

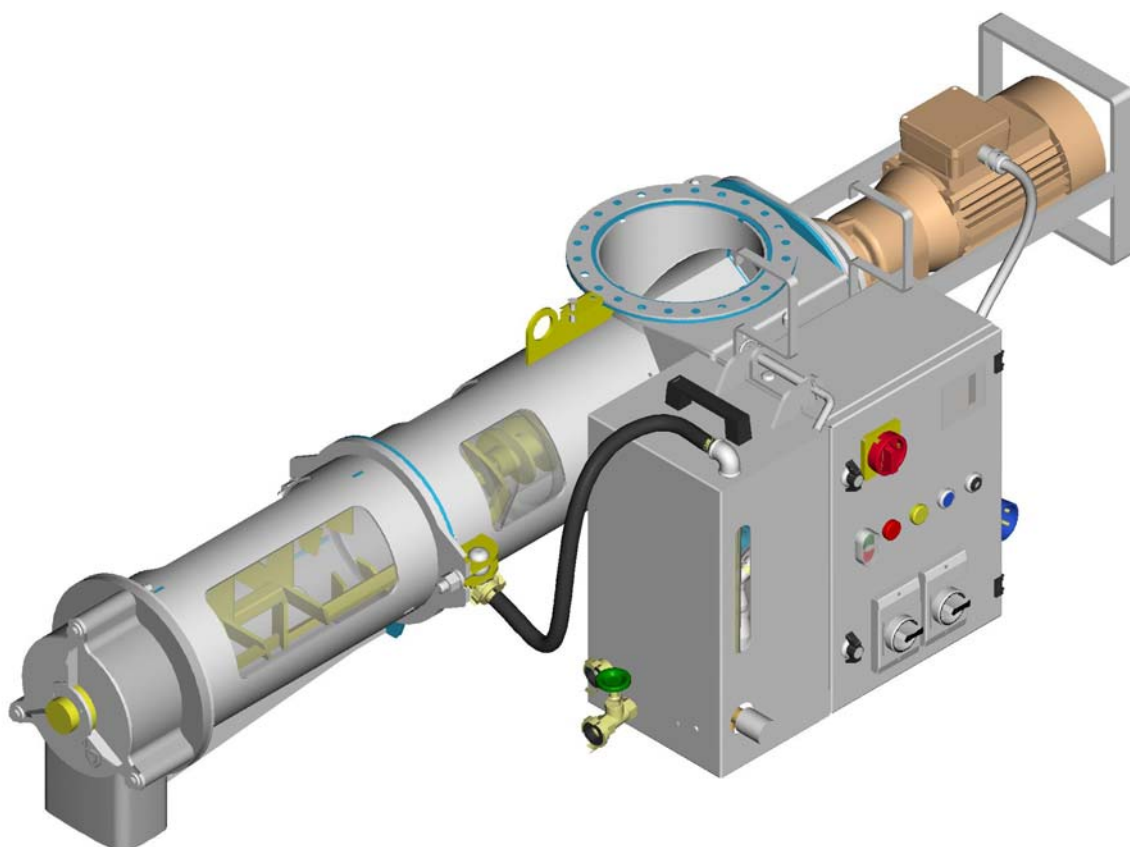
OPERATING INSTRUCTIONS

(Item number of the operating instructions: 0010 63 84)

(Parts list 00095668)

HORIZONTAL SCREW MIXER

PFT HM LOTUS XL 230V RAL 9010



WE KEEP THINGS MOVING



Technical specifications

Drive	Gear motor 4 kW, 400 V, 50 Hz	
Speed	280 RPM	
Motor power consumption	14.5 A	
Electrical connection	230 V 3-phase CEE socket 3 x 32 A 6 h	
	Only on a worksite distribution panel with a regulation-compliant, 30 mA, FI safety switch	
Feed line	Min. 5 x 2.5 mm ²	
Fuse protection	1-phase, 16 A slow-blow	
Water connection	¾" hose, at least 2.5 bar when the machine is running	
Mixing output*	series	45 l/min
Dimensions	Connection height on the silo / container	
	Overall length	2005 mm
	Overall width	880 mm
	Overall height	730 mm
	Outlet height	650 mm
Weights	Drive	47.5 kg
	Middle part	37.0 kg
	Mixing tube with outlet	21.5 kg
	Control box with silo flange	31.5 kg
	Water manifold	19.0 kg
	Mixing shaft	15.0 kg
	Total weight	171.5 kg
Continuous sound pressure level	72 ± 1 dB(A)	

Dear PFT customer,

Congratulations on your purchase. You have made a wise choice as you clearly value the quality that comes with a brand name product from a reputable company.

The **PFT HM LOTUS XL** horizontal screw mixer uses state-of-the-art technology. It has been designed in such a functional manner as to be a reliable aid in rough construction site conditions.

These operating instructions should always be stored and kept at hand at the site where the machine is used. They contain information on the various functions of the machine. Study the operating instructions thoroughly before starting the machine, as we accept no liability for accidents or damage to the machine caused by incorrect operation.

If operated correctly and handled with care, PFT HM LOTUS XL horizontal screw mixer will be a trustworthy aid.

It is prohibited to forward this document, even excerpts, without our written authorisation. All technical specifications, diagrams etc. are subject to copyright law. All rights, errors and modifications are reserved.

Initial inspection after delivery

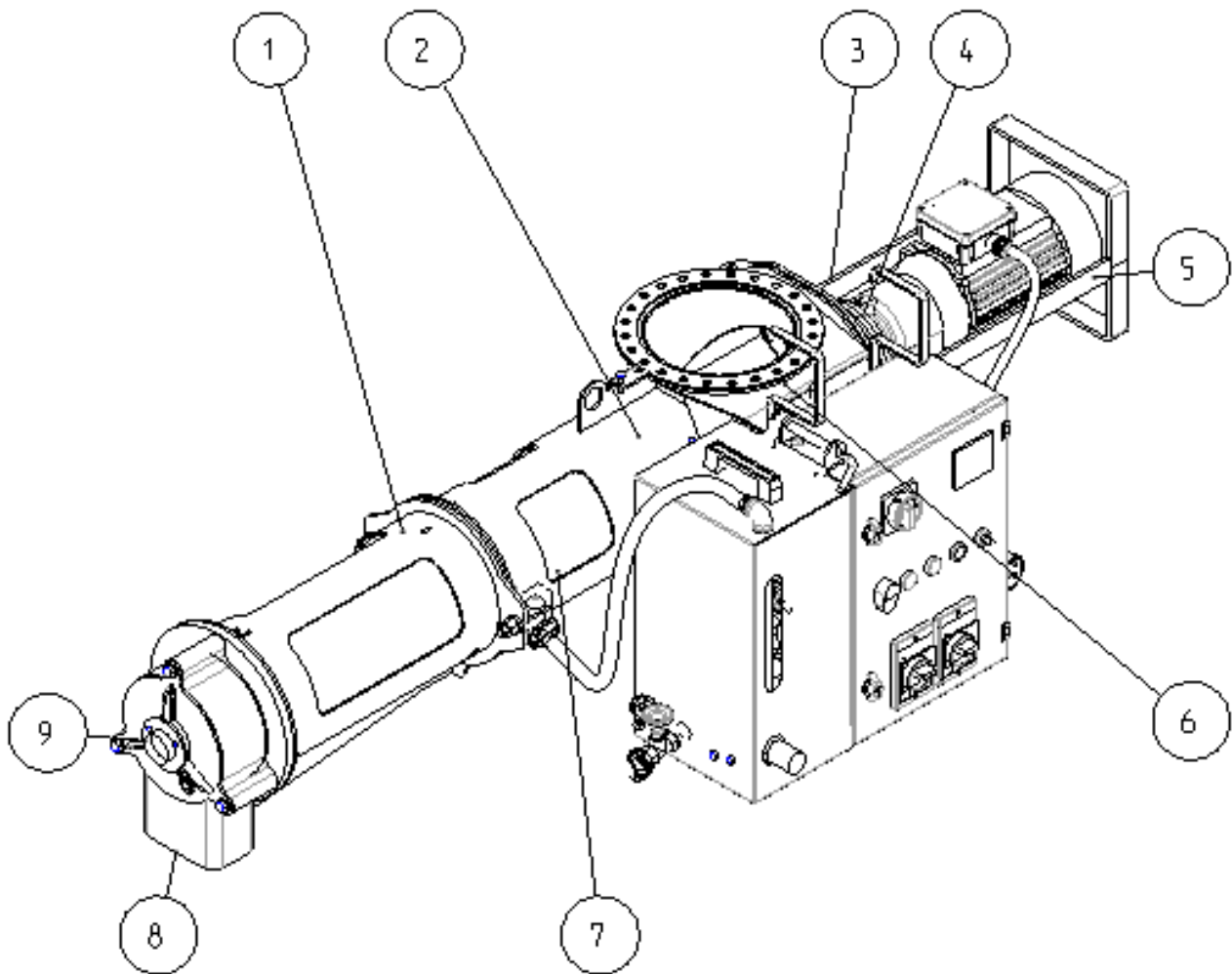
An important task of all technicians delivering the **PFT HM LOTUS XL** horizontal screw mixer is the inspection of the machine settings at the end of the first mixing cycle.

The factory settings may change during the initial cycle. If these changes are not corrected in time – immediately after start-up – malfunctions may well be the result.

