

Operating manual

**EC Declaration of Conformity
PFT CONVEYING SYSTEM
PFT SILOMAT XXL D RAL2004
Part 2 Overview – Operation - Spare parts lists**



Article number of the operating manual: 00629976

Article number of the parts list PFT SILOMAT XXL D 50 Hz RAL2004 → -00606758

Article number of the parts list PFT SILOMAT XXL D 60 Hz RAL2004 → -00603707

CE

Read the operating manual prior to starting any work!

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Table of Contents

1 Table of Contents

1	Table of Contents.....	3	14	Intended use air compressor.....	18
2	EC Declaration of Conformity.....	5	14.1	Intended purpose air compressor.....	18
3	Inspection.....	6	14.2	Safety systems air compressor	18
3.1	Inspection by machine operator	6	14.3	General positioning of the air compressor	19
3.2	Periodic inspection	6	14.4	Hot surface of the air compressor	19
4	General information.....	6	15	Transport, packing and storage	20
4.1	Information regarding the operating manual.....	6	15.1	Safety instructions for transport.....	20
4.2	Keep the manual for future reference..	6	15.2	Transport	21
4.3	Division	7	15.3	Transport inspection	22
5	Accessories.....	7	15.4	Packaging	22
6	Technical data.....	8	16	Operation	23
6.1	General information	8	16.1	Safety.....	23
6.2	Connection values 50 Hz.....	8	17	Machine preparations.....	24
6.3	Connection values 60 Hz.....	9	18	Connecting the power supply 400V	24
6.4	Operating conditions.....	9	19	Prepare the carrier	25
6.5	Power values 50 Hz.....	9	19.1	Connect the carrier to the silo.....	25
6.6	Power values 60 Hz.....	10	19.2	Connect the conveying hoses and the air hoses	25
7	Sound power level	10	19.3	Laying conveyor lines	26
8	Vibrations	10	20	Connections	26
9	Name plate.....	10	21	Opening the silo discharge flap valve	27
10	Quality Control sticker	10	21.1	Hazardous dusts.....	28
11	Dimension sheet PFT SILOMAT XXL D ...	11	22	Switching on.....	28
12	Assembly and functioning:.....	12	22.1	Main switch	28
12.1	Overview of the assembly units.....	12	22.2	Conveying process	28
12.2	Carrier SILOMAT XXL D	13	22.3	Empty alarm of level sensor	29
12.3	Compressor / control box SILOMAT XXL D	14	22.4	Switching off	30
12.4	Overview of the control box SILOMAT XXL D	15	23	Shutdown in case of emergency	30
12.5	Operating modes	16	24	Action in case of power cut	31
13	Function.....	16	24.1	Establishing a de-energised state	31
13.1	Brief description.....	16	25	Work on troubleshooting	32
13.2	Functional sequence	16	25.1	Reaction in the event of faults	32
			25.2	Fault displays.....	32
			25.3	Faults	32
			25.4	Safety.....	33



Table of Contents

25.5	Table of faults	33	34.3	Rotary compressor KDT 3.145 T 7.5 / 9 KW article number 00606202	50
25.6	Work on troubleshooting	35	34.4	Rotary compressor KDT 3.145 T 7.5 / 9 KW article number 00606202	51
26	End of work.....	36	34.5	Rotary compressor KDT 3.145 T 7.5 / 9 KW article number 00606202	52
26.1	End of work or interruption of work....	36	34.6	Rotary compressor KDT 3.145 T 7.5 / 9 KW article number 00606202	53
26.2	Remove the carrier	37	34.7	Pressure control.....	54
27	Cleaning the conveying system	37	34.8	Pressure control.....	55
27.1	Cleaning.....	37	34.9	Pressure control.....	56
27.2	Check / clean the dosing shaft.....	37	34.10	Pressure control.....	57
28	Maintenance	39	34.11	Control box art. no. 00604695 50Hz, 00604698 60Hz.....	58
28.1	Safety	39	34.12	Control box art. no. 00604695 50Hz, 00604698 60Hz.....	59
28.2	Maintenance plan.....	41	34.13	Control box art. no. 00604695 50Hz, 00604698 60Hz.....	60
29	Maintenance work.....	41	34.14	Control box art. no. 00604695 50Hz, 00604698 60Hz.....	61
29.1	Lubrication	41	34.15	Carrier cmpl. SILOMAT XXL D	62
30	Clean the filter	42	34.16	Carrier cmpl. SILOMAT XXL D	63
30.1	Remove the filter cover	42	34.17	Gear motor SILOMAT XXL D.....	64
30.2	Check the slider width.....	43	34.18	Gear motor SILOMAT XXL D.....	65
30.3	Setting values of SILOMAT XXL D	44	34.19	Carrier cmpl. SILOMAT XXL D	66
31	Monitor the pressure control	45	34.20	Carrier cmpl. SILOMAT XXL D	67
31.1	Hand – “0” - Automatic switch.....	45	34.21	Carrier cmpl. SILOMAT XXL D	68
32	Actions after completed maintenance	45	34.22	Carrier cmpl. SILOMAT XXL D	69
33	Disassembly	46	34.23	Connecting piece ventilates SILOMAT XXL D art. no. 00605864	70
33.1	Safety	46	34.24	Connecting piece ventilates SILOMAT XXL D art. no. 00605864	71
33.2	Disassembly.....	47	35	Index	74
33.3	Disposal	47			
34	Spare parts drawing, spare parts list.....	48			
34.1	Supporting frame trans plus cmpl. article number 00140428	48			
34.2	Supporting frame trans plus cmpl. article number 00140428	49			



2 EC Declaration of Conformity

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

declares under our sole responsibility that the machine:

Type of machine: SILOMAT XXL D
Type of equipment: Pneumatic conveying system
Serial number:
Guaranteed sound power level: 101 dB

is in conformity with the following CE directives:

- Outdoor directive (**2000/14/EC**),
- Machine directive (**2006/42/EC**),
- Electromagnetic Compatibility Directive (**2014/30/EU**).

Operative Conformity Assessment according to Outdoor Directive 2000/14/EC:

Internal production control as per article 14 paragraph 2 in connection with annex V.

This declaration only refers to the machine in the state in which it has been placed on the market. Parts subsequently added by the user and/or subsequent interventions are not covered. This declaration ceases to be valid if the product is converted or changed without consent.

Person authorised to compile the relevant technical documentation:

(Dipl. in Industrial Engineering, University of Applied Sciences) Michael Duelli, Einersheimer Straße 53, 97346 Iphofen.

The technical documentation is available from:

Knauf PFT GmbH & Co. KG, Technical Department, Einersheimer Straße 53, 97346 Iphofen.

Iphofen,

Dr. York Falkenberg

Managing director

Identification of the signatory

Place, Date of issue

Name and signature



3 Inspection

3.1 Inspection by machine operator

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

3.2 Periodic inspection

- Construction machinery has to be inspected for their safe working condition in accordance with the operating conditions and the operational requirements as needed, however at least once a year by an expert.
- Pressure vessels have to undergo the prescribed expert inspections.
- The inspection results have to be documented and kept at least until the next inspection.

4 General information

4.1 Information regarding the operating manual

This operating manual gives important information on handling the device. A prerequisite for safe working is the observance of all stated safety guidelines and instructions.

Furthermore, the local accident prevention guidelines and general safety instructions for the application area of the device are to be adhered to.

Read the operating manual thoroughly before starting any work! It is a part of the product and has to be kept near the tool and easily accessible to the personnel at all times.

If the tool is given to third parties, also include the operating manual.

The figures in this manual are for presentation purposes of facts, not necessarily to scale and may slightly differ from the actual model of the device.

4.2 Keep the manual for future reference

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



4.3 Division

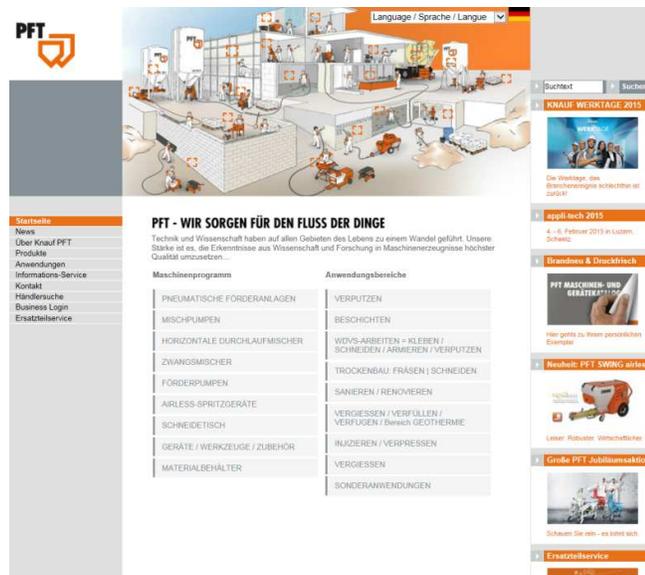
The operating manual is divided into 2 books:

- Part 1 Safety
 - General safety instructions about article number 00132670
- Part 2 Overview, operation, service and spare parts lists. (This book)

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

5 Accessories

For recommended accessories/equipment, see PFT machines and device catalogue or under www.pft.net or at your PFT- construction machinery dealer.



Technical data



6 Technical data

6.1 General information

SILOMAT XXL D 50 Hz	00 60 67 58
SILOMAT XXL D 60 Hz	00 60 37 07

Weight of the complete conveying system

Detail	Value	Unit
SILOMAT XXL D 50 / 60Hz	366	kg

Detail	Value	Unit
Length	1150	mm
Width	660	mm
Height	742	mm
Carrier compl.	135	kg

6.2 Connection values 50 Hz

Electrical details

Detail	Value	Unit
Voltage 3Ph./ 50Hz	400	V
Power consumption approximately	20	A
Power input	9.2	kW
Connection	32	A
Fuse protection, at least	32A type C	



Fig. 1: Motor protection switch

	Power	Unit	Designation
Compressor motor	7.5 kW	16.2 A	Q2
Actuator	0.18 kW	0.65 A	Q3
Dosing drive	1.1 kW	2.3 A	Q4
Control air compressor	0.15 kW	0.6 A	Q5
Vibrating unit	0.2 kW	0.3 A	Q6



6.3 Connection values 60 Hz

Electrical details

Detail	Value	Unit
Voltage 3Ph./ 50Hz	400	V
Power consumption approximately	21.7	A
Power input	10.7	kW
Connection	32	A
Fuse protection, at least	32A type C	



Fig. 2: Motor protection switch

	Power	Unit	Designation
Compressor motor	9.0 kW	17.9 A	Q2
Actuator	0.18 kW	0.65 A	Q3
Dosing drive	1.1 kW	2.3 A	Q4
Control air compressor	0.15 kW	0.6 A	Q5
Vibrating unit	0.2 kW	0.3 A	Q6

6.4 Operating conditions

Environment

Detail	Value	Unit
Temperature range	2-45	°C
Relative humidity, max.	80	%

Duration

Detail	Value	Unit
Max. operating time at a stretch	8	hours

6.5 Power values 50 Hz

Detail	Value	Unit
Pump capacity, approx. at 140m	20	kg/min
Feed range in m*	140	Metre
Operating pressure, max.	2.5	bar
Compressor ventilation system performance	122	Nm ³ /h

* Reference value depending on the material quality, material weight and conveying height

Sound power level



6.6 Power values 60 Hz

Detail	Value	Unit
Pump capacity, approx. at 140m	20	kg/min
Feed range in m*	140	Metre
Operating pressure, max.	2.5	bar
Compressor ventilation system performance	122	Nm ³ /h

* Reference value depending on the material quality, material weight and conveying height

7 Sound power level

Sound power level LWA

101 dB (A)

8 Vibrations

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

9 Name plate

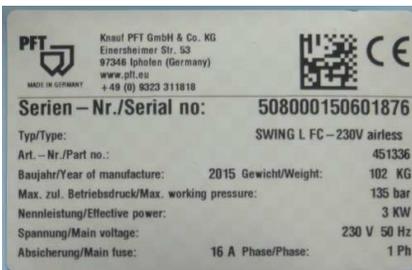


Fig. 3: Name plate

The type plate is located on the supporting frame and includes the following information:

- Manufacturer
- Type
- Year of manufacture
- Machine number

10 Quality Control sticker



Fig. 4: Quality Control sticker

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

- CE confirmed as per EU directives
- Serial no / serial number
- Controller / signature
- Date of control



Dimension sheet PFT SILOMAT XXL D

11 Dimension sheet PFT SILOMAT XXL D

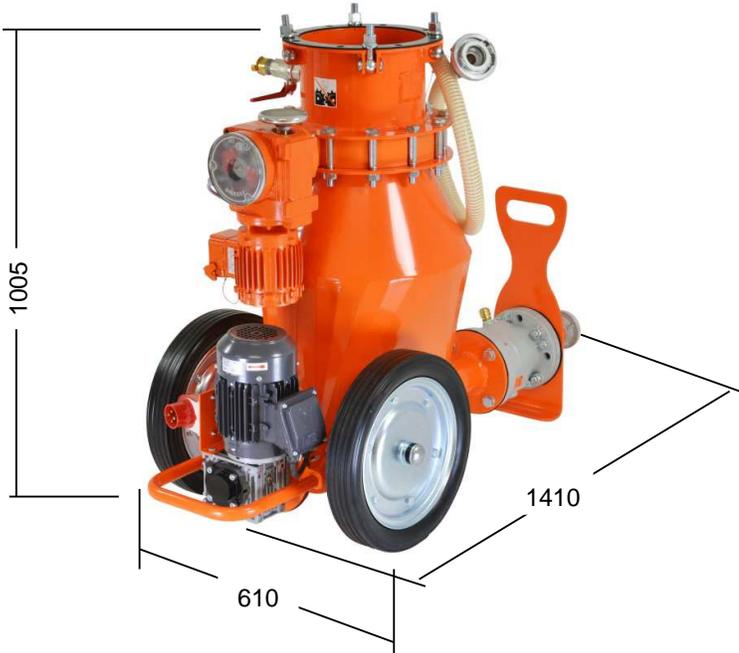


Fig. 5: Dimension sheet

Assembly and functioning:



12 Assembly and functioning:

12.1 Overview of the assembly units

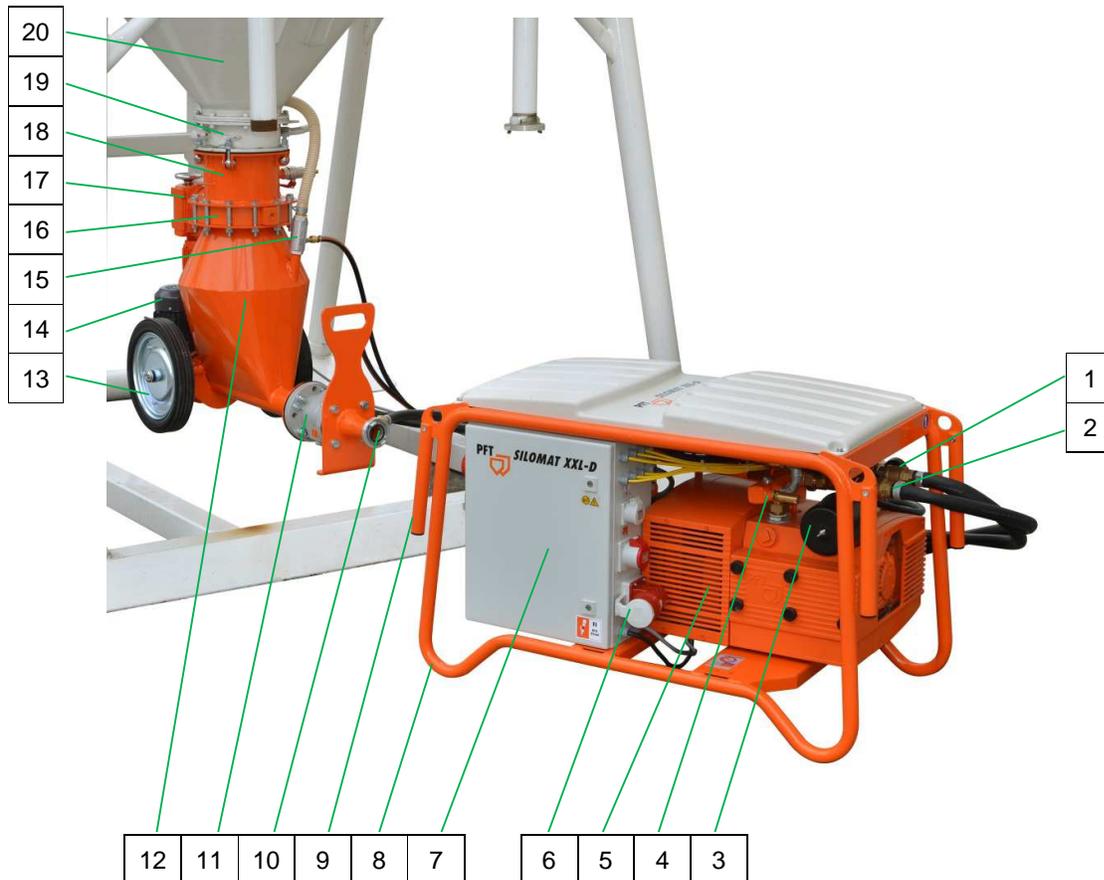


Fig. 6: Table of the assembly groups

- | | |
|--|--------------------------------|
| 1. Conveying air - Bypass | 11. Squeeze valve |
| 2. Conveying air | 12. Carrier |
| 3. Air filter | 13. Wheel with steel rim |
| 4. Pressure control | 14. Gear motor material dosing |
| 5. Air compressor KDT 3.145 | 15. Ventilation of the carrier |
| 6. Main terminal 32A | 16. Shut-off unit |
| 7. Control box | 17. Actuator |
| 8. Supporting frame | 18. Connecting piece |
| 9. Carrying handle | 19. Silo discharge flap valve |
| 10. Material hose connection to the cleaning machine | 20. Silo/Container |



