9. Mains connection 32 A	10. Control cable
11. Socket pump	12. Socket compressor
13. Schuko socket 230 V 16 A	14. Schuko socket 230 V 16 A
15. Air from compressor	16. Connection air pressure switch
17. Air to the spraying gun.	18. Air pressure safety switch

Overview control box ZP 3 FU 400V 00053696



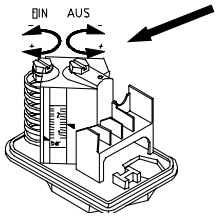
1. Continuous current	2. Continuous current
3. Compressor	4. Remote control
5. Remote control	6. Connection compressor
7. Connection water pump	8. Backwards – 0 – forwards
9. Main switch	10. Motor speed
11. Display fault	12. Display operation
13. Remote control	14. Main power supply

Overview control box ZP 3 FU 400V 00053696 as from July 2004



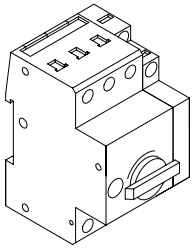
1. Continuous current	2. Continuous current
3. Compressor	4. Remote control
5. Remote control	6. Connection motor connection cable
7. Connection water pump	8. Backwards – 0 – forwards
9. Main switch	10. Motor speed
11. Display fault	12. Display operation
13. Remote control	14. Main power supply

Inspection of the setting values (factory setting)



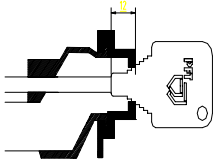
Air pressure safety switch

0.9 bar switch on machine
1.2 bar switch off machine



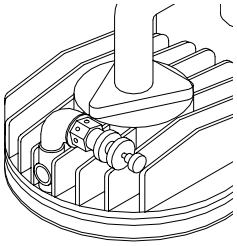
Motor protection switch

ZP3 S 5.5 KW gearbox	12.5 A
ZP3 V 5.5 KW gearbox	12.5 A
ZP3 FU 400 V 7.5 KW gearbox	15.5 A



Optional spraying gun for finishing coat:

(**PFT item no.: 20190002 Spraying gun 25 mm LW24, nozzle 14 mm**
The gap between the air nozzle tube and the spray cap should always correspond to the diameter of the spray cap;
e.g.: 14 mm spray cap = 14 mm gap.

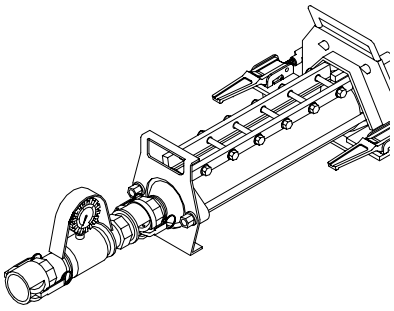


Optional compressor

(PFT item no.: 20130017 Compressor K2 with automatic switch-off device)

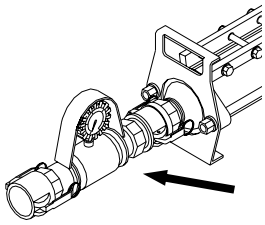
Compressor safety valve

3.5 bar against closed air pipe



The **PFT ZP S** and **ZP 3 V** are standard-equipped with the **R7-3 S** PFT pump system.
This pump system was specially designed for conveying coarse ready-to-use mortar. The length of the screw pump enables a high pressure build-up which results in a large pumping distance and output.
The R7-3 S pump system is particularly suitable for machinable pre-mixed ready-to-use mortar with a granular size of up to 6mm.
Rule of thumb for increasing pressure:
One should calculate 1.0 bar dynamic pressure for every meter of conveying hose!
The test back pressure should be at least 40 % of the conveying test pressure!
Example: 30 bar conveying pressure (with water) should result in approx. 12 bar back pressure with the machine switched off.

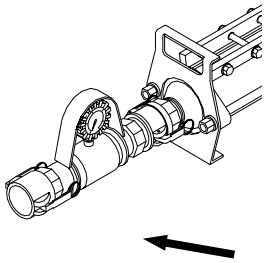
Rotor/stator/mortar pressure gauge assembly, pump shafts



Warning!

The use of a mortar pressure gauge is absolutely imperative according to the safety regulations of the Builder's Guild.

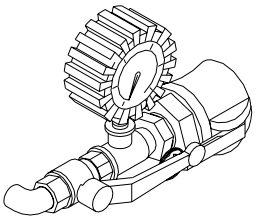
PFT mortar pressure gauge



50 mm Ø, item no.: 20 21 73 00
35 mm Ø, item no.: 20 21 72 00
PFT mortar pressure gauges monitor the mortar consistency efficiently and easily. The mortar pressure gauge is delivered with the machine.
Some of its advantages:

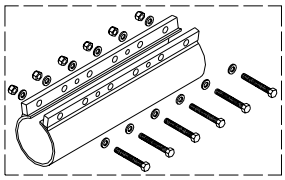
- Constant monitoring of correct conveying pressure.
- Early detection of clogging or overloading of pump motor.
- Produces zero pressure.
- Contributes significantly to the safety of operating personnel.
- Durability of pump components, because the pressure can be monitored.

PFT pump components



New pump components with a conveying hose of 13 m should attain a conveying pressure of approx. 25 bar and maintain a back pressure of approx. 10 bar before and after the first spraying. Use the **PFT pressure tester** to monitor the back pressure, item no.: 20 21 68 10
0-100 bar with 35 V component and tap.

PFT clamp

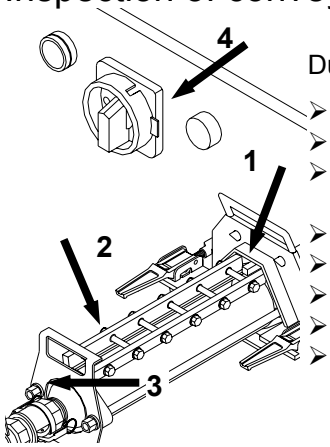


The original PFT clamp, item no. 20 11 79 00, can be used universally for all 550 mm steel R pumps for interior and exterior plastering.
When converting to D pump, the following parts must be replaced:

Suction flange	Item no. 20 12 09 20
Clamp	Item no. 20 11 70 00
Pressure flange	Item no. 20 11 87 02

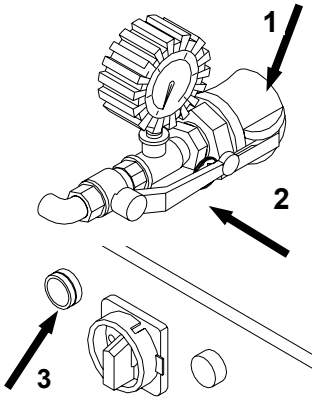
Pump shafts type	**Use**
Two-row pump shaft ZP3 Item no. 20 17 24 05	Joining mortar, backing mortar, exterior plaster
4-row pump shaft ZP3 Item no. 20 17 24 02	Fine filling material, masonry mortar, liquid screed, foundation plaster, reconstruction plaster, universal plaster
Pump shaft ZP 3 Item no. 20 17 24 03	Notch mortar, various plasters

Inspection of conveying pressure and replacement of pump



During installation/removal, the following must be observed:

- The main reversing switch (4) must be at position “0”.
- The clamp must be fixed exactly at the middle of the stator.
- The tang (1) must engage in the clamp in such a way, that the stator is not also rotated.
- All screws (2) of the clamp must be tightened evenly.
- The tied rod screws (3) of rubber stators must not be tightened too firmly.
- The stator must fully lie centrically on both flanges
- A new rotor and stator must be run in.
- Pumps which neither attain the required conveying pressure nor maintain the required back pressure despite retightening, are worn out and must be replaced.



Checking conveying pressure and back pressure:

- Connect a 13 m conveying hose.
- Couple the pressure tester (1) with outlet tap to the end of the hose.
- Open tap (2).
- Switch on machine (3) and let water run until water emerges from the outlet tap.
- Close tap (2).
- Let conveying pressure rise to 25 bar. (The conveying pressure is increased by tightening the screws of the clamp).
- When 25 bar have been reached, switch off the machine.
- A back pressure of approx. 10 bar should be maintained through the screw pump in the hose.

Warning!

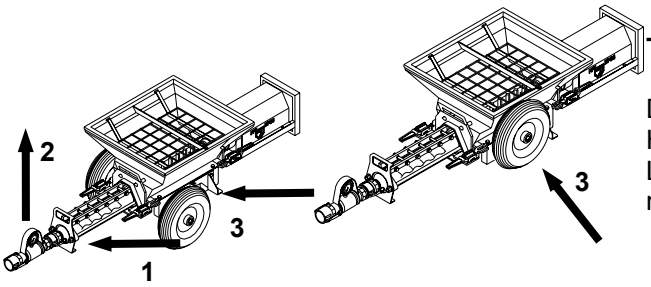
The testing pressure with water should be approx. 5-10 bar above the anticipated mortar pumping pressure!
Example:
20 m conveying hose (25 mm ∅) with gypsum mortar requires an adjustment of the pump to approx. 25 - 30 bar.
If the rotor is placed improperly in the stator, a gurgling sound will occur and water will flow back into the mixing chamber. Switch the machine on and off repeatedly until you find the position in which the rotor seals with the stator.

NOTE!

- Stator R7-3S can be used up to 30 bar operating pressure.
- The maximum pumping distance depends on the viscosity of the mortar. Heavy, coarse-grained mortar does not flow easily. Fluid mortars, filling compounds and floor screed flow easily.
- Use thicker mortar hoses if you exceed an operating pressure of 30 bar.
- To avoid machine breakdowns and excessive wear on the pump motor, mixing shaft and pump, always use original PFT parts.
- These components are compatible with one another and form a single constructive unit together with the machine. If you do not follow these recommendations, you will not only **lose your warranty rights**, but the quality of the mortar you are producing will also suffer.

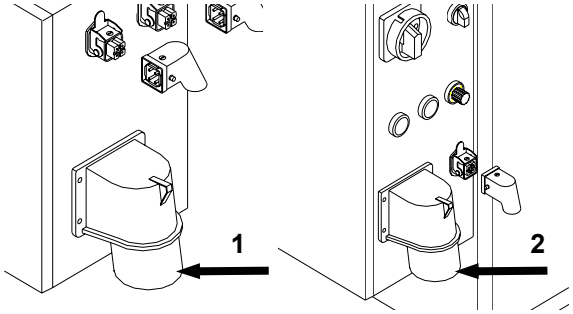
NOTE! The frictional resistance of the size 35 hose is 0.8 bar/m.
It is 0.4 bar/m for a size 50 hose with exterior plaster or similar mortar.
A 10 m vertical mortar hose requires an additional pressure of 2 bar.
Never use the R7-3S pump with an operational pressure of more than 30 bar, in case of doubt use thicker hoses or reduce the hose length.

Putting the machine into service



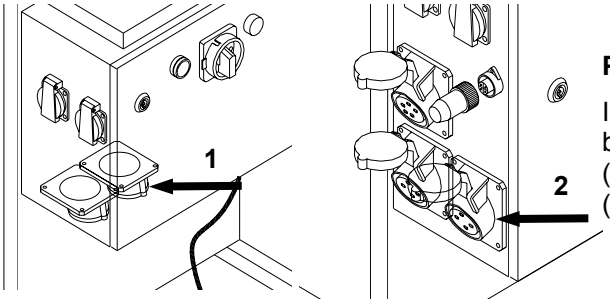
Tilt axle:

Drive the PFT ZP 3 under a screw mixer (e.g.) PFT HM 6, HM 22/24, HM 5 or HM 2006.
Lift with force (2) at the screw pump (1), the tilt axle moves forward by itself and engages.



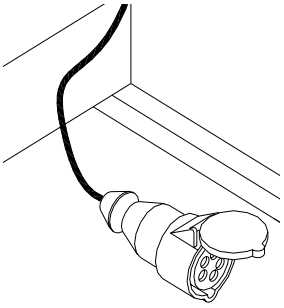
Main power supply:

PFT item no.: 20 42 39 00 cable 5x4mm² ,
Coupling 5x32 A; 400 V CEE.
(1) ZP3 S and ZP3 V
(2) ZP 3 FU. The machine may only be connected to a worksite switchgear assembly with a 30 mA FI safety switch sensitive to all currents as per VDE.



Pump motor connection:

Insert motor plug for pump motor into specially marked built-in socket.
(1) ZP3 S and ZP3 V
(2) ZP 3 FU.

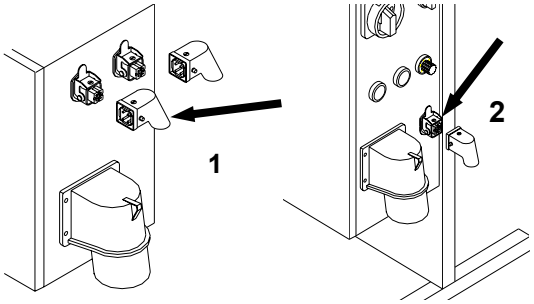


Screw mixer connection:

ZP3 S and ZP3 V:
Connect coupling 5x16 A CEE to screw mixer (HM6, HM5, HM2, HM24).

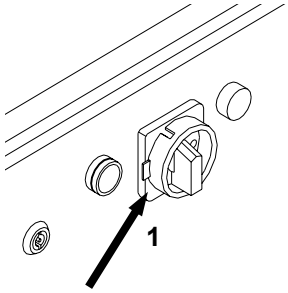
ZP 3 FU:
Connect screw mixer to worksite switchgear assembly.

Putting the machine into service



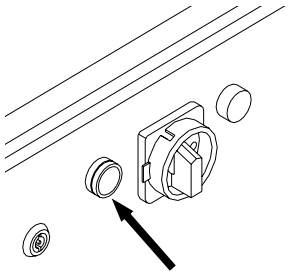
Warning!

The remote control plug must be unplugged before the ZP3 is put into operation.
(1) ZP3 S and ZP3 V
(2) ZP 3 FU.



Direction of rotation:

The ZP3 S and ZP3 V are equipped with a phase sequence relay that locks the machine if the direction of rotation is incorrect.
If the direction of rotation is incorrect, turn the main reversing switch (1) to zero position. Push the laterally protruding reversing plate to the opposite side to change the direction of rotation. Then switch the machine back on.
The ZP3 FU always runs in the correct direction of rotation.

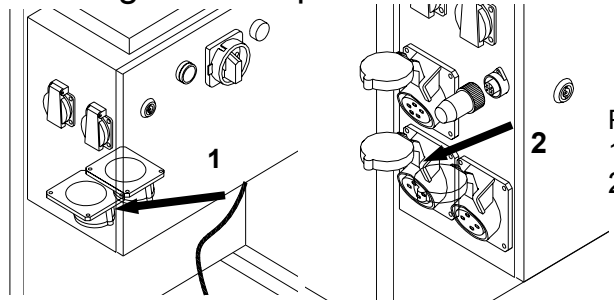


ZP3 S and ZP3 V:

Warning!

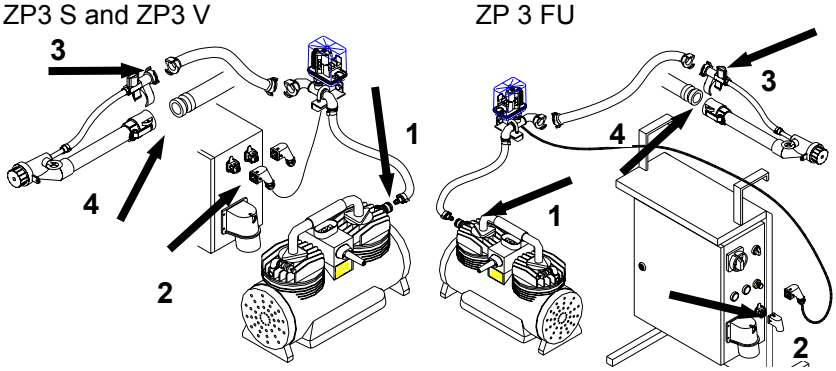
The green button (on) must always be pressed if the control box was without power.
Before starting work, all hoses must be flushed with water, then completely drained and pre-lubricated with lime milk or paste.

Working with compressor

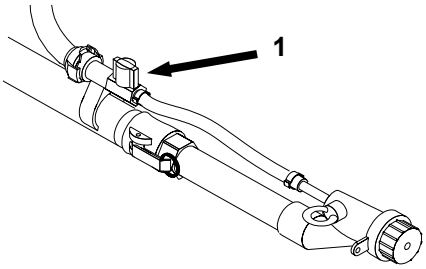


ZP3 S and ZP3 V ZP 3 FU

Plug compressor cable into CEE panel-mounted socket.
1) ZP3 S and ZP3 V
2) ZP 3 FU.

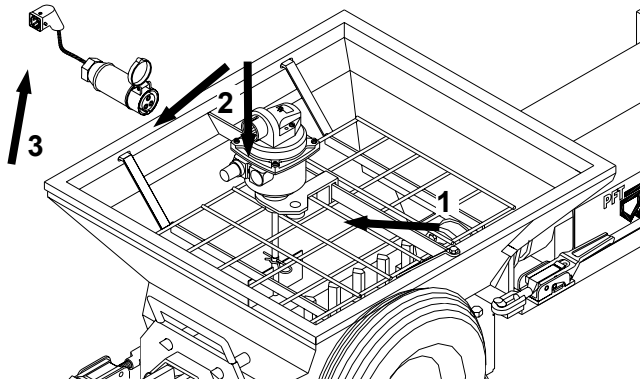


1. Pressure control air hose to the compressor.
2. Control cable of pressure control to control box (pull blind plug).
3. Pressure control air hose to the spraying gun.
4. Mortar hose to the spraying gun.