Contents

PFT HM LOTUS XL 230V RAL 9010	1
Technical specifications	2
Initial inspection after delivery	3
Contents	4
Overview of the HM LOTUS XL	5
Overview of the HM LOTUS XL control unit	6
Overview of the HM LOTUS XL control box	7
Proper use of the machine	8
Description of functions	8
Basic safety instructions	9
Basic safety instructions	10
Setting values	11
Start-up	11
Start-up	12
Interruption of work	12
Cleaning	15
Measures to be taken in the event of a power failure	16
Measures to be taken if there is a risk of frost	16
Transporting with a crane	16
Maintenance	16
Accessories	17
Spare parts diagram for drive	18
Spare parts list for drive	19
Spare parts diagram for middle part	20
Spare parts list for middle part	21
Spare parts diagram for mixing tube	22
Spare parts list for mixing tube	23
Spare parts diagram for water manifold	24
Spare parts list for water manifold	25
Spare parts diagram for control box	26
Spare parts list for control box	27
Spare parts diagram for control unit	28
Spare parts list for control unit	29
Circuit diagram S1112	30

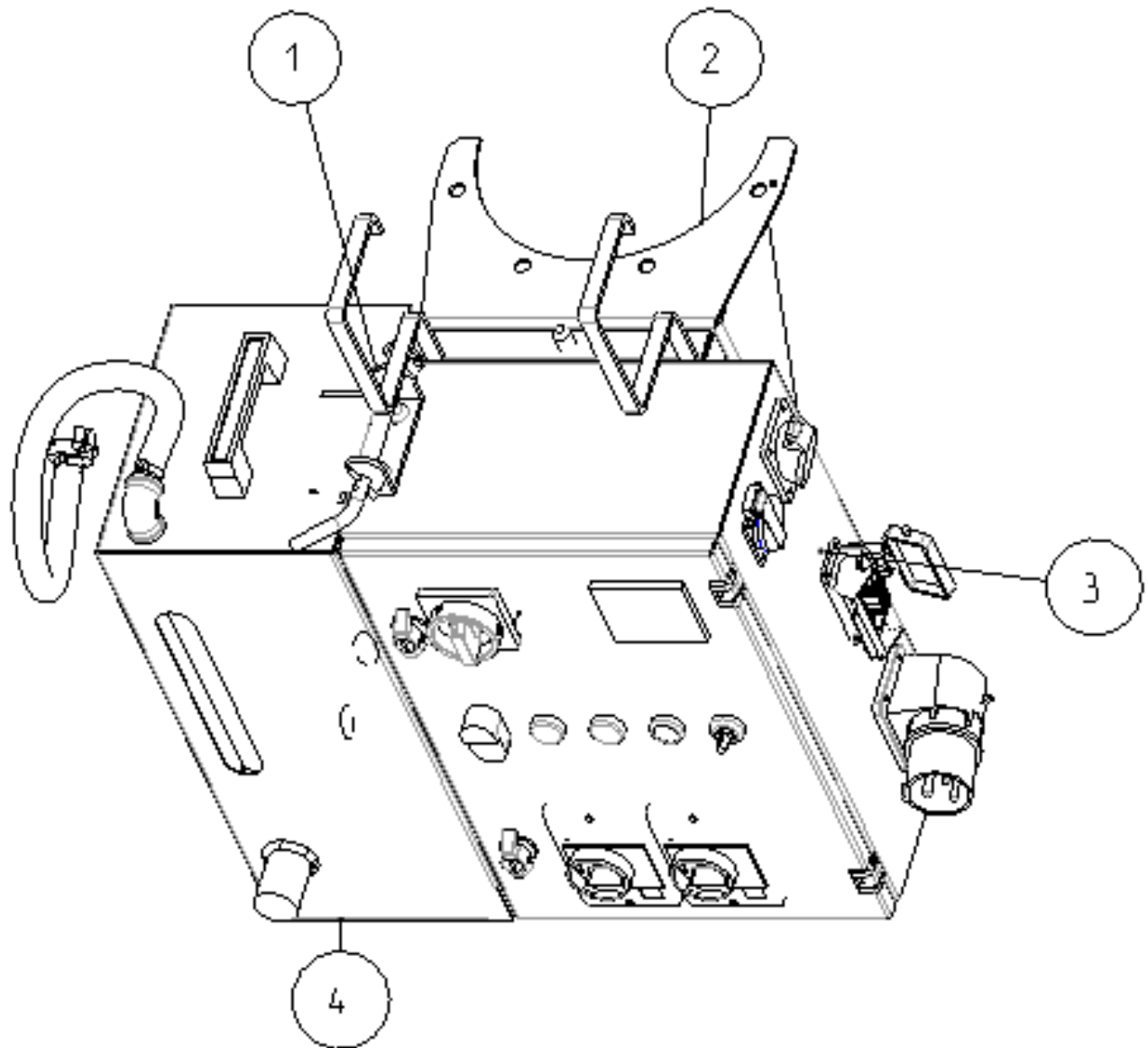
Overview of the HM LOTUS XL



- 1 Rubber mixing tube
- 3 Motor guard rail
- 5 Gear motor
- 7 Rubber dosing zone
- 9 Outer bearing

- 2 Middle body
- 4 Motor seal
- 6 230 V control unit
- 8 Mortar outlet flange

Overview of the HM LOTUS XL control unit



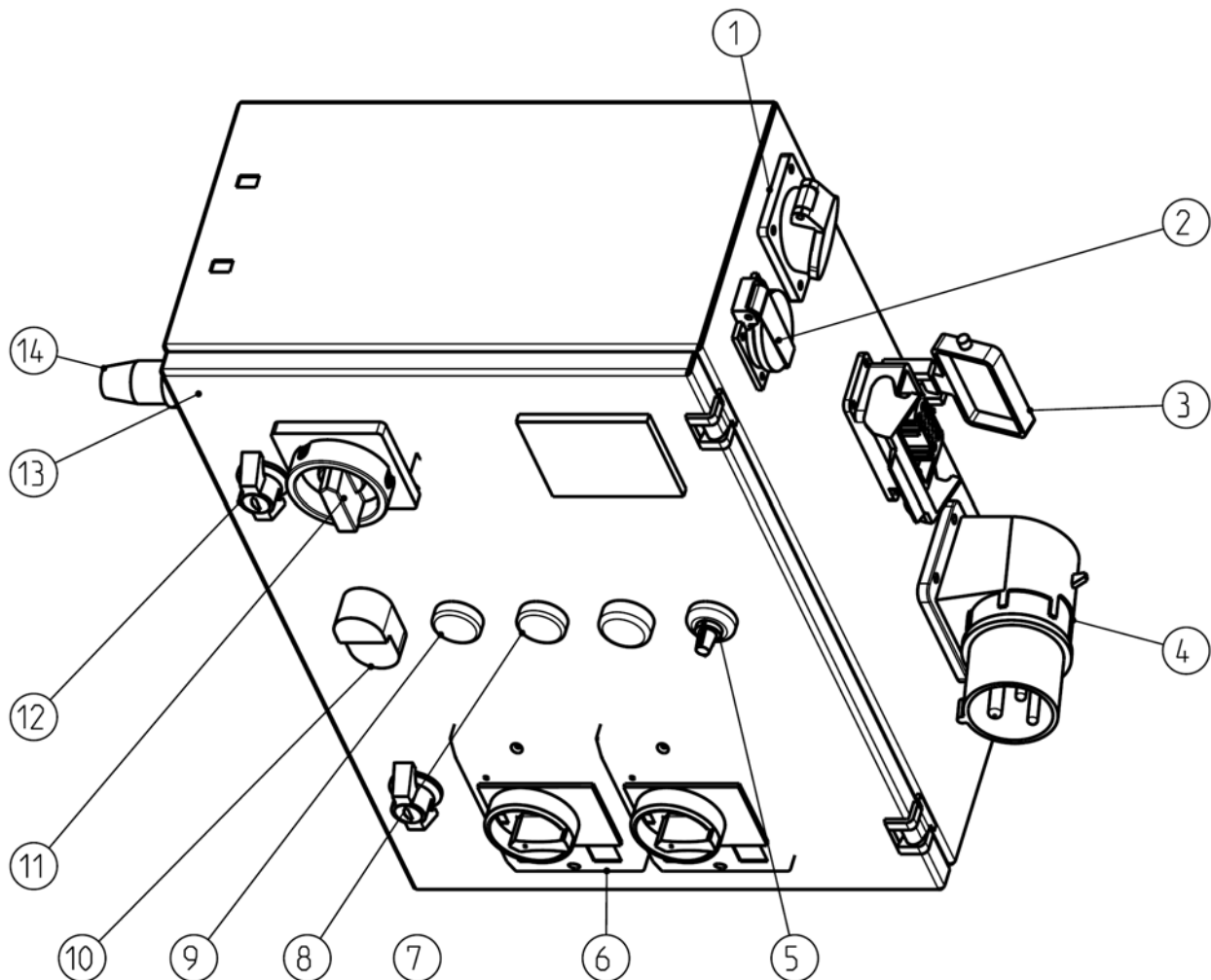
1 Holder

2 Bracket

3 Control box

4 Water manifold

Overview of the HM LOTUS XL control box



1	Socket 3 x 16 A	2	230 V continuous current
3	Mixer motor connection	4	Main power connection
5	Mixing time	6	Motor safety switch (on/off)
7	Water flow	8	Indicator lamp (no material)
9	Indicator lamp (fault)	10	Run switch (on/off)
11	Main power switch (voltage on/off)	12	Lock
13	Socket for remote control or blind plug	14	Blind plug

Proper use of the machine

The PFT **HM LOTUS XL** is a continuously operating screw mixer for pre-mixed, ready-to-use dry mortar.