12.2 Carrier SILOMAT XXL D

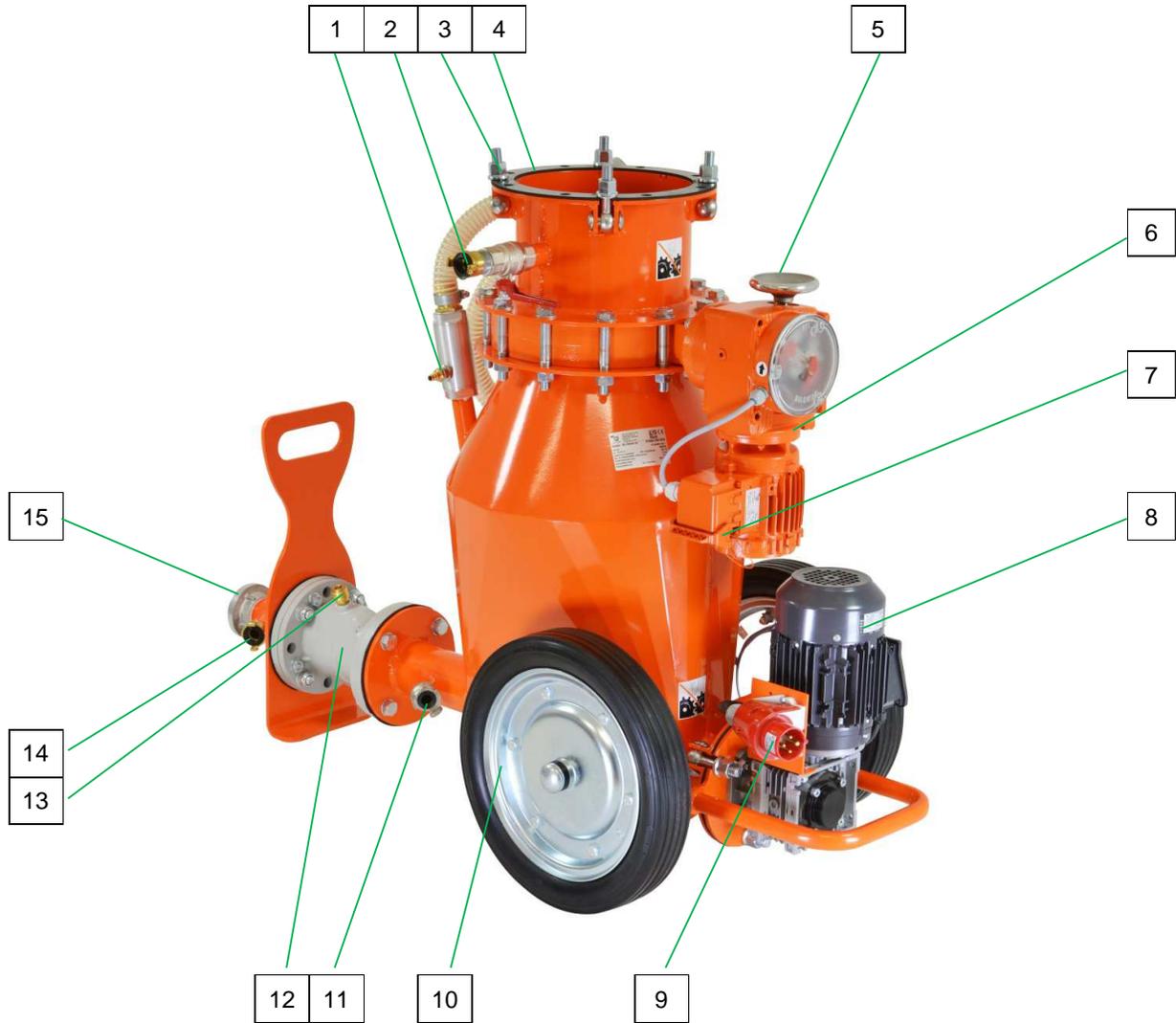


Fig. 7: Table of the assembly groups

- | | |
|---|--|
| <ul style="list-style-type: none"> 1. Ventilation of the carrier 2. Additional ventilation for silo/container 3. Fastening screws for Silo/Container 4. Connecting piece 5. Hand-wheel, butterfly valve "Open - Close" 6. Actuator type 6 7. Gear motor material dosing 8. Connection of the Control cable from control box | <ul style="list-style-type: none"> 9. Power supply from the control box for the gear motor material dosing 10. Wheel with steel rim 11. Air connection of conveying air 12. Squeeze valve 13. Air connection of control air squeeze valve 14. Air connection of conveying air bypass 15. Material hose connection to the cleaning machine |
|---|--|

Assembly and functioning:



12.3 Compressor / control box SILOMAT XXL D

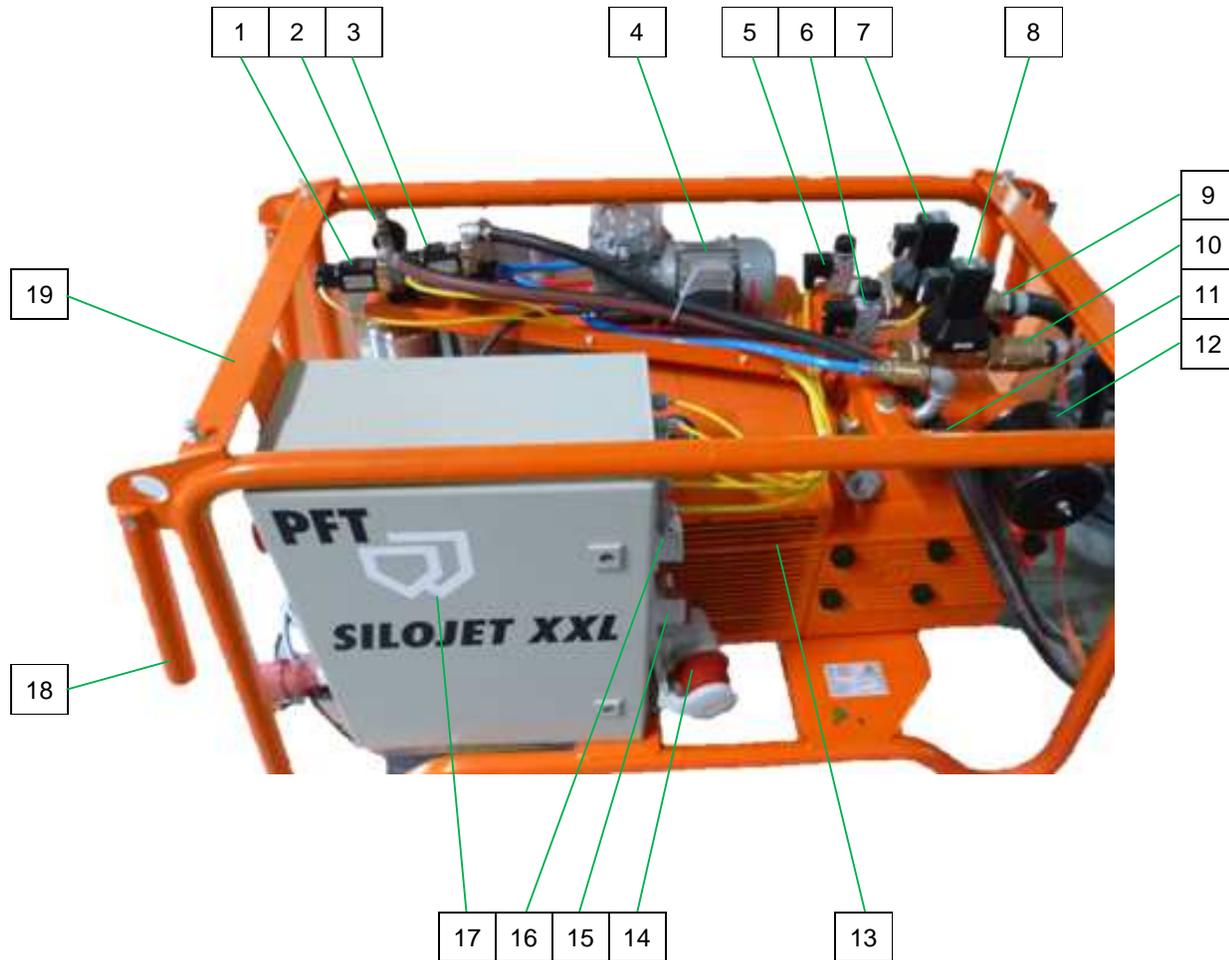


Fig. 8: Compressor / Control box SILOMAT XXL D

- | | |
|---|--|
| 1. Solenoid valve for ventilating the carrier | 11. Safety valve 2.2 bar |
| 2. Safety valve 4 bar | 12. Pre-filter |
| 3. Solenoid valve for squeeze valve | 13. Air compressor KDT 3.145 |
| 4. Air compressor for control air | 14. Main terminal 32A |
| 5. Pressure switch dosing | 15. CEE-panel mounted socket 4 x 16A for connection of vibrating unit |
| 6. Blow out the pressure switch conveyor hose | 16. CEE-panel mounted socket 3 x 16A for requirement of rotary paddle switch |
| 7. Solenoid valve bypass | 17. Control box SILOMAT XXL D |
| 8. Solenoid valve conveyor line | 18. Carrying handle |
| 9. Conveying air - Bypass | 19. Supporting frame SILOMAT |
| 10. Conveying air | |



Assembly and functioning:

12.4 Overview of the control box SILOMAT XXL D

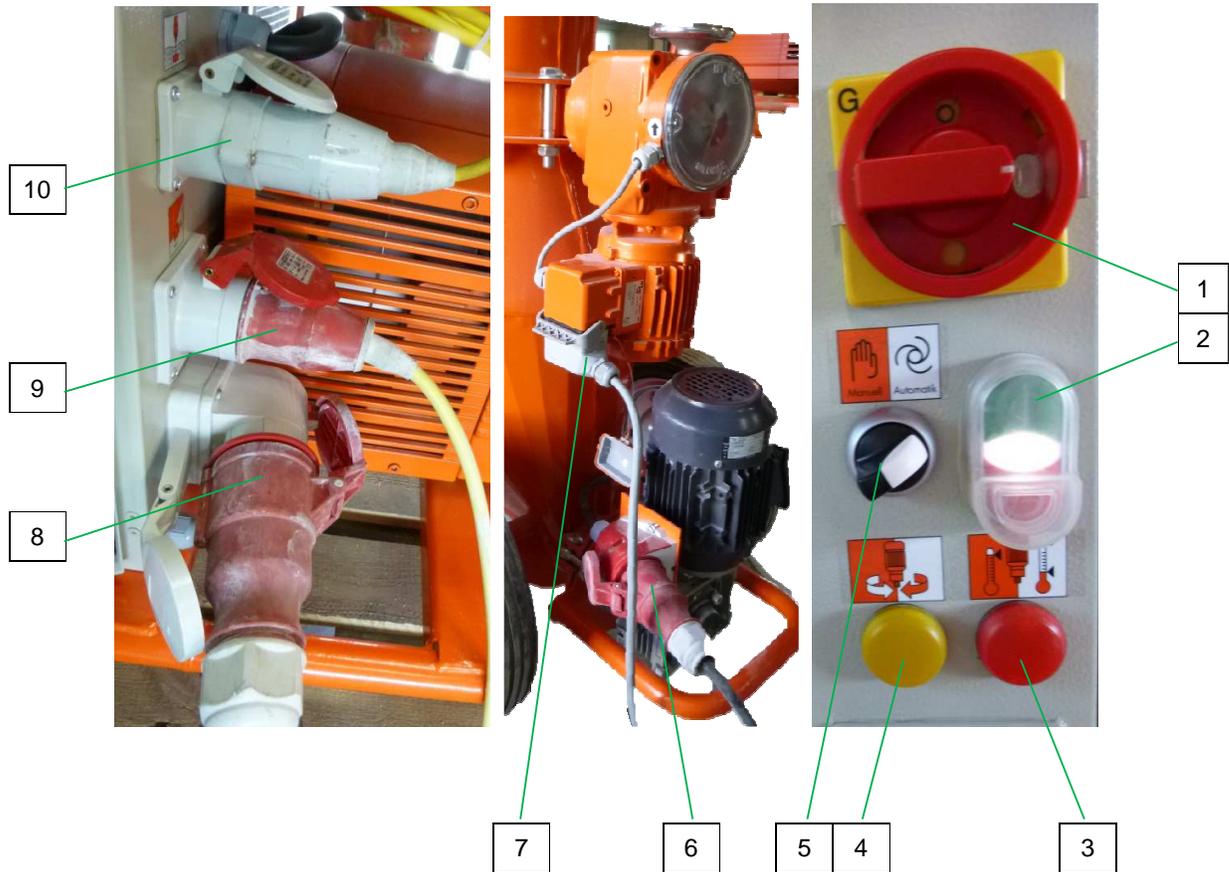


Fig. 9: Description of the control box

- | | |
|--|--|
| <ul style="list-style-type: none"> 1. Master switch is also emergency-stop switch 2. Push button for control voltage "ON/ OFF" 3. Red control lamp, motor protection switch triggered 4. Control lamp change the direction of rotation 5. Program selection switch of vibrating unit Hand – "0" - Automatic | <ul style="list-style-type: none"> 6. Power supply from the control box for the gear motor material dosing 7. Connection of control cable for actuator 8. Main terminal 32A 9. CEE-panel mounted socket 4 x 16A for connection of vibrating unit 10. CEE-panel mounted socket 3 x 16A for requirement of rotary paddle switch |
|--|--|

12.5 Operating modes



Fig. 10: Operating modes of air compressor

The air compressor can be operated in two different operating modes:

AUTOMATIC (right)

The air compressor operates if the rotary paddle switch requires material.

MANUAL (left)

The air compressor operates in the continuous mode in the “Hand” setting.

The air compressor is switched off at the middle position.

13 Function

13.1 Brief description

The conveying system PFT SILOMATXXL D is a pneumatic, fully automatic conveyor system and it takes over the material transport of premixed dry mortar from the silo / container to the cleaning machine.

13.2 Functional sequence

- When starting up the system, the control air compressor starts and fills both the compressed air tanks with control air (4 bar).
- Turn the hand – “0” – automatic switch to the Automatic position.
- The plaster machine conveys the material using the level sensor in the material hopper of the plaster machine. The indication of the level sensor is conveyed to the control box of the pneumatic conveying system.
- The squeeze valve is closed by the material requirement at the outlet of the carrier and the squeeze valve is simultaneously opened at the upper side of the carrier, so that the carrier is ventilated when being filled with dry material. The conveying air is discharged into the silo. However, it would also be conceivable that the air is discharged into the atmosphere through a filter.
- The silo outlet valve opens for approx. 10 seconds thereby starting the vibrating unit on the silo at a pulse interval.
- The silo outlet valve is closed and the vibration process is ended after the carrier has been filled with approx. 65 ltr. volume.
- The squeeze valve at the outlet of the carrier is opened thereby closing the squeeze valve at the upper side of the carrier.



Conveying cycle:

- The conveying air is now converted from the bypass air to the conveying air so that the material is fluidised right at the end of the metering worm. The metering worm starts conveying the dry material to the conveyor hose with a delay of 3 seconds.
- The conveyor line is monitored by a pressure switch (S3). If the pressure in the conveyor line increases above 1.8 bar, the metering worm is stopped and only the conveying air is blown into the conveyor line till the pressure drops to 1.5 bar. If the pressure drops to 1.5 bar, the metering worm starts again.
- Advantage:

The conveying air compressor is discharged by switching off the screw conveyor (= material feed), because the line is blown out and no new dry material is added. Thus, the formation of blockages is effectively prevented. This helps to exclude the possibility of overheating or overloading of the conveying air compressor.
- As long as the material requirement of the plaster machine exists, the carrier is filled every 150 seconds.
- During the filling process, the squeeze valve is closed at the outlet of the carrier and the conveying air is changed over to the bypass thereby avoiding interrupting the conveying process. If the carrier is filled, the bypass air is changed back to the conveying air.
- The conveying cycle operates as long as the level sensor in the plaster machine indicates that the material hopper is full. The last conveying cycle is still continued till the carrier is empty. The compressor and the screw conveyor now operate as long as the pressure in the conveying line has dropped below 0.8 bar.
- The screw conveyor and the squeeze valve is closed at the outlet of the carrier.
- If another material requirement arises during blow-out, then the blow-out process is interrupted and the conveying cycle is started afresh.
- The new fact about this type of pneumatic conveying is that the dry material is added to the conveying line through the metering worm. If the backpressure is too high, it can help to effectively prevent the formation of blockages.
- The amount of dry material to be added can be controlled by the pitch of the metering worm. This system has proved successful for materials that are difficult to convey. Higher the density (= bulk weight) of a dry material, heavier it is to convey pneumatically. The pneumatic conveying becomes difficult from a bulk weight of 1.3 KG/dm³ onwards.
- Without the metered addition of the dry material to the conveying line, the material would tend to form blockages in the next bottleneck because the heavy material cannot be compressed.

14 Intended use air compressor

14.1 Intended purpose air compressor

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



Attention!