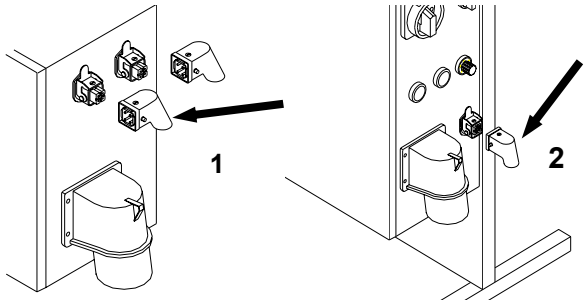


The ZP3 is now switched on or off using the air tap (1) at the spraying gun.

Working with the combination ZP3 and HM5



For this combination, a level sensor (e.g. rotary wing sensor) is mounted in the ZP3 material hopper (1) and connected to the HM5 control box (2 and 3). The level sensor monitors the mortar level in the ZP3 material hopper and switches the HM5 on and off.



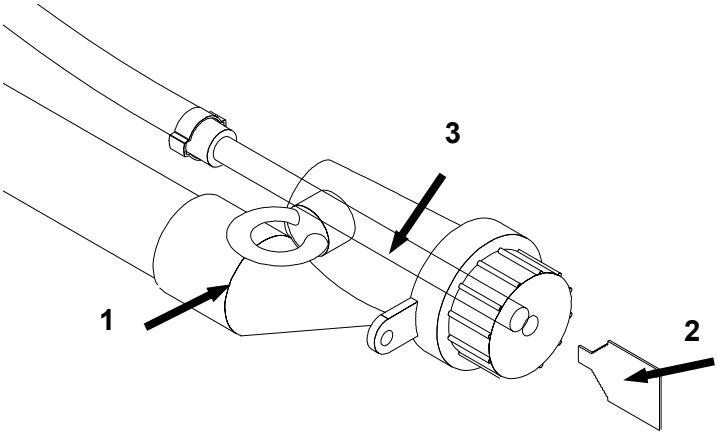
Warning!

A blind plug must be attached to couplings that are not required, otherwise the control power is interrupted.
(1) ZP3 S and ZP3 V
(2) ZP 3 FU.

Function mortar consistency spraying guns and nozzles

Mortar consistency

The mortar consistency is correct when the material on the surface being sprayed flows into itself forming a consistent coat (we recommend that you apply material on wall surfaces from top to bottom). If the material is too dry, even spraying cannot take place. There may be clogging in the hose. Pumping components are thus subject to greater wear and tear.



Spraying guns and nozzles

Use spraying nozzles of 10, 12, 14, 16 or 18 mm, depending on the mortar consistency. Larger nozzles reduce the projection speed and thus the rebound effect. Smaller nozzles create better atomization. Note that the gap between the air nozzle tube and the nozzle outlet should correspond to the diameter of the nozzle.
The correct clearance is set using the setting key. Loosen ring screw (1), insert setting key (2) **item no. 20 19 02 23** and set air nozzle tube (3).

Interruption of work

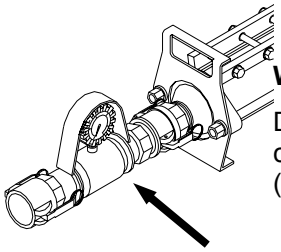
Follow all instructions from the mortar manufacturer when interrupting spraying work.

Clean the pump before long interruptions.
See “Measures at the end of work and when cleaning”.

Formation of tunnels

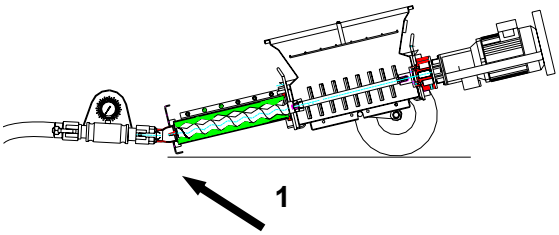
The physical property of the material will result in parts in material sticking to the sides of the material hopper. This can cause the formation of tunnels. The mortar level in the material hopper should not be higher than absolutely necessary.

End of work and cleaning

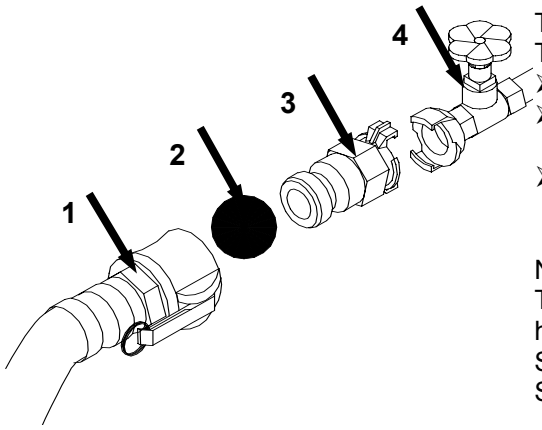


Warning!

Depressurize all hoses before opening the hose couplings.
(Observe the display at the mortar pressure gauge!).



- At the end of work, empty the ZP3.
- Put ZP3 on the wheels and tilt it forwards so that the pressure flange (1) touches the ground.
- Remove residual mortar with water and pump out.
- Disconnect mortar hoses.



The mortar hoses must be cleaned immediately.
This can be done at the water outlet valve.

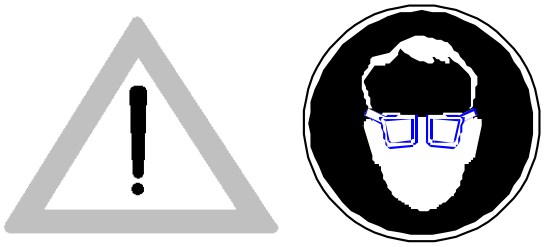
- To do this, press the sponge ball (2) into the mortar hose.
- Connect the cleaner coupling (3) to the mortar hose (1) first and then to the water outlet valve (4).
- Open the water outlet valve until the sponge ball emerges at the end of the hose. Repeat this procedure at least twice.

Note:
The corresponding sponge balls must be used for different hose diameters.
Sponge ball for Ø 35 mm **item no. 20 21 06 00**
Sponge ball for Ø 50 mm **item no. 20 21 07 00**

Warning!

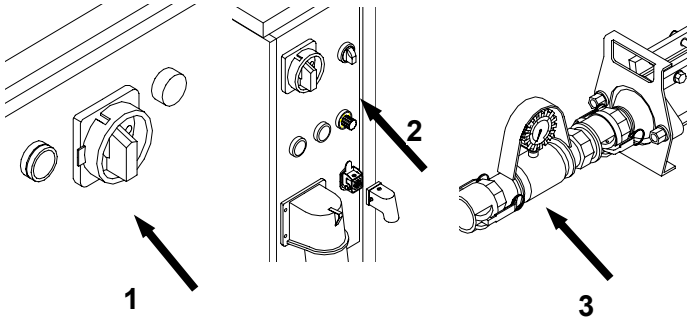
Do not clean the ZP3 with a steam sprayer or high-pressure cleaner. This would damage the oil sealing unit and other gaskets.

Measures to take in the case of hose clogs



Warning!

In accordance with the safety regulations of the Builder's Guild, all personnel clearing hose blocks should wear safety goggles and should position themselves in such a way as to avoid injury through discharged mortar.



Clearing hose blocks:

- Run pump motor briefly in reverse.

(1) ZP3 S and ZP3 V
(2) ZP 3 FU.

- Until the mortar pressure gauge (3) indicates zero pressure.
- Disconnect and clean hose.

There are various ways of removing residual mortar:

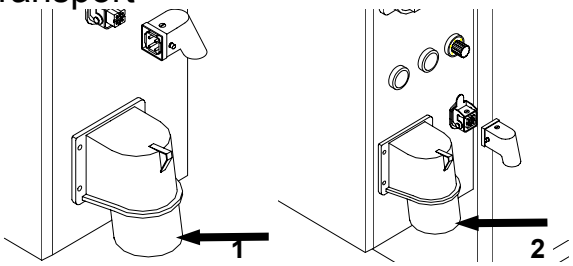
- Insert a thin water hose into the mortar hose and clean with water pressure.

Measures to take in the case of power failure

Warning!

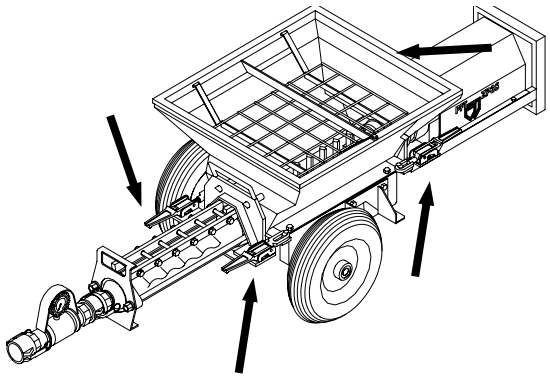
The mortar hoses must be cleaned immediately if there is a power failure (>15 minutes).

Transport



Disconnect machine from main power supply

(1) ZP3 S and ZP3 V
(2) ZP 3 FU.

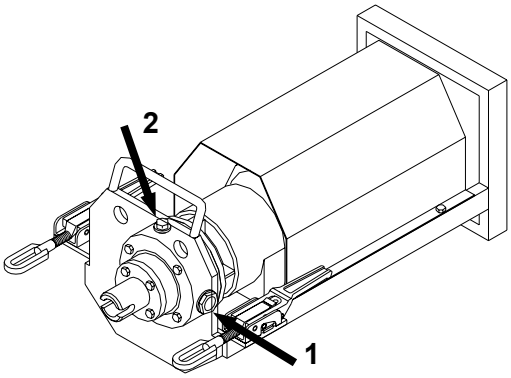


To install or remove the pumping unit, the ZP3 is tilted backwards and the snap locks are released.
To install or remove the motor, the ZP3 is tilted forwards and the snap locks are released.

Warning!

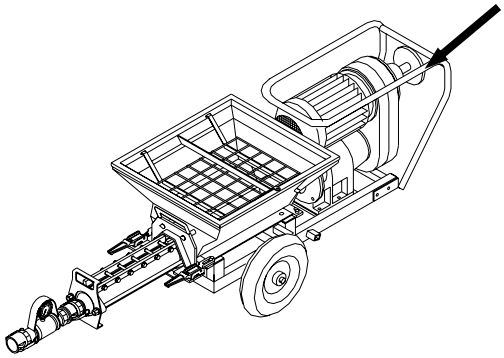
The ZP3 is not suited for transport by a crane.

Maintenance



Oil level

The oil level must be checked every day at the sealing unit (1) of the gearbox.
(1/2 height in the control glass)
If required, top up with **motor oil 10 W 40** (2).
For machines built in 2000 or thereafter, the oil sealing units are only filled with universal grease.
The motor's transmission oil must be replaced every 3 years. Oil quantity and type are to be found on the type plate of the motor.



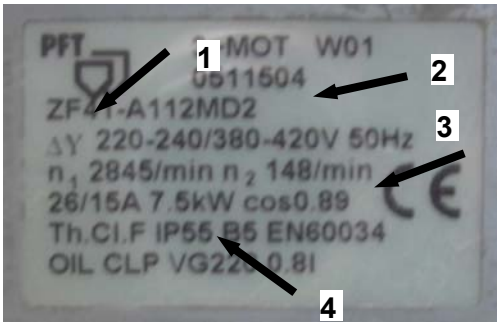
Warning!

Do not adjust the Vario transmission of the ZP3 V when the machine is stationary, but only when it is running. The machine should also not be operated at the same motor speed, otherwise the v-belt pulleys wear down too fast.

-{}-

Gearbox data ZP 3 V:
The type plate of the Vario gearbox is on the gearbox.
When ordering spare parts for the motor, please specify the following data:

1. Type
2. No.
3. Motor speed

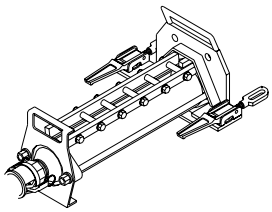


Gearbox data ZP 3 S and ZP 3 FU:

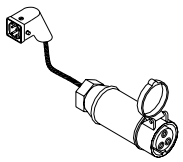
The type plate of the gearbox is on the cool ribs of the winding.
When ordering spare parts for the motor, please specify the following data:

1. Type
2. No.
3. Motor speed
4. Output

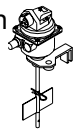
Accessories



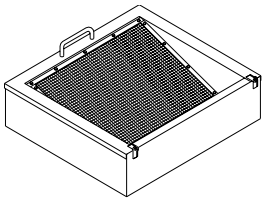
	Pump units	Pressure	Pumping capacity	Granulation
20 17 36 00	Pump unit R7-1.5	15 bar	60 l/min 400 rpm	max. 7 mm
20 17 36 01	Pump unit R7-3 S	30 bar	60 l/min 400 rpm	max. 7 mm
00 06 68 30	Pump unit T10-1.5	15 bar	135 l/min 200 rpm	max. 9 mm
00 05 98 14	Pump unit T9-2	20 bar	135 l/min 200 rpm	max. 8 mm



20 42 40 50 Control cable 0.5 m with control plug 4-pin and CEE coupling



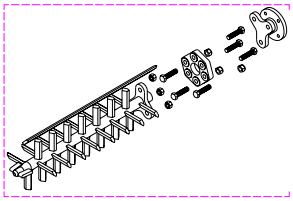
00 06 76 26 Holder level sensor
00 01 00 75 Level sensor



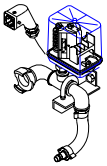
20 17 27 00 Attachment material hopper ZP 3 220 mm height
20 17 27 10 Attachment material hopper ZP 3 400 mm height
00 05 36 58 Vibrating screen for ZP 3 extended

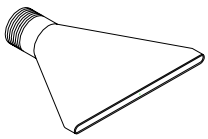
20 45 69 24 Remote control cable 50 m with on/off switch with control lamp
20 45 69 29 Remote control cable 25 m with on/off switch
20 45 69 15 Remote control cable 25 m with on/off switch on cable drum
20 45 69 16 Remote control cable 50 m with on/off switch on cable drum
00 04 74 89 Remote control cable 25 m with potentiometer for ZP3 FU 400 V

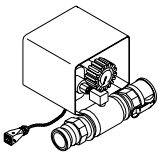
20 13 00 17
Compressor K2
with automatic switch-off device for ZP 3 S



00 00 20 62
Pump shaft with cleaning arm and torsion damper (4 row)

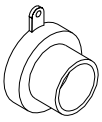






20 17 30 00 Pressure control EWO/Geka coupling
20 19 52 00 Nozzle for bricklaying 180 mm (without coupling)
20 21 80 00 Mortar pressure gauge 35 mm

20 19 50 00 Zargomat and cement pistol with 15 m cable 25M component
20 19 50 01 Zargomat and cement pistol with 30 m cable 25M component



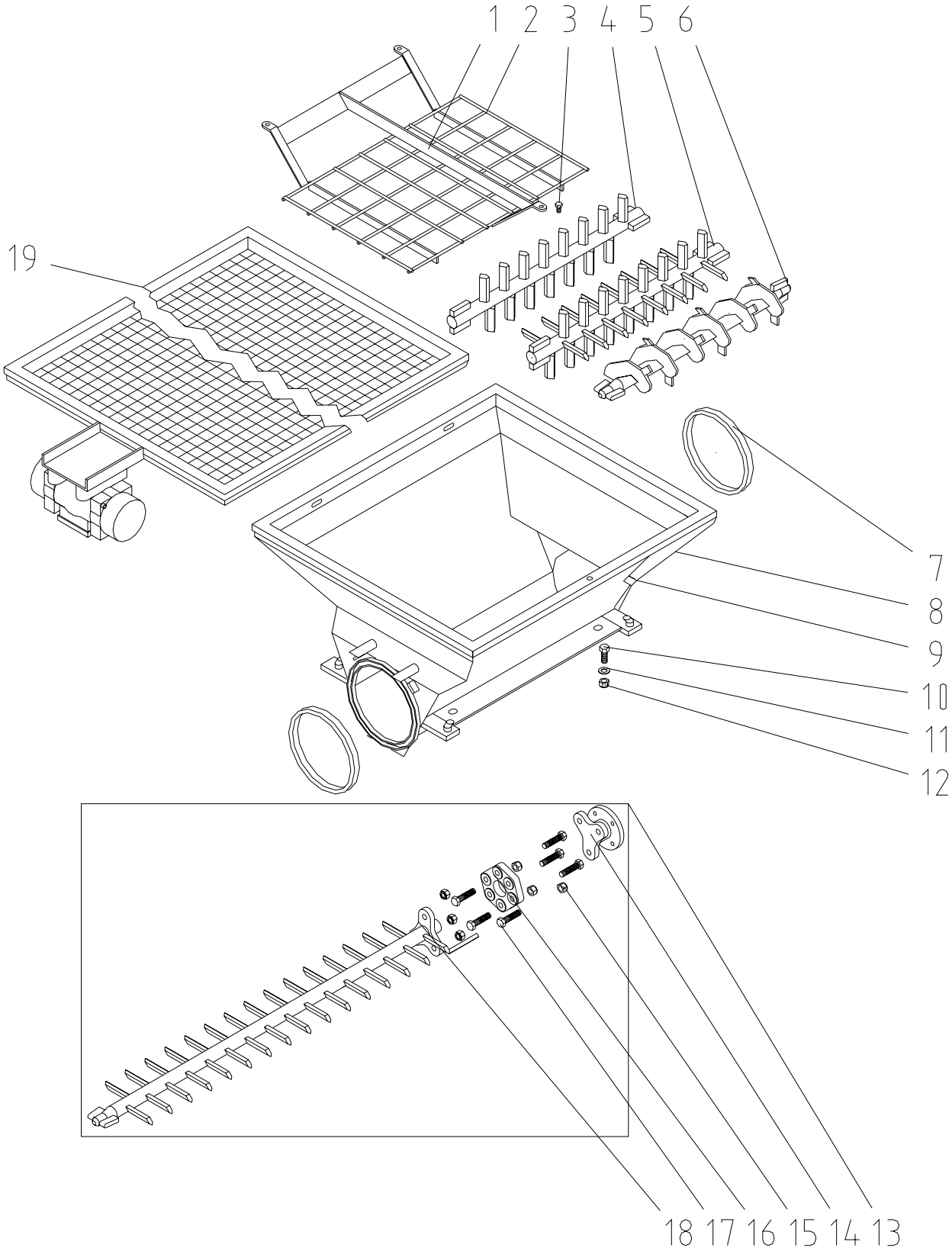
20 19 65 00 Mortar nozzle 18 mm
20 19 66 00 Mortar nozzle 20 mm

Fault – cause – remedy

How can problems with the booster pump PFT ZP 3 be avoided or quickly rectified ?