The PFT **HM LOTUS XL** was designed exclusively for silo operation.

Description of functions

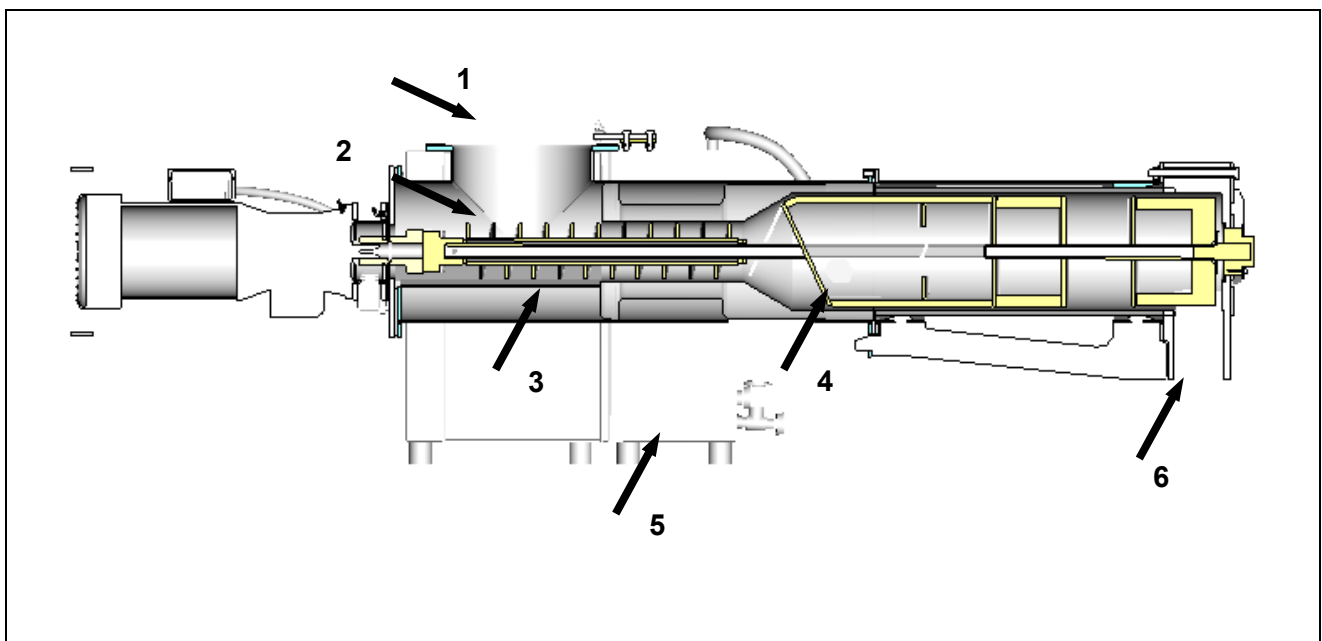
The PFT **HM LOTUS XL** is filled with a silo/container (1),

and the material is metered into the dry zone (3) via the metered mixing shaft (2).

Water is added in the mixing tube (4) and can be regulated by the water manifold (5).

Then the mixing shaft mixes the material.

Finally, ready-mixed material flows out of the mortar outlet (6) and can be applied as needed.



WARNING!

Please observe the processing guidelines of the material manufacturer.

Basic safety instructions

The following terms and symbols are used in this manual for particularly important information:

NOTE:

Special information for running the machine efficiently.

WARNING!

Special instructions, regulations and restrictions for the prevention of damage.

**WARNING!**

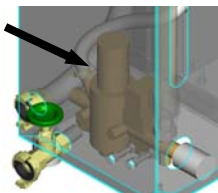
The machine should only be used if it is in technically perfect condition and in compliance with the regulations. Pay attention to safety and operating instructions. It is especially important to immediately correct any faults that could impair safety.

In order to make the operation of our machines as easy as possible for you, we would like to briefly inform you of the most important safety instructions. If you comply with these instructions, you will be able to use our machine in a safe and quality-assuring manner for a long time to come.

Basic safety instructions

1. Follow all safety instructions and danger warnings on the machine. Ensure that all instructions are kept legible.
2. Inspect the machine for visible damage and defects at least once every shift. If you notice any safety-threatening alterations to the machine or its operating behaviour, stop the machine immediately and notify your supervisor.
3. Do not attempt to modify the machine in any way which may impair its safety without first consulting your machine dealer. This also applies to the installation of unchecked "safety devices".
4. Spare parts must comply with the technical requirements of the manufacturer. This is guaranteed for all original PFT parts.
5. Only trained or authorised personnel should operate the machine. Clearly define the responsibilities of the personnel for operation, setup, maintenance and repairs.
6. Personnel undergoing training should only be allowed to operate the machine under the supervision of experienced personnel.
7. 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.
8. Observe the operating instructions when turning the machine on and off. Watch indicator lamps for signals.
9. When the machine is completely switched off for maintenance and repair work, measures must be taken to ensure 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).
10. Before cleaning the machine with a water jet, seal all openings through which water could enter and thereby impair the safety and proper functioning of the machine (electric motors and control boxes). Remove all covers after cleaning.
11. Only use original fuses of the prescribed amperage.
12. If work has to be carried out on live components, a second person should be present to disconnect the power in the event of an emergency.
13. Disconnect the machine from all external power sources before you relocate it, even if you are only moving it a short distance. The machine should be connected properly to the mains before being put back in operation.
14. Set up the machine on stable ground and secure it against unintentional movements.
15. Have the machine inspected as required – but at least once a year – by a specialist.

Setting values



Pressure reducing valve
1.9 bar at 1500 l/h (max. flow rate)

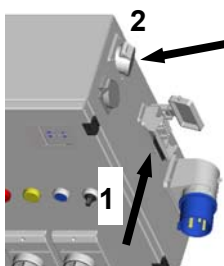


Motor control relay
See circuit diagram

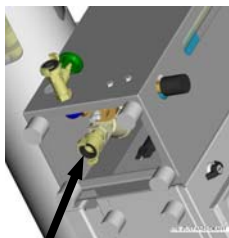
Start-up



230 V power connection, 32 A slow-blow.
Only connect the machine to a worksite distribution panel with a prescribed FI safety switch (30 mA) and in accordance with VDE guidelines.

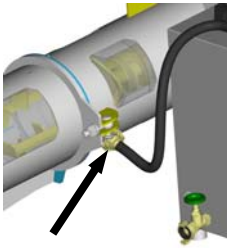


Connect the mixer motor (1).
Connect the vibrator (2).

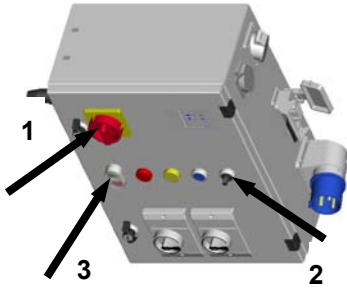


Water connection
Establish a connection to the water supply with a $\frac{3}{4}$ " hose.
Open the supply line until water flows out of the end of the hose in order to bleed and clean the hose line.
Close water supply.
Connect the water hose to the water inlet (water inlet filter).
Open water supply.

Start-up



Connect water hose to the mixing tube.



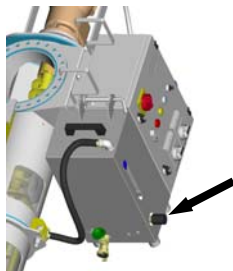
Now that the **PFT HM LOTUS XL** horizontal screw mixer is completely assembled and connected, proceed as described in the following steps:

Open the silo flap.

Turn the main switch to I (1).

Set the mixing time (2).

Switch on (3) the HM LOTUS XL.



Adjust the water volume at the needle valve.

Check mortar consistency.

The needle valve should be adjusted so that trowel-ready mortar flows out of the mortar outlet on the mixing tube.

Interruption of work



Observe the guidelines of the material manufacturer regarding interruptions.

It is recommended to clean the mixer prior to longer interruptions.

Every interruption of the mixing process results in minor irregularities of the mortar consistency, which normalise, however, as soon as the machine has been running again for a while. Therefore, it is not necessary to change the water supply each time you detect an irregularity – simply wait until the consistency of the material coming out of the mortar outlet is correct.

How can problems with the PFT HM LOTUS XL be avoided or quickly rectified?

Problem	Possible cause	Remedy
Machine will not start.	<i>Electricity</i>	
	- Power supply okay?	
	- Properly connected to the worksite distribution panel?	Have a qualified electrician check the machine.
	- FI safety switch triggered?	
	- Main switch on?	
	- Motor control relay triggered?	
Machine will not start.	<i>Material</i>	
	- Too much thickened material in mixing tube or mixing zone.	Clean mixing tube.
	- Material in mixing tube too dry.	Water is not running.
Machine will not start.	<i>Water</i>	
	- Solenoid valve (hole in membrane clogged).	Have a qualified electrician check the machine.
	- Solenoid coil defective.	
	- Pressure reducing valve closed.	Set to correct value.
	- Water supply to mixing tube blocked.	Clean.
	- Needle valve closed.	
	- Cable to solenoid valve defective.	
	- Insufficient water pressure.	Switch on high pressure pump.
Mixer motor will not start.	- Mixer motor defective.	Have a qualified electrician check the machine.
	- Connection cable defective.	
	- Plug or panel-mounted socket defective.	
	- Motor safety switch defective or triggered.	Have a qualified electrician check the machine.
	- Incorrect direction of rotation.	Change direction of rotation.
Water flow rate cannot be set higher.	- Water inlet filter contaminated.	Clean or replace filter.
	- Pressure reducing filter contaminated.	