The air compressor is intended exclusively for the generation of compressed air and is to be used with connected implement. Any other use or use beyond what is specified, such as with freely accessible and/or open hoses and pipelines, is deemed to be not for the intended purpose. Connected implements or components are to be designed for the maximum generated pressure of 2.5 bar.

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

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

14.2 Safety systems air compressor



WARNING!

Danger to life due to non-functioning safety equipment!

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

Therefore:

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



14.3 General positioning of the air compressor

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

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

The specifications are applicable up to a height of 800 m above sea level.

14.4 Hot surface of the air compressor

General information

**WARNING!****Danger of injury due to hot surface!**

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

15 Transport, packing and storage

15.1 Safety instructions for transport

Improper transport



ATTENTION!
Damage from improper transport!

Improper transport may cause substantial property damage.

Therefore:

- When unloading the packages on delivery, as well as transport within the company, pay attention and observe the symbols and instruction on the package.
- Use only the specified anchorage points.
- Remove packaging only shortly before the assembly.

Suspended loads



WARNING!
Danger to life from suspended loads!

When lifting heavy loads, there is danger to life from falling parts or uncontrolled swinging parts.

Therefore:

- Never step under suspended loads.
- Observe the instructions regarding the provided anchorage points and ensure safe fit of the sling gear.
- Do not fix to projecting machine parts or eyelets of attached components.
- Use only approved lifting gear and sling gear with sufficient lifting capacity.
- Do not rest ropes and belts at sharp edges and corners, do not knot or twist.



15.2 Transport

Anchor points



Fig. 11: Crane transport

Anchor the Silomat system at the marked anchor points (1) for transport by crane.

Attachment:

1. Anchor the hooks to the crane hooks accordingly.
2. Ensure that the package is straight, possibly observe eccentric centre of gravity.



Fig. 12: Forklift transport

The Silomat system can be transported by the forklift truck on the long side.



Fig. 13: Pallet truck transport

The Silomat system can be transported by the pallet truck on the front sides.

Observe the following conditions:

- The crane and lifting equipment have to be designed for the weight of the packages.
- The operator has to be authorised to operate the crane.

Transport of already running machine



DANGER!

Risk of injury due to discharged dry material!

Injuries to face and eyes can occur.

- Before opening the couplings ensure that there is no more pressure on the hoses.

Carry out the following steps before beginning the transport:

1. Unplug the mains cable.
2. Remove material hoses.

15.3 Transport inspection

On receipt check the delivery immediately for completeness and transport damage.

In case of externally visible transport damage, proceed as follows:

- Do not accept the delivery or under reserve only.
- Note the extent of damage on the transport documentation or on the delivery note of the carrier.
- Initiate complaint process.



NOTE!

Report any defect as soon as it is detected. Claims for damages can be asserted only within the valid warranty period.

15.4 Packaging

For packaging

The individual packages have to be packed in accordance with the transport conditions to be expected. Only environmentally-friendly materials were used for the packaging.

The packaging should protect the individual components until the assembly from transport damage, corrosion and other damage. Therefore do not destroy the packaging and remove only shortly before the assembly.

Handling packaging materials

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



ATTENTION!

Environmental damage due to wrong disposal!

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

Therefore:

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



16 Operation

16.1 Safety

Personal protective equipment

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

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



NOTE!

Further protective equipment that is to be worn during particular jobs will be pointed out separately in the warning instructions of this chapter.

Basic information



WARNING!

Danger of injury due to incorrect operation!

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

Therefore:

- Carry out all operating steps according to the instructions in this user manual.
- Prior to starting your work, ensure that all covers and protection devices are installed and work as intended.
- Never deactivate protection devices during operation.
- Ensure order and cleanliness in the work area! Loose components and tools on top of one another or lying about pose potential accident risks.
- Increased noise level may cause permanent hearing deficiencies. At close range of the machine 101 dB(A) can be exceeded due to operational conditions. Close range is a distance of less than 5 metres to the machine.

17 Machine preparations

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



Warning!

SILOMAT systems for free-fall silos may be connected only to depressurised silos / containers. The dedusting lines of the silo / container must be open and free from blockages.



NOTE!

In order to avoid condensate from entering the system, do the following before starting work:

- Decouple the air hose, which is coming from the compressor, from the carrier.
- Switch on the compressor while adhering to the direction of rotation.
- Air must be discharged at the C-coupling (remove the air hose). In case of an incorrect direction of rotation, bring the main switch to the zero position.
- Push the selector membrane to the opposite side and switch on the main switch for the other direction; the direction of rotation is changed.
- let it run for around 2-3 minutes.
- Kink the hose end several times in the process and re-release it after a brief pressure build-up.
- Repeat the process until water mist is no longer discharged from the air hose.
- Switch the system off by pressing the red push button "OFF" mode.

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

- Do not tilt the machine.
- Put up the machine in such a way that it cannot be hit by falling objects.
- The operating elements have to be freely accessible.

18 Connecting the power supply 400V



1

Fig. 14: Connect power supply.

1. Silomat - connect the system (1) only to a three-phase 400 V network.



DANGER!

Danger to life from electric current!

The connection line has to be fused properly:

Connect the machine only to a power source with permissible RCCB (30 mA) RCD (residual current operated device) type A.



Prepare the carrier



WARNING!
Danger to life from rotating parts!

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

- The motor must be operated only with the control cabinet of the machine.

19 Prepare the carrier

19.1 Connect the carrier to the silo

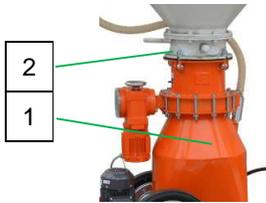


Fig. 15: Connecting the carrier

1. Connect the carrier (1) to the silo outlet valve (2).



NOTE!

Ensure that the flap valve of the silo / container is closed correctly, so that material does not continue flowing.

19.2 Connect the conveying hoses and the air hoses



Fig. 16: Connecting the conveying hose

1. Connect the conveying hose (2) to the C-coupling (1) of the injection hood.



NOTE!

Ensure clean and correct connection and tightness of the couplings! Dirty couplings and rubber seals are not watertight and might leak the material under pressure.

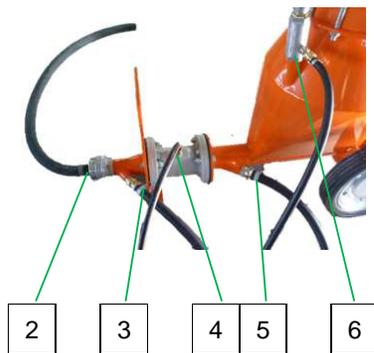


Fig. 17: Connecting hoses

2. Connect the conveying hose (2) to the C-coupling (1) of the injection hood and to the carrier.
3. Connect the conveying air for the bypass (3) to the carrier.
4. Connect the control air (4) for the squeeze valve.
5. Connect the conveying air (5) for the material to the carrier.
6. Connect the air hose to the carrier for ventilation.

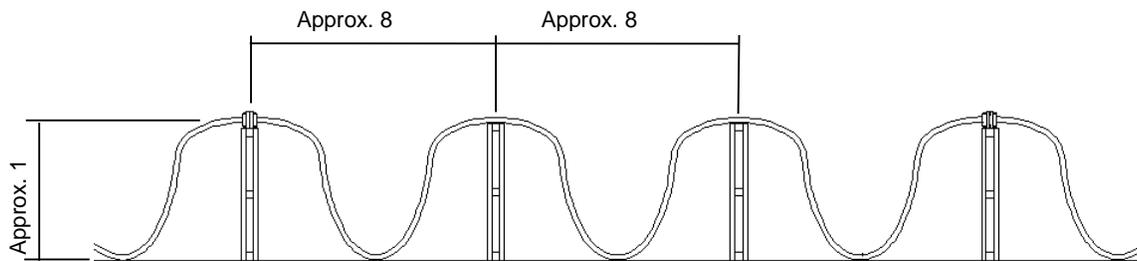
19.3 Laying conveyor lines



NOTE!

The conveyor line may not be laid level in order to ensure an optimum work flow of the system in case of long conveyor stretches.

We therefore recommend the creation of elevations at the hose couplings, using positioned pallets for instance.



NOTE!

In case of a horizontal conveyor stretch, a minimum of three barrages per 25 metres should be positioned. This prevents the formation of blockages.

20 Connections

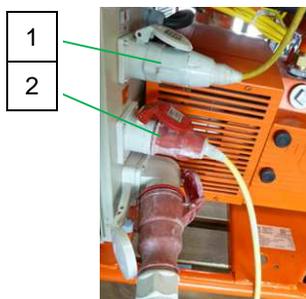


Fig. 18: Connections

1. Connect the control cable for the rotary paddle switch to the CEE - socket outlet 3 x 16 A white (1).
2. Connect the power supply for the vibrating unit (2).



Opening the silo discharge flap valve

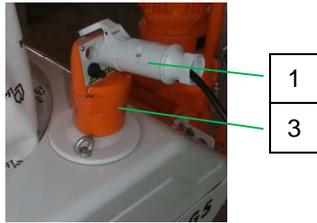


Fig. 19: Connecting the control cable

3. Connect the control cable from the CEE - socket outlet (1) to the rotary paddle switch of the injection hood (3).

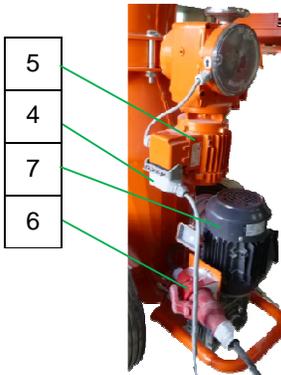


Fig. 20: Connecting the control cable

4. Connect the 10-pin control cable (4) from the control cabinet to the actuator (5) of the shut-off unit.
5. Connect the power supply (6) from the control box to the gear motor (7) for dosing the material.

21 Opening the silo discharge flap valve

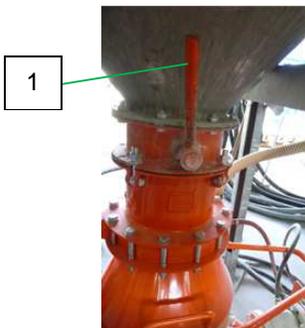


Fig. 21: Opening the silo discharge flap valve

1. Open the silo discharge flap valve (1) before switching on the conveying system.

Switching on



21.1 Hazardous dusts



Fig. 22: Dust protection



Warning!

In the long term, inhaled dust can lead to lung damage or have other adverse health effects.



NOTE!

The machine operator or the person working in the dusty area always has to wear a dust protection mask when filling the machine!

The rules of the Committee on Dangerous Substances (AGS) can be found under Technical Rules for Dangerous Substances (TRGS 559).

22 Switching on

22.1 Main switch

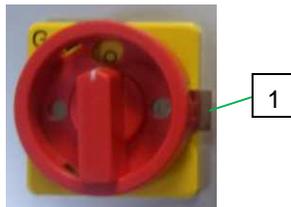


Fig. 23: Main switch

switch on the main switch.



NOTE!

Check the direction of rotation, observe the arrow of the direction of rotation on the motor.

If the direction of rotation is wrong, the following steps must be carried out:

The main switch is arrested in the zero position by pushing the selector membrane (1) to the left or right in a pre-setting and the direction of rotation is thus selected. If the switch is to the left, it can be switched back to zero, but is blocked for the right position. A number is printed on the lamella, which indicates the position in which the switch is arrested.

22.2 Conveying process

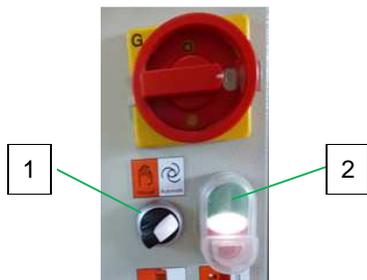


Fig. 24: Conveying process

1. Switch the hand - "0" - automatic switch (1) to "AUTOMATIC".
2. Switch the machine one by pressing the green push button control voltage "ON/OFF" (2).
3. The Silomat - system starts with the conveying process.



NOTE!

If the flap valve of the shut-off unit is closed, the conveying system goes into the empty blowing phase. The system removes residual material in the conveying hoses.



22.3 Empty alarm of level sensor

As soon as the level sensor reports “EMPTY”:

- the butterfly valve is opened
- the carrier is filled with approx. 65l of dry material during the set fill time (10 seconds).
- at the same time, the vibrating unit that is screwed on the Silo, is operated
- the butterfly valve closes after the fill time is over and the compressor starts
- after the conveying time is over and in case of a pressure drop below 0.8 bar (when the hose is empty), the compressor switches off
- The system waits for a new signal to repeat the conveying cycle of fully-automatic supply for the cleaning machine



NOTE!

A level sensor, which signals the material requirement to the SILOMAT system via the control line, is located in the injection hood of the cleaning machine.

The conveying system is controlled by the material consumption of the cleaning machine.

The PFT SILOMAT XXL D can be connected to every free-fall silo and feeds approximately 20 kg of dry mortar per minute to a mixing pump, e.g. PFT G 4, up to 140 m.

After the empty alarm of the level sensor in the injection hood, the silo lock opens pneumatically. In case of a full alarm, the silo outlet is blocked and the conveyor line is blown out.

Shutdown in case of emergency

22.4 Switching off

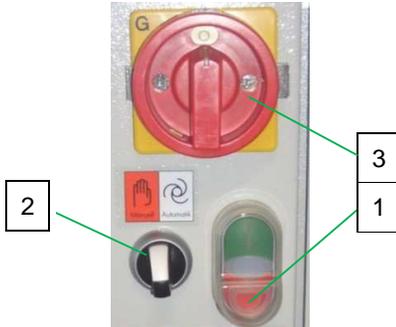


Fig. 25: Switching off

1. Switch off the system by pressing the red push button control voltage “ON/OFF” (1).
2. Switch the hand - “0” - automatic switch (2) to “0”.
3. Turn the main reversing switch (3) to position “0”.
4. Uncouple the power cable and hoses.



DANGER!

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

Torn off hoses can beat about and injure bystanders!

23 Shutdown in case of emergency



Fig. 26: Stopping

After the rescue operations

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

In case of danger proceed as follows:

1. Switch off immediately the main switch.
2. Secure the main switch against reactivation.
3. Inform responsible person at the operational site.
4. If necessary call for medical assistance and fire brigade.
5. Recover persons from the danger zone, initiate First Aid measures.
6. Keep access routes free for emergency vehicles.
7. If the severity of the emergency permits, inform the competent authorities.
8. Assign specialised personnel with the troubleshooting.



WARNING!

Danger to life from premature reactivation!

On reactivation there is danger to life for all persons in the danger zone.

Therefore:

- Before reactivation ensure that there are no persons in the danger zone anymore.

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



24 Action in case of power cut

24.1 Establishing a de-energised state



Fig. 27: Switching off



NOTE!

The de-energised state is established by turning the main reversing switch to position "0".



Fig. 28: Disconnecting the power supply



DANGER!

Danger to life from unauthorised restarting!

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

- Switch off all the energy supplies before starting any work and secure against restarting; if necessary, disconnect the power supply by disconnecting the connection cable.



NOTE!

The SILOMAT XXL D is equipped with a restart interlock. In case of a power cut, the system must be restarted by pressing the green push button control voltage "ON/OFF".

25 Work on troubleshooting

25.1 Reaction in the event of faults

The following strictly applies:

1. In the event of faults presenting immediate danger to persons or property, activate the emergency OFF function immediately.
2. Determine cause for fault.
3. If the rectification of faults requires works in the danger zone, switch off the system and secure against restarting.
4. Inform the manager on site immediately about the fault.
5. Depending on the type of fault commission authorised skilled personnel or rectify the fault yourself.



NOTE!

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

25.2 Fault displays

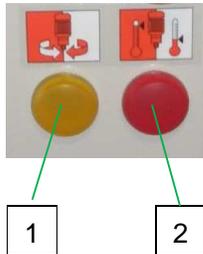


Fig. 29: Fault displays

The following installation indicates faults:

Pos.	Light signal	Description
1	Yellow control lamp	Lights up if the motor's direction of rotation is wrong. Lights up if a phase is missing in the supply line.
2	red control lamp	Lights up on motor protection switch fault.

25.3 Faults

The following chapter describes possible causes for faults and the activities carried out for their rectification.

In case faults occur frequently, shorten the maintenance intervals in accordance with the actual load.

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



25.4 Safety

Personal protective equipment

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

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

Personnel

- The work for rectification of faults described here can be carried out by the operator, unless marked otherwise.
- Some works must be carried out only by specially trained skilled personnel or exclusively by the manufacturer. Information on this can be found in the description of the individual faults.
- Work on the electrical system must, in principle, be carried out only by electricians.

