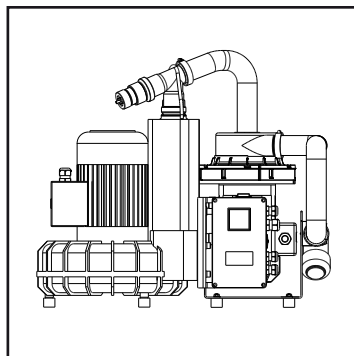


METASYS

GB

METASYS EXCOM Z2 / Z5

**Central Suction System with air/liquid
separation unit**



**Installation, operation and
maintenance**

Table of contents

Explanation of the pictograms

The groups of people for whom certain types of activities are relevant can be found in the footer.

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2. Explanation of the pictograms



means that if the instructions are disregarded danger for people, operational problems or damage to the equipment or its immediate surroundings can occur.



means that the attention of operating or maintenance personnel particularly needs to be drawn to important items in this section.

General Instructions

3. General Instructions:



The safety, reliability and performance of the equipment is only guaranteed by METASYS if the following instructions are followed:

- Installation, alterations or repairs must only be carried out by authorised specialists who guarantee compliance with standard IEC 601-1 (international standard for Medical Electrical Equipment, particularly Part 1: General Safety Requirements).
- The electrical installation must correspond with IEC (International Electrotechnical Commission) requirements.
- The equipment must only be used in accordance with the installation, operation and maintenance instructions.
- Only genuine METASYS spare parts must be used for repairs or replacement.



After commissioning, the installation proof found into the Equipment Logbook must be completed and returned to METASYS in order to determine the guarantee period.

- Every service and inspection must be recorded in the Equipment Logbook.
- If requested by a qualified technician, METASYS declares to provide all prepared documentation likely to be of use to the technically qualified person for service and repairs of the the equipment's components .
- METASYS takes no responsibility for damages arising from outside influences (inaccurate installation), incorrect information, use of the equipment for purposes other than the one intended, or for improper repairs.



The equipment is not suitable for use in explosive or combustible environment.

- Users must study equipment and assure themselves of its good condition before every use.

Use

Type overview

4. Use:

The METASYS EXCOM is a central semi wet suction system used for centralised vacuum production, as well as the separation of air and liquids in dentistry.



The EXCOM central suction system is a vacuum engine with integrated separation. Therefore, an automatic separator with the treatment unit is no longer required.