	-	Hose connection and/or water supply line is too small.	Enlarge water connection. Install high pressure pump.
	-	Suction line from water barrel too weak or too long.	

No mortar flow.	-	Bad mixture in the mixing mixing tube.	Add more water:
	-	Dosing tube has become wet, material clumps and constricts the dosing channel.	If this does not help, clean the dosing tube; dry out mixing tube inlet and restart.

"Thick-thin" mortar flow	-	Not enough water.	Adjust water.
	-	Pressure reducing valve misadjusted or defective.	Replace defective parts.
	-	Dosing and/or mixing shaft worn out.	

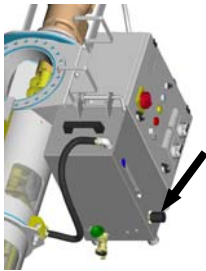
Cleaning

**WARNING!**

Maintenance or assembly work may only be conducted with the machine in a de-energised state (disconnect power supply).

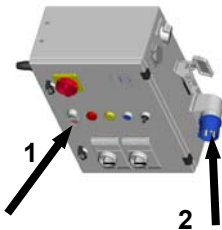
WARNING!

No water may be allowed to penetrate the bearings or electrical components (plugs, main switch, terminal box, etc). During assembly, parts such as hinge bolts, quick connections and gaskets should also be inspected to make sure they are clean and dry.



Close silo flap.

Open water supply at the needle valve.

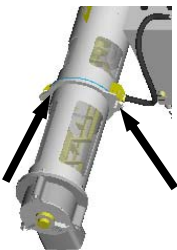


Switch on machine. (1)

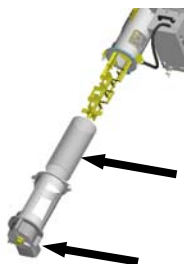
When only water flows out, switch off the mixer. (1)

Remove the power cable (2) before opening the mixing tube.

Machine is now de-energised.



Loosen and remove the nuts on the mixing tube.



Clean the rubber mixing tube and mortar outlet with water.



Remove mixing shaft and clean with trowel and water.

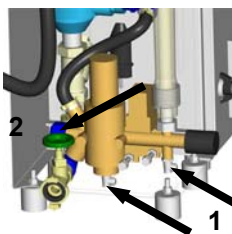
Measures to be taken in the event of a power failure



The PFT HM LOTUS XL is equipped with a starting lock.

After a power failure, the system can be readied for operation by pressing the ON/OFF button (1) again.

Measures to be taken if there is a risk of frost



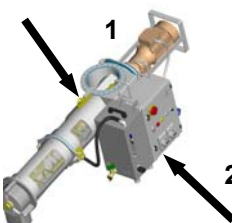
If there is a risk of frost, empty the water manifold.

Disconnect and drain the water supply line.

Open the water drain cock on the manifold block (1).

Open the water outlet (2).

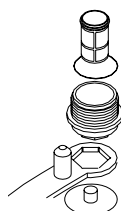
Transporting with a crane



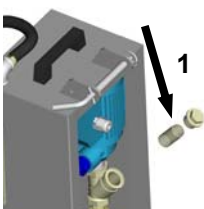
WARNING!

The HM LOTUS XL may only be transported by the crane eyelet (1) without the control unit (2).

Maintenance



The water inlet filters in the pressure reducer should be taken out and cleaned at least once every two weeks and replaced if necessary.



The PFT HM LOTUS XL should be inspected after each use for damage to the bearings, hauling bracket and cable connections.

The filter (1) in the water inlet should be removed and cleaned at least once every 2 weeks and replaced if necessary.

Accessories



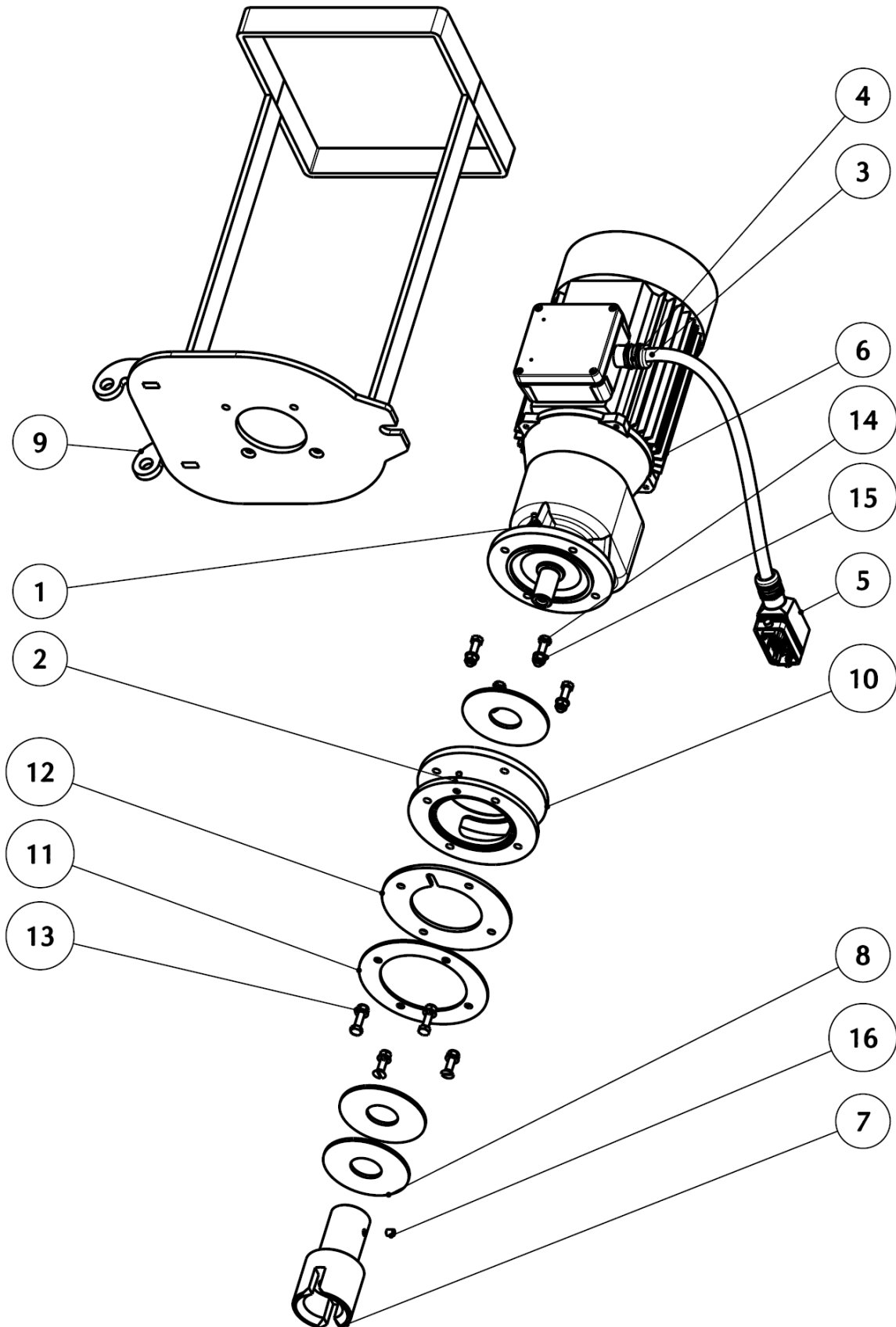
20 21 21 00 Water/air hose, 3/4" x 40 m, with Geka couplings



00 12 85 98 Vibrator A-12 230V 50Hz 1Ph RAL2004

You can find further accessories on the internet under www.pft.de or at your building machinery dealer's.