Fault	**Cause**	**Remedy**
Machine does not start after actuating the remote control:	Main power: Undervoltage: Controlling current: Pump blocked:	Check plug, cable, motor protection switch Cable cross-section 4 mm², cable length max. 50 m. Check fine fuses on transformer, plug connections of control cable. Run pump briefly in reverse.
Motor does not start. Motor protection stops:	Material too hard: Conveying distances too long: Conveying pressure too high: Conveying output too high:	Adjust to a thinner consistency. Select larger hoses. Reduce conveying distances. Change pump type.
Motor does not stop when attempting to switch off using the remote control:	Plugs on control box swapped:	Change plugs on control box.
Machine stops or does not start:	Air pressure safety switch misadjusted or faulty:	Reset to factory setting or replace.
	Working with compressor	
Machine does not start when the spraying gun is opened:	Air nozzle tube blocked or air pressure switch misadjusted:	Clean air nozzle tube and check setting values at the air pressure switch.
Machine does not stop when the spraying gun is closed:	Air pressure safety switch is misadjusted or the cables of pressure control are not plugged in to the control box correctly:	Check setting values and inspect cable connections.
Red fault lamp lights up:	Motor safety switch was activated:	Rectify the cause of the motor overloading.
Machine does not start when remote controlled without wiring:	Insufficient pressure gradient in remote control due to blocked air pipe or air nozzle tube:	Clean air pipe / air nozzle tube.
Machine does not start or stop when remote controlled without wiring:	Air pressure safety switch misadjusted or faulty:	Reset to factory setting or replace.
Machine does not start:	To much dried material in hopper. Possibly tunnel formation:	**Warning! Main switch Off** **Pull main power cable**. Half-empty the material hopper. Restart machine.
Machine does not start:	Hardened material is blocking the pump unit (rotor/stator):	**Warning! Main switch Off** **Pull main power cable**. Remove pump and install new pump.

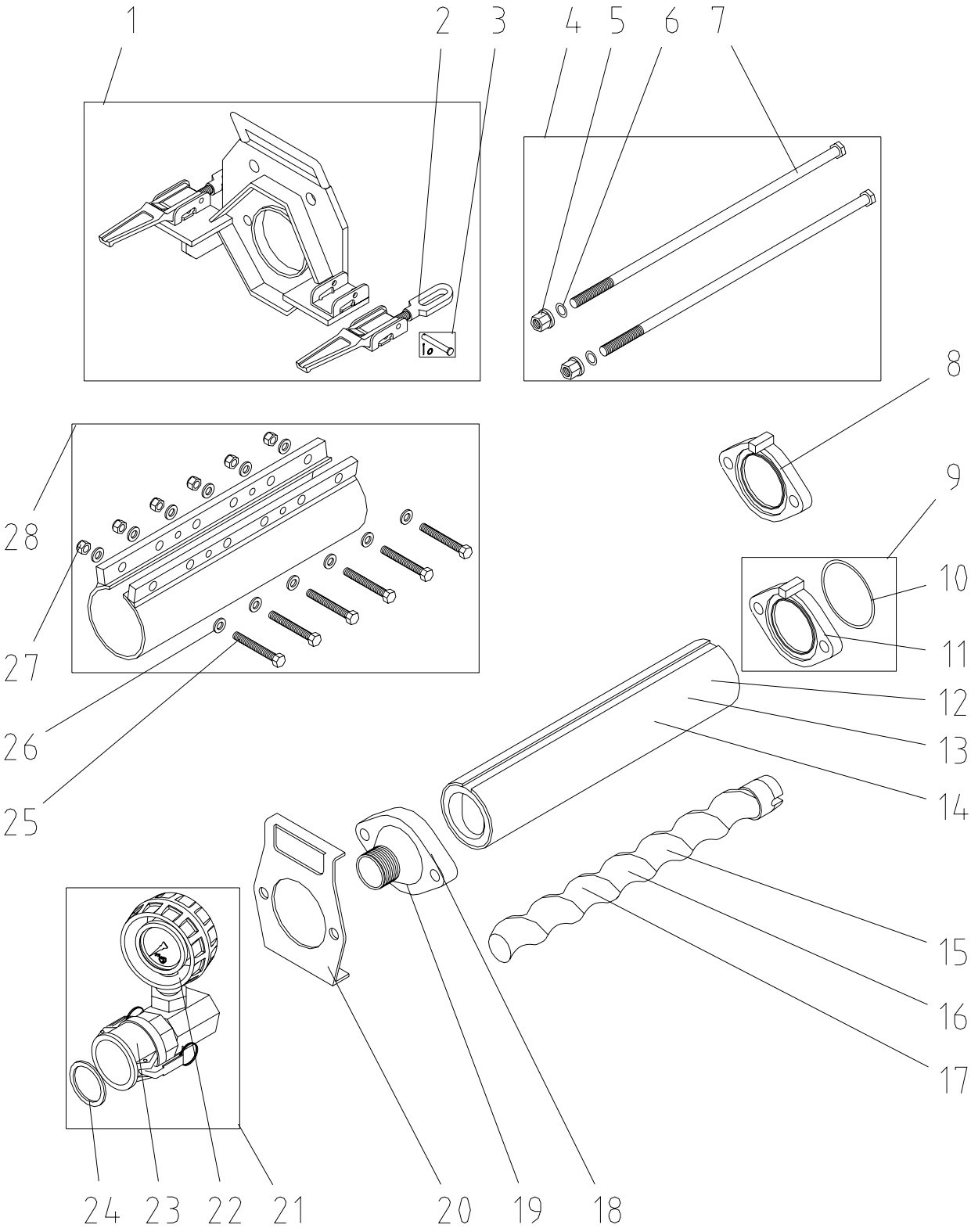
Exploded drawing material hopper for ZP 3 S (item no.: 20171000) and ZP 3 FU 400 (item no.: 00053696)



Spare parts list material hopper for ZP 3 S and ZP 3 FU 400

Item	Qty	Item no.:	Article description
1	1	20 17 21 01	Protective grill for ZP3S/V
2	1	00 04 87 97	Protective grill for ZP 3 S/V extended RAL 2004
3	1	20 20 87 01	Skt. screw M8 x 16 DIN 933 zinc-pl.
4	1	20 17 24 05	Pump shaft 2-row ZP3
5	1	20 17 24 02	Pump shaft ZP3 4-row
6	1	20 17 24 03	Pump shaft ZP3
7	2	20 17 21 05	Gasket material hopper ZP3/HM3, 15 x 10 x 610
8	1	20 17 21 00	Material hopper ZP 3/HM 3
9	1	00 04 87 95	Material hopper ZP 3/HM 3 extended RAL 2004
10	4	20 20 68 01	Skt. screw M12 x 30 DIN 933 zinc-pl.
11	4	20 20 90 00	U disc B 13 DIN 125 zinc-plated
12	4	20 20 89 00	Nut M12 DIN 985 zinc-plated
13	1	00 05 37 70	Pump shaft for torsion damper extended large material hopper
14	1	00 05 40 31	Hauling hub pluggable, torsion damper RAL2004
15	1	20 20 89 00	Nut M12 DIN 985 zinc-plated
16	1	00 00 20 64	Flexible disk type GN 161s
17	1	20 20 59 00	Skt. screw M12 x 50 DIN 933 zinc-pl.
18	1	00 05 37 06	Pump shaft for torsion damper RAL2004
19	1	00 05 36 59	Vibrating screen for ZP 3 extended incl. vibrator RAL2004

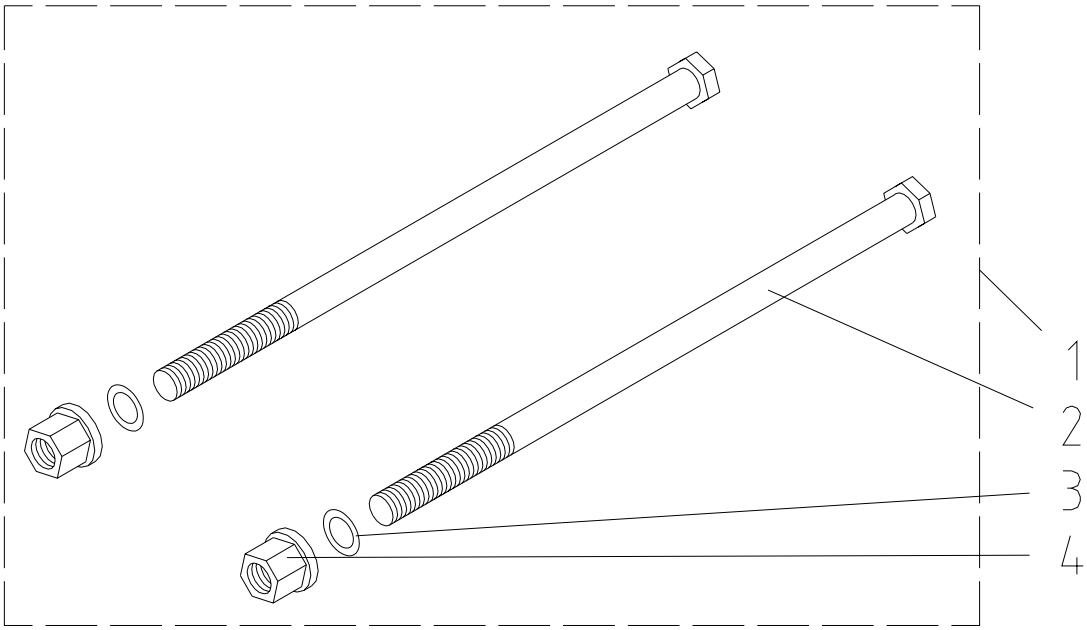
Exploded drawing pump for ZP 3 S and ZP 3 FU 400

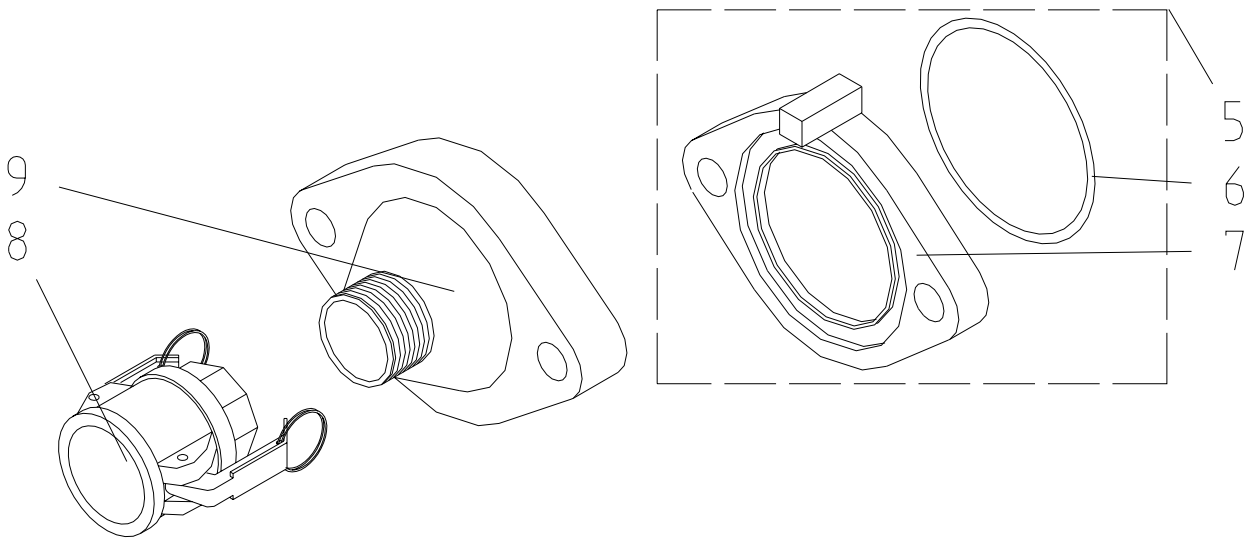


Spare parts list pump ZP 3 S and ZP 3 FU 400

Item	Qty	Item no.:	Article description
1	1	20 17 23 00	Pump flange with snap lock (20 17 10 00 / 20 17 12 00)
2	2	20 10 08 01	Snap lock with catch
3	2	20 20 85 22	Cotter bolt 8 H11 x 58 x 54 with disk and splint zinc-plated
4	1	20 11 89 10	Tie rods M16 x 630 for pumps 545 mm length (1 set = 2 pieces)
5	2	20 20 99 21	Nut M16 DIN 6331 zinc-plated
6	2	20 17 28 00	O-ring 16 x 2 DIN 3771-NBR 70
7	2	20 11 89 12	Screw M16 x 630 DIN 931 zinc-plated for tie rod 20118910
8	1	20 17 52 11	Suction flange T-pumps for O-ring RAL2004
9	1	20 12 09 12	Suction flange R pumps with O-ring 155 mm
10	1	20 10 42 30	O-ring for suction flange 117 x 5
11	1	20 12 09 13	Suction flange R pumps for O-ring 155 mm
12	1	20 11 63 01	Stator R7-3S
13	1	20 11 63 70	Stator R9-2
14	1	20 11 66 00	Stator T10-1,5
15	1	20 11 48 21	Rotor R7-3S (20 17 10 00 / 20 17 12 00)
16	1	20 11 48 80	Rotor R9-2, with shot peening (00 05 36 96)
17	1	20 11 49 70	Rotor T10-1,5, with shot peening (00 04 87 76)
18	1	20 11 91 10	Pressure flange T-Pumpe 2" ext. thread, ZP 3/UP RAL2004
19	1	20 11 89 20	Pressure flange R pump, 2” AG, ZP3/UP
20	1	20 17 21 03	Support plate for ZP 3 pump with handle
21	1	00 10 22 29	Mortar pressure gauge 50 mm galv. cpl.
22	1	00 09 90 88	Gauge with plastic inlet housing 0-100 bar 1/2" pressure reducer VA
23	1	20 20 07 80	Coupling 50M component 2" IG with gasket
24	1	20 20 07 13	Gasket 50M component
25	6	20 20 70 00	Skt. screw M12x100 DIN 933 zinc-plated
26	12	20 20 90 00	U disc B 13 DIN 125 zinc-plated
27	6	20 20 89 00	Nut M 12 DIN 985 zinc-plated
28	1	20 11 79 00	Clamp 515 mm f. R pumps 545 mm