25.5 Table of faults

Fault	Possible cause	Troubleshooting	Rectification by
Machine does not start	Power supply not in order	Repair power supply	Service engineer
	Main switch not activated	Activate main switch	Operator
	Protection switch was triggered	Reset RCCB	Service engineer
	Pilot lamp for direction of rotation (yellow) lights up	Change direction of rotation, push the metal bracket at the main switch in the opposite direction	Operator
	Motor protection switch triggered	Turn motor protection switch in control box to position 1	Service engineer
	Green push button for control voltage "ON" is not pressed	Press green push button for control voltage "ON"	Operator
	Contactors defective	Change contactors	Service engineer
	Fuse defective	Change fuse	Service engineer
Programme does not start	Micro fuse on the transformer faulty	Replace micro fuse	Service engineer
	Control cable, level sensor, hand-"0"- automatic switch is defective	Check parts and replace them if necessary	Service engineer

Work on troubleshooting



Fault	Possible cause	Troubleshooting	Rectification by
Programme does not start	Conveying time or requirement defect	Check parts and replace them if necessary	Service engineer
	Limit switch on the actuator faulty or set incorrectly	Replace limit switch or re-adjust it	Service engineer
Compressor runs at all times	Hand-"0"- automatic switch is at "Hand"	Set it to "automatic"	Operator
	Conveyor line kinked	Adjust conveyor line	Operator
	Conveyor line blocked	See Removal of blockages in the hose	Operator
	Conveying time relay defect	Replace K8	Service
	Level sensor or indicator cable faulty	Replace parts	Operator
	Filter hoses on the cleaning machine hidden or sealed	Tap the filter and replace it if necessary	Operator
Compressor becomes too hot	Fan wheel faulty	Replace fan wheel	Service
	Air-intake filter contaminated	Clean the filter	Operator
Programme is running, compressor is not	Cable, motor protection switch or motor faulty	Replace parts	Service engineer
	Conveyor line laid incorrectly	Create elevations, e.g. pallets	Operator
	Pressure control set incorrectly	See Setting values for pressure	Service
Very less or no material in the machine	Material does not flow from the silo	Connect vibrating unit	Operator
	Container flap valve is closed	Open container flap valve	Operator
	Gear motor for dosing is defective	Replace gear box	Service
	Gear motor is not connected	Connect the connector	Operator
	Metering worm is defective	Replace the metering worm	Service
	Level sensor too long	Attach the rotary paddle at a higher position	Operator
Control lamp red, fault lights up	Fill time is too short	Check K 5	Service
	Error in the sequence programme	Check the programme setting	Service



25.6 Work on troubleshooting

25.6.1 Removal of clogging in hoses



Fig. 30: Close the silo discharge flap valve

- Implementation by operator.
- Additionally required personal protective equipment:
 - Face guard



NOTE!

If there are faults, close the silo outlet valve (1).



Fig. 31: Switching off

1. Turn the main switch (2) to position “0”.



DANGER!

Danger from discharged material!

Never loosen the hose couplings as long as the pressure head is reduced! Material to be conveyed can be discharged under pressure and cause injuries particularly to the eyes.

Persons commissioned with the cleaning of clogged hoses have to wear personal protective equipment (protective goggles, gloves) for safety reasons, and to position themselves in such a way that they cannot be hit by discharged material. Other persons have to clear the area.



Fig. 32: Relieving the pressure

2. Turning the hand valve (3) opens the butterfly valve of the actuator slightly so that the pressure in the silo / container can escape.
3. Afterwards, close the butterfly valve again by turning the hand valve.
4. Decouple the conveying hoses close to the blocked position carefully.
5. Loosen the compacted material and remove it from the hose by shaking the hose and tapping the coupling on a smooth base (wood or something similar).
6. Then connect the conveying hoses again and make the system ready for operation (connect the connection cable and switch on the main reversing switch).

End of work

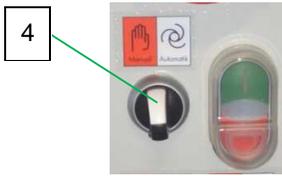


Fig. 33: Hand – “0” - Automatic

7. Turn the Hand – “0” – automatic switch to the HAND (4) position. Allow the compressor to run till the air in the hoses is blown out again.
8. Afterwards, switch to the automatic mode (4) again.

26 End of work

26.1 End of work or interruption of work



Fig. 34: Remove control plug

1. Close the silo outlet valve
2. Wait till the carrier is discharged completely.
3. Remove the control plug (1) of the injection hood.
4. Wait for the conveying process till the conveying hoses are blown out.



NOTE!

By pulling out the control plug, the SILOMAT XXL D material requirement to the cleaning machine is interrupted. The Silomat system blows the conveying hoses until they are empty and ends the conveying process.

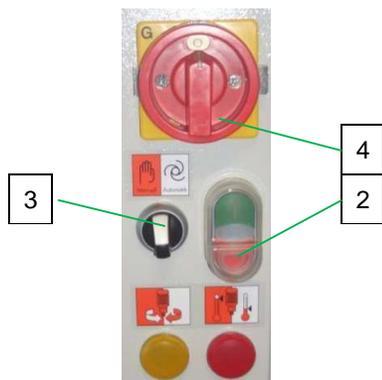


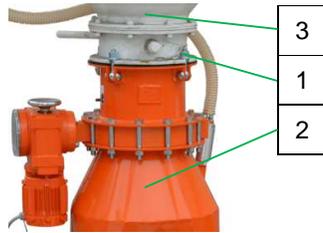
Fig. 35: End of work

5. Switch off the system by pressing the red push button (2) control voltage “ON / OFF”.
6. Turn the hand - “0” - automatic switch (3) to position “0”.
7. Set the main reversing switch (4) to position ‘0’.
8. Uncouple the power cable and hoses at the end of work.



Cleaning the conveying system

26.2 Remove the carrier



1. Loosen the collar nuts (1).
2. Remove the carrier (2) from the silo / containers (3).

Fig. 36: Remove the carrier

27 Cleaning the conveying system

27.1 Cleaning

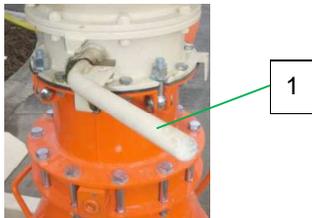
- Clean the outer machine parts only using a damp cloth.



ATTENTION!
Water can enter sensitive machine parts!

- Before cleaning the machine cover all openings in which no water must enter for safety and functional reasons (e.g.: electric motors and control boxes).
- Remove covers completely after cleaning.

27.2 Check / clean the dosing shaft



1. Close the silo discharge flap valve (1).
2. Blow out the carrier and hoses as described under point 26.1 page 36.

Fig. 37: Close the silo discharge flap valve



3. Set the main reversing switch (2) to position "0".

Fig. 38: Main switch



DANGER!

When carrying out any work on the SILOMAT XXL D, ensure that the conveying system is depressurised and de-energised.

Cleaning the conveying system

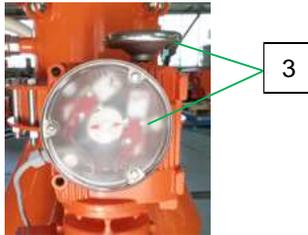


Fig. 39: Actuator

5. Close the actuator by turning the hand valve (3) to the “OFF” position.

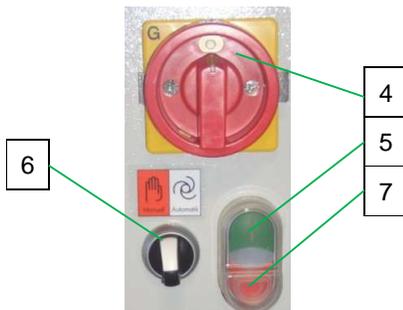


Fig. 40: Cleaning

6. Set the main reversing switch (4) to position “I”.
7. Press the green push button (5) control voltage “ON/OFF”.
8. Turn the hand “0” automatic switch (6) to the “HAND” position.
9. Blow out the carrier and the conveying hoses.
10. Turn the main switch (5) to position “0”.
11. Switch off the system by pressing the red push button (7) control voltage “ON / OFF”.
12. Turn the hand - “0” - automatic switch (6) to position “0”.
13. Set the main reversing switch (4) to position “0”.

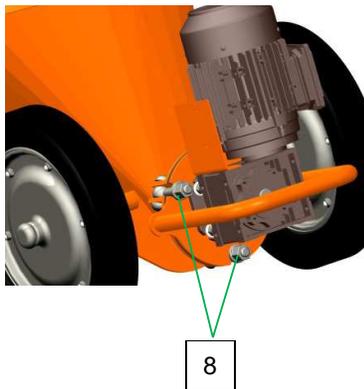


Fig. 41: Open the eyebolts

10. The dosing shaft and the gear motor can be removed for cleaning purposes by opening the three eyebolts (8) on the flange.



28 Maintenance

28.1 Safety

Personnel

- The maintenance works described here can be carried out by the operator, unless marked otherwise.
- Some maintenance work must be carried out only by specially trained skilled personnel or exclusively by the manufacturer. Information on this can be found in the description of the specific maintenance work.
- Work on the electrical system must, in principle, be carried out only by electricians.

Basic information



WARNING!
Risk of injury due to improperly carried out maintenance work!

Improper maintenance can lead to severe injuries or considerable property damage.

Therefore:

- Prior to starting the works ensure that there is enough space to carry out the works.
- Ensure order and safety at the assembly site! Loose, stacked components or components lying about can cause accidents.
- If components were removed, ensure proper assembly, put back all fastening elements and observe torque indications for screws.



Fig. 42: Risk of burning



WARNING!
Risk of injury due to high temperatures!

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

Caution: Risk of burning

Allow the compressor to cool down before disassembling the parts.

Maintenance

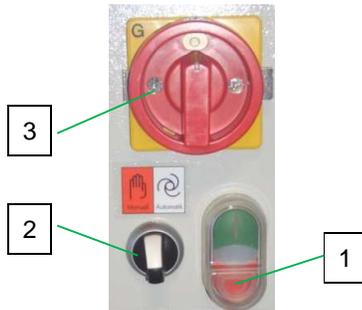


Fig. 43: Maintenance



DANGER!

When carrying out any work on the SILOMAT system, ensure that the system is depressurised and de-energised.

1. Switch off the system by pressing the red push button (1) control voltage "ON / OFF".
2. Turn the hand - "0" - automatic switch (2) to position "0".
3. Set the main reversing switch (3) to position "0".
4. Uncouple the power cable and hoses.

Electrical system



DANGER!

Danger to life from electric current!

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

Therefore:

- Switch off the energy supply before starting any work and secure against restarting.

Environmental protection

Observe the following notes on environmental protection when carrying out maintenance works:

- Remove the discharged, exhausted or surplus grease at all greasing points that are lubricated manually and dispose of in accordance with the local applicable regulations.



28.2 Maintenance plan

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

In the event that increased wear is not detected during regular checks, the required maintenance intervals have to be shortened according to the actual signs of wear.

Contact the dealer for any queries regarding the maintenance work and intervals.

Interval	Maintenance work	To be carried out by
Weekly	Clean the filter cartridges	Operator
After 2000 operating hours	Lubricate the bearings	Operator
Yearly	Check the slider width	Service engineer

29 Maintenance work

29.1 Lubrication

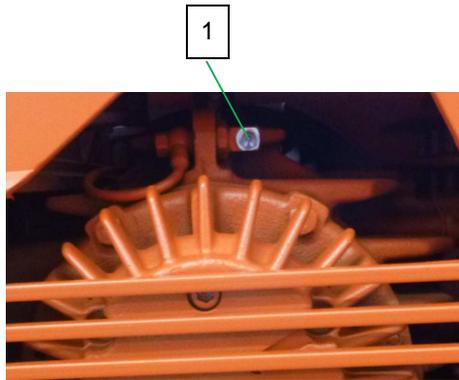


Fig. 44: Lubrication

1. A lubricating nipple (1) is attached to the housing.
2. Lubricate the bearings after 2000 operating hours in each case when the compressor is running.

30 Clean the filter

30.1 Remove the filter cover



Fig. 45: Remove the filter cover

1. Loosen the knurled screws on the filter cover and remove the filter cover (1).



Fig. 46: Filter cartridges

2. Remove the filter cartridges C 1112/2 (2) and filter cartridge polyester (3) from the filter housing.

NOTE!



Clean the filter cartridges every week.
If the filter cartridges are highly contaminated, the ventilation system performance reduces and the compressor is overheated.



Fig. 47: Clean the filter cartridges

3. Blow through the filter cartridges with dry compressed air from inside to outside.
4. Replace damaged or highly contaminated filter cartridges.



Fig. 48: Clean the filter housing

5. Blow the filter housing with dry compressed air.
6. Use cleaned or replaced filters and screw on the filter cover.

NOTE!



When installing the filter, ensure that it is aligned and fit correctly.



30.2 Check the slider width

- Execution by a service technician.

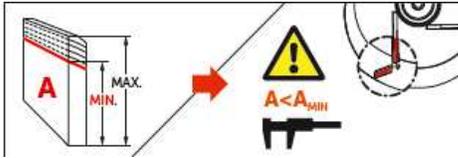
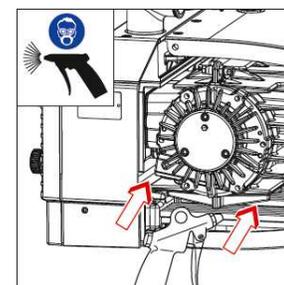
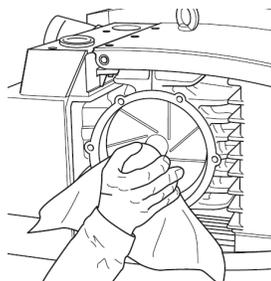
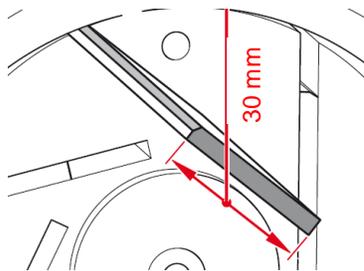
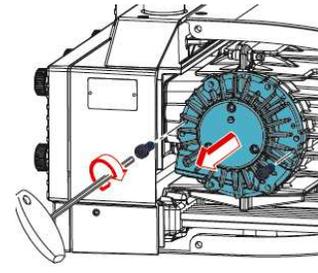
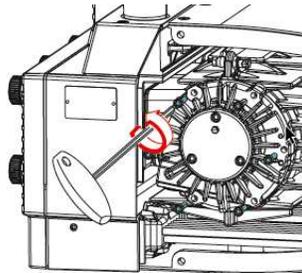
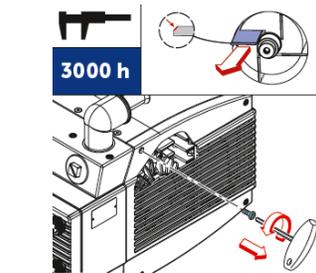


Fig. 49: Check the slider width

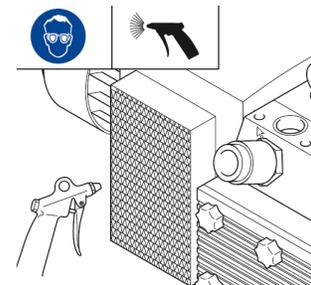
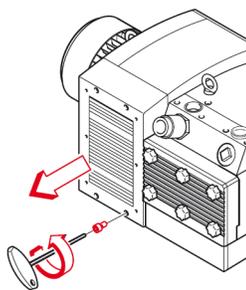
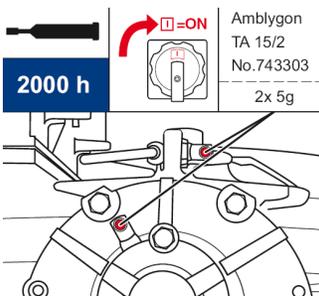
Check the slider width annually:

1. The minimum width of 30mm of the slider (1) may not be undershot.
2. When replacing the slider, blow the housing with dry air.
3. The volume of grease consumed during disassembly must be replenished in the ball bearing.

30.2.1 Remove the side cap



30.2.2 Lubrication



30.3 Setting values of SILOMAT XXL D

- Execution by service technician:

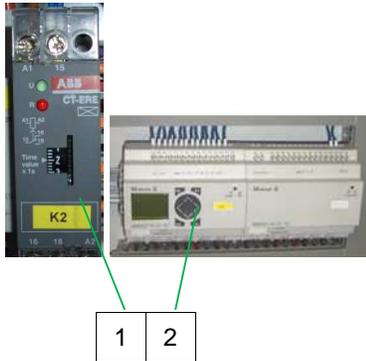


Fig. 50: Setting values of time relay

Time relay

Function	Designation	Setting value
(1) Requirement	K2	3 sec.
(2) Fill time	A1	10 sec.
(3) Conveying time	A1	150 sec.



Fig. 51: Pressure switch

Pressure switch

The machine switches out at 0.8 bar.

NOTE!



The pressure control is fitted as standard. The conveying time is set to 150 seconds when the pressure control is connected. The conveying process is ended only when the total air resistance has fallen below the setting value (OFF) (i.e. the hose is empty).

By means of this equipment, lower conveyance times or conveyance times optimally adapted to site are achieved, the possibility of blockage formation is reduced and longer conveyance ways are overcome.



31 Monitor the pressure control

Monitoring the pressure control

1. Bend the black pressure hose.
2. Let the set conveying time elapse.
3. Open the hose slowly.
4. The machine must be switched off using pressure control when the pressure drops.

31.1 Hand – “0” - Automatic switch



Fig. 52: Hand “0” Automatic switch

NOTE!



The hand “0” automatic switch on the control box of the system also contains the “HAND” position

The system does not operate automatically in this position. In the “HAND” position, the compressor runs continuously and can be used for blowing through the conveying lines and for ventilating the silo.

32 Actions after completed maintenance

After finishing the maintenance works and prior to switching on the machine, the following steps have to be carried out:

1. Check all previously loosened screw connections for secure fit.
2. Check if all previously removed safety systems and covers are properly reinstalled.
3. Ensure that all tools, materials and other equipment used have been removed from the work area.
4. Clean the work area and remove any spilled materials such as liquids, processing material or similar.
5. Ensure that all safety systems of the installation work perfectly.

33 Disassembly

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

33.1 Safety

Personnel

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

Basic information



WARNING!

Risk of injury in case of improper disassembly!

Stored residual energies, sharp components, points or edges at and inside the device or at the required tools might cause injuries.