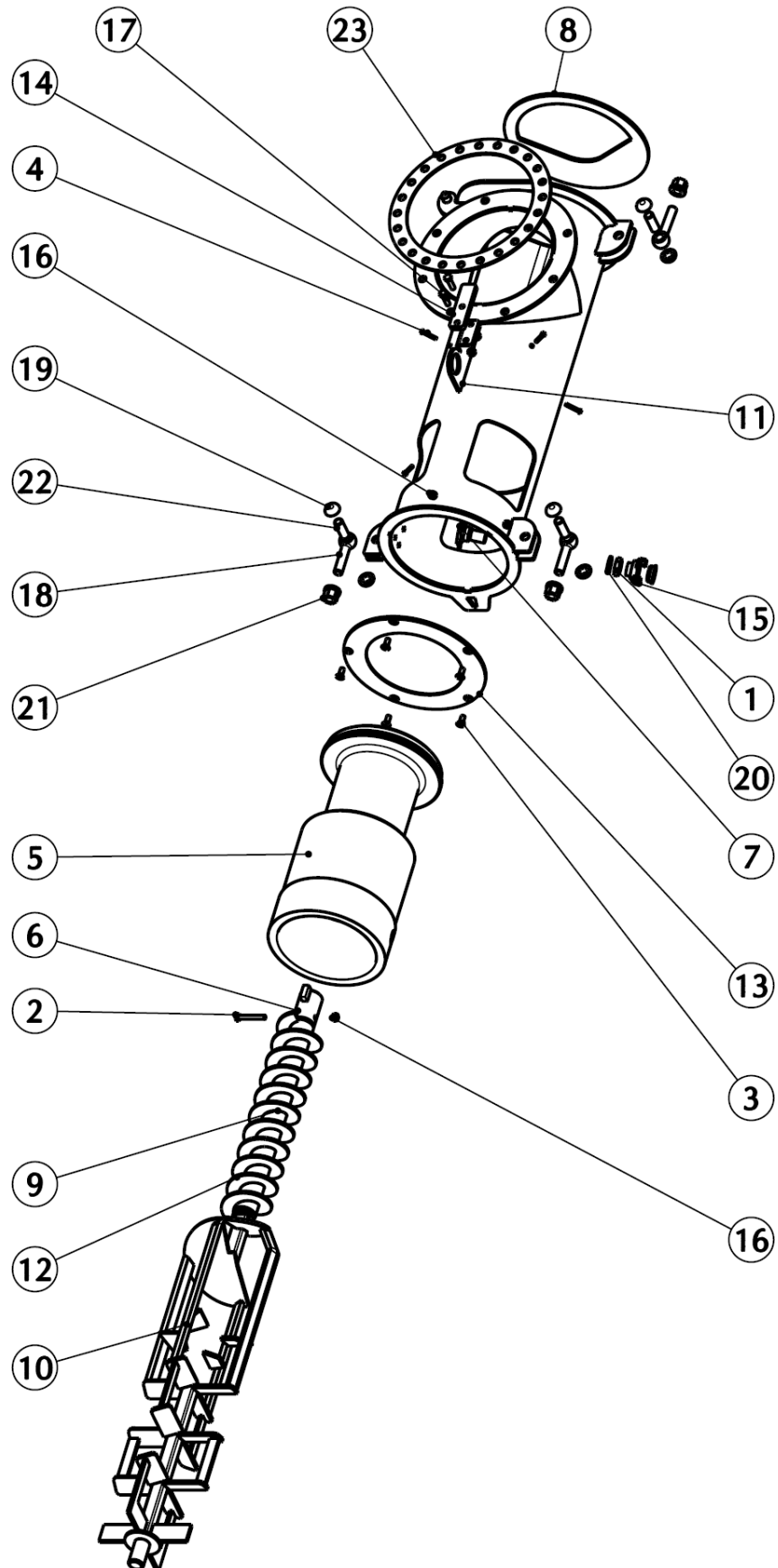
Spare parts diagram for drive



Spare parts list for drive

1	1	00 03 55 72	LUBRICATING NIPPLE, M6 (45 degree)
2	1	00 03 55 73	LUBRICATING NIPPLE S, M8 (45 degree)
3	1	00 06 69 81	EMC cable screw joint M25 x 1.5
4	1	00 06 91 62	Extension (metal) PG16 / M25 x 1.5
5	1	00 08 08 33	Motor connection cable 2.0 m 16 A 10P.7 x 1.5 mm
6	1	00 08 71 44	Gear motor G112/F 4 kW 280 RPM, ALU
7	1	00 09 43 42	Hauling bracket HM LOTUS RAL2004
8	3	00 09 43 47	Rubber seal D110 x d40 x 4 mm
9	1	00 09 57 37	Motor swivel flange HM LOTUS RAL9010
10	1	00 09 57 38	Housing for motor seal HM LOTUS RAL9010
11	1	00 09 57 39	Spacer flange for rubber seal RAL9010
12	1	00 09 57 40	Spacer flange, middle, RAL9010
13	8	20 20 72 00	Nut M8 DIN 985 zinc-pl.
14	6	20 20 78 01	Hex screw M8 x 35 DIN 933 zinc-pl.
15	8	20 20 93 13	Washer B 8.4 DIN 125 zinc-pl.
16	1	20 20 99 93	Threaded pin M8 x 10 DIN 914

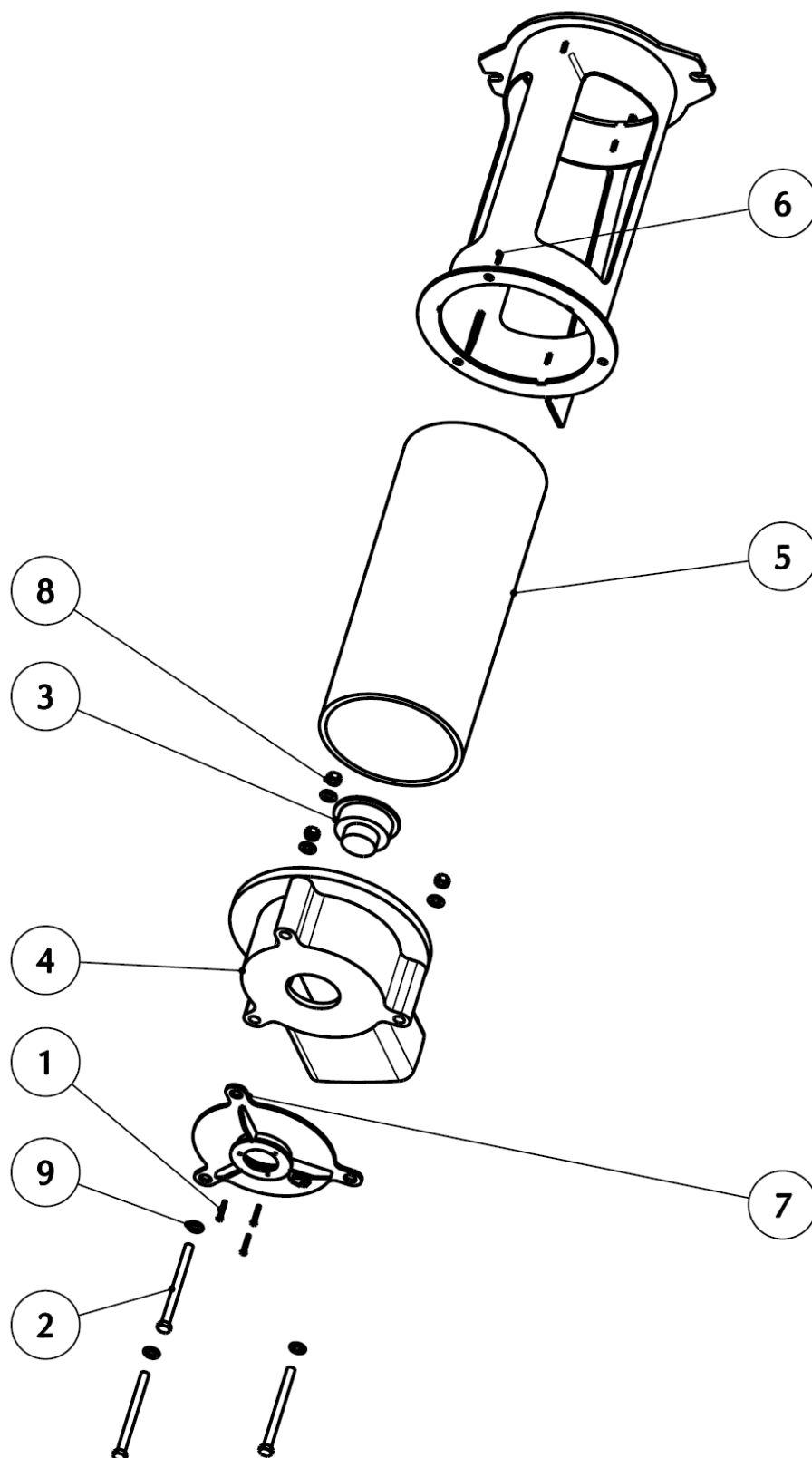
Spare parts diagram for middle part



Spare parts list for middle part

1	1	00 00 28 11	Tube nut 1/2" thread DIN431
2	1	00 02 31 98	Hex screw M 8 x 55 DIN 933 zinc-pl.
3	5	00 02 33 05	Screw M8 x 20 DIN 963 zinc-pl.
4	4	00 03 59 68	Hex screw 5 x 30 DIN 571 zinc-pl.
5	1	00 08 73 43	Dosing zone, rubber HM LOTUS XL
6	1	00 08 73 46	Coupling for mixing shaft HM LOTUS XL zinc-pl.
7	1	00 09 12 81	Water nozzle HM LOTUS
8	1	00 09 41 60	Rubber seal for motor swivel flange HM LOTUS
9	1	00 09 42 98	Dosing segment 45 L HM LOTUS verk RAL2004
10	1	00 09 43 43	Mixing shaft HM LOTUS RAL2004
11	1	00 09 57 43	Middle body HM LOTUS RAL9010
12	1	00 09 62 05	Mixing shaft dosing segment 45L HM LOTUS cpl. RAL2004
13	1	00 09 81 58	Tension flange for rubber dosing zone LOTUS XL RAL2004
14	1	00 09 83 40	Plate for assembly aid HM LOTUS RAL9010
15	1	20 20 11 00	Geka coupling 1" female thread
16	8	20 20 72 00	Nut M8 DIN 985 zinc-pl.
17	2	20 20 78 00	Hex screw M 8 x 30 DIN 933 zinc-pl.
18	3	20 20 85 00	Screw M16 x 80 DIN 444 zinc-pl.
19	6	20 20 86 04	Quick fastener with cap 16s x N 2 7
20	1	20 20 93 13	Washer A 19 DIN 125 zinc-pl.
21	3	20 20 99 21	Nut M16 DIN 6331 zinc-pl.
22	3	20 70 58 02	Bolt A16 H11 x 50 St zinc-pl. 1.5 x 30°
23	1	20 70 62 02	Rubber seal D 330 x 260 x 4 with 24 holes