Exploded drawing retrofit set D pump

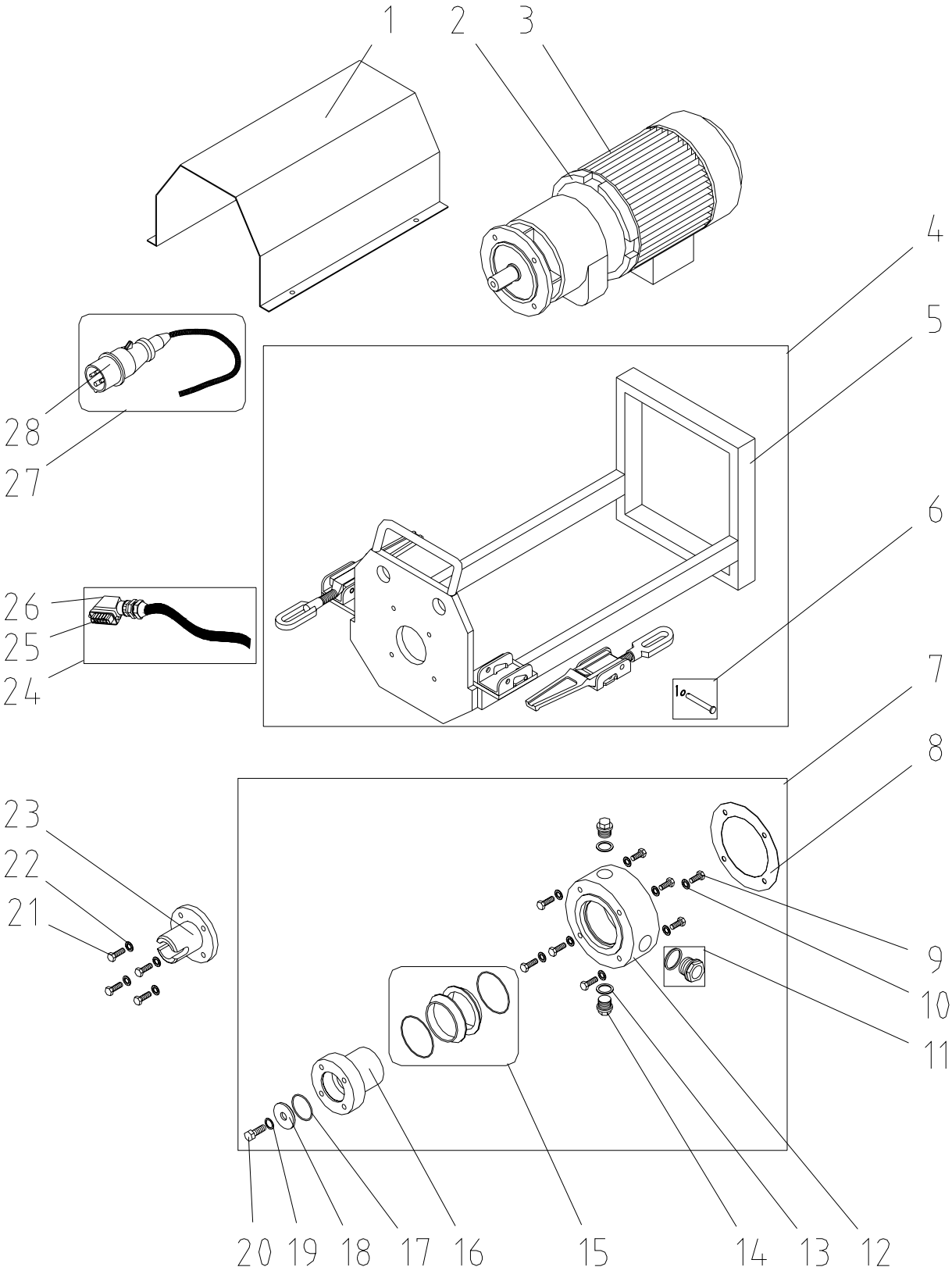




Spare parts list retrofit set D pump

Item	Qty	Item no.:	Article description
1	1	20 11 87 20	Tie rods M16 x 350 for pumps 270mm length (1 set = 2 parts)
2	1	20 11 87 21	Screw M16 x 350 DIN 931 zinc-plated for tie rod 20118720
3	1	20 17 28 00	O-ring 16 x 2 DIN 3771-NBR 70
4	1	20 20 99 21	Nut M16 DIN 6331 zinc-plated
5	1	20 12 09 22	Suction flange D pumps with O-ring 155 mm
6	1	20 10 42 30	O-ring for suction flange 117 x 5
7	1	20 12 09 23	Suction flange D pumps for O-ring 155 mm
8	1	20 20 07 90	Coupling 35M part 1 1/4" IG with gasket
9	1	20 11 87 02	Pressure flange D pump 1 1/4"AG

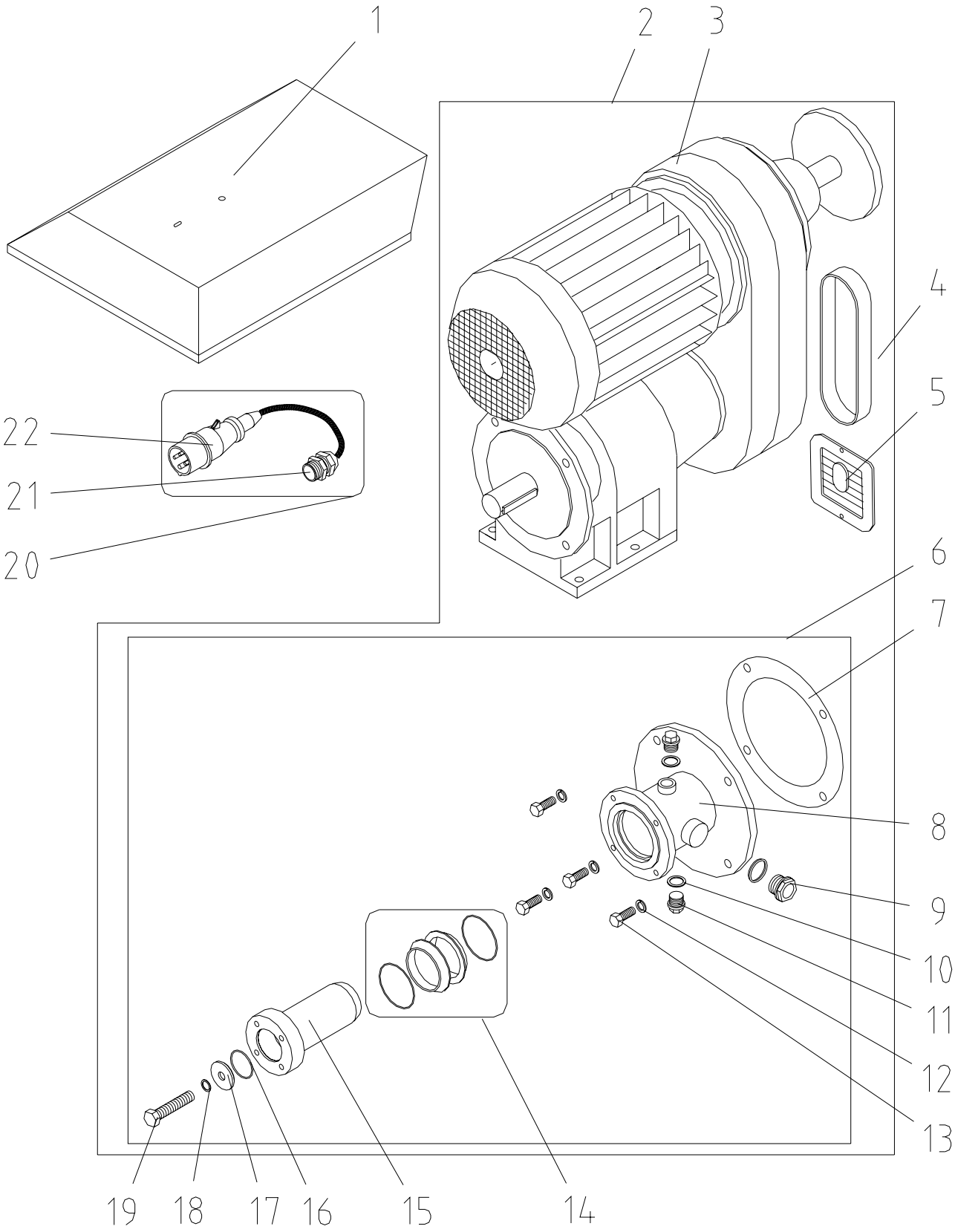
Exploded drawing drive for ZP 3 S and ZP 3 FU 400



Spare parts list drive for ZP 3 S and ZP 3 FU 400

Item	Qty	Item no.:	Article description
1	1	20 17 22 00	Motor protection plate ZP 3 S
2	1	20 13 97 03	Gearbox 5.5 kW 180 rpm at 50 Hz/216 rpm at 60 Hz
3	1	20 14 35 01	Gearbox 7.5 kW 175 rpm for large mat. hopper
4	1	20 17 25 00	Motor protection plate ZP 3 S with snap lock
5	1	20 17 29 00	Motor flange for ZP3S
6	2	20 20 85 22	Cotter bolt 8 H11 x 58 x 54 with disk and splint zinc-plated
7	1	20 14 40 20	Oil sealing unit ZP 3S D=30 x 60
8	1	20 12 16 07	Paper seal D160 x d110 x 0.5
9	8	20 20 78 10	Skt. screw M 8 x 25 DIN 933 zinc-plated
10	8	20 20 93 14	Washer A 8.4 DIN 6798 zinc-plated
11	1	20 14 40 12	Oil control glass R 1"
12	1	20 14 40 24	Housing for oil sealing ZP 3 S galv.
13	2	20 10 26 01	Gasket USIT TM 120 NBR 28 x 20.7 x 1.5
14	2	20 20 58 80	Screw 1/2" DIN 910
15	1	20 14 40 21	Ring gasket (set) oil sealing unit ZP3
16	1	20 17 21 13	Collar D=30 mm for ZP 3 S
17	1	20 14 40 15	O-ring D 50 x 2 DIN 3770-NBR 70
18	1	20 14 40 77	Sealing disk D 53.5 x 10.5 T 10
19	1	20 10 26 02	Gasket USIT 16 x 10 x 1.5
20	1	20 20 75 01	Skt. screw M10 x 30 DIN 933 zinc-pl.
21	4	20 20 61 00	Skt. screw M8 x 20 DIN 933 zinc-pl.
22	4	20 20 93 14	Washer A 8.4 DIN 6798 zinc-plated
23	1	00 02 38 13	Hauling bracket for ZP 3 (10mm) galvanised
24	1	00 07 03 57	Motor connection cable 5,0m 4 x 2,5mm² 16A with plug 10 pol.
25	1	20 43 23 00	Male insert 10-pin HAN 10 E
26	1	00 04 06 71	Tüllengehäuse 10-polig HAN 10 E 16A
27	1	20 42 41 20	Motor connection cable 5.0 with CEE plug 4 x 16 A 6h red ring eyelet 5 mm
28	1	20 42 79 00	Plug CEE 4 x 16 A 6h red no. 252

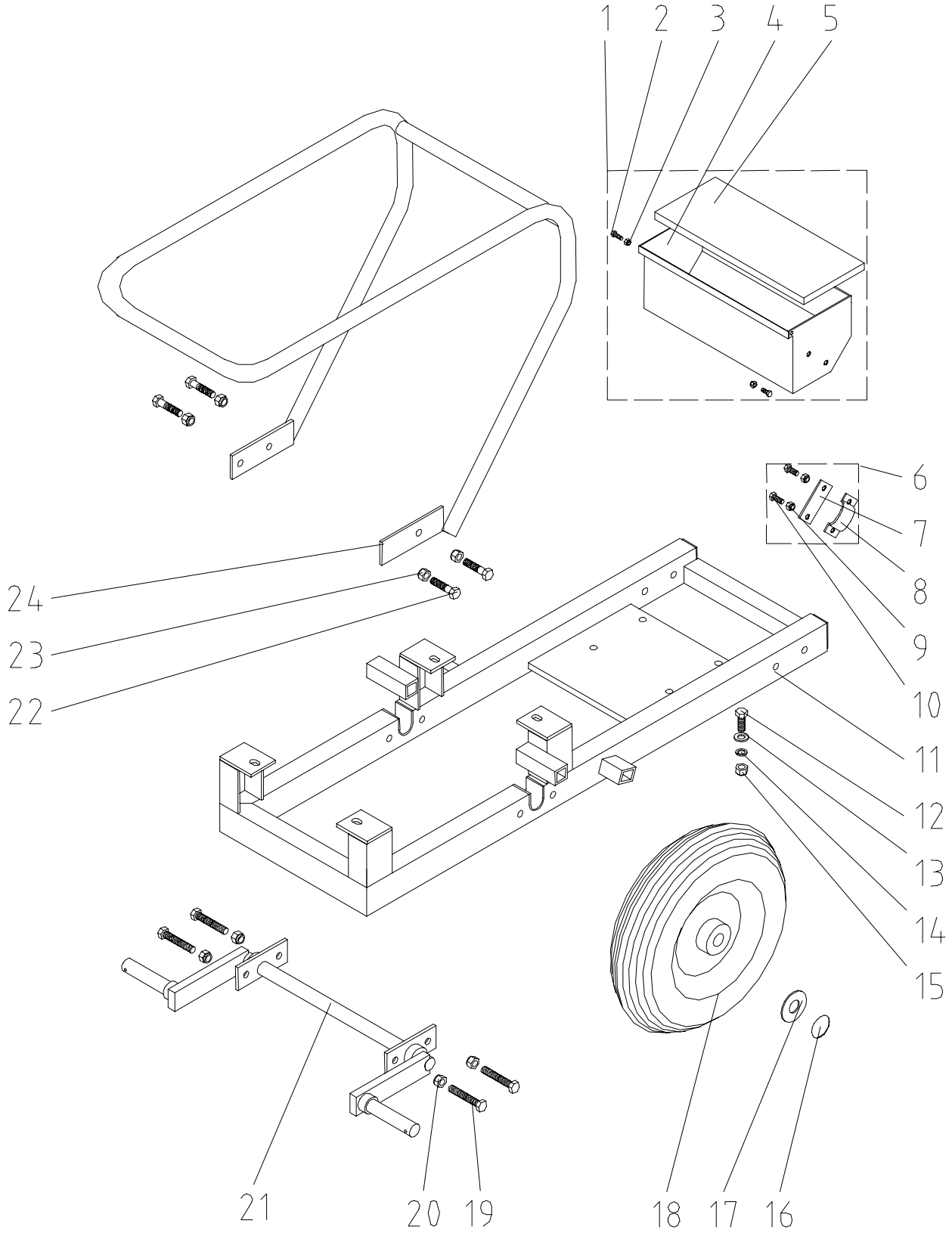
Exploded drawing drive ZP 3 V



Spare parts list drive ZP 3V

Item	Qty	Item no.:	Article description
1	1	00 04 80 49	Motor protection plate ZP 3 V
2	1	20 14 40 00	Gearbox VARIO 5.5 kW 50-190 rpm with oil sealing unit ZP 3
3	1	20 14 40 01	Gearbox VARIO 5.5 kW 50-190 rpm at 50 Hz, 60-228 rpm at 60 Hz
4	1	20 14 40 05	V-belt VARIO transmission SK32
5	1	20 14 40 40	Fan cover Vario transmission SK32-R210
6	1	20 14 40 10	Oil sealing unit ZP 3V D=40 x 80
7	1	20 14 40 14	Paper seal ABIL D 250 x D 180 x 0.5
8	1	20 14 40 36	Sealing cover ZP 3 V
9	1	20 14 40 12	Oil control glass R 1"
10	2	20 10 26 01	Gasket USIT TM 120 NBR 28 x 20.7 x 1.5
11	2	20 20 58 80	Screw 1/2" DIN 910
12	4	20 20 91 10	Spring washer B 12 DIN 127 zinc-pl.
13	4	20 20 68 01	Skt. screw M12 x 30 DIN 933 zinc-pl.
14	1	20 14 40 21	Ring gasket (set) oil sealing unit ZP3
15	1	20 17 21 14	Collar D=40 mm for ZP 3 V
16	1	20 14 40 15	O-ring D 50 x 2 DIN 3770-NBR 70
17	1	20 02 50 55	Sealing disk D 53.5 x D 16.5 T 10
18	1	20 02 50 35	Gasket USIT U-A-22 x 16 x 1.5
19	1	20 20 81 01	Skt. screw M16 x 90 DIN 933 zinc-plated
20	1	20 42 41 19	Motor connection cable 5.0 with CEE plug 4 x 16 A 6h red ring eyelet 4 mm
21	1	00 04 11 27	Connector skintop M 20 x 1,5
22	1	20 42 79 00	Plug CEE 4 x 16 A 6h red no. 252