5. Type overview:

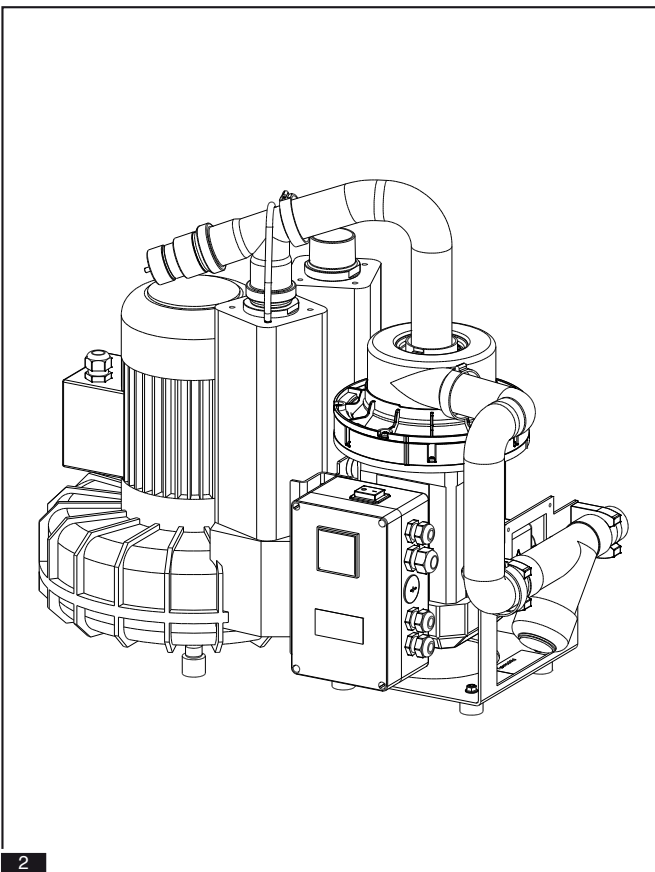
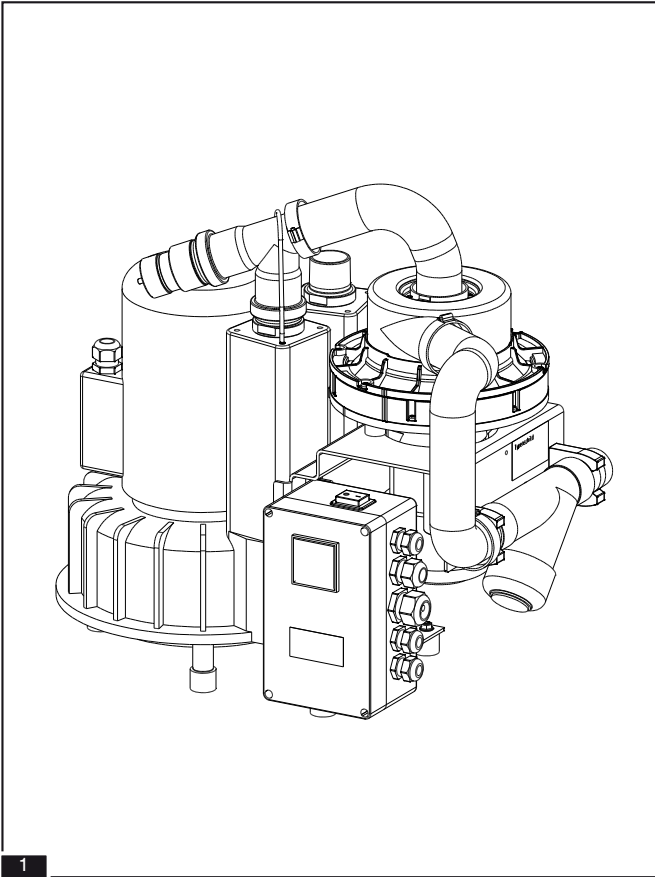
The EXCOM central suction system can be delivered in two models:

1 See illustration

EXCOM Z2 EXCOM Z2 is a central suction system with integrated liquid/solid separation for simultaneous operation of 2 treatment units or for up to 3 treatment units with 60% efficiency.

2 See illustration

EXCOM Z5 EXCOM Z5 is a central suction system with integrated liquid/solid separation for simultaneous operation of 3 treatment units or for up to 5 treatment units with 60% efficiency.



6. Construction:

3 See illustration
taking EXCOM Z5 as an example

3.1 The suction engine

The suction engine is a powerful dry vacuum engine operating according to the principle of the side channel vacuum pump.