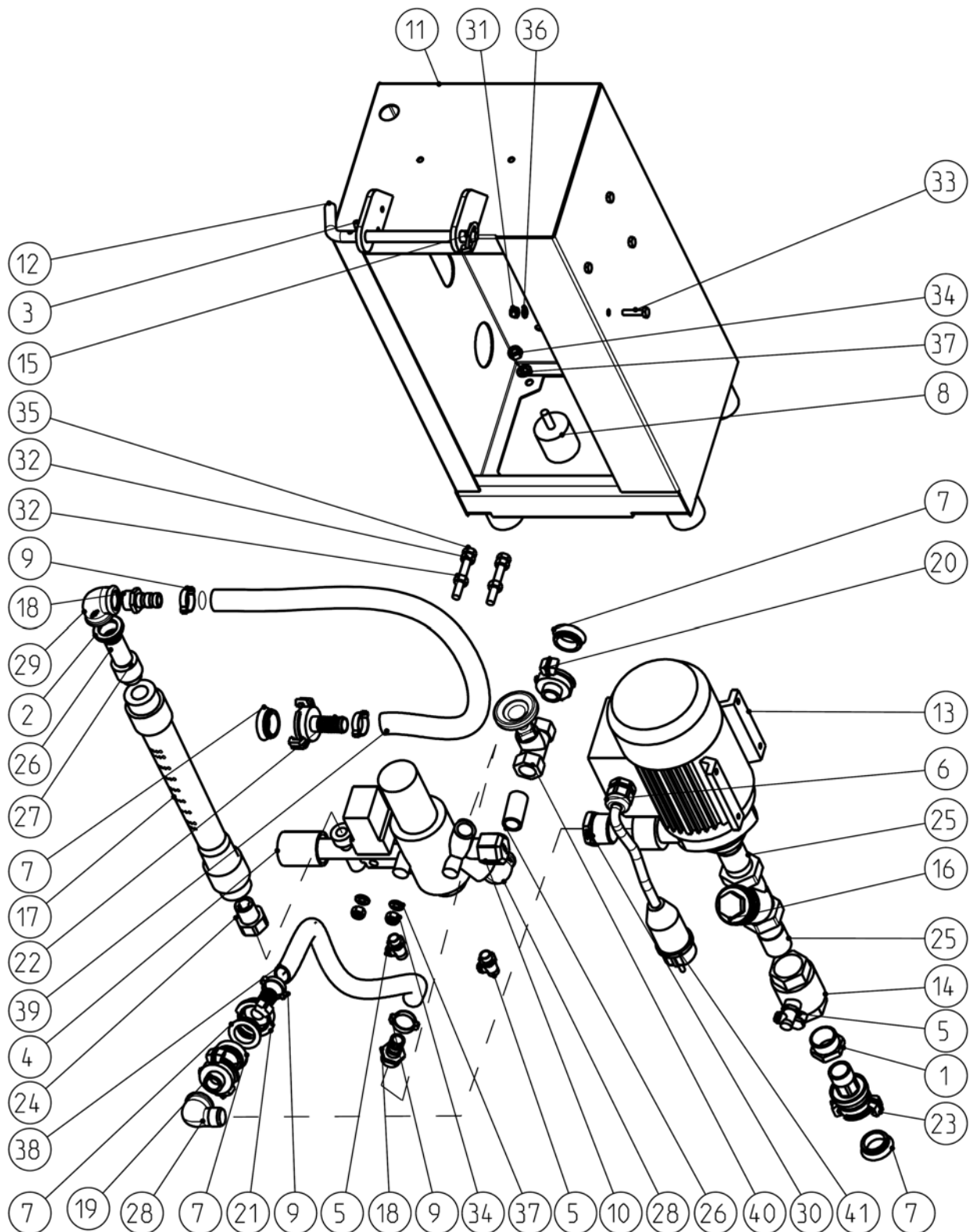
Spare parts diagram for mixing tube



Spare parts list for mixing tube

1	3	00 02 33 09	Sheet screw 3.9 x 19 DIN 7981 F zinc-pl.
2	3	00 03 58 15	Hex screw M12 x 150 DIN 931
3	1	00 05 27 41	Rubber outer bearing HM LOTUS
4	1	00 08 71 45	Mortar outlet flange HM LOTUS XL
5	1	00 09 43 41	Rubber mixing tube HM LOTUS DN 200 x 10x517
6	1	00 09 57 44	Mixing tube HM LOTUS RAL9010
7	1	00 09 57 45	Bearing shield for mortar outlet front bearing HM LOTUS RAL9010
8	3	20 20 89 00	Nut M12 DIN 985 zinc-pl.
9	6	20 20 90 00	Washer B 13 DIN 125 zinc-pl.