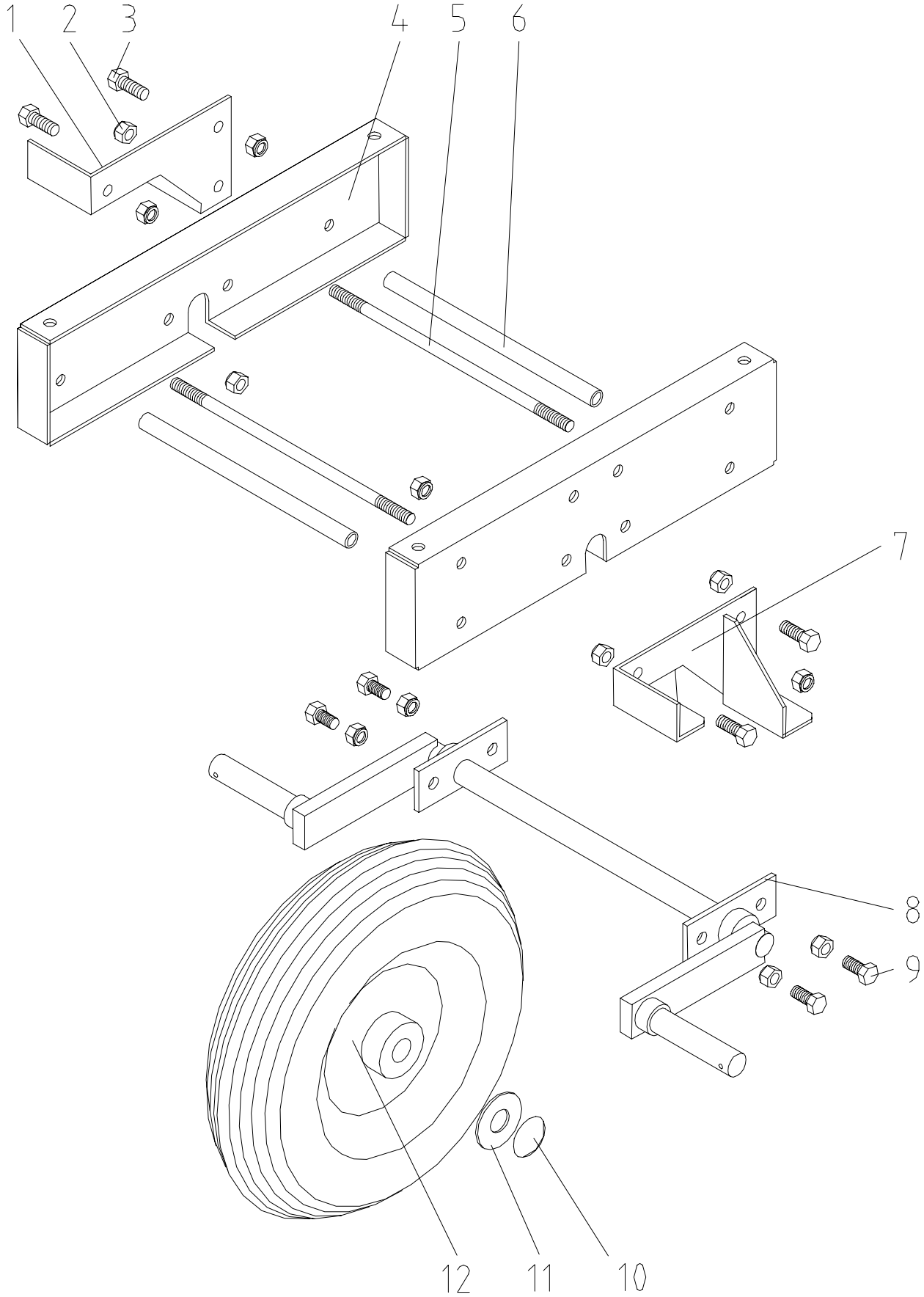
Exploded drawing frame ZP 3 V



Spare parts list frame ZP 3 V

Item	Qty	Item no.:	Article description
1	1	20 10 80 10	Tool kit ZP 3 V/MONOJET cpl.
2	2	20 20 62 00	Nut M6 DIN 985 zinc-pl.
3	2	20 20 71 01	Skt. screw M6 x 16 DIN 933 zinc-pl.
4	1	20 10 80 26	Tool kit casing ZP 3 V/MONOJET
5	1	20 10 80 27	Tool kit lid ZP 3 V/MONOJET
6	2	20 17 35 25	Tool kit fixing set ZP 3 V
7	1	20 04 89 06	Spacer tool kit fixing ZP 3 V
8	1	20 20 30 23	Pipe clip 2 clips 28.5x 25x3 zinc-pl.
9	2	20 20 72 00	Nut M8 DIN 985 zinc-pl.
10	2	20 20 78 10	Skt. screw M8 x 25 DIN 933 zinc-pl.
11	1	20 08 00 07	Frame ZP 3 V painted
12	4	20 20 99 62	Skt. screw M12 x 35 DIN 933 zinc-pl.
13	4	20 20 90 00	U disc B 13 DIN 125 zinc-pl.
14	4	20 20 91 10	Spring washer B 12 DIN 127 zinc-pl.
15	4	20 20 89 00	Nut M12 DIN 985 zinc-pl.
16	2	00 00 26 32	Fast catch with cap 25s x N 2 7
17	2	20 20 93 22	U disc B 25 DIN 125 zinc-pl.
18	2	20 17 35 00	Free wheel (with pneumatic tire) 4.00 x 8
19	4	20 20 99 65	Skt. screw M12 x 70 DIN 931 zinc-pl.
20	4	20 20 89 00	Nut M12 DIN 985 zinc-pl.
21	1	20 17 35 26	Tilting axle ZP 3 V
22	4	20 20 59 10	Skt. screw M12 x 60 DIN 931 zinc-pl.
23	4	20 20 89 00	Nut M12 DIN 985 zinc-pl.
24	1	20 17 21 02	Transport handle f. ZP 3 V

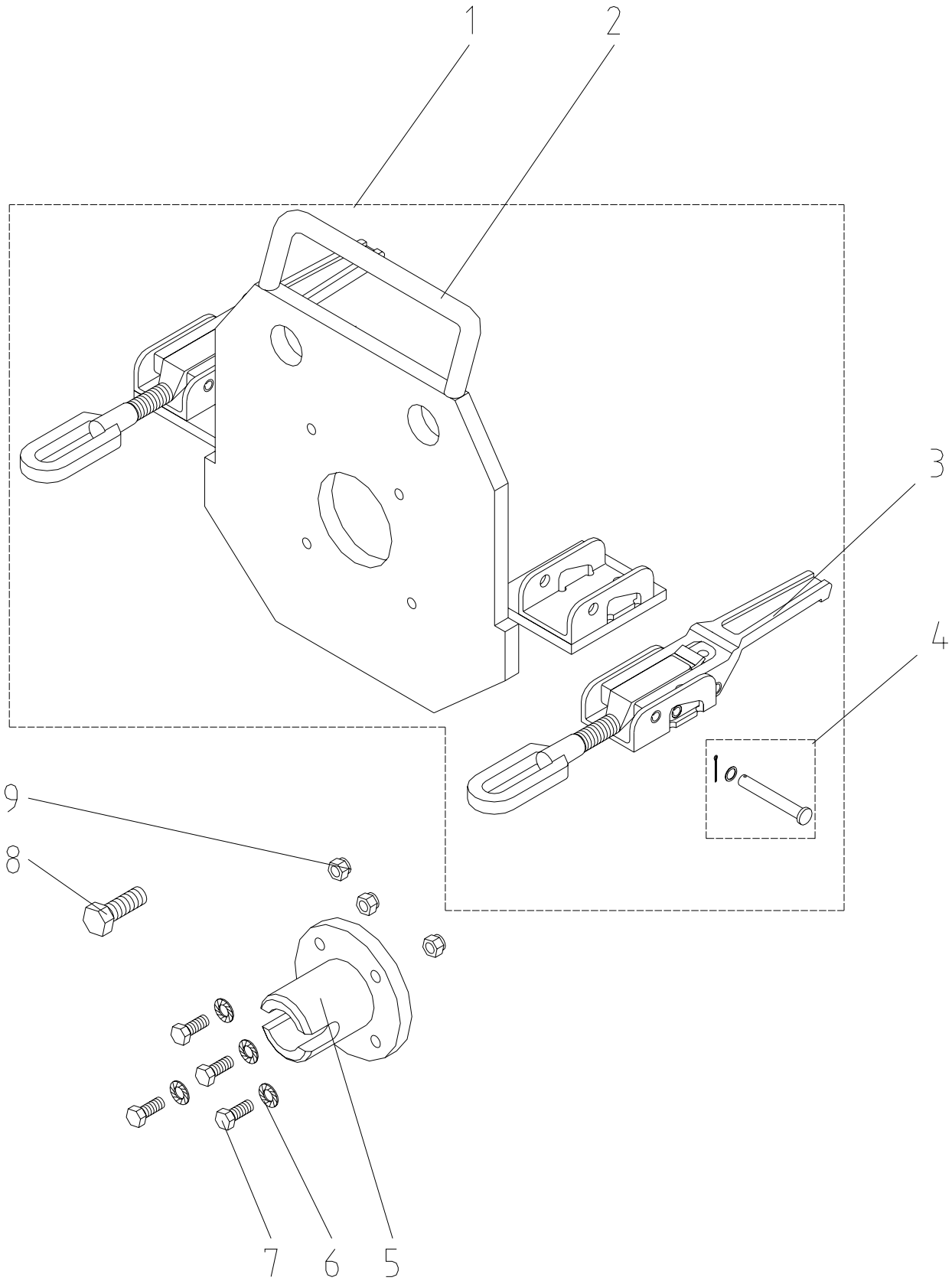
Exploded drawing tilt axle ZP3 00053696 20171000



Spare parts list tilt axle ZP3 00053696 20171000

Item	Qty	Item no.:	Article description
1	1	20 17 35 23	Axle stop right ZP 3 S
2	12	20 20 89 00	Nut M12 DIN 985 zinc-pl.
3	4	20 20 68 01	Skt. screw M12 x 30 DIN 933 zinc-pl.
4	2	20 17 35 20	Axle bracket ZP 3 S
5	2	20 20 99 90	Threaded rod M12 x 320
6	2	20 17 35 21	Spacer tube bracket ZP 3 S
7	1	20 17 35 22	Axle stop left ZP 3 S
8	1	20 17 35 24	Tilt axle ZP 3 S
9	4	20 20 99 63	Skt. screw M12 x 25 DIN 933 zinc-pl.
10	2	00 00 26 32	Fast catch with cap 25s x N 2 7
11	2	20 20 93 22	U disc B 25 DIN 125 zinc-pl.
12	2	20 17 35 00	Free wheel (with pneumatic tire) 4.00 x 8

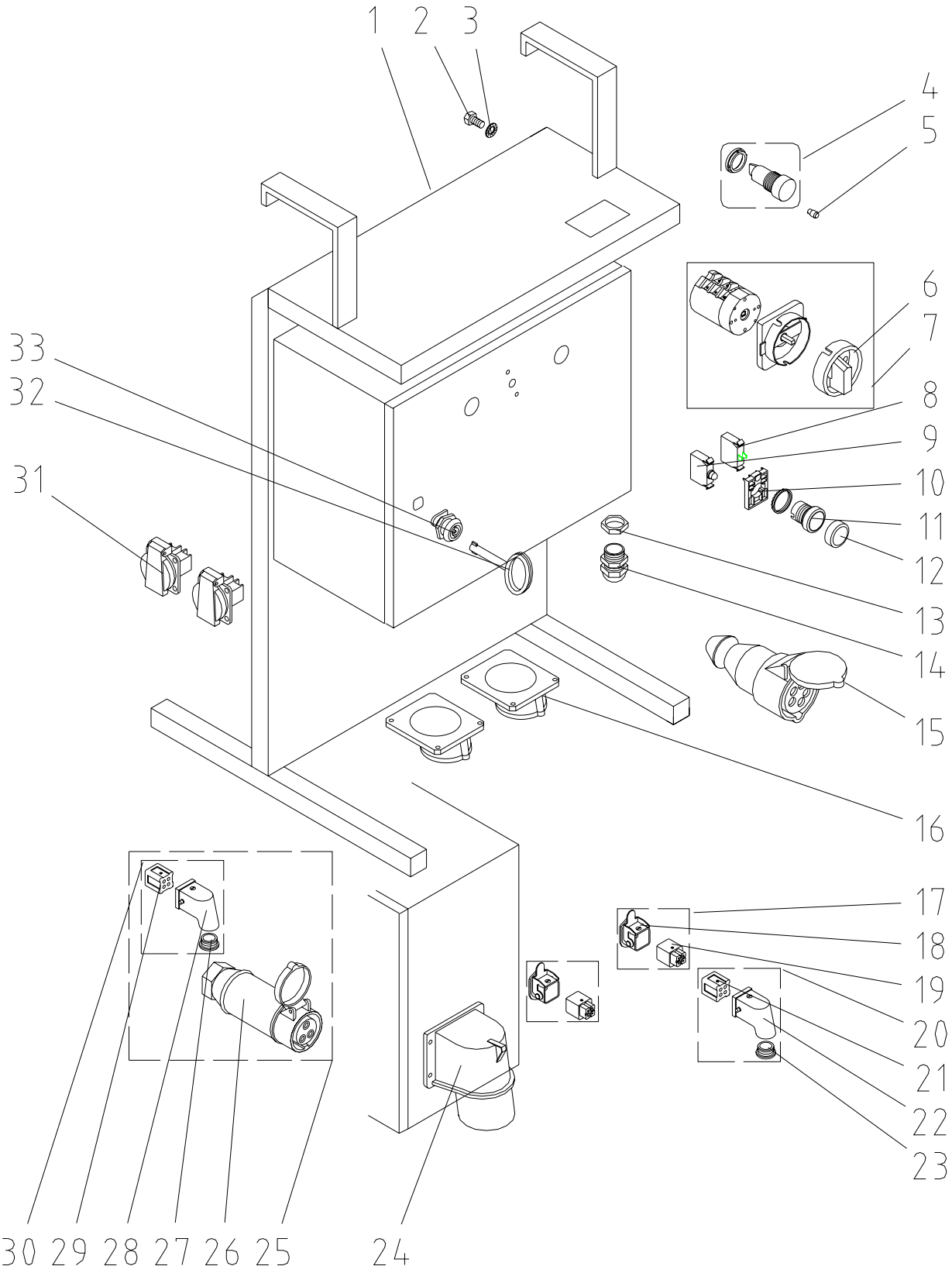
Exploded drawing motor flange ZP 3 V



Spare parts list motor flange ZP 3 V

Item	Qty	Item no.:	Article description
1	1	20 17 25 10	Motor flange ZP 3 V with snap lock
2	1	20 17 25 11	Motor flange ZP 3 V
3	2	20 10 08 01	Snap lock with catch
4	2	20 20 85 22	Cotter bolt 8 H11 x 58 x 54 with disk and splint zinc-pl.
5	1	00 02 38 13	Hauling bracket for ZP 3 (10mm) galvanised
6	4	20 20 93 14	Washer A 8.4 DIN 6798 zinc-plated
7	4	20 20 61 00	Skt. screw M8 x 20 DIN 933 zinc-pl.
8	4	20 20 99 62	Skt. screw M12 x 35 DIN 933 zinc-pl.
9	4	20 20 72 00	Nut M8 DIN 985 zinc-pl.

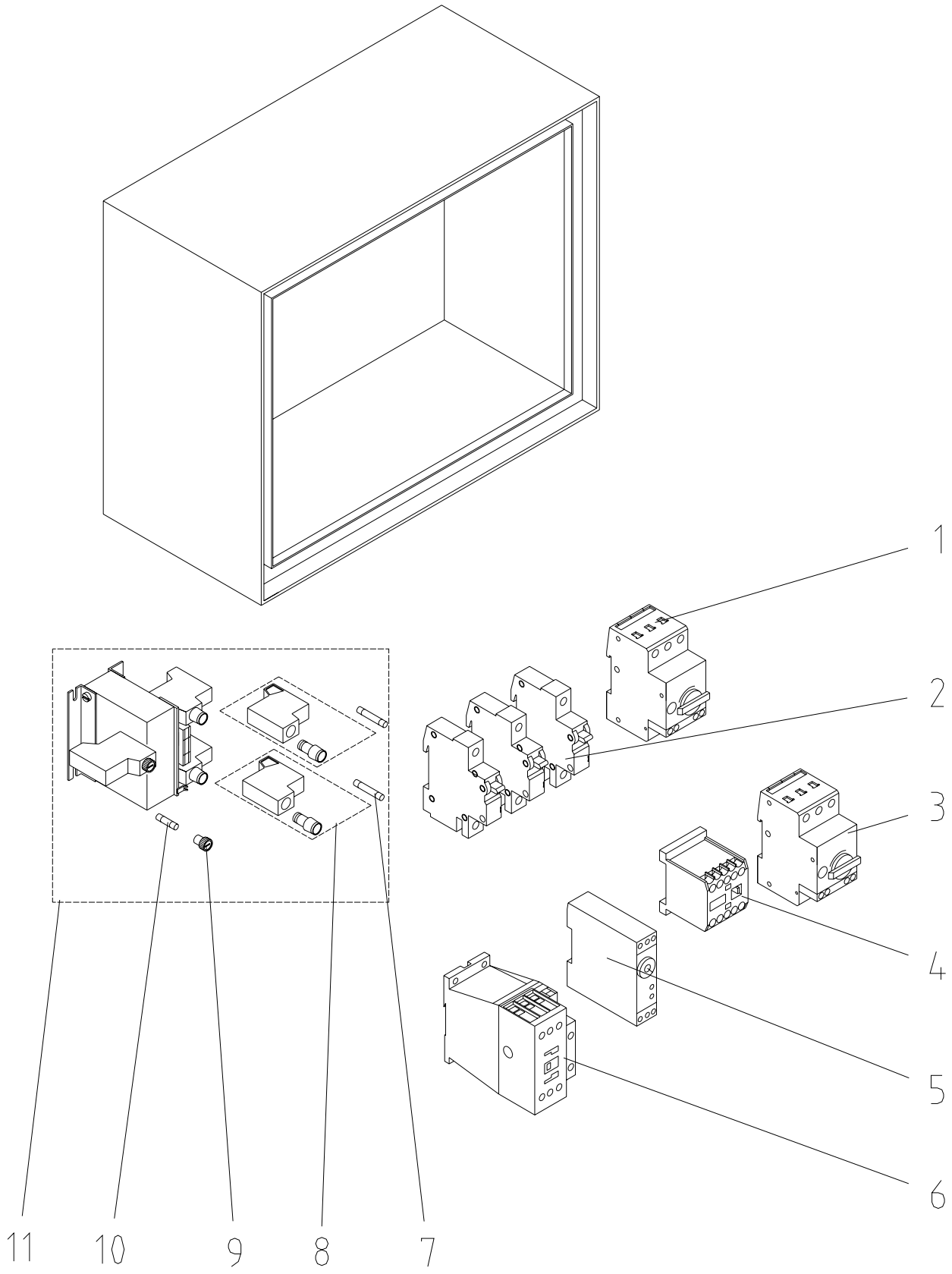
Exploded drawing control box ZP 3 S ZP 3 V