3.2 Dynamic separation unit

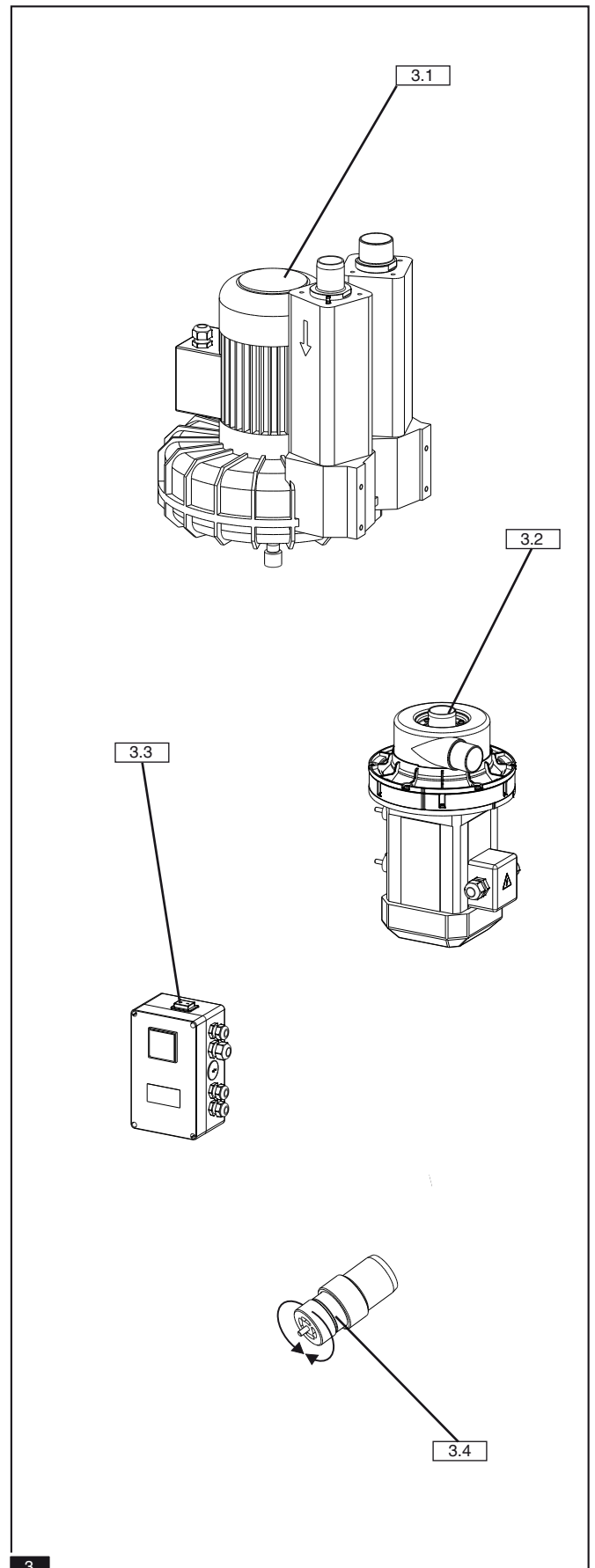
The dynamic separation unit centrally separates liquids and solids from the air stream without interrupting to the suction's output. This eliminates the need for a separator in the treatment unit.

3.3 Control unit

The control unit contains all electrical components necessary to control and monitor the entire device.

3.4 Air inlet valve

The air inlet valve optimises the vacuum and protects the suction equipment from overheating.



Accessories

7. Optional accessories available:

1 See illustration

External place selsection valve

Order number: 40050048

Air can be entrained through unused open hose connection points without integrated selective control when central suction systems are operating. Distracting noises and loss of suction power can result. The installation of a place selection valve prevents this effect.

2 See illustration

Spittoon valve

Order number: 40050002

If the treatment unit has a spittoon bowl, the water from the bowl must be discharged through the suction hose. The installation of a spittoon valve prevents distracting sucking noises and loss of suction through the bowl. The spittoon valve operates automatically and sets off the central suction system.

3 See illustration

Covering hood:

Covering hood for EXCOM Z2: Order number: 40030002

Covering hood for EXCOM Z5: Order number: 40030003

The covering hood minimizes the sound level from the vacuum motor and protects the suction system from external influences.