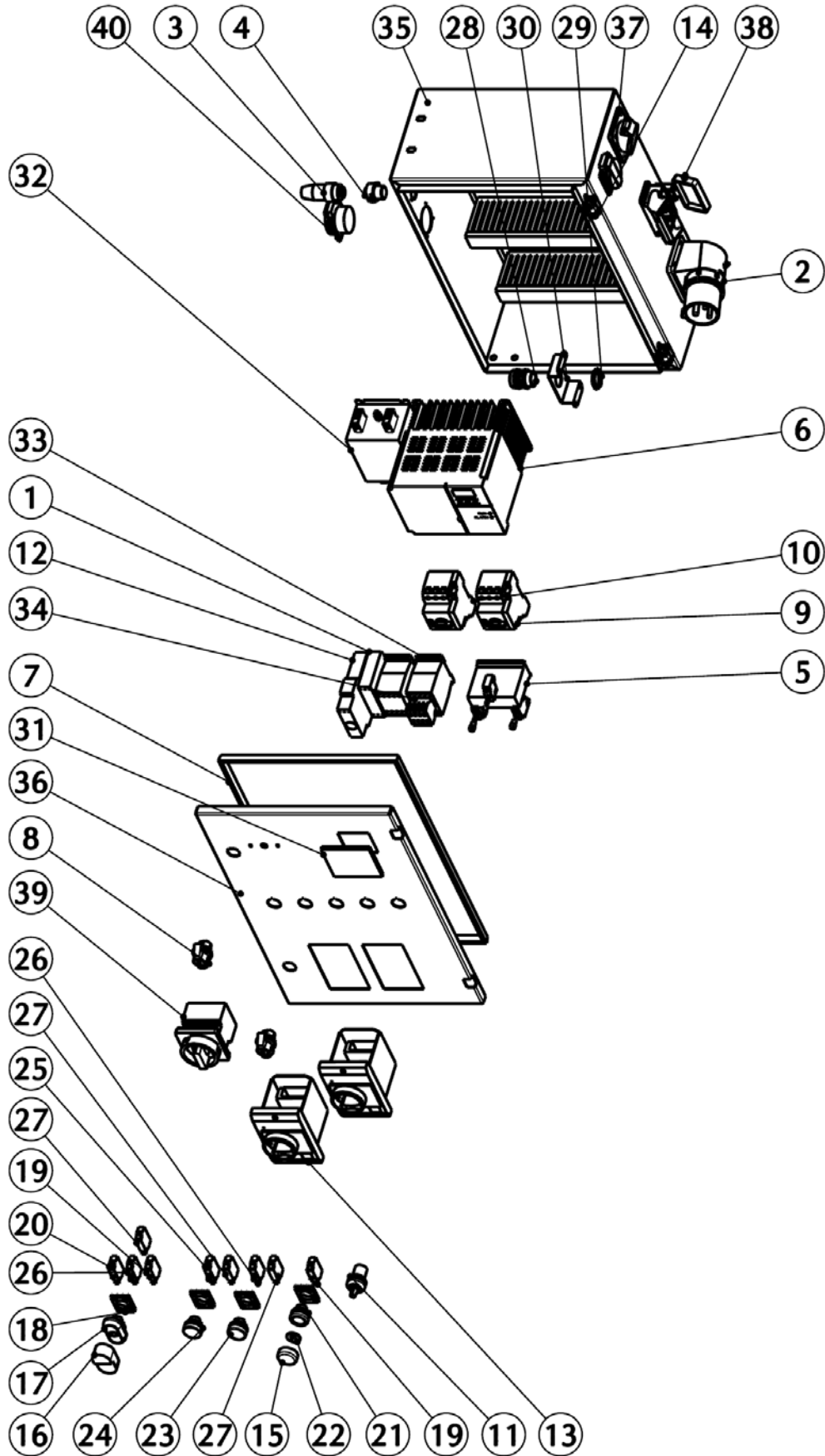
Spare parts diagram for water manifold



Spare parts list for water manifold

1	1	00 00 26 91	Reducing nipple 1" ext. thread 3/4" int. thread no. 241 brass
2	1	00 00 28 12	Washer for pin (22/34x4) DIN 1440
3	1	00 02 34 31	Dowel pin 5 x 40 DIN 1481
4	1	00 03 92 86	Manifold block red brass DK06FN-1/2" E 42V
5	3	00 04 04 28	Bleed valve, manifold block, red brass
6	1	00 04 11 41	Connector skintop with nut M16 x 1.5
7	5	20 20 17 00	Gasket Geka-coupling
8	4	00 05 37 15	Rubber diaphragm D40 x 40, M8 shape D
9	4	00 05 91 96	Hose clip 19-21
10	1	00 07 52 91	Cap 3/4" internal thread no. 300 zinc-pl.
11	1	00 09 37 56	Water manifold housing HM LOTUS RAL9010
12	1	00 09 42 86	Safety pin LOTUS zinc-pl
13	1	00 09 93 12	High pressure pump
14	1	00 12 43 72	Back pressure valve 1"int. thread with ventilation 1/4" int. thread
15	1	20 10 10 10	Splint D 4,5 with ring
16	1	20 15 20 10	Dirt collector Fy 30-1" with filter
17	1	20 18 50 04	Water flow meter 150-1500 l/h cpl.
18	2	20 19 04 10	Hose screw joint 1/2" ext. thread socket 1/2"
19	2	20 20 09 00	Geka coupling 1/2" ext. thread
20	2	20 20 09 00	Geka coupling 1/2" ext. thread
21	2	20 20 15 00	Geka coupling 1/2" socket
22	2	20 20 15 00	Geka coupling 1/2" socket
23	1	20 20 16 91	High pressure coupling 1" ext. thread with seal
24	1	20 20 31 07	Nipple 1/2" ext. thread flat with nut 3/4" int. thread
25	2	20 20 33 13	Nipple 1" x 30 no. 22 galv.
26	2	20 20 34 00	Double nipple 1/2" x 40 no. 23 galv.
27	1	20 20 34 20	Faucet prolongation 1/2" x 20mm DIN 3523
28	2	20 20 36 10	Curved section 1/2" int. thread-ext. thread no. 92 galv.
29	1	20 20 36 11	Curved section 1/2" int. thread no. 90 galv.
30	1	20 20 54 00	Reducing nipple 1" ext. thread 1/2" int. thread no.241 galv.
31	4	20 20 62 00	Safety nut M6 DIN 985 galv.
32	4	20 20 64 00	Hex. nut M8 DIN 934 galv.
33	4	20 20 71 05	Hex. screw M6 x 25 DIN 933 galv.
34	6	20 20 72 00	Safety nut M 8 DIN 985 galv.
35	2	20 20 77 00	Hex. screw M8 x 60 DIN 933 galv.
36	4	20 20 93 00	Washer B 6,4 DIN 127 galv.
37	6	20 20 93 13	Washer B 8,4 DIN 125 galv.
38	1	20 21 35 06	Water-/air hose 1/2" x 330mm
39	1	20 21 36 14	Water-/air hose 1/2" x 1800mm
40	1	20 21 52 00	Tap 1/2" without drainer
41	1	20 42 41 43	Motor connection cable 0,8m Schuko plug and cable lug