Spare parts list control box ZP 3 S and ZP 3 V

Item	Qty	Item no.:	Article description
1	1	20 54 51 09	Manifold frame high version
2	4	20 20 87 01	Skt. screw M8 x 16 DIN 933 zinc-pl.
3	4	20 20 93 14	Washer A 8.4 DIN 6798 zinc-plated
4	1	00 00 22 51	Control lamp plug-type socket red without electric bulb front installation
5	1	20 45 91 01	Light bulb 42 V 2 W plug-type socket BA 9S
6	1	20 45 52 01	Toggle for main reversing switch item 455200
7	1	20 45 52 00	Main reversing switch
8	1	00 05 38 35	Contact element 1 closer M22 EK10
9	1	00 05 38 80	Illuminated element green 12-30 V
10	1	00 05 38 34	Fixation adapter for switch elements
11	1	00 05 38 33	Illuminated button green M22
12	1	00 05 38 30	Membranes round for pressure switch IP 67
13	1	00 04 11 46	Counternut Skintop M 25 x 1,5
14	1	00 04 11 42	Skintop screwing M 25 x 1,5
15	1	20 42 92 00	CEE coupling 5 x 16 A 6h red no. 5
16	2	20 42 66 00	CEE panel mounted socket 4 x 16 A 6h red no.1467, flange 92 x 100
17	2	20 42 98 00	Coupling 4-pin HAN 3A with female insert
18	1	20 42 86 04	Housing 4/5-pin, HAN 3A/HA 4
19	1	20 42 86 07	Female insert 4-pin, HAN 3A
20	1	20 42 85 01	Blind plug 4-pin, HAN 3A
21	1	20 42 86 06	Male insert 4-pin HAN 3A
22	1	20 42 86 05	Socket box 4- + 5-pin angled
23	1	20 43 12 00	Stopper PG 11
24	1	20 42 51 00	CEE panel mounted plug 5 x 32 A 6h red no.391
25	1	20 42 40 50	Control cable 0.5m with control plug 4-pin and CEE coupling 3 x 16 A 12h white
26	1	20 42 94 00	CEE coupling 3 x 16 A 12h white no. 715
27	1	20 43 12 00	Stopper PG 11
28	1	20 42 86 05	Socket box 4- + 5-pin angled
29	1	20 42 86 06	Male insert 4-pin HAN 3A
30	1	20 42 85 01	Blind plug 4-pin, HAN 3A
31	2	20 42 72 00	Panel mounted socket Schuko blue
32	1	20 44 45 00	Key for control box
33	1	00 03 62 49	Lock for control box

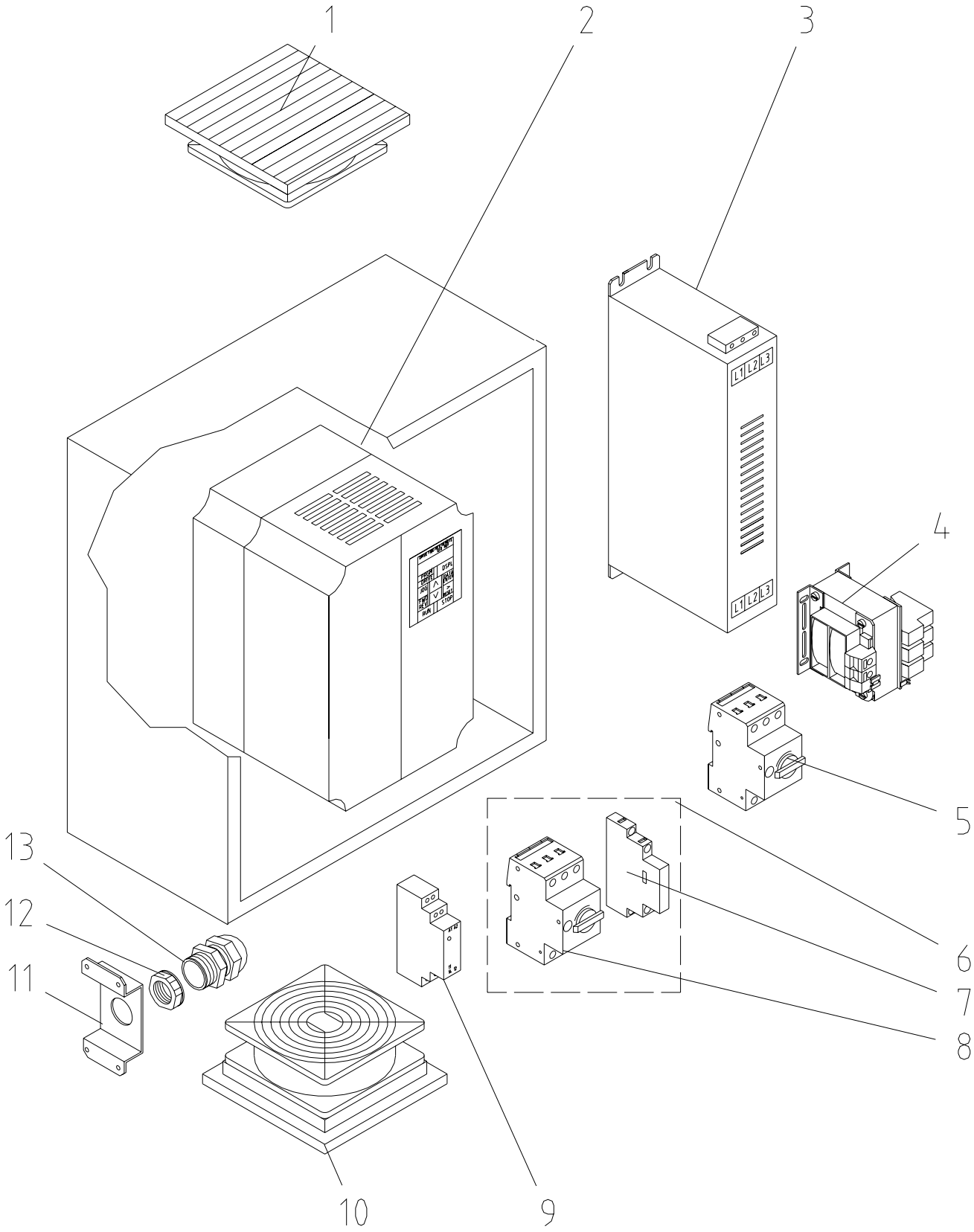
Exploded drawing control box ZP 3 S and ZP 3 V



Spare parts list control box ZP 3 S and ZP 3 V

Item	Qty	Item no.:	Article description
1	1	00 00 93 71	Motor protection switch 10-16A PKZM 0-16
2	3	20 41 93 10	Automatic circuit breaker 16A 1-pole
3	1	00 00 93 71	Motor protection switch 10-16A PKZM 0-16
4	1	20 44 72 00	Automatic plumb level DIL ER 22, 42V
5	1	20 45 27 40	Relay 42V, 0.5-10 sec.
6	1	00 08 42 25	Contactor DIL M17-10 42 V
7	2	00 08 72 53	Fuse 5 x 30x 0,63 A
8	2	20 41 92 50	Safety fuse TRKS 4/1-SI (5x30)
9	1	00 01 24 75	Sicherungseinsatzhalter rund/sw Bajonett
10	1	20 41 90 21	Fine fuse 5 x 20, 2.0 A, slow-blow
11	1	00 02 21 38	Transformer 400 V - 42 V 70 VA

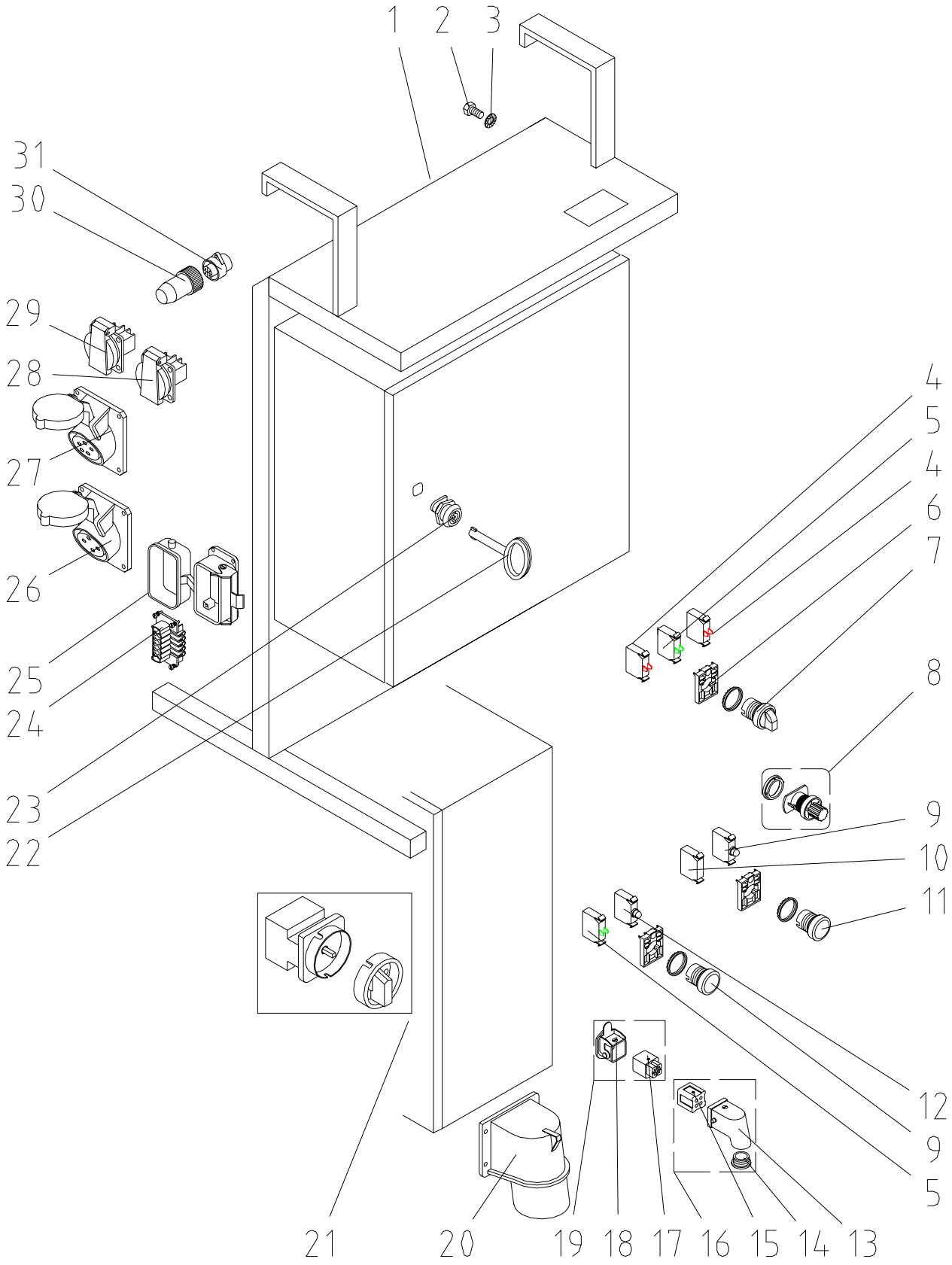
Exploded drawing control box ZP 3 FU 400 V



Spare parts list control box ZP 3 FU 400 V

Item	Qty	Item no.:	Article description
1	1	00 03 63 23	Outlet filter for control box
2	1	00 04 70 89	Frequency converter 400 V 3Ph 7.5 KW Warning!
3	1	00 07 02 44	EMC filter for frequency converter 7.5 KW 400 V
4	1	00 02 21 73	Transformer unit 230 V/400 V-42V 75 VA
5	1	00 04 25 99	Motor protection switch 0.63-1A PKZM 0-1
6	1	00 00 93 71	Motor protection switch 0-16 PKZM 10-16A
7	1	00 02 14 01	Auxiliary contact NHI-11-PKZO
8	1	00 04 26 02	Motor protection switch 10-16A PKZM 0-16
9	1	20 44 81 20	Switching relay 42V 2 dispenser
10	1	00 03 63 22	Filter fan 230 V AC for control box 150 x 150 mm
11	1	00 07 02 88	Zugentlastung für EMV Kabelverschraubung verzinktM 25 x 1,5
12	1	00 06 69 84	EMC counter nut M25 x 1.5
13	1	00 06 69 81	EMC cable screwing M25 x 1.5

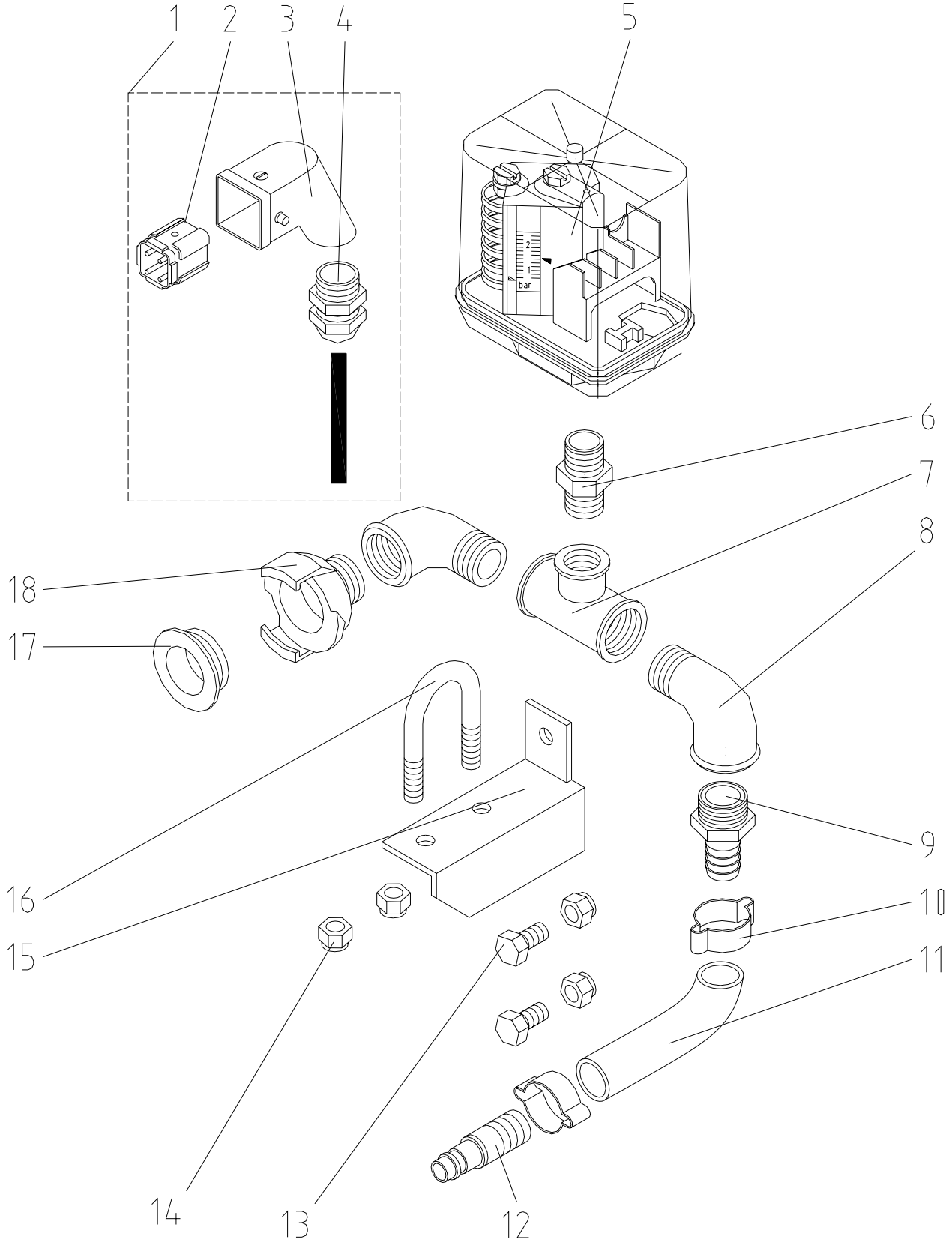
Exploded drawing control box ZP 3 FU 400 V



Spare parts list control box ZP 3 FU 400 V

Item	Qty	Item no.:	Article description
1	1	20 54 51 09	Manifold frame high version
2	4	20 20 87 01	Skt. screw M8 x 16 DIN 933 zinc-pl.
3	4	20 20 93 14	Washer A 8.4 DIN 6798 zinc-plated
4	2	00 05 38 63	Contact element 1 opener M22 EK01
5	2	00 05 38 35	Contact element 1 closer M22 EK10
6	1	00 05 38 34	Fixation adapter for switch elements
7	1	00 05 38 78	Selector switch toggle /sensing 0 engaging M22
8	1	00 03 63 41	Potentiometer 4.7 kOhm with drive /solder terminal
9	1	00 05 38 79	Illuminated element red 12-30 V
10	1	00 05 38 86	LED – resistor – series element for 42V
11	1	00 05 38 75	Indicator lamp attachment red M22
12	1	00 05 38 81	Illuminated element white 12-30 V
13	1	20 42 86 05	Socket box 4- + 5-pin angled
14	1	20 43 12 00	Stopper PG 11
15	1	20 42 86 06	Male insert 4-pin HAN 3A
16	1	20 42 85 01	Blind plug 4-pin, HAN 3A
17	1	20 42 86 07	Female insert 4-pin, HAN 3A
18	1	20 42 86 04	Housing 4/5-pin, HAN 3A/HA 4
19	1	20 42 98 00	Coupling 4-pin HAN 3A with female insert
20	1	20 42 51 00	CEE panel mounted plug 5 x 32 A 6h red no.391
21	1	00 01 99 92	Main switch type S1 013/HS-F3-D-RG 400 V
22	1	20 44 45 00	Key for control box
23	1	00 03 62 49	Lock for control box
24	1	20 43 22 00	Socket insert 10 pins HAN 10 E
25	1	20 43 20 01	Socket housing 10 poles, HAN 10 E
26	1	20 42 66 10	CEE panel mounted socket 4 x 16 A 6h red no.144
27	1	00 01 94 16	CEE panel mounted socket 5 x 16 A 6h red no.145
28	1	20 42 72 00	Panel mounted socket Schuko blue
29	2	20 42 72 00	Panel mounted socket Schuko blue
30	1	00 02 20 84	Round connector plug 693/4p
31	1	00 02 20 85	Round connector flanged socket 693/4p