Therefore:

- Prior to starting the works ensure that there is sufficient space.
- Carefully handle components with sharp edges.
- Ensure order and cleanliness at the working place! Loose components and tools on top of one another or lying about pose potential accident risks.
- Dismantle components correctly. Pay attention to partly high dead weight of the components. If required use lifting equipment.
- Secure components that they do not fall down or fall over.
- In case of doubt, consult the dealer.



Electrical system



DANGER! **Danger to life from electric current!**

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

Therefore:

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

33.2 Disassembly

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

Prior to starting the disassembly:

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

33.3 Disposal

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

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



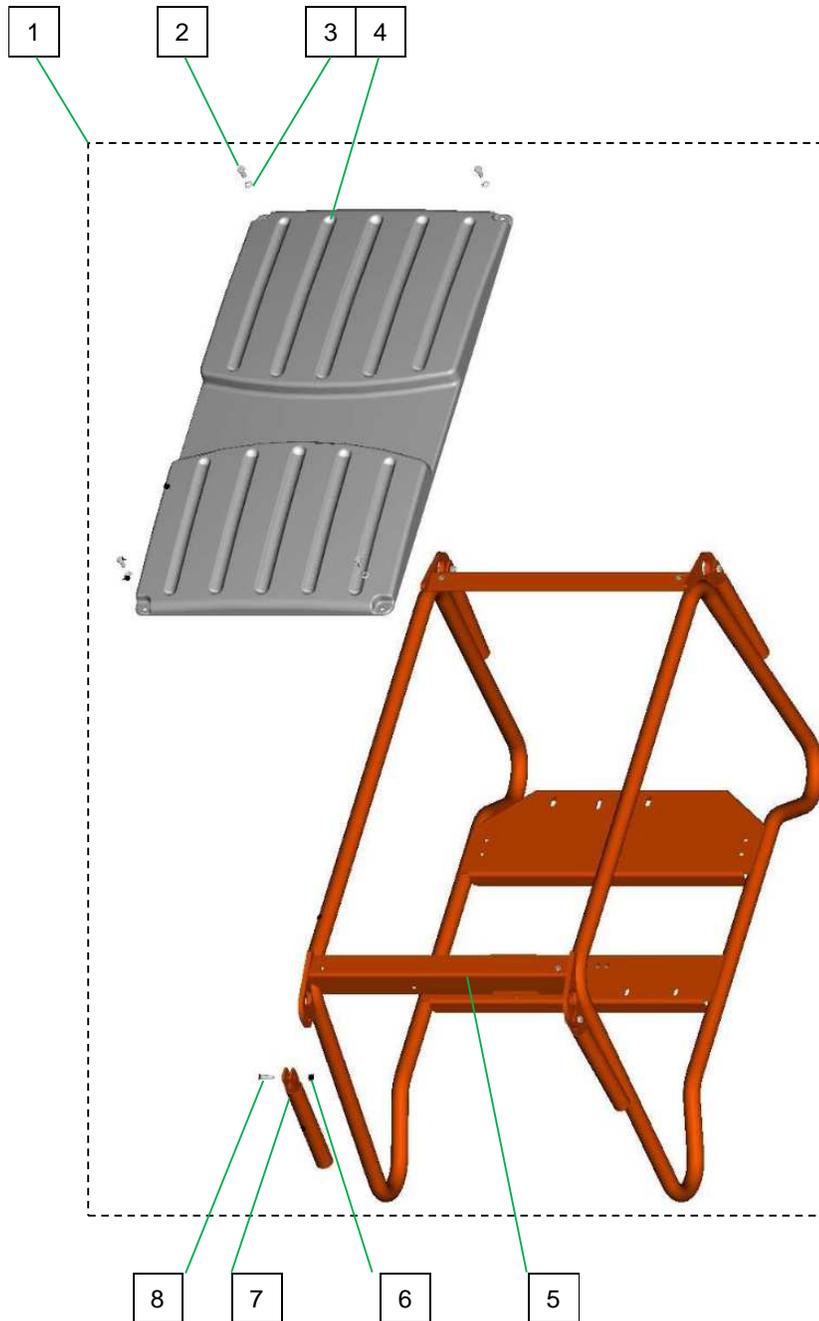
ATTENTION! **Environmental damage in case of incorrect disposal!**

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

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

34 Spare parts drawing, spare parts list

34.1 Supporting frame trans plus compl. article number 00140428





Spare parts drawing, spare parts list

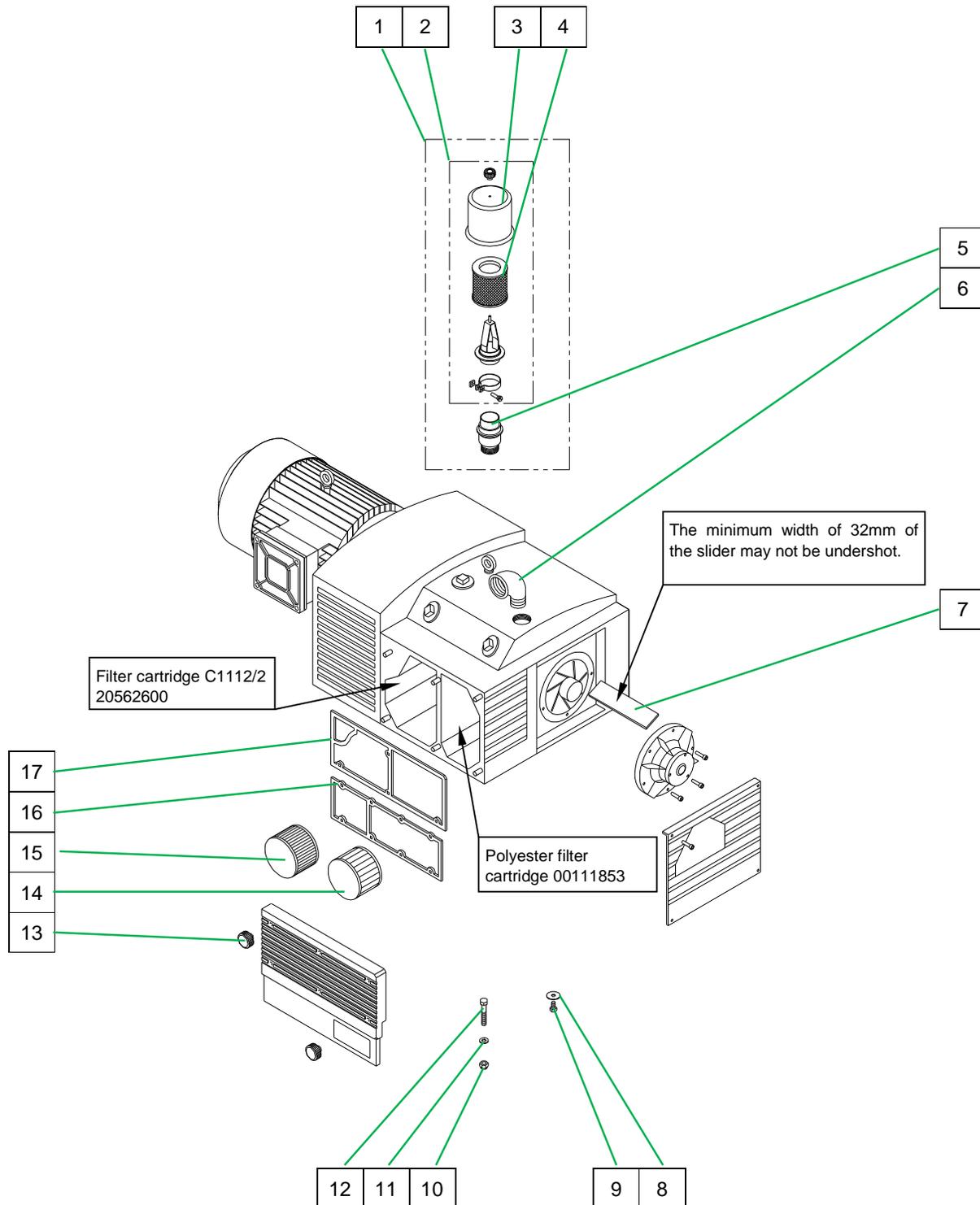
34.2 Supporting frame trans plus compl. article number 00140428

Pos.	Quantity	Art. no.	Name
1	1	00140428	Supporting frame of SILOMAT trans RAL2004 compl.
2	4	20207810	Hex. screw M8 x 25 galvanised
3	4	20209313	Washer B 8.4
4	1	00102267	Cover hood of SILOMAT trans plus RAL 9002
5	1	00121574	Tubular frame of SILOMAT trans RAL2004
6	4	20207200	Safety nut M8, galvanised
7	4	00126295	Carrying handle hinged 235 mm RAL2004
8	4	00020409	Cylinder screw with hexagon socket M8 x 25 galvanised

Spare parts drawing, spare parts list



34.3 Rotary compressor KDT 3.145 T 7.5 / 9 KW article number 00606202





Spare parts drawing, spare parts list

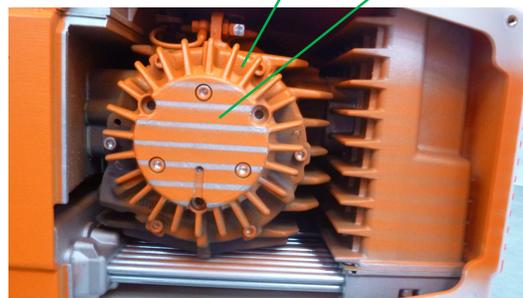
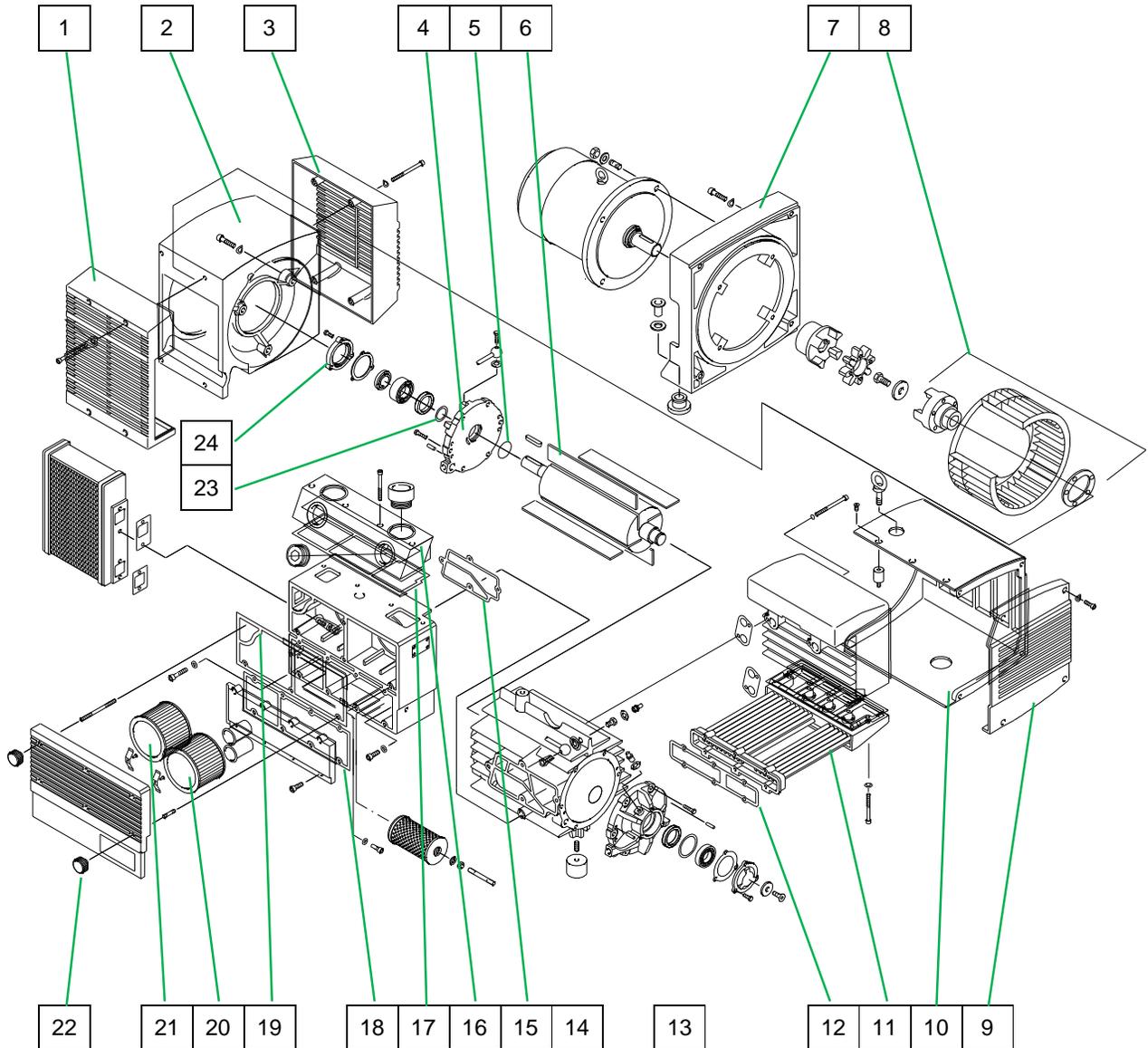
34.4 Rotary compressor KDT 3.145 T 7.5 / 9 KW article number 00606202

Pos.	Quantity	Art. no.	Name
1	1	00104928	Suction filter KDT 3.140 dry running water meter, complete
2	1	00090631	Suction filter KDT 3.140 dry running water meter
3	1	00090632	Housing of suction filter KDT 3.140 dry running water meter
4	1	00090634	Filter cartridge of pre-filter - compressor KDT 3.140/3.100
5	1	00104785	Suction connector KDT 3.140 dry running water meter
6	1	00023577	Angle 1 1/2" internal thread-external thread, galvanised
7	1	00103238	Rotor slider - compressor KDT 3.100/105/120/145 (pack 7 pieces)
	1	00431206	Rotor slider Heavy Duty – compressor KDT 3.100/105/120/14 (pack 7 pieces)
8	1	20209320	Large diameter washer 8.4 x 25 x 1.5, galvanised
9	1	20208701	Hex. screw M8 x 16 galvanised
10	2	20207210	Safety nut M10, galvanised
11	2	20209010	Washer B 10.5, galvanised
12	2	20207809	Hexagonal screw M10 x 55, galvanised
13	6	00104786	Knurled screws of handle KDT dry running water meter
14	1	00111853	Polyester filter cartridge KDT 3.140
15	1	20562600	Filter cartridge C 1112/2
16	1	00129795	Gasket for filter cover KDT 3.140
17	1	00129784	Filter cover gasket KDT 3.140

Spare parts drawing, spare parts list



34.5 Rotary compressor KDT 3.145 T 7.5 / 9 KW article number 00606202





Spare parts drawing, spare parts list

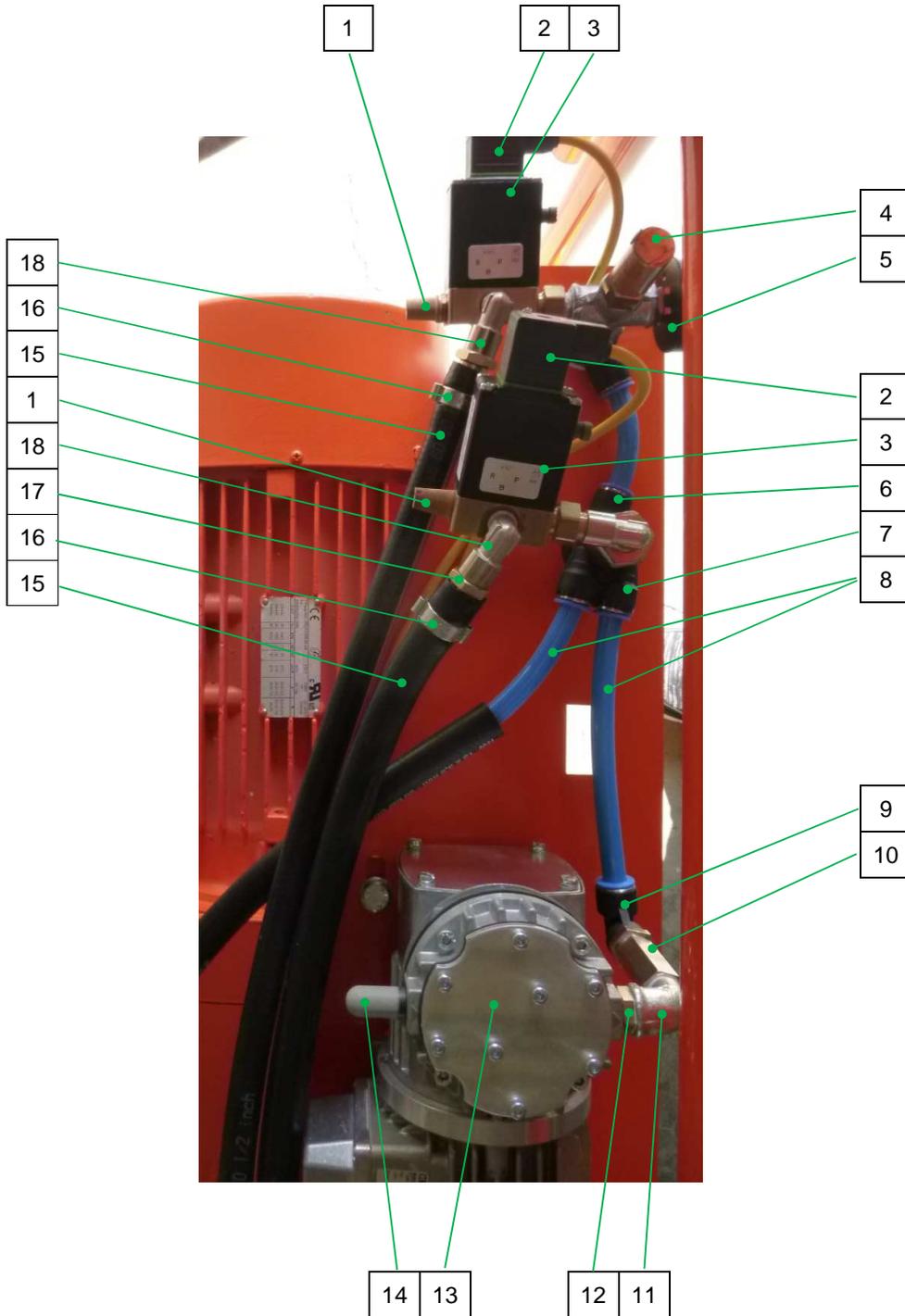
34.6 Rotary compressor KDT 3.145 T 7.5 / 9 KW article number 00606202