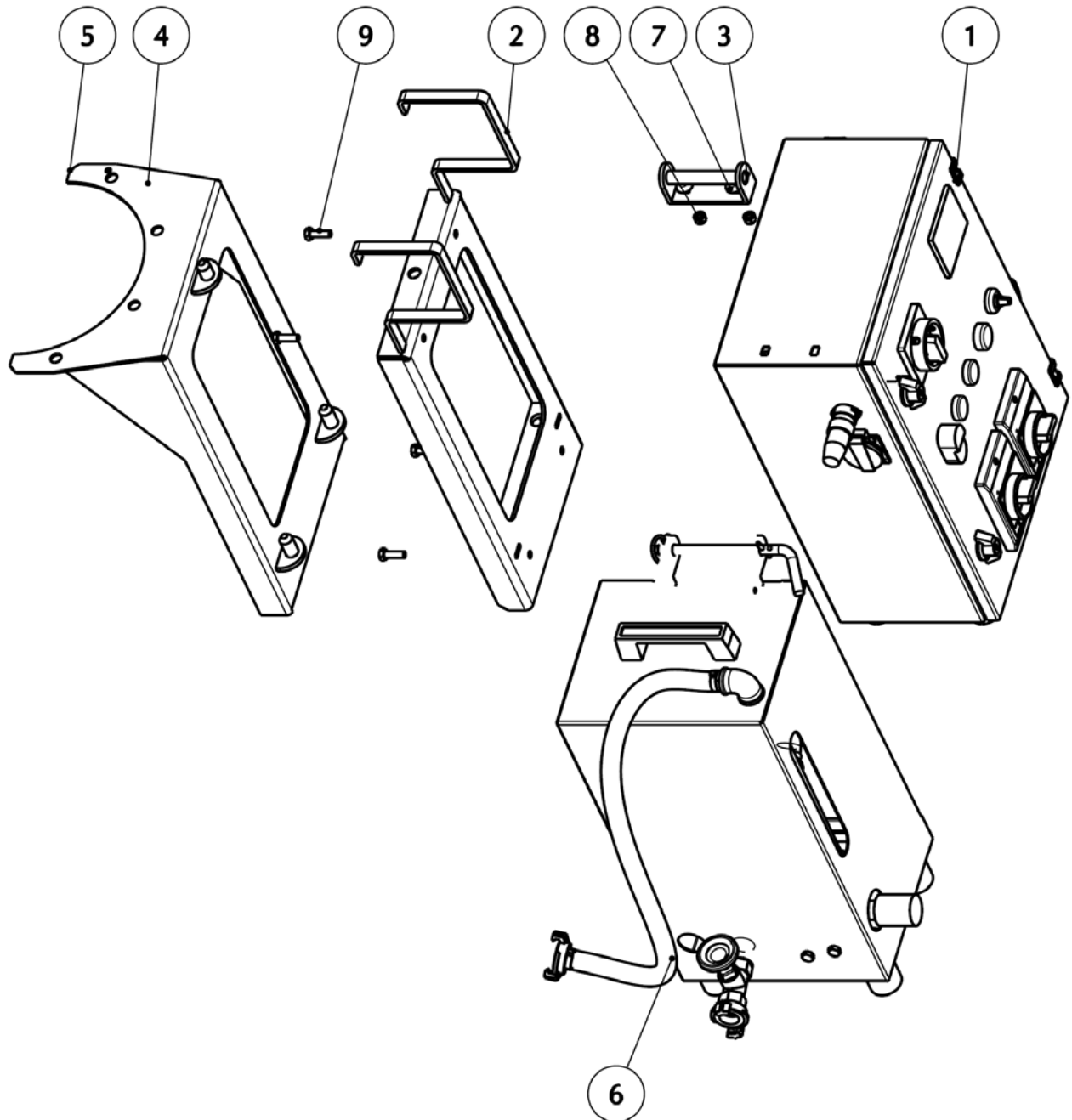
Spare parts diagram for control box



Spare parts list for control box

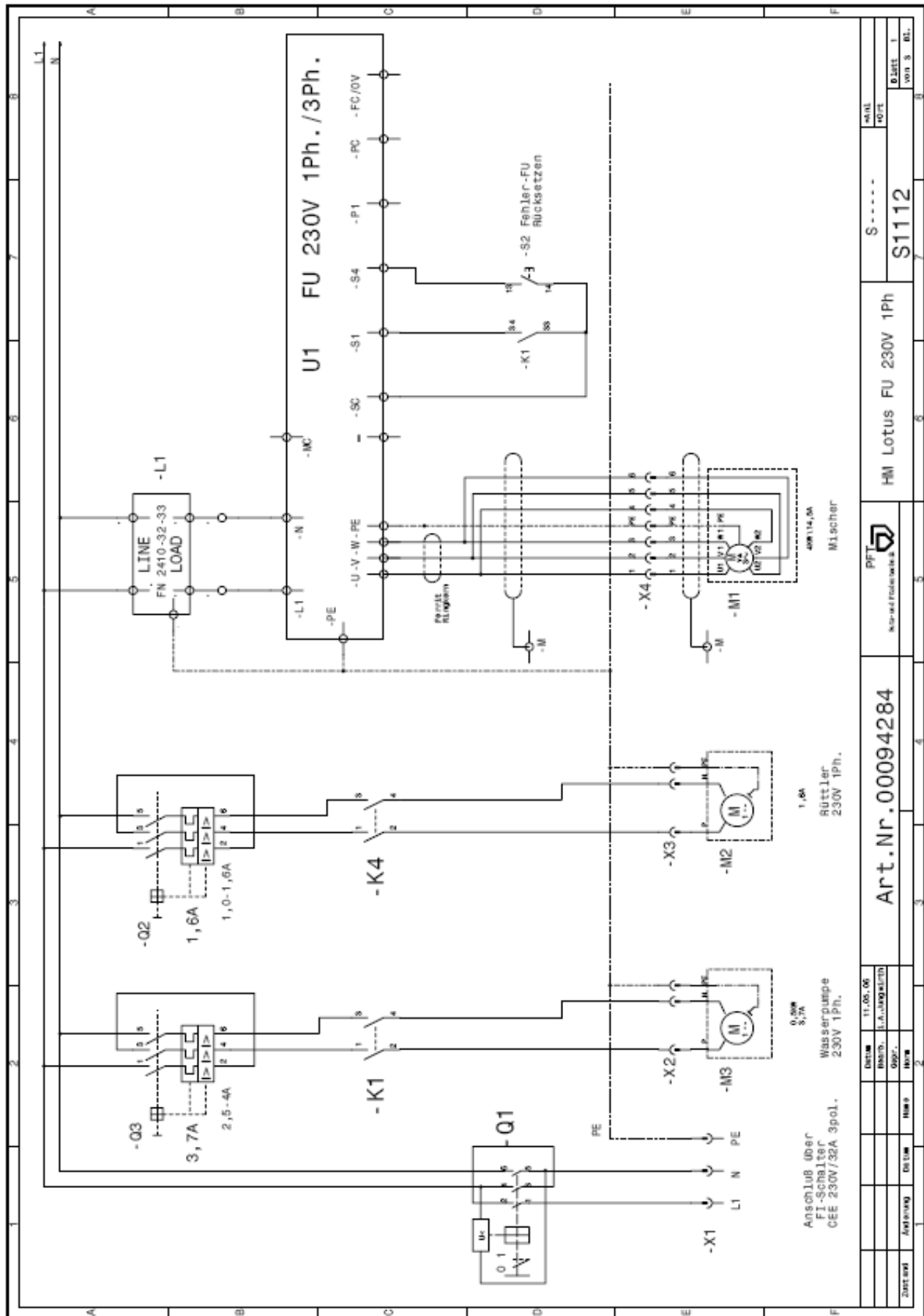
1	1	00 00 17 58	Impulse pause relay 42 V 10 sec. delay 42 V 1
2	1	00 00 24 69	CEE device plug 3 x 32 A 6 h blue no.381
3	1	00 02 20 84	Round connector plug 693/4p.
4	1	00 02 20 85	Round connector flanged socket 693/4p.
5	1	00 02 21 51	Transformer unit 230 V-42 V 70 VA NEW
6	1	00 02 26 48	Frequency converter 230 V 4 KW 17.6 A (P)
7	1	00 02 34 95	Gasket profile EPDM 67 /1011-10
8	2	00 03 62 49	Lock for control box (two-way key bit)
9	1	00 04 26 00	Motor protection switch 1-1.6 A PKZM 0-1.6 (P)
10	1	00 04 26 01	Motor protection switch 1.6-2.5 A PKZM 0-2.5 (P)
11	1	00 04 43 56	Potentiometer 10 KOhm for time-delay relay
12	1	00 04 43 57	Time-delay relay 0.5-10 min for remote potentiometer N
13	2	00 05 35 33	Insulated material housing for motor safety switch
14	2	00 05 37 67	Hinge 180° complete for control box
15	1	00 05 38 30	Membrane round for button IP 67 M22
16	1	00 05 38 31	Membrane rectangular for twin button IP
17	1	00 05 38 32	Light switch On/Off M22
18	4	00 05 38 34	Fixation adapter M22
19	2	00 05 38 35	Contact element 1 closer M22 - K10
20	1	00 05 38 36	Contact element 1 opener M22 - K01
21	1	00 05 38 39	Button without sensor plate M22
22	1	00 05 38 43	Sensor plate for button blue/reset M22
23	1	00 05 38 74	Indicator lamp attachment yellow M22
24	1	00 05 38 75	Indicator lamp attachment red M22
25	1	00 05 38 79	Illuminated element red 12-30 V
26	2	00 05 38 81	Light element white 12-30 V
27	3	00 05 38 86	LED resistor series element for 42 V
28	1	00 06 69 81	EMC cable screw joint M25 x 1.5
29	1	00 06 69 84	EMC cable nut M25 x 1.5
30	1	00 07 02 88	Strain relief for EMC cable screw joint zinc-pl.
31	1	00 07 56 99	Plastic panel polycarbonate transparent 85
32	1	00 08 15 16	EMC filter for frequency converter 4.0 KW 230 V 3
33	2	00 08 42 24	Automatic plumb level DIL M15-10 42 V GVP 48 V
34	1	00 08 52 93	Auxiliary switch DILM 32-XHI11 1S / 1O DILM 32-
35	1	00 09 42 99	Empty housing HM Lotus FU 230 RAL9010
36	1	00 09 43 09	Door HM LOTUS 400 V
37	1	20 42 64 00	CEE panel mounted socket 3 x 16 A 12 h white type:42
38	1	20 43 20 01	Housing 10-pin HAN 10 E16 A with safety
39	1	20 45 40 00	Main switch 25 A 3-pin
40	2	20 42 72 10	Panel mounted safety socket 16 A grey T7132

Spare parts diagram for control unit

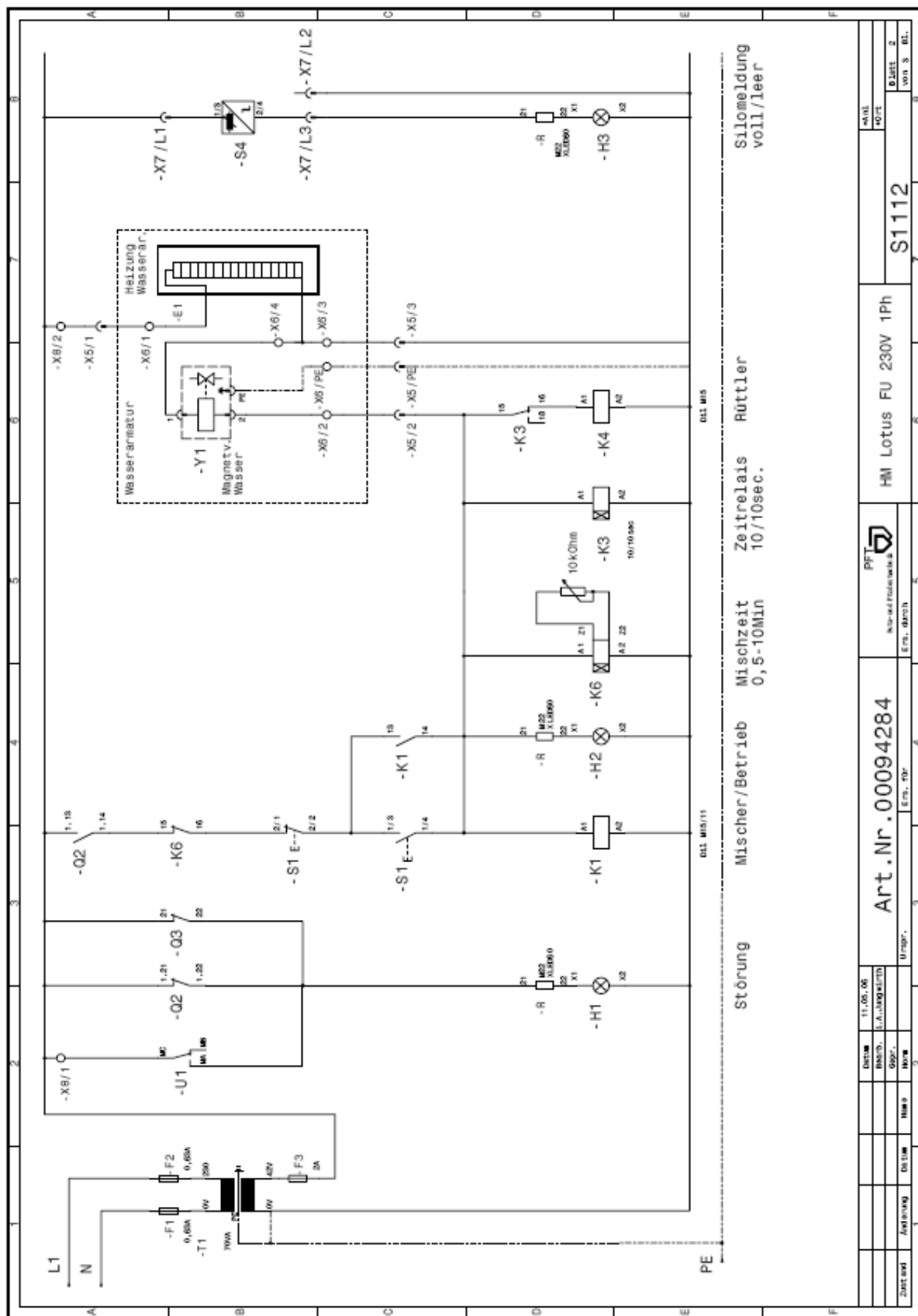


Spare parts list for control unit

1	1	00 09 42 84	Control box Lotus 230 V 1 Ph. FU
2	1	00 09 57 33	Hook-in frame control unit HM LOTUS RAL9010
3	1	00 09 57 35	Holder manifold box top HM LOTUS RAL9010
4	1	00 09 57 36	Bracket on the silo flange HM LOTUS RAL9010
5	1	00 09 62 03	Control unit HM LOTUS 230 V FU cpl. RAL9010
6	1	00 09 86 91	Water manifold HM LOTUS 230 V cpl. RAL9010
7	2	20 20 63 22	Flat screw M8 x 20 DIN 603 zinc-pl.
8	6	20 20 72 00	Nut M8 DIN 985 zinc-pl.
9	4	20 20 78 10	Hex screw M 8 x 25 DIN 933 zinc-pl.



Circuit diagram S1112



WE KEEP THINGS MOVING



Knauf PFT GmbH & Co. KG
Postfach 60 D-97343 Iphofen
Einersheimer Straße 53 D-97346 Iphofen

Telephone +49 (0) 93 23/31-1818

Fax +49 (0) 93 23/31-770

E-mail info@pft-iphofen.de

Internet www.pft.eu