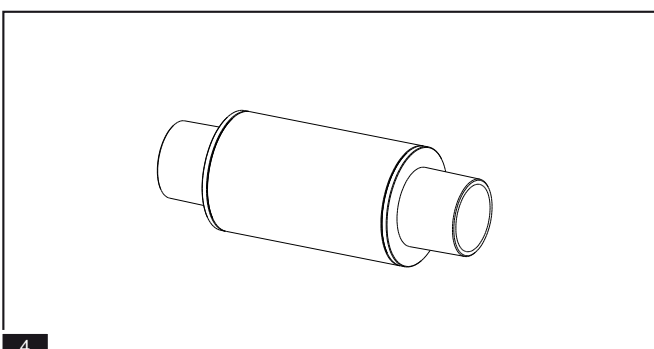
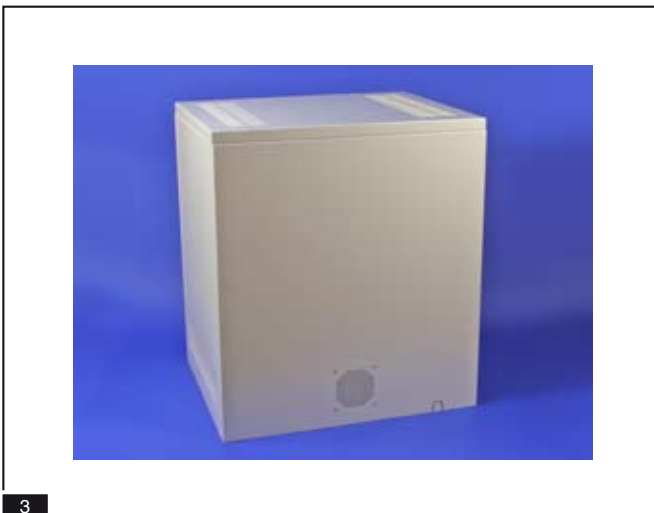
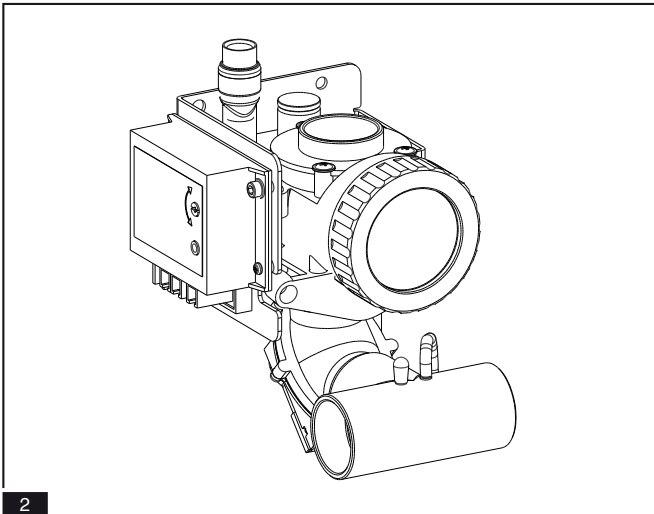
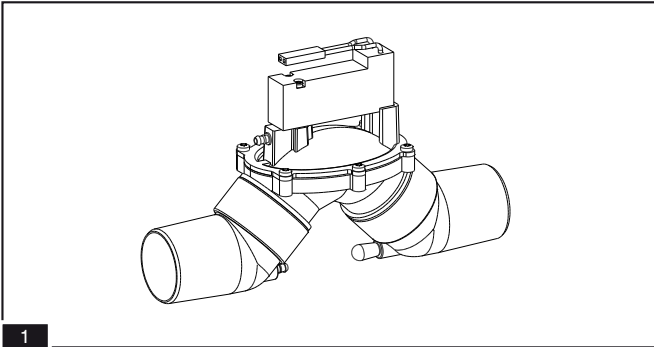
4 See illustration

Air bio filter.

Air bio filter for EXCOM Z2: order number: 40060002

Air bio filter for EXCOM Z5: order number: 40060003

For reasons of hygiene and noise reduction we recommend the integration of an air bio filter into the air-discharge connection and to lead it out of doors.



Type's plate

8. Explanation of the type plate:

5 See illustration

Type plate of EXCOM Z2:

The type plate is fixed on the outside of the fitting panel

5.1, upside the prefilter 5.2.

6 See illustration

Type plate of EXCOM Z5:

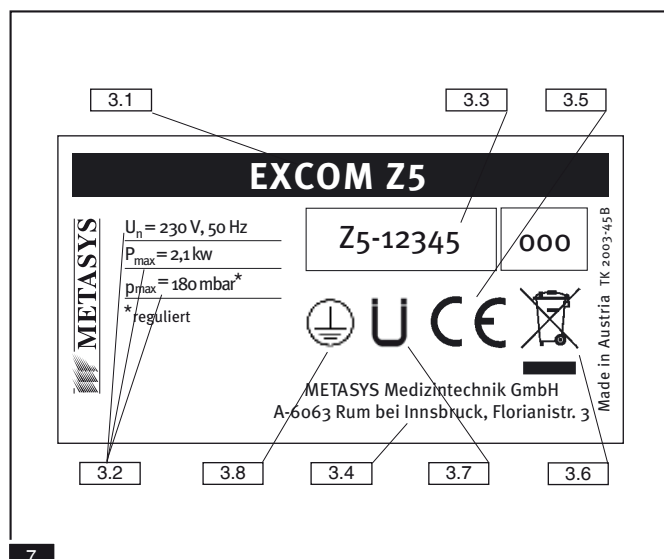
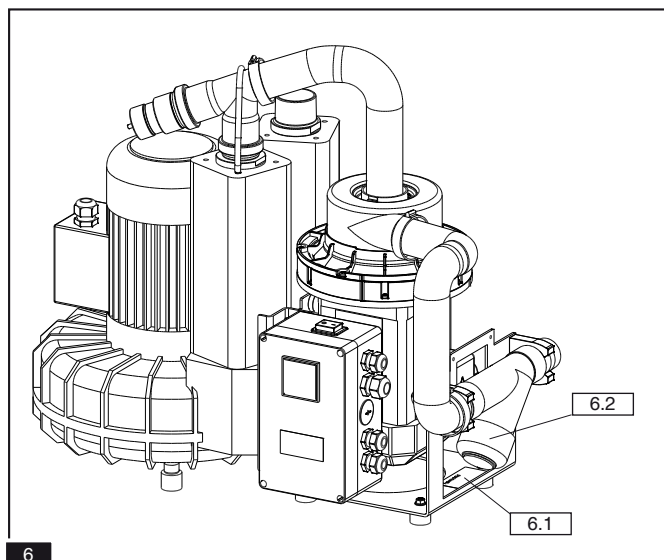
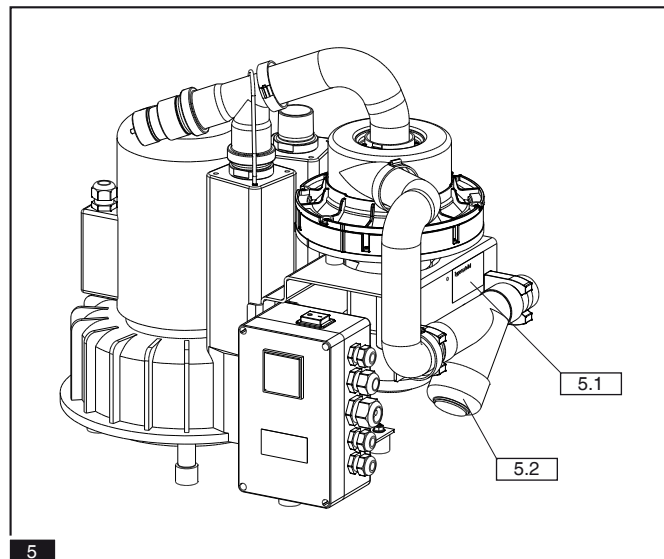
The type plate is fixed at the bottom of the fitting panel

6.1, under the prefilter 6.2.

7 See illustration

Explanation of the type plate, taking EXCOM Z5 as an example:

- 3.1 Equipment name
- 3.2 Connection data
- 3.3 Serial number
- 3.4 Manufacturer's address
- 3.5 CE mark
- 3.6 Separate collection electrical / electronic equipment
- 3.7 ÜZVO conformity mark
- 3.8 Protection class 1