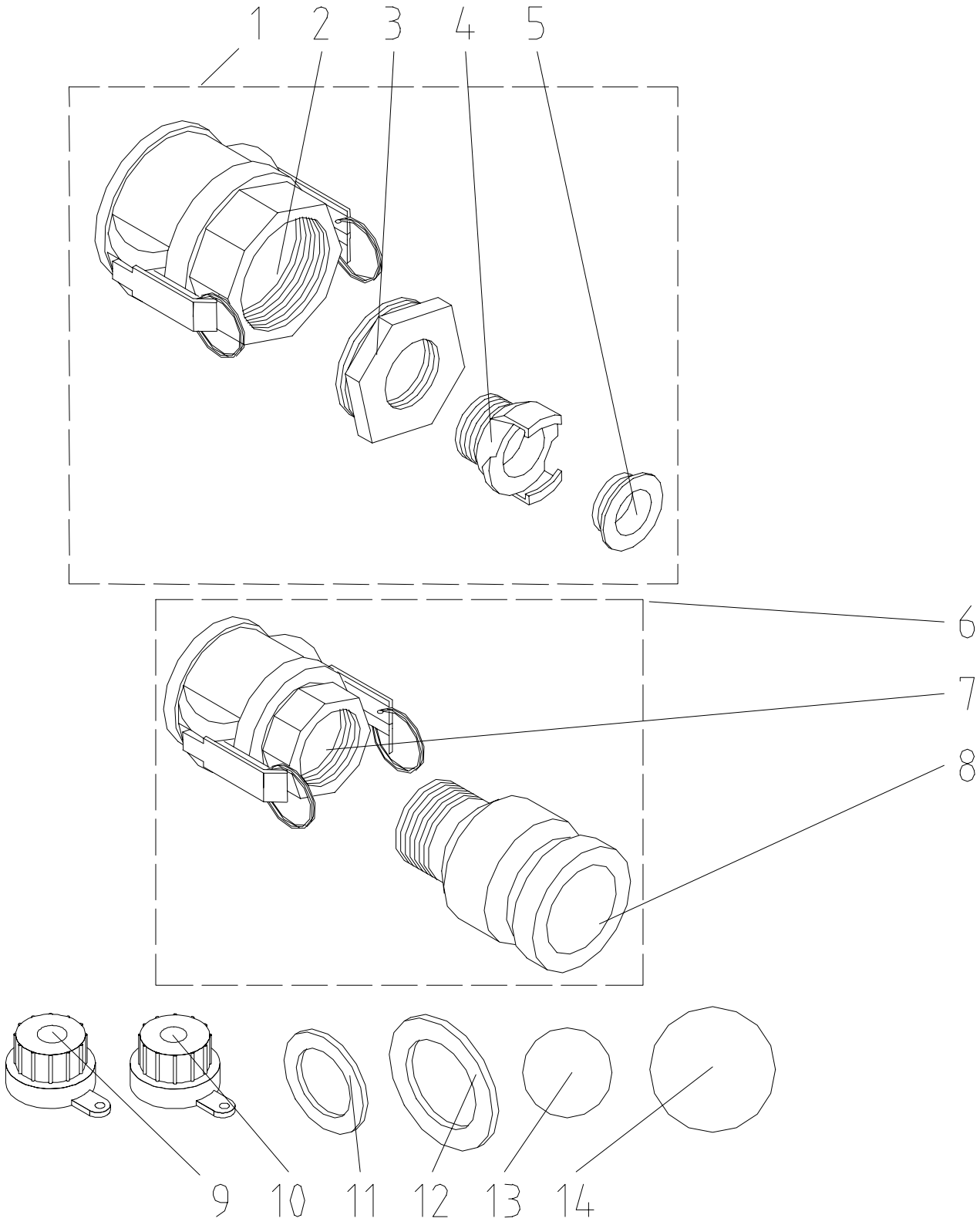
Exploded drawing pressure control ZP 3 V



Spare parts pressure control ZP 3 V

Item	Qty	Item no.:	Article description
	1	20 17 30 00	Complete pressure control
1	1	20 44 76 33	Connection cable safety switch ZP3/MONOJET
2	1	20 42 86 06	Male insert 4-pin HAN 3A
3	1	20 42 86 05	Socket box 4- + 5-pin angled
4	1	20 43 09 05	Connector skintop PG 11 with nut
5	1	20 44 76 01	Safety switch type FF4-4 0.22-4 bar (P)
6	1	20 20 37 10	Double nipple hexagonal 3/8" no. 280 zinc-pl.
7	1	20 20 43 02	T-piece 1/2" IG 3/8" IG 1/2" IG no.130
8	2	20 20 36 10	Curved section 1/2" IG-AG no. 92 zinc-pl.
9	1	20 19 04 10	Hose screw joint 1/2" AG socket 1/2"
10	2	20 20 25 00	Hose clip 20-23 VPE=10ST
11	1	20 21 37 00	Water/air hose 1/2" x 2000 mm
12	1	20 20 21 00	EWO coupling V component 1/2" socket
13	2	20 20 87 01	Skt. screw M8 x 16 DIN 933 zinc-pl.
14	4	20 20 72 00	Nut M8 DIN 985 zinc-pl.
15	1	20 54 51 05	Bracket manifold
16	1	20 20 99 85	Bail M8 x 3/4" x 43 zinc-pl.
17	1	20 20 17 00	Gasket Geka coupling
18	1	20 20 09 00	Geka coupling 1/2” AG

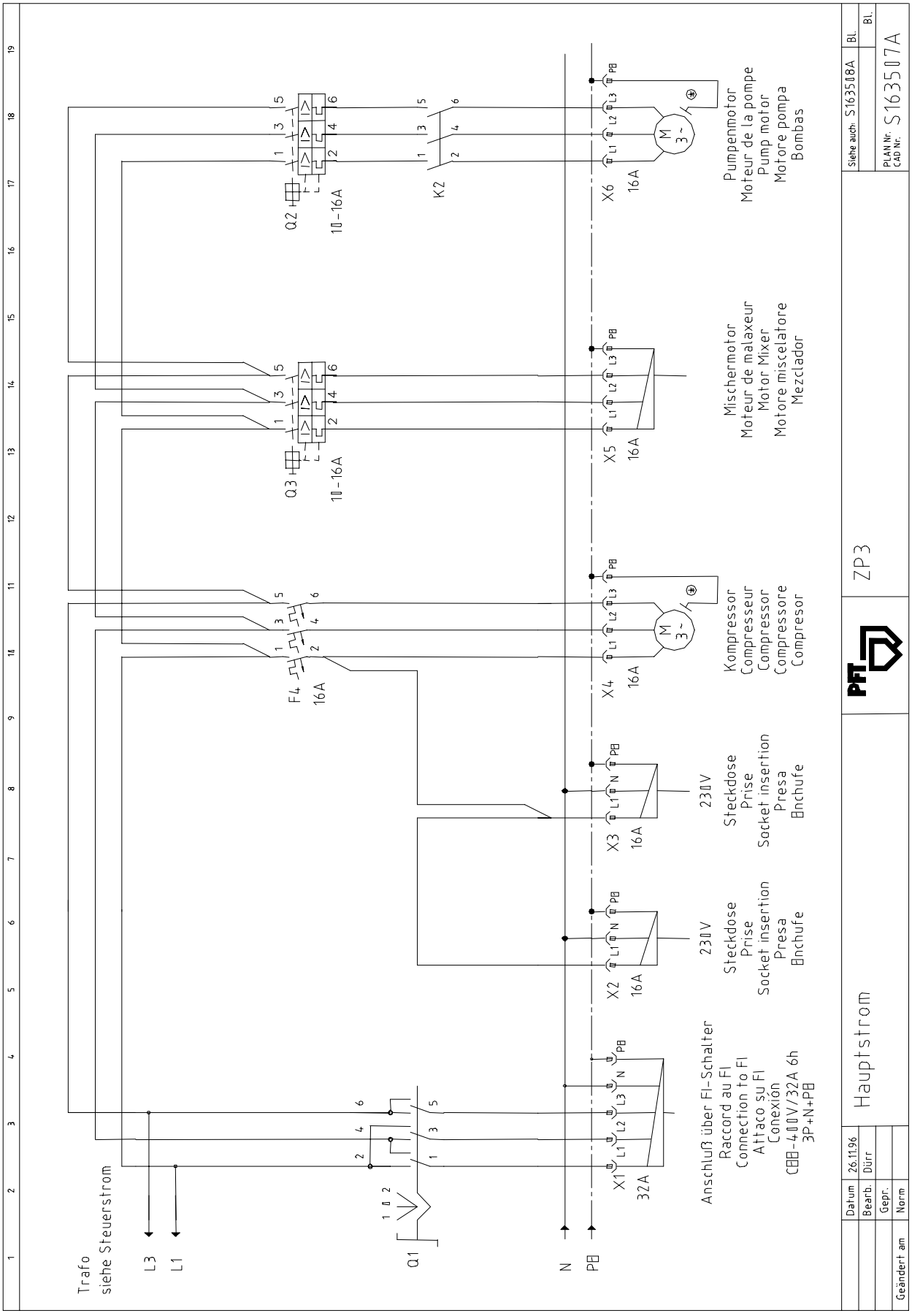
Exploded drawings couplings



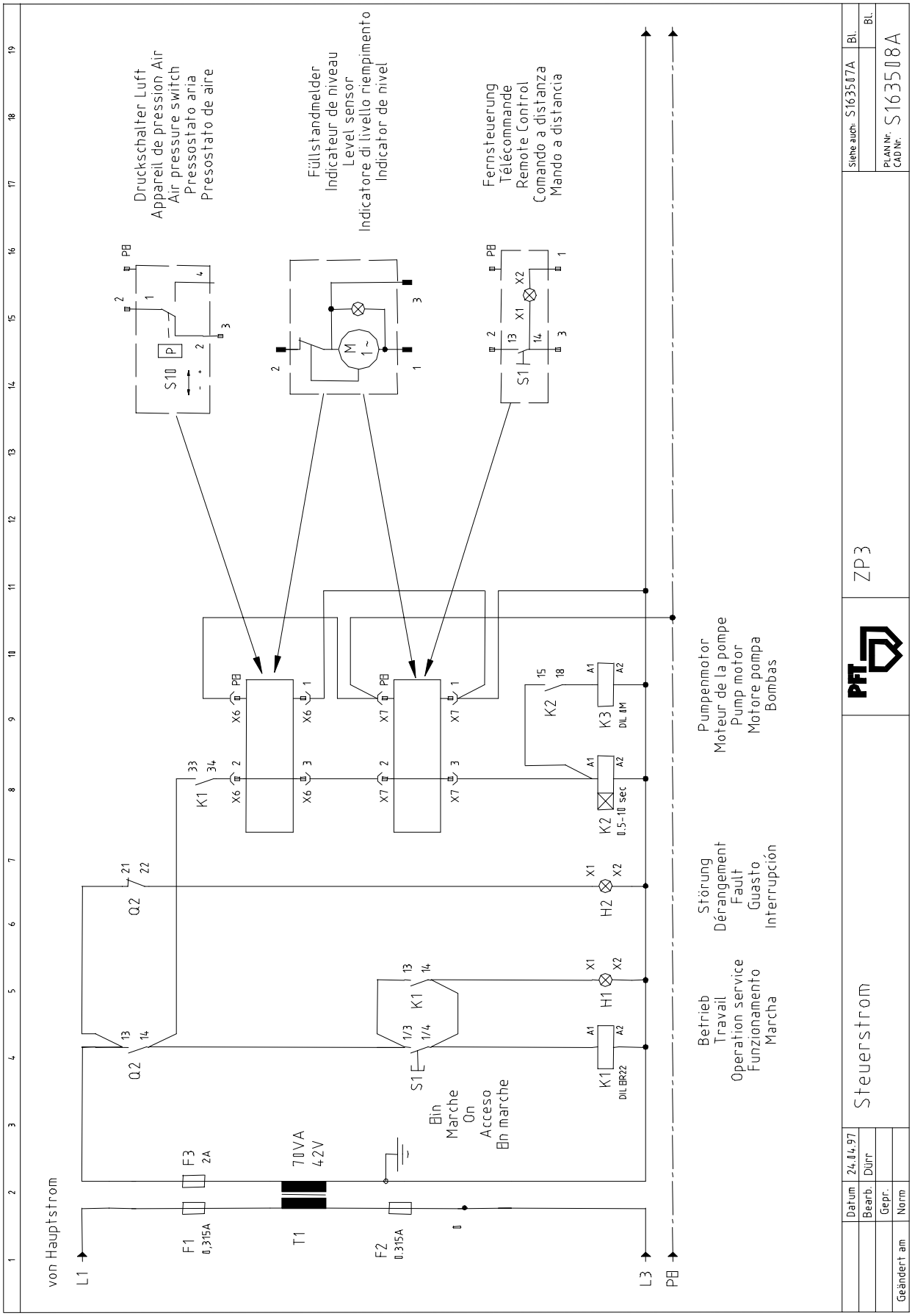
Spare parts list couplings

Item	Qty	Item no.:	Article description
1	1	20 20 07 82	Cleaner coupling 50M component with Geka coupling
2	1	20 20 07 80	Coupling 50M component 2" IG with gasket
3	1	20 20 58 01	Reduction nipple 2" AG 1” IG no. 241 zinc-pl.
4	1	20 20 08 00	Geka coupling 1” AG
5	1	20 20 17 00	Gasket Geka coupling
6	1	20 20 07 91	Adapter coupling 35M/50V component
7	1	20 20 07 90	Coupling 35M part 1 1/4" IG with gasket
8	1	20 20 07 93	Coupling 50V component 1 1/4" AG
9	1	20 19 11 01	Spray cap 18 mm
10	1	20 19 11 01	Spray cap 18 mm
11	2	20 20 07 12	Gasket 35M component
12	2	20 20 07 09	Gasket 50M component (P)
13	2	20 21 06 00	Sponge ball 50 mm diameter
14	2	20 21 07 00	Sponge ball 70 mm diameter

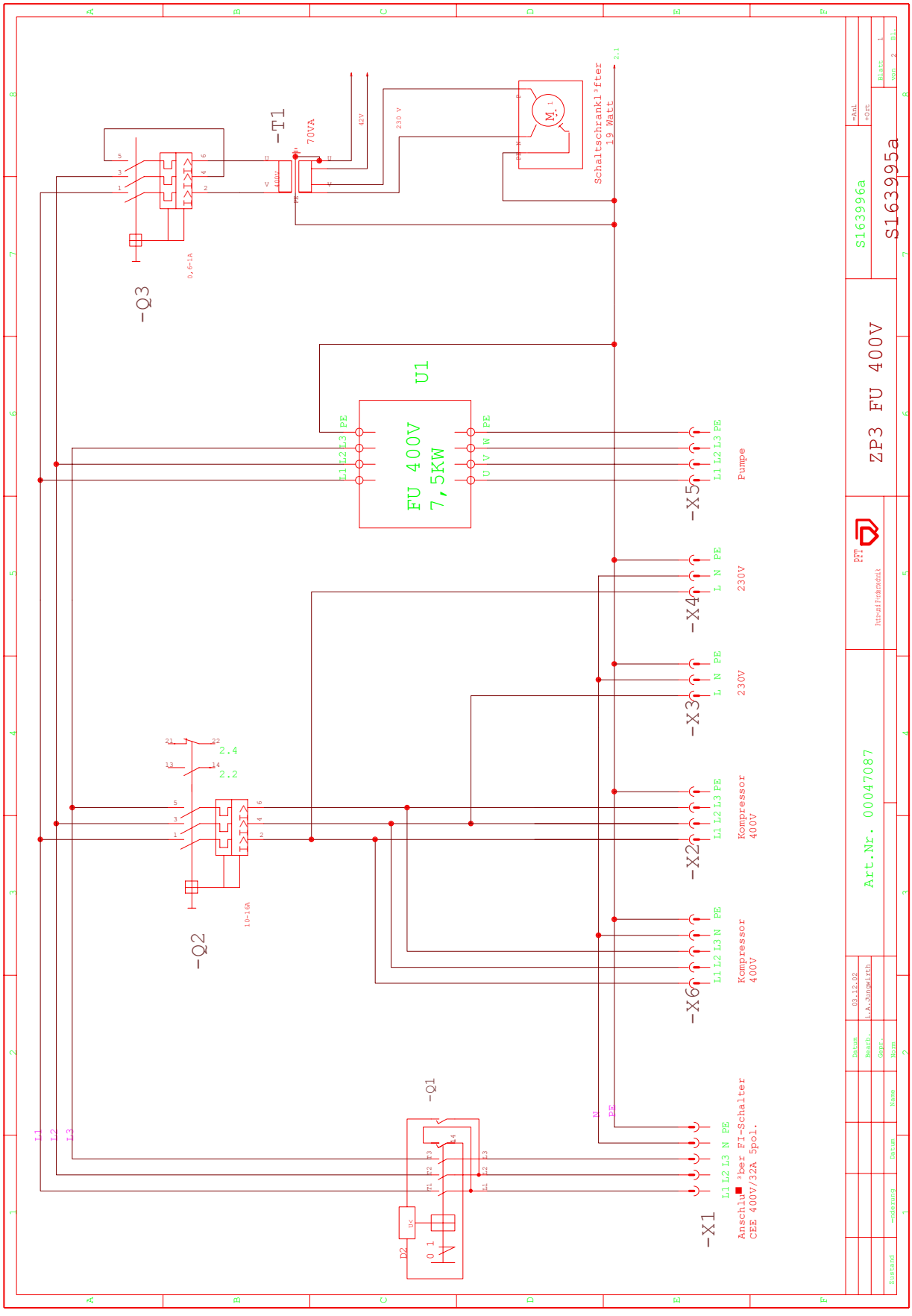
Circuit diagram main power ZP 3 and ZP 3 V