Pos.	Qty	Art. no.	Name
1	1	00163010	Left filter-side fan cover KDT 3.140 / 3.100 RAL2004 (pos. 166)
2	1	00163012	Lantern KDT 3.140 / 3.100 RAL2004 (pos. 50)
3	1	00163011	Right fan cover KDT 3.140 / 3.100 RAL2004 (pos. 165)
4	1	00129776	Left side cap KDT3.140 / 3.100 motor-side (pos. 15)
5	1	00212699	Gasket hose KDT 3.140 (Pos. 24)
6	1	00103238	Rotor slider - compressor KDT 3.100/105/120/145 (pack 7 pieces)
	1	00431206	Rotor slider Heavy Duty – compressor KDT 3.100/105/120/14 (pack 7 pieces)
7	1	00163009	Intermediate flange KDT 3.140 RAL2004 (Pos.182)
8	1	00129782	Coupling half with ventilator KDT3.140 / 3.100 (pos. 56)
9	1	00498742	Air guide ring of compressor KDT3.140 / 3.100 (pos. 163)
10	1	00498744	Cover hood of compressor for KDT3.140 / 3.100 (pos. 161)
11	1	00212703	Cooler for KDT 3.140 / 3.100 (pos. 121)
12	1	00129797	Lower gasket of cooler KDT3.140 / 3.100 (pos. 126)
13	1	00686798	Bearing cover right cooler side KDT3.145
14	1	00686799	Side cover right cooler side KDT3.145
15	1	00129783	Gasket of filter housing KDT3.140 / 3.100 (pos. 62)
16	1	00129798	Connection strip for filter housing KDT3.140 / 3.100 (pos. 141)
17	1	00129799	Gasket for connection strip KDT3.140 / 3.100 (pos. 146)
18	1	00129795	Gasket for filter cover KDT3.140 (pos. 104)
19	1	00129784	Filter cover gasket KDT3.140 / 3.100 (pos. 75)
20	1	00111853	Polyester filter cartridge KDT 3.140 / 3.100
21	1	20562600	Filter cartridge C 1112
22	6	00104786	Knurled screws of handle KDT3.140 / 3.100 dry running water meter (pos. 110)
23	1	00130152	Set of spacer discs KDT3.140
24	1	00130095	Motor-side bearing cap KDT3.140 (Pos. 18)

Spare parts drawing, spare parts list



34.7 Pressure control





Spare parts drawing, spare parts list

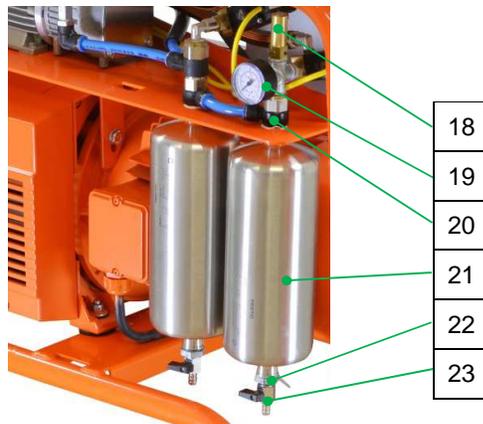
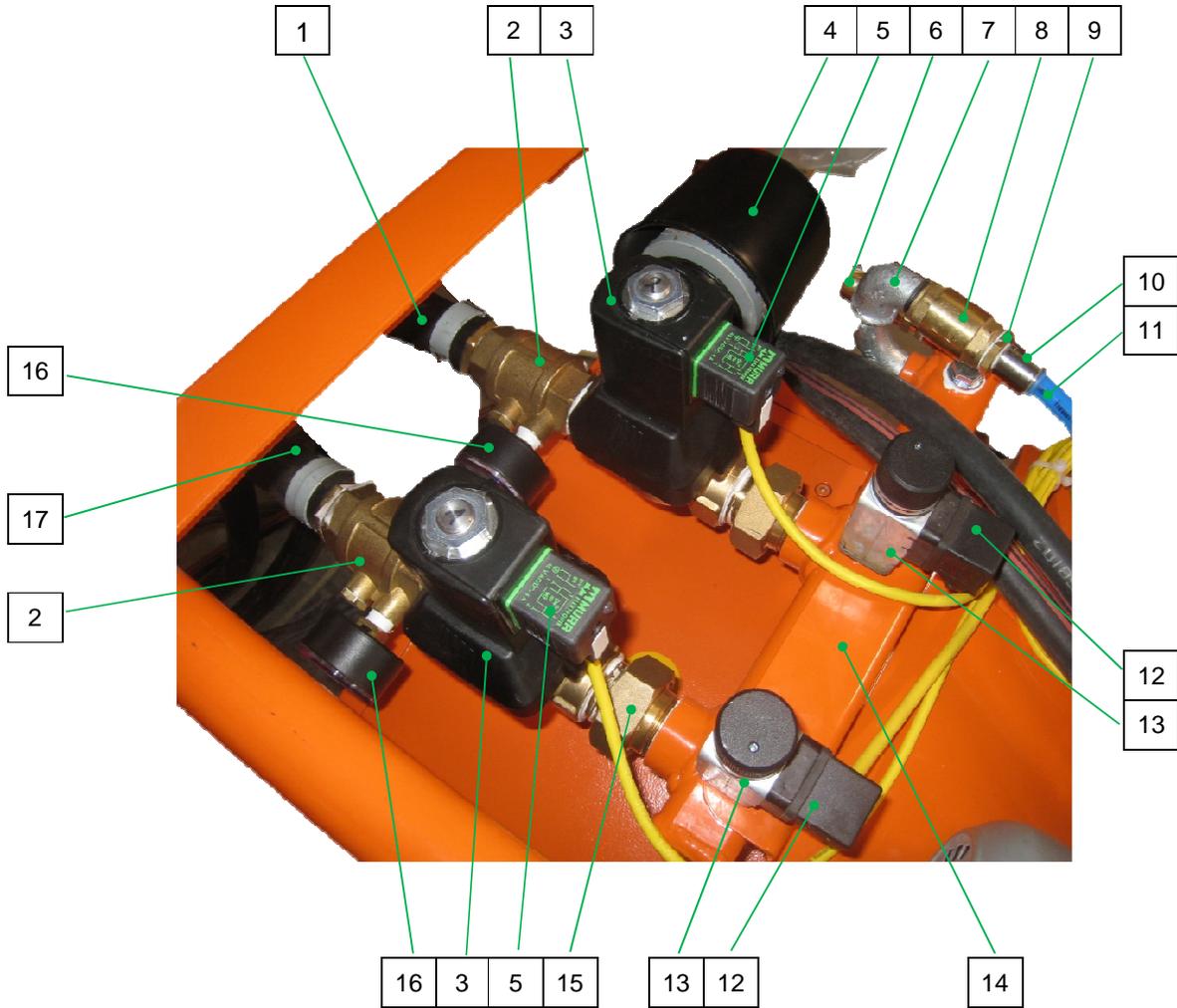
34.8 Pressure control

Pos.	Quantity	Art. no.	Name
1	2	20567405	Silencer sintered bronze 1/4" external thread
2	2	00272042	Valve plug 48 V LED with 1.5 m cable
3	2	00010845	Solenoid valve 1/4", 42 V, 3/2-way
4	1	20131200	Safety valve 1/4" 3.5 bar with gasket
5	1	00009367	Pressure gauge 0 - 4 bar, 1/4" rear, D = 50 mm
6	2	00065900	T connection QSTF - G 1/2-12
7	1	00065871	Y-Connection QSYTF-G1/2-12
8	1	00066003	Polyamide hose 12 x 2.0, blue
9	1	00447964	L connection QSL- PG-1/2-12
10	1	20219051	Double non-return valve 1/4" internal thread
11	1	00447960	Angle 1/4" internal thread-external thread, brass
12	1	00281742	Reducing nipple 1/8" external thread 1/4" external thread, brass
13		00111334	Compressor KNF 022 4 bar, 0.12 kW 50Hz
	1	00606203	Compressor KNF 022 4 bar, 0.12 kW 60Hz
14	1	00111482	Filter KNF compressor
15	2	20213618	Water hose/air hose DN12 - 5 m
16	4	00059196	Hose clip 19-21
17	2	20190411	Hose coupling 1/4" AG sleeve 1/2"
18	2	00447960	Angle 1/4" internal thread-external thread, brass

Spare parts drawing, spare parts list



34.9 Pressure control





Spare parts drawing, spare parts list

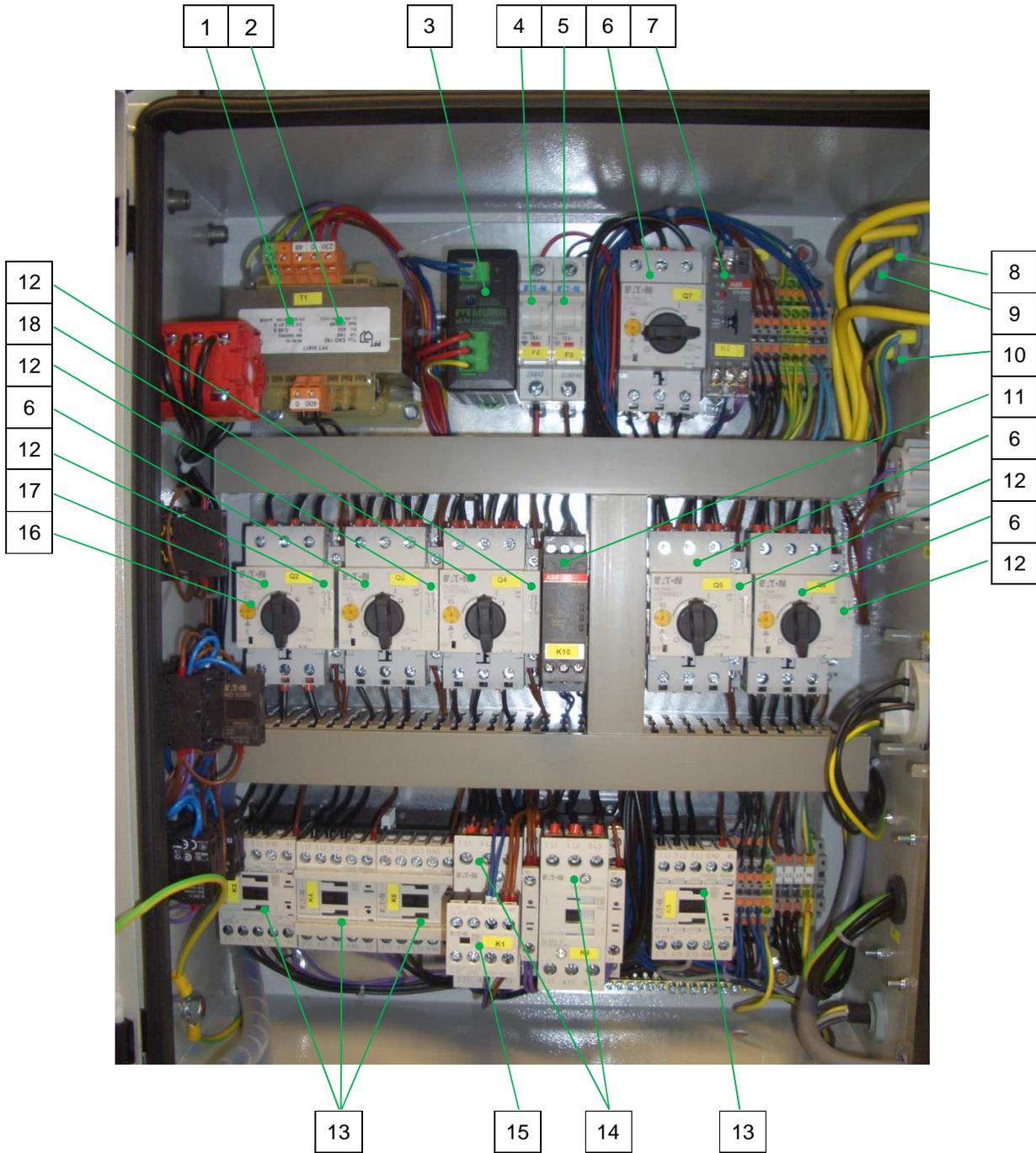
34.10 Pressure control

Pos.	Quantity	Art. no.	Name
1	1	00434669	Pressure hose DN25 TP-Geka / external thread 4,000 mm
2	2	00124372	Non-return valve 1" internal thread with bleeding 1/4" internal thread
3	2	00002773	Solenoid valve 1", 42 V type 6213 A
4	1	00090631	Suction filter KDT 3.140 dry running water meter
5	2	00272042	Valve plug 48 V LED with 1.5 m cable
6	1	20564903	Safety valve 1/2" 2.5 bar
7	1	20203610	Angle 1/2" internal thread-external thread, galvanised
8	1	20219050	Non-return valve 1/2" internal thread
9	1	20205300	Reducing nipple 1/2" external thread 3/8" internal thread
10	1	00072021	Connection QS - 3/8-12
11	1	00066003	Polyamide hose 12 x 2.0, blue
12	2	00022064	Pressure switch plug
13	2	00082679	Pressure switch 0.5/3 bar
14	1	00104771	Distribution tube SILOMAT KDT 3.140
15	2	00001127	Screw joint 1", brass
16	2	00009367	Pressure gauge 0 - 4 bar, 1/4" rear, D = 50 mm
17	1	00434670	Pressure hose Geka suction high-pressure coupling 4,000 mm
18	1	20131200	Safety valve 1/4" 3.5 bar with gasket
19	1	00009367	Pressure gauge 0 - 4 bar, 1/4" rear, D = 50 mm
20	2	00065900	T connection QSTF - G 1/2-12
21	2	00065866	Compressed air reservoir
22	2	00065890	Reducing nipple 1/2" external thread 1/4" internal thread, brass
23	2	20215303	Ball valve 1/4" external thread with sleeve 10 mm

Spare parts drawing, spare parts list



34.11 Control box art. no. 00604695 50Hz, 00604698 60Hz





Spare parts drawing, spare parts list

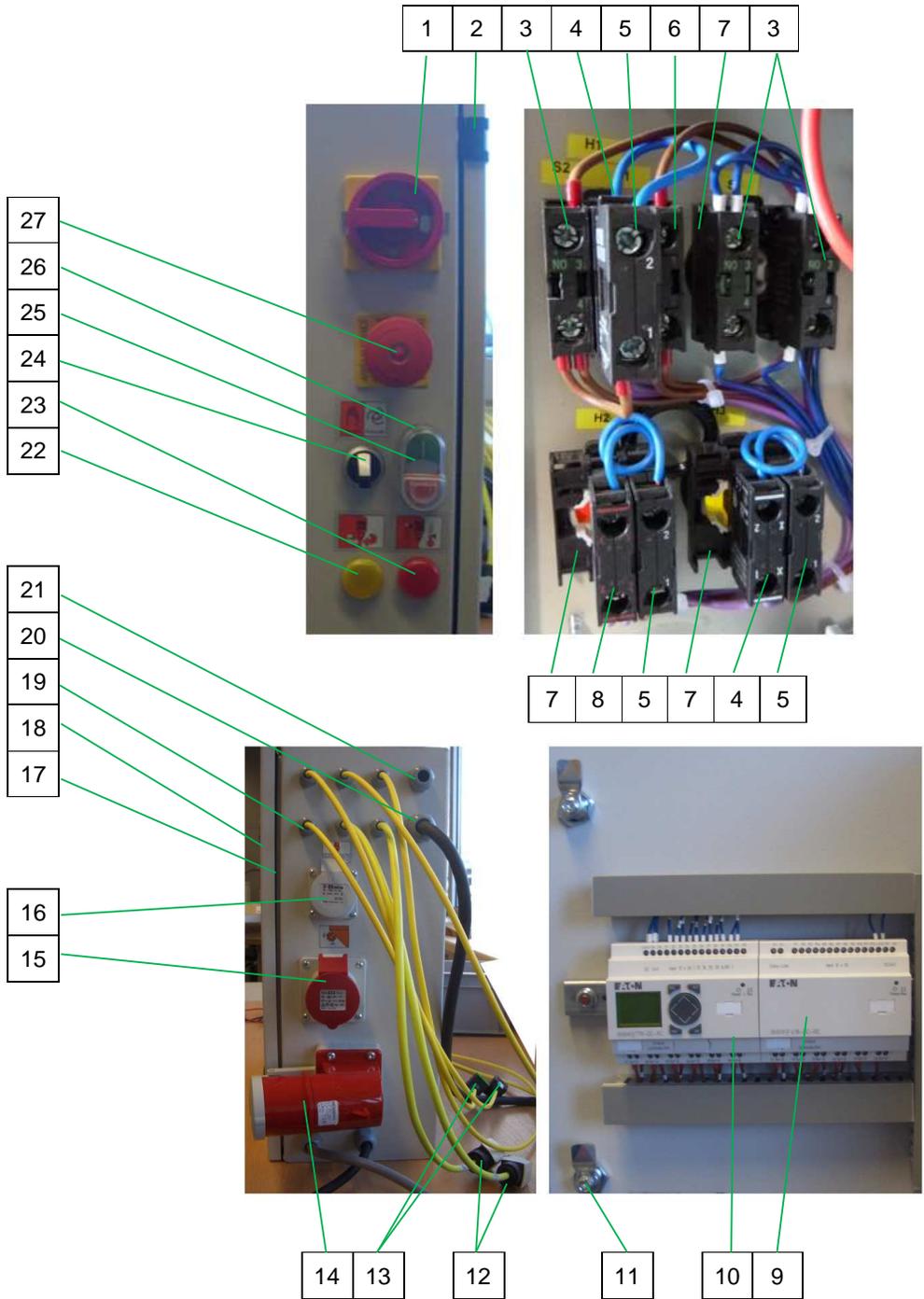
34.12 Control box art. no. 00604695 50Hz, 00604698 60Hz