Technical data

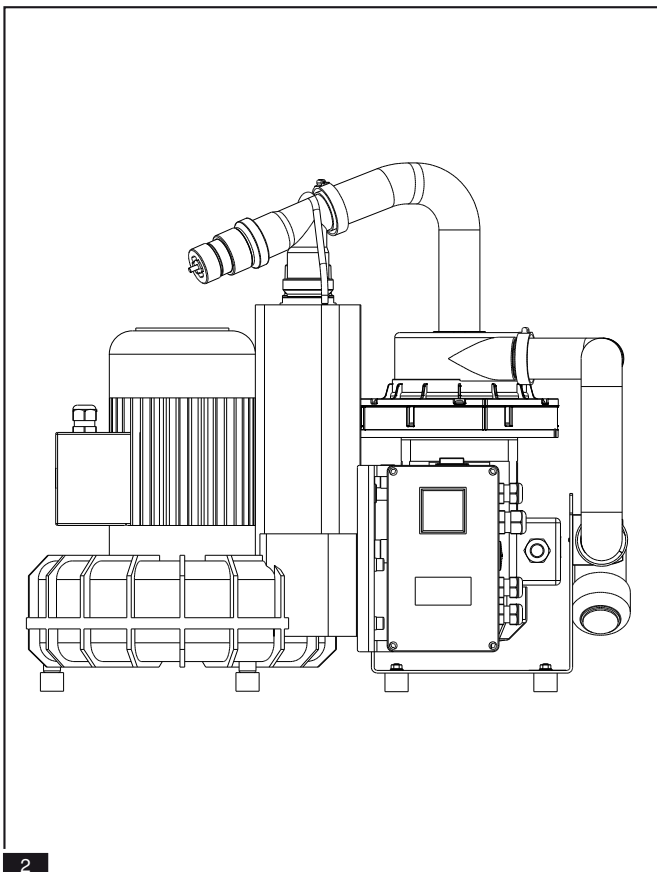
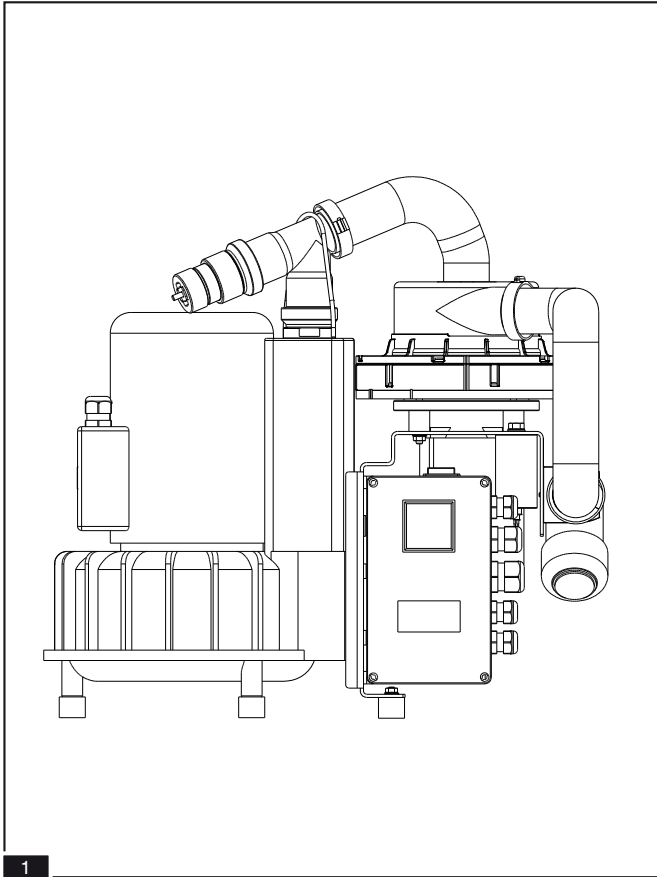
9. Technical data:

1 EXCOM Z2

Mains voltage:	230 V AC
Frequency:	50/60 Hz
Maximum current consumption:	6 A
Equipment fuses:	2 x 10 A
Electrical shaft power:	1.4 kW
Suction motor rotation speed:	2850/3450 rpm
Vacuum:	180 mbar, regulated
Maximum ambient temperature:	40° C
Operating time:	100% ED
Weight:	50 kg
Noise level without covering hood:	63 dB (A)
Noise level with covering hood:	58 dB (A)
Overall dimensions (L x W x H):	60 x 40 x 60 cm

2 EXCOM Z5

Mains voltage:	230 V AC
Frequency:	50/60 Hz
Maximum current consumption:	9 A
Equipment fuses:	2 x 10 A
Electrical shaft power:	2.1 kW
Suction motor rotation speed:	2850/3450 rpm
Vacuum:	180 mbar, regulated
Maximum ambient temperature:	40° C
Operating time:	100% ED
Weight:	65 kg
Noise level without covering hood:	65 dB (A)
Noise level with covering hood:	58 dB (A)
Overall dimensions (L x W x H):	65 x 40 x 60 cm