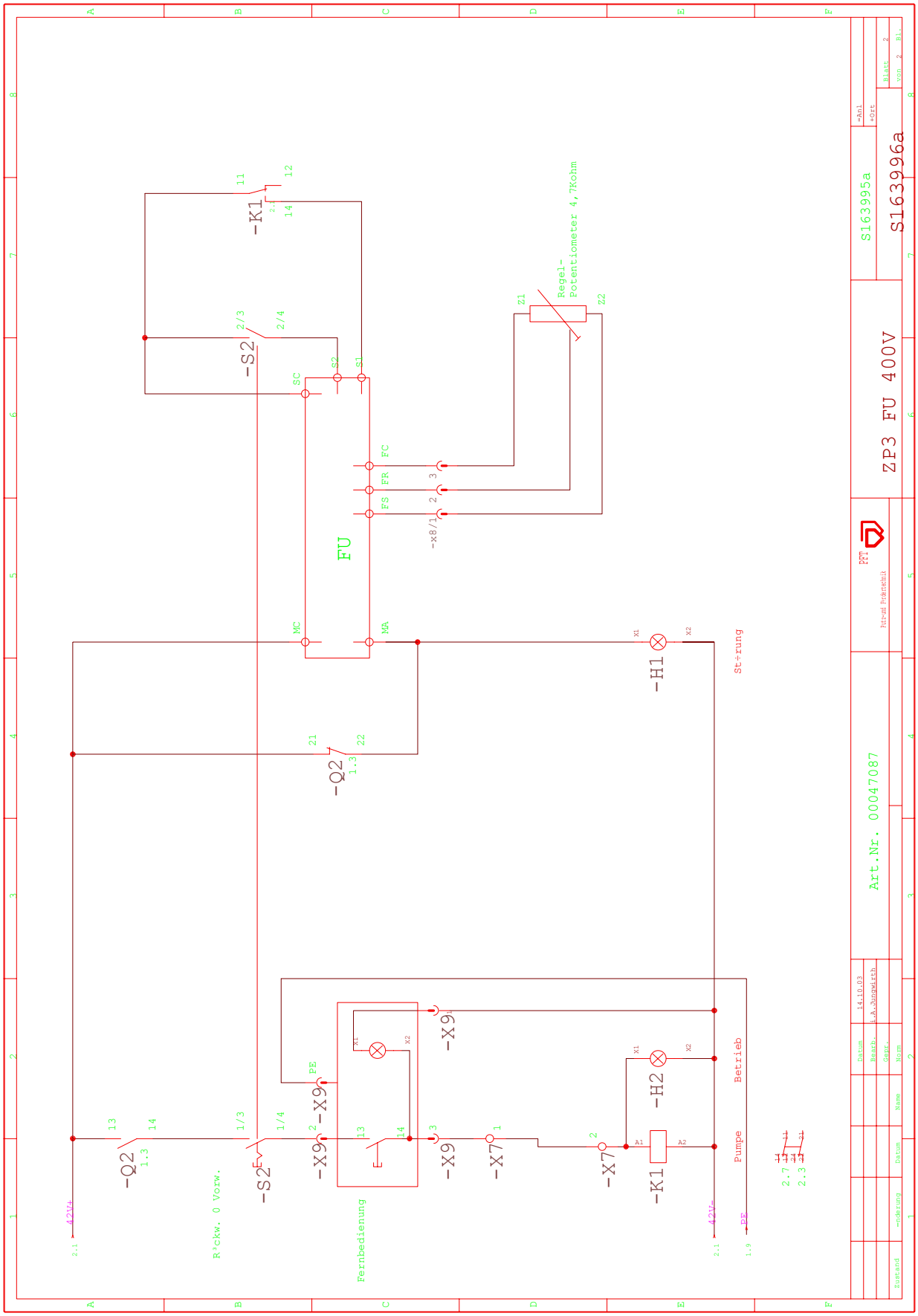
Circuit diagram main power ZP3 S and ZP 3 V



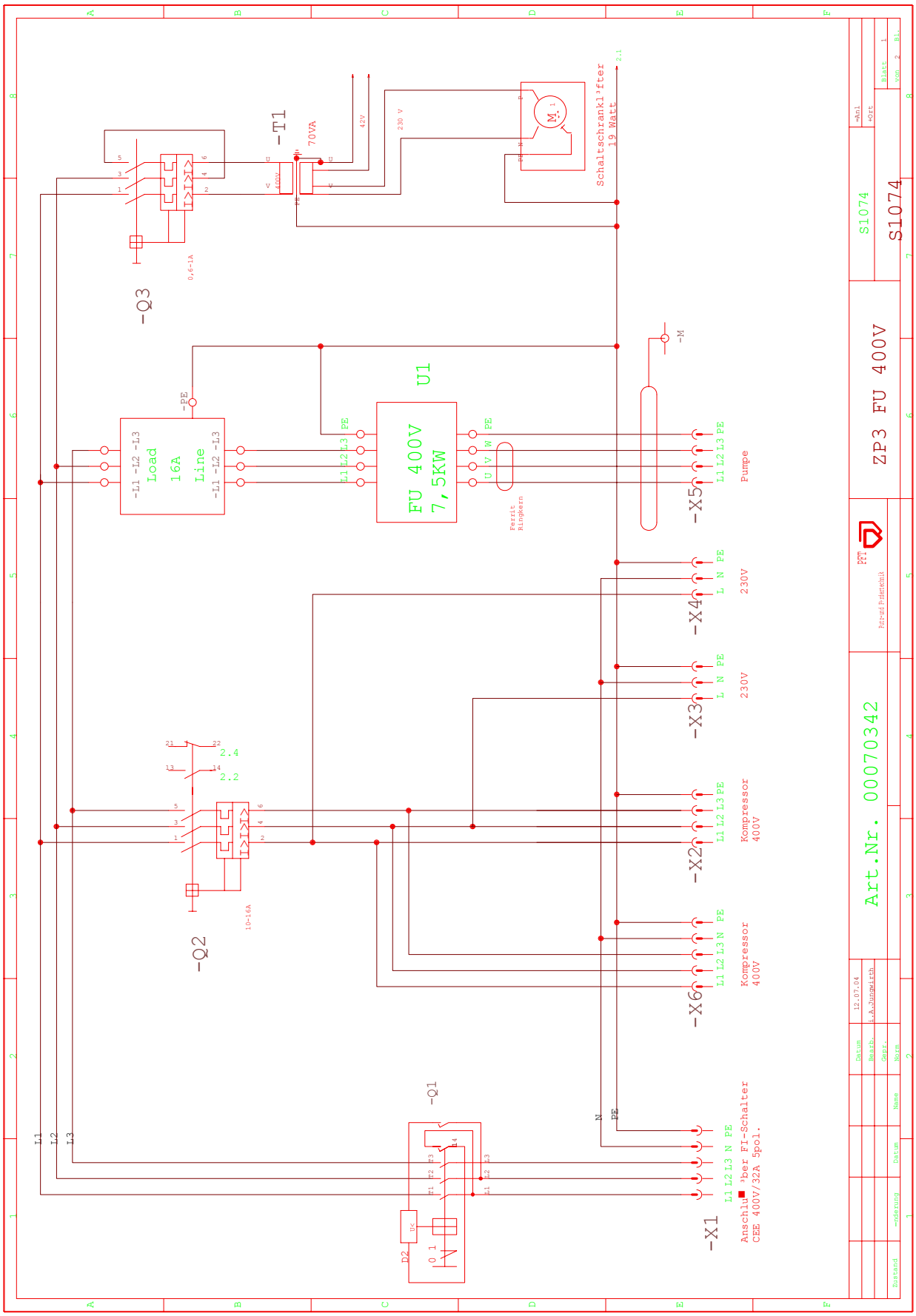
Circuit diagram main power ZP3 FU 400



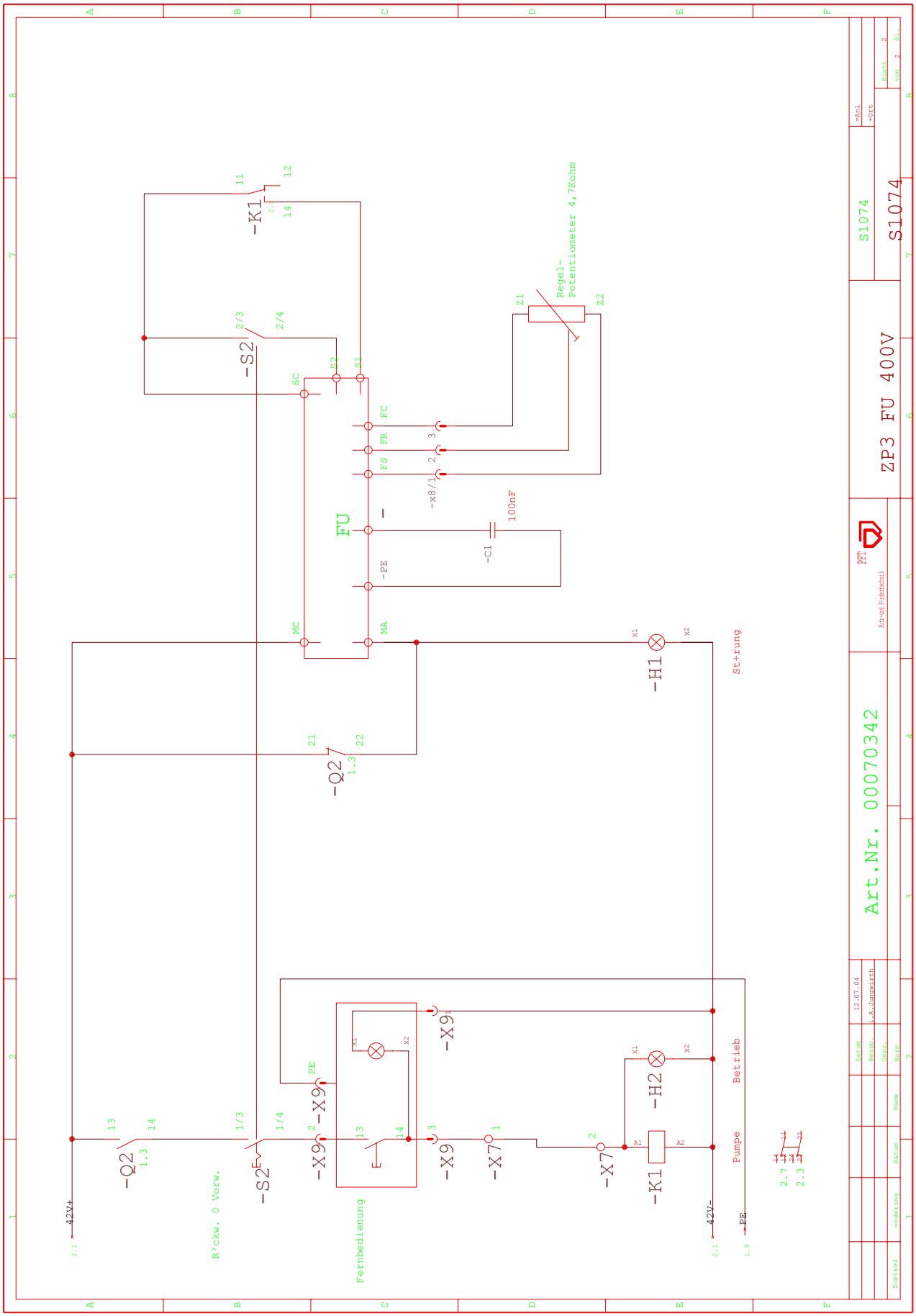
Circuit diagram controlling current ZP3 FU 400



Circuit diagram main power ZP3 FU 400 with EMC



Circuit diagram controlling current ZP3 FU 400 with EMC



Setting values of the parameters for the frequency converter Yaskawa type 606 V7

for machines ZP 3 V FU 400V and 7.5 kW – drive motor

Parameter	Function	Setting value	Notes
001	Password	0	When parameters are set, set to 4, then to 0
002	Selection of control type	0	
003	Selection of operational reference value	1	
004	Selection of frequency reference value 1	2	
008	Selection of frequency reference value 2	1	
011	Maximum output frequency	80	Hz
012	Maximum voltage	400	V
014	Medium output frequency	10	Hz
015	Medium output frequency voltage	100	V
016	Minimum output frequency	1.5	Hz
017	Minimum output frequency voltage	20	V
019	Time for high run 1	0.5	sec.
020	Time for low run 1	1	sec.
021	Time for high run 2	0	
022	Time for low run 2	0	
025	Fixed reference value 2	0	Hz
031	Fixed reference value 8	0	Hz
034	Fixed reference value lower limit value	0	%
036	Motor nominal current	15.0	A (for 7.5 kW motor)
037	Electronic thermal protection	0	On
038	Thermal protection triggers after	1 min.	
039	Fan	1	Fan – permanent operation
057	Multi-function output selection 1	0	
058	Multi-function output selection 2	4	
061	Offset of analog frequency reference value	30	%
080	Pulse frequency	3	
090	Time for stop	0.5	sec.
093	Current limiting during high run	190	%
095	Frequency detection level	35	Hz
103	Torque compensation	2.5	
106	Nominal slip of motor	3.3	Hz
107	Motor resistance per phase	0.550	W

Checklist for annual special inspection (master copy)

The special inspection must be carried out once a year as per ZH1/575. As a verification of this inspection, the machine and the control box are given an inspection label. The inspection protocol is to be presented on demand.

Date of inspection:	Inspector:	Signed:	Machine number:

Component	**Inspection feature**	**is OK**	**Recondition/ replace**
Material hopper	Check all welded seams!		
Material hopper	Destruction due to corrosion or deformation?		
Pump shaft	Check wear of steel shaft segments!		
Pump shaft	Check wear of pump coupling!		
Protective grill	Is protective grill still even?		
End switch protective grill	Check power supply to end switch for damage!		
Frame	Check all welded seams!		
Frame	Check firm fit of all screwed joints!		
Frame	Check if distorted! Must be stable against overturning!		
Rolls	Do rolls turn well?		
Gearbox	Connection cable okay?		
Gearbox	Hauling bracket okay?		
Control box	Visual inspection for defects		
Control box	Functional check		
Control box	Are all labels legible and in good condition?		
Control box	High voltage check with 1000V		
Control box	Functional check of all safety switches!		
Control box	Functional check of all control lamps!		
Control box	Check firm fit of all cable connections!		
Type sign	Available and is legible		
Operating instructions	Available		
Mortar pressure gauge	Functional check!		

Technical data ZP 3 S

1. Dimensions		**Unit**
Length	2140	mm
Width	700	mm
Height	520	mm
Filling/connection height	520	mm
Material volume	85	L

2. Weights		
Weight of motor unit	51	kg
Weight of control box	24	kg
Overall weight	207	kg

3. Electrical data		
Connection power	5.5	KW
Fuse protection	32	A
Supply voltage	400	V
Phases	3	Ph.
Frequency	50	Hz
Control voltage	42	V

4. Pump		
max. operating pressure	30	bar

Technical data ZP 3 V

1. Dimensions		**Unit**
Length	2140	mm
Width	700	mm
Height	520	mm
Filling/connection height	520	mm
Material volume	85	L

2. Weights		
Weight of motor unit	90	Kg
Weight of control box	24	Kg
Overall weight	313	Kg

3. Electrical data		
Connection power	7.5	KW
Fuse protection	32	A
Supply voltage	400	V
Phases	3	Ph.
Frequency	50	Hz
Control voltage	42	V

4. Pump		
max. operating pressure	30	bar
Motor speed	30-210	rpm

Technical data ZP 3 FU 400

1. Dimensions		**Unit**
Length	2450	mm
Width	700	mm
Height	520	mm
Filling/connection height	520	mm
Material volume	170	L

2. Weights		
Overall weight	286	Kg

3. Electrical data		
Connection power	7.5	KW
Fuse protection	32	A
Supply voltage	400	V
Phases	3	Ph.
Frequency	50	Hz
Control voltage	42	V

4. Pump		
Max. operating pressure	30	bar
Motor speed	70-280	rpm

Warning!

The machine may only be connected to a worksite switchgear assembly with a 30 mA FI safety switch sensitive to all currents.

WE KEEP THINGS MOVING

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