Pos.	Quantity	Art. no.	Name
1	1	00022170	Control transformer 400 V, 42 V / 230 V (190VA)
2	1	00090877	Control transformer 400V-48V/230V 190VA 50/60Hz (60Hz)
3	1	00462339	Switching power supply 100-230 V/24VDC 1.3 A
4	1	00046379	Miniature circuit breaker C 0.5A, 1-pin
5	1	00254600	Miniature circuit breaker C 2.5A, 1-pin
6	4	00042599	Motor protection switch 0.63-1A PKZM 0-1
7	1	20452740	Time relay 42 V, 0.5 - 10 seconds
8	6	00041143	Counter nut Skintop M16 x 1.5
9	3	00041145	Counter nut Skintop M 20 x 1.5
10	1	00041146	Counter nut Skintop M 25 x 1.5
11	1	20452751	Phase sequence relay 200-500 V type FPF2
12	5	00021401	Auxiliary contact NHI 11 PKZO
13	4	00084224	Air-break contactor DIL M15-10, 42 V
14	2	00084226	Air-break contactor DIL M25-10, 42 V
15	1	00085294	Auxiliary switch DILM 32-XHI22 2 closers / 2 openers
16	1	00042602	Motor protection switch 10-16A PKZM 0-16 (50Hz)
17	1	00043551	Motor protection switch 16-20A PKZM 0-20 (60Hz)
18	1	00042601	Motor protection switch 1.6-2.5A PKZM 0-2.5

Spare parts drawing, spare parts list



34.13 Control box art. no. 00604695 50Hz, 00604698 60Hz





Spare parts drawing, spare parts list

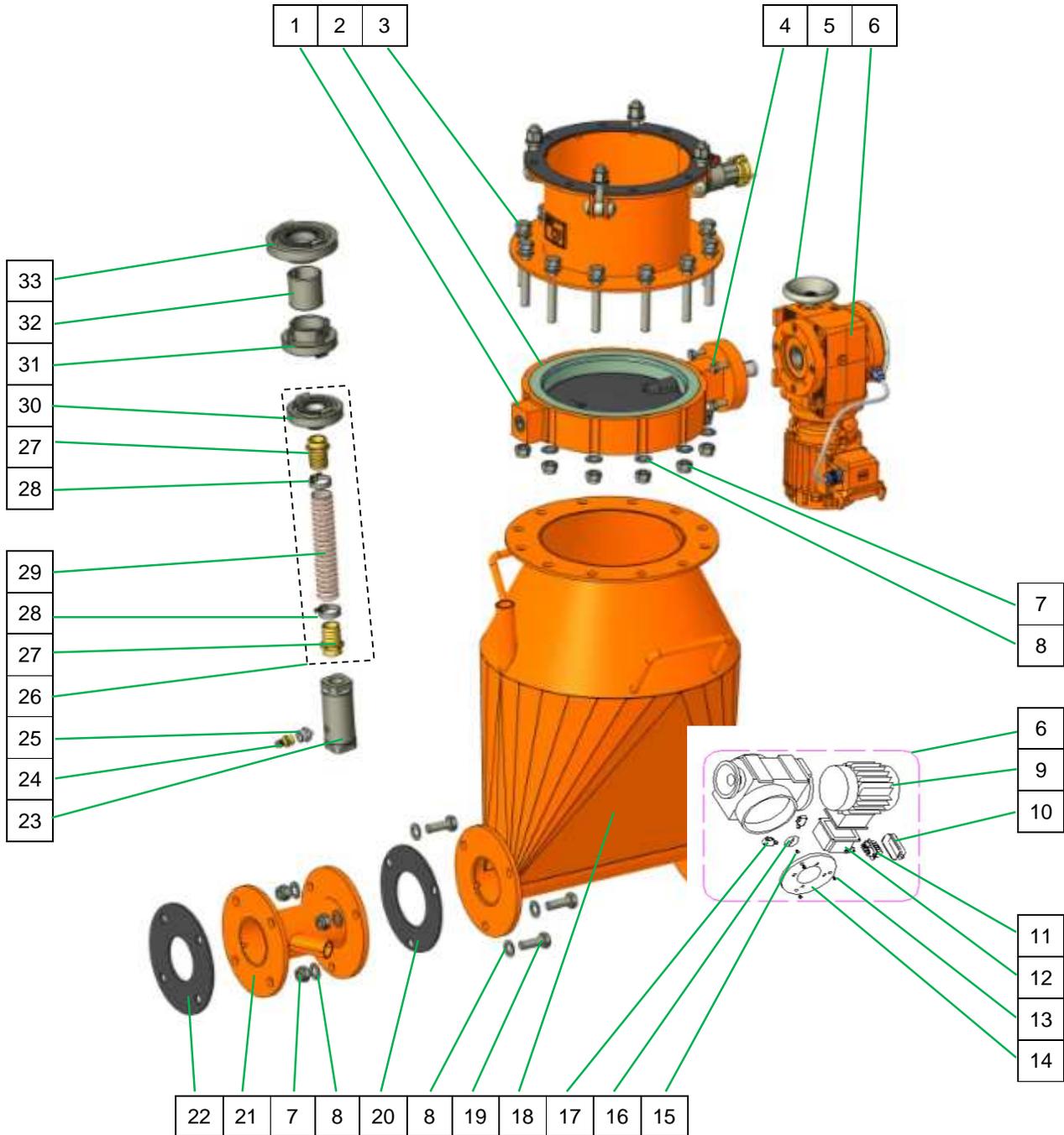
34.14 Control box art. no. 00604695 50Hz, 00604698 60Hz

Pos.	Quantity	Art. no.	Name
1	1	00206458	Main switch 4-pin
2	2	00053767	Hinge 180°
3	3	00053835	Contact element 1 closer M22 - K10
4	2	00053881	Luminous element, white 12-30 V
5	3	00053886	LED resistor ballast element for 42 V
6	1	00053836	Contact element 1 opener M22 - K01
7	4	00053834	Fastening adapter M22
8	1	00053879	Luminous element, red, 12-30 V
9	1	00255639	PLC extension Easy 618-DC-RE
10	1	00142176	PLC control system Easy 719-DC-RC 24V DC
11	2	00036249	Lock, double bit 35 mm, height 22
12	2	00022064	Plug, pressure switch
13	4	00272042	Valve plug 48 V LED with 1.5 m cable
14	1	00002129	CEE connection plug 5 x 32A 6h, red, hinged can
15	1	00022081	CEE panel mounted socket 4 x 16A 6h, red, straight
16	1	00036297	CEE panel mounted socket 3 x 16A 12h, white, straight
17	1	00023495	Sealing profile EPDM 67 /1011-10
18	1	00614205	Door SILOMAT XXL-D RAL7035
19	6	00041141	Skintop screw coupling M16 x 1.5
20	1	00041142	Skintop screw coupling M25 x 1.5
21	3	00041127	Skintop screw coupling M20 x 1.5
22	1	00053874	Indicating lamp insert for yellow luminous pushbutton
23	1	00053875	Indicating lamp insert for red luminous pushbutton
24	1	00053876	Selector switch 0 / 2 x latching M22
25	1	00053832	Double luminous pushbutton On/Off
26	1	00053831	Switch protection membrane, square for double pushbutton
27	1	00413582	Emergency-stop / emergency-halt button
	2	00053836	Contact element 1 opener M22 - K01
	1	00053835	Contact element 1 closer M22 - K10
	1	00053834	Fastening adapter M22

Spare parts drawing, spare parts list



34.15 Carrier compl. SILOMAT XXL D





Spare parts drawing, spare parts list

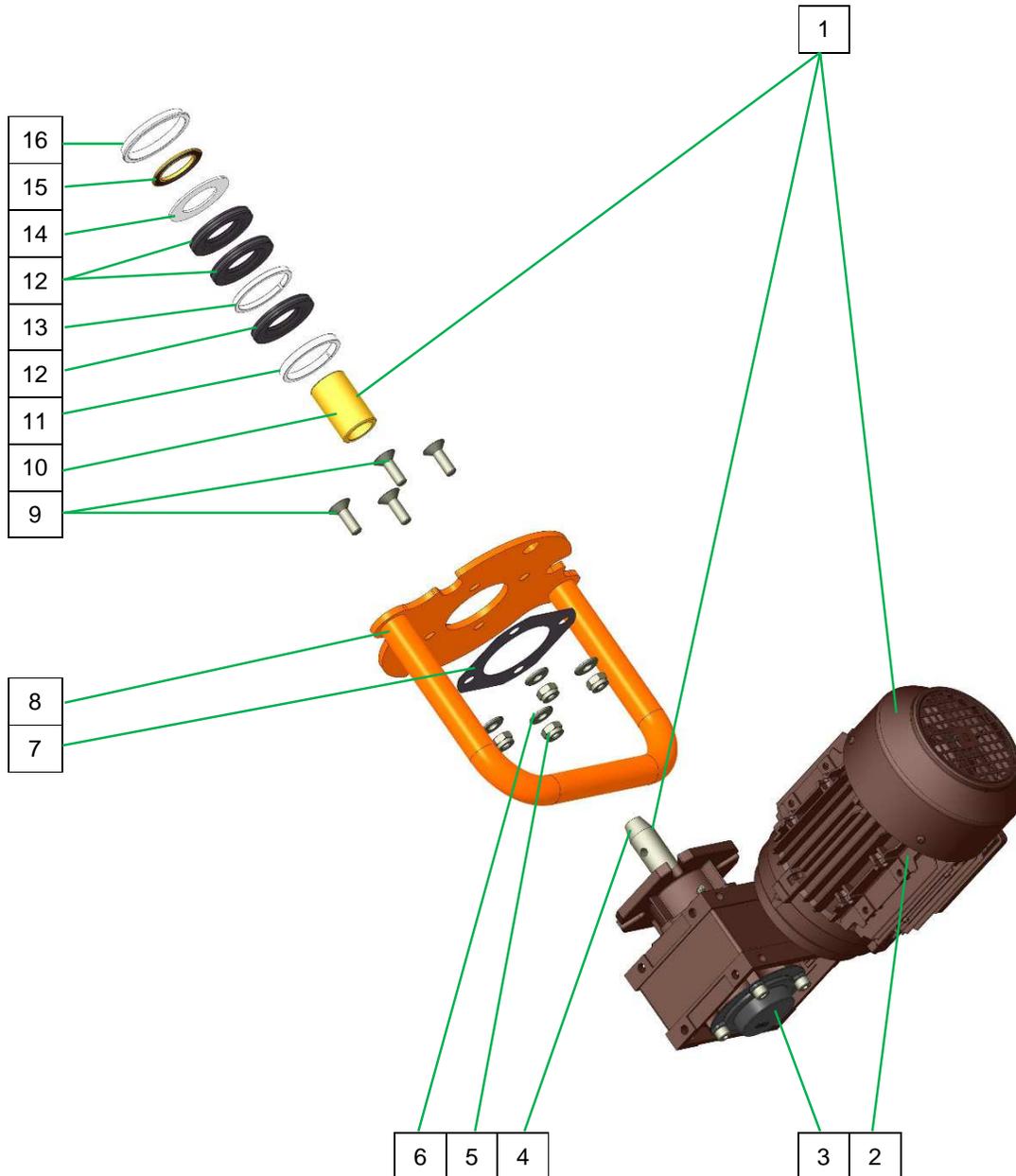
34.16 Carrier cmpl. SILOMAT XXL D

Pos.	Quantity	Art. no.	Name
1	1	00089078	Shut-off unit NW 250 can be changed without actuator gasket RAL2004
2	1	00102658	Shut-off unit gasket can be changed NW250
	1	00195258	Gasket set for shut-off unit SILOMAT
3	12	20208100	Hex. screw M16 x 110, galvanised
4	4	20207807	Hex. screw M10 x 40 galvanised
5	1	20561800	Hand valve for actuator
6	1	20561202	Actuator for shut-off unit Type 6
7	15	20207300	Safety nut M16, galvanised
8	30	20206700	Washer B 17, galvanised (packing unit = 10 pcs)
9	1	00080826	Motor for the Flender CA21 type 6 actuator
10	1	00068794	Protective cover for socket housing, 10-pin 16A
11	1	20432300	Pin insert 10 pin HAN 10 E
12	1	00012085	Socket housing 10-pin, type 6 actuator
13	3	20244600	Cylinder hose M5 x 12 galvanised
14	1	20561901	Clear cover for actuator CA21 D=143
15	1	20561920	Screw for control disc
16	1	20561910	Control disc for Flender actuator
17	2	20456510	Micro switch for the actuator, new
18	1	00676652	Conveying vessel with dosing tube and dosing wear zone, removable
19	3	00023228	Hex. screw M16 x 45 DIN 933 galv.~
20	1	00676959	Rubber seal for dosing tube SILOMAT XXL-D
21	1	00676707	Dosing tube SILOMAT XXL-D
22	1	00607109	Rubber gasket for squeeze valve SILOMAT XXL-D
23	1	00606207	Squeeze valve 1" internal thread, 6,5 bar
24	1	20202101	Ewo coupling male part 3/8" external thread (packing unit = 10 pcs)
25	1	00111364	reducing nipple 3/8" internal thread 1/8" external thread, brass
26	1	00607478	Venting hose SILOMAT XXL-D with C-coupling - 1,5 m
27	2	00631929	Hose screw connection 1" external thread sleeve 1 1/4"
28	2	20202300	Hose clamp 25 mm with screw D = 37 (packing unit = 10 pcs)
29	1	00607478	Venting hose SILOMAT XXL-D with C-coupling - 1,5 m
30	1	20656600	Fixed coupling C DIN 1" internal thread
31	1	20656100	Fixed coupling C DIN 2" internal thread
32	1	20203252	Double nipple 2" x 60, galvanised
33	1	20655800	Fixed coupling B DIN 2" internal thread

Spare parts drawing, spare parts list



34.17 Gear motor SILOMAT XXL D





Spare parts drawing, spare parts list

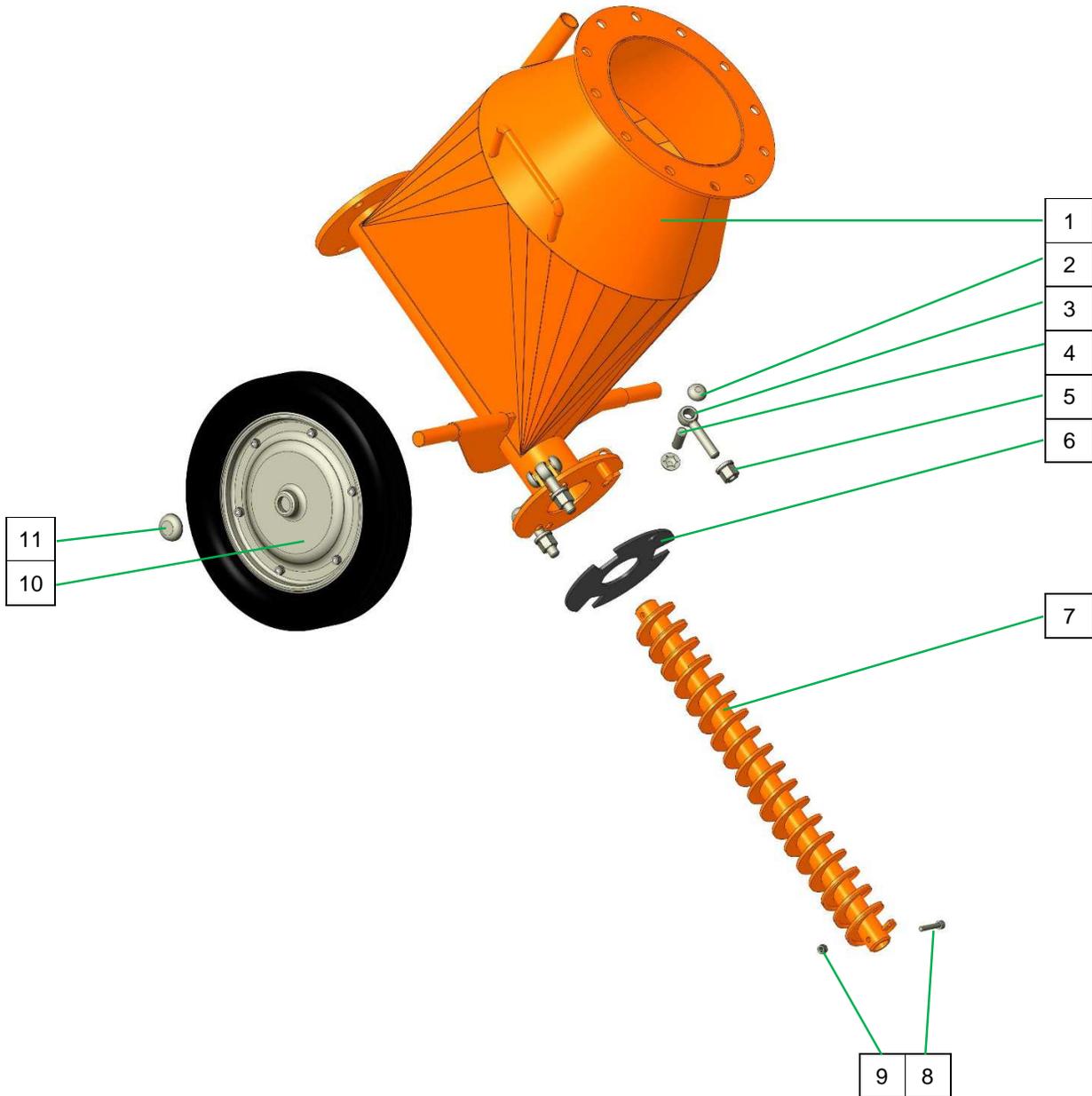
34.18 Gear motor SILOMAT XXL D

Pos.	Quantity	Art. no.	Name
1	1	00632254	Gear motor 1.1 kW, 280 rpm with bushing RAL1015
2	1	00605938	Gear motor 1,1 kW, 280 rpm
3	1	00505393	Hood hollow shaft LOTUS XS gear LMRV50
4	1	00605946	Drive shaft SILOMAT XXL-D R-160
5	4	20207210	Safety nut M10, galvanised (packing unit = 10 pcs)
6	4	20209010	Washer B 10.5, galvanised
7	1	00686073	Paper seal for gearbox SILOMAT XXL
8	1	00606094	Motor flange SILOMAT XXL-D R-160
9	4	00023280	Counter sunk screw Innenskt. M10x30 DIN7991 galvanized
10	1	00606309	Wear bushing for the drive of SILOMAT XXL-D
11	1	00606333	Spacer ring 60 x 4 x 7 mm slit
12	3	00603023	Rotary shaft seal 62 x 35 x 8 mm PTFE
13	1	00606332	Spacer ring 60 x 4 x 5 mm slit
14	1	00606081	Spacer ring D62 x d36 x 2 mm VA
15	1	20545703	Gamma ring 35 x 52 x 4.5
16	1	00627528	Washer for motor mount VA for SILOMAT XXL-D

Spare parts drawing, spare parts list



34.19 Carrier compl. SILOMAT XXL D





Spare parts drawing, spare parts list

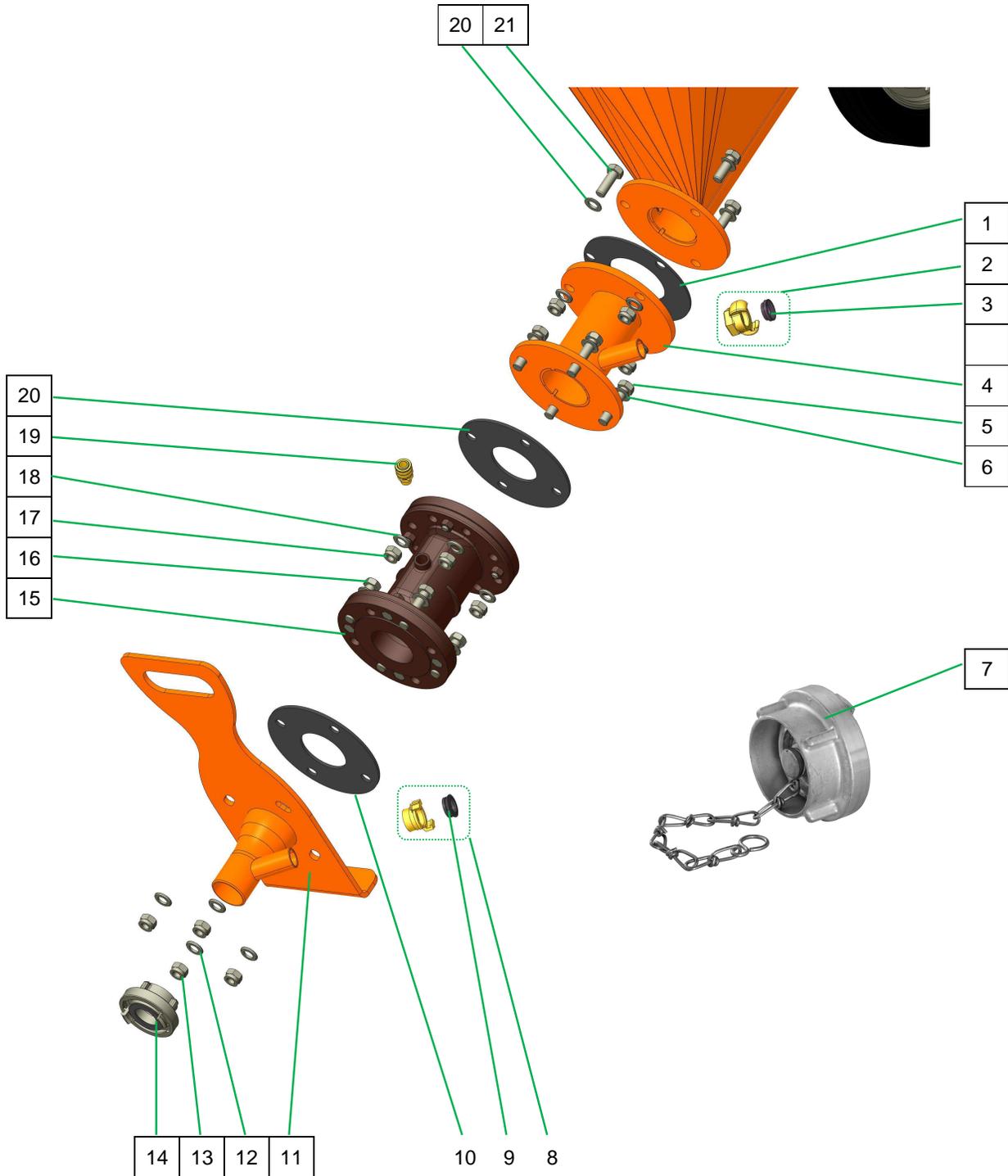
34.20 Carrier compl. SILOMAT XXL D

Pos.	Quantity	Art. no.	Name
1	1	00676652	Conveying vessel with dosing tube and dosing wear zone, removable
2	6	20208604	Quick fastener with cap 16s x N 2 7 (PACKING UNIT = 10 PCS)
3	3	20208500	Eye screw M16 x 80, galvanised
4	3	20705802	Bolt A16 H11 x 50
5	3	20209921	Collar nut M16
6	1	00605830	Rubber gasket for gear motor SILOMAT XXL-D
7	1	00676710	Dosing tube SILOMAT XXL-D, HD
8	1	20209717	Cylinder screw with hexagon socket M8 x 45, galvanised
9	1	20207200	Safety nut M8, galvanised (packing unit = 10 pcs)
10	2	00146694	Wheel, rear RITMO XL
11	2	00002632	Quick fastener for wheel

Spare parts drawing, spare parts list



34.21 Carrier compl. SILOMAT XXL D





Spare parts drawing, spare parts list

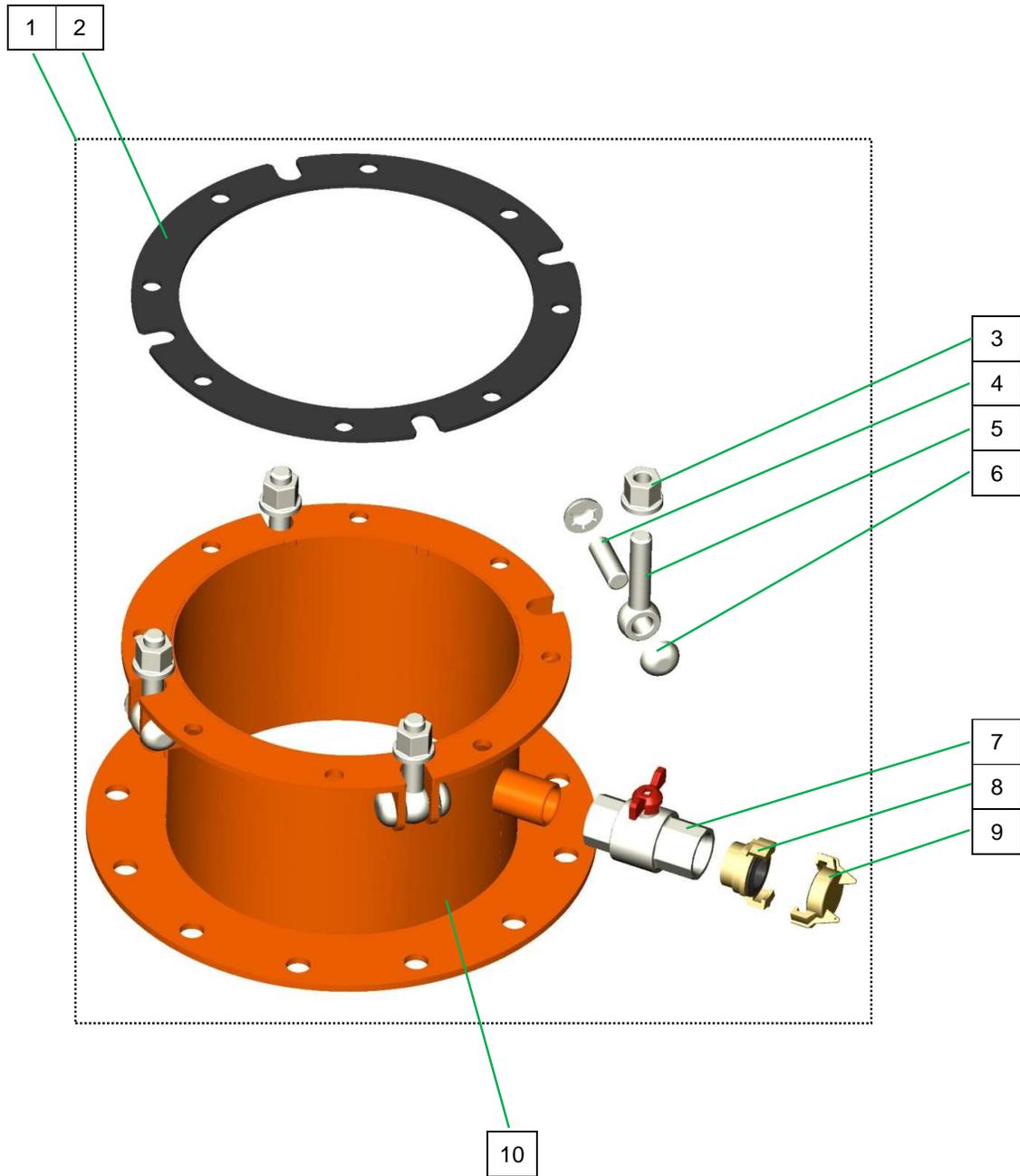
34.22 Carrier cmpl. SILOMAT XXL D

Pos.	Quantity	Art. no.	Name
1	1	00676959	Rubber seal for dosing tube SILOMAT XXL-D
2	1	20202120	Claw coupling 1" internal thread malleable cast iron
3	2	20201700	Gasket of Geka coupling (PACKING UNIT = PCS 50)
4	1	00676707	Dosing tube SILOMAT XXL-D
5	4	20207817	Hexagonal screw M16 x 70, galvanised
6	4	20206700	Washer B 17, galvanised (PACKING UNIT = 10 PCS)
7	1	20657100	Blind cover C DIN with chain
8	1	20201100	Geka coupling 1" internal thread (PACKING UNIT = 10 PCS)
9	1	20201700	Gasket Geka coupling (packing unit = 50 pcs)
10	2	00607109	Rubber seal for squeeze valve SILOMAT XXL-D
11	1	00606411	Pressure flange 2" external thread carrying handle SILOMAT XXL-D
12	4	20206700	Washer B 17, galvanized (packing unit = 10 pcs)
13	4	20207300	Safety nut M16, galvanized
14	1	20656100	Fixed coupling C DIN 2" internal thread
15	1	00606204	Squeeze valve DN80
16	4	20207817	Hexagonal screw M16 x 70, galvanized
17	4	20207300	Safety nut M16, galvanised
18	4	20206700	Washer B 17, galvanised (PACKING UNIT = 10 PCS)
19	1	00002676	Ewo coupling female part 3/8" external thread blocking
20	3	20206700	Washer B 17, galvanised (packing unit = 10 pcs)
21	3	00023228	Hex. screw M16 x 45 DIN 933 galv.~

Spare parts drawing, spare parts list



34.23 Connecting piece ventilates SILOMAT XXL D art. no. 00605864





Spare parts drawing, spare parts list

34.24 Connecting piece ventilates SILOMAT XXL D art. no. 00605864

Pos.	Quantity	Art. no.	Name
1	1	00605864	Connecting piece of the carrier ventilates SILOMAT XXL-D completely
2	1	20706300	Gasket of silo connection Ø 330 x 260 x 4 mm
3	4	20209921	Collar nut M16
4	4	20705802	Bolt A16 H11 x 50
5	4	20208500	Eye screw M16 x 80, galvanised
6	8	20208604	Quick fastener with cap 16s x N 2 7 (PACKING UNIT = 10 PCS)
7	1	20205155	Ball valve 1" internal thread with T-handle
8	1	20200800	Geka coupling 1" external thread (PACKING UNIT = 10 PCS)
9	1	20201650	Geka coupling blind cover (PACKING UNIT = 10 PCS)
10	1	00605861	Connecting piece of the carrier ventilates SILOMAT XXL-D





35 Index

A	
Accessories.....	7
Action in case of power cut.....	31
Actions after completed maintenance	45
Allgemeines Aufstellen des Luftkompressors....	19
Assembly and functioning:.....	12
B	
Brief description	16
C	
Carrier cmpl. SILOMAT XXL D	66, 67, 68, 69
Carrier cmpl. SILOMAT XXL D	62, 63
Carrier SILOMAT XXL D.....	13
Check / clean the dosing shaft.....	37
Check the slider width.....	43
Clean the filter.....	42
Cleaning.....	37
Cleaning the conveying system	37
Clogging in hoses	35
Compressor / control box SILOMAT XXL D	14
Connect the carrier to the silo.....	25
Connect the conveying hoses and the air hoses	25
Connecting piece ventilates SILOMAT XXL D art. no. 00605864	70, 71
Connecting the power supply 400V	24
Connection values 50 Hz.....	8
Connection values 60 Hz.....	9
Connections	26
Control box art. no. 00604695 50Hz, 00604698 60Hz	58, 59, 60, 61
Conveying process	28
D	
Dimension	11
Disassembly.....	46, 47
Disposal	47
Division	7
E	
EC Declaration of Conformity	5
Empty alarm of level sensor.....	29
End of work	36
End of work-interruption	36
Establishing a de-energised state.....	31
F	
Fault displays	32
Faults	32
Function	16
Functional sequence.....	16
G	
Gear motor SILOMAT XXL D	64, 65
General information	6, 8
H	
Hand –.....	45
Hazardous dusts	28
Heiße Oberfläche am Luftkompressors	19
I	
Index	74
Information regarding the operating manual.....	6
Inspection.....	6
Inspection by machine operator.....	6
Intended purpose air compressor	18
Intended use air compressor	18
K	
Keep the manual for future reference	6
L	
Laying conveyor lines	26
Lubrication.....	41, 43
M	
Machine preparations	24
Main switch	28
Maintenance.....	39
Maintenance plan.....	41
Maintenance work	41
N	
Name plate.....	10



O		Rotary compressor KDT 3.145 T 7.5 / 9 KW	
Opening the silo discharge flap valve.....	27	article number 00606202	50, 51, 52, 53
Operating conditions.....	9	S	
Operating modes	16	Safety.....	33, 39, 46
Operation	23	Safety	23
Overview of the assembly units.....	12	Safety instructions for transport.....	20
Overview of the control box SILOMAT XXL D....	15	Safety systems air compressor.....	18
P		Schutzrüstung	
Packaging	22	Bedienung	23
Periodic inspection	6	Setting values of SILOMAT XXL D.....	44
Personnel		Shutdown in case of emergency	30
Disassembly.....	46	Sound power level	10
Initial start-up	33	Spare parts drawing, spare parts list	48
Installation.....	33	Supporting frame	48, 49
Maintenance	39	Switching off.....	30
Power values 50 Hz.....	9	Switching on	28
Power values 60 Hz.....	10	T	
Prepare the carrier.....	25	Table of faults	33
Pressure control	45, 54, 55, 56, 57	Technical data	8
Protective equipment		Transport.....	21
Installation.....	33	Transport inspection	22
Q		Transport, packing and storage	20
Quality Control sticker	10	Troubleshooting	35
R		V	
Reaction in the event of faults	32	Vibrations.....	10
Remove the carrier	37	W	
Remove the filter cover.....	42	Work on troubleshooting.....	32
Remove the side cap.....	43		



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