Functional description

10. Functional description:

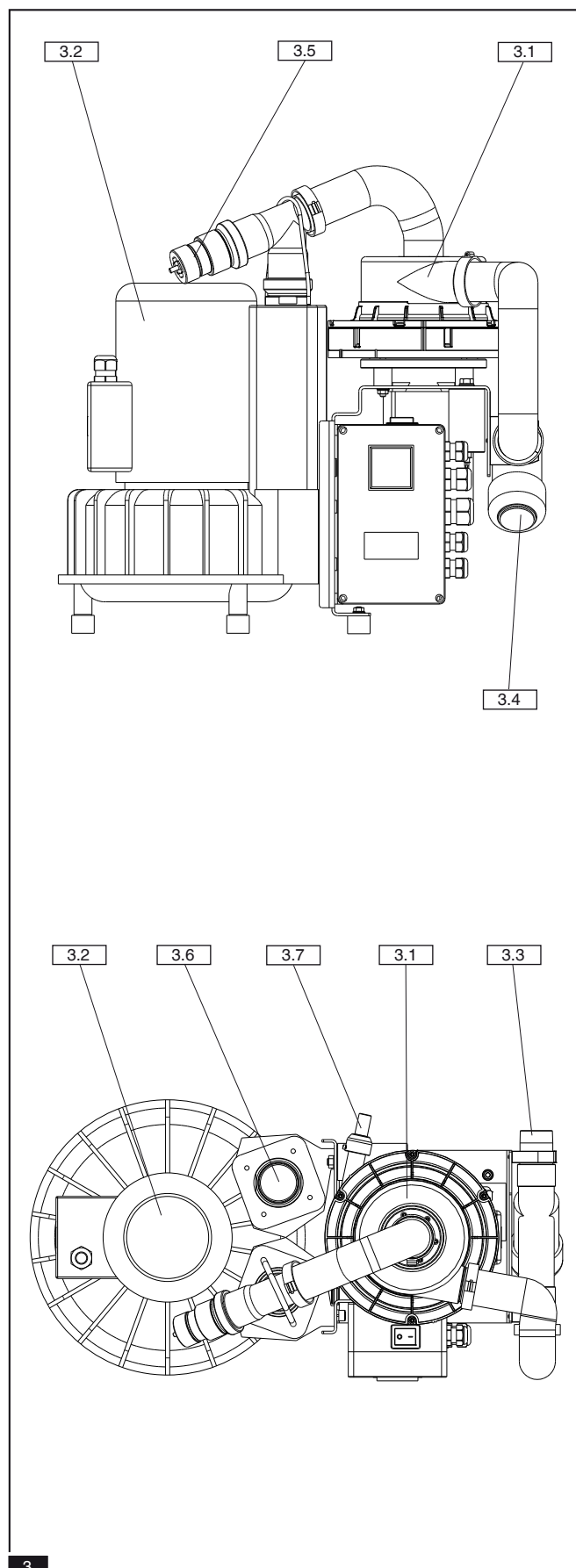
3 See illustration

On removing a suction hose from its rest in the treatment unit, the dynamic separation **3.1** and the EXCOM central system suction engine **3.2** start. After the vacuum has been developed, the optionally available place selection valve for the treatment place in use opens. The water from the cuspidor or spittoon runs through the spittoon bowl into the suction hose, which also starts the EXCOM central suction system.

The mixture of liquids, solids and air sucked from the treatment units flows through the suction connection **3.3** and prefilter **3.4** into the separation chamber **3.1**. The mixture is accelerated into a circular movement by the rapidly rotating impeller blades. The liquids and solids are tangentially centrifuged, whilst the air flows through the blade shafts into the hose connection with the air inlet valve **3.5** into the suction engine **3.2**. The dry air is discharged via the optional bio-filter into the atmosphere through the exhaust air connection **3.6**. The dynamic water/air separation process runs for approximately 20 seconds after the suction engine has switched off.

The centrifuged liquids and solid particles smaller than the mesh of the pre-filters **3.4** are either led into the normal sewage system via the water outlet **3.7** and the drainage connection or directed into an amalgam separator (COMPACT A8/A16).

The equipment function is monitored by an electronic monitoring system which signals the operating conditions on the displays on the housing and the practise's central display.



Installation guidelines

11. Installation guideline:

- The EXCOM suction system is designed to be installed only in dry, adequately ventilated rooms.



Their use in areas subject to explosive and fire hazards is not permitted.

- The permitted room temperature ranges from between +10°C and + 40°C. The relative humidity must not exceed 70%.
- Installation can be on the same level as the treatment units, in a side room or one floor lower.



In order to avoid vibrations, the suction system must be installed on a firm base.

1 See illustration

- When the EXCOM suction system is installed, the connection side must be placed at least 15 cm from the wall in order so that the hoses can be connected.

2 See illustration

- The front of the device must be easily accessible. If the EXCOM system is installed with the covering hood, the device must not be covered or have objects placed on top of it. To allow the removal of the covering hood, a free space above equal to the equipment's height equal to half its width at the sides. There must be clear space of approx. 5 cm around the device to guarantee adequate air circulation.

Prefilter:

2.1 Prefilter already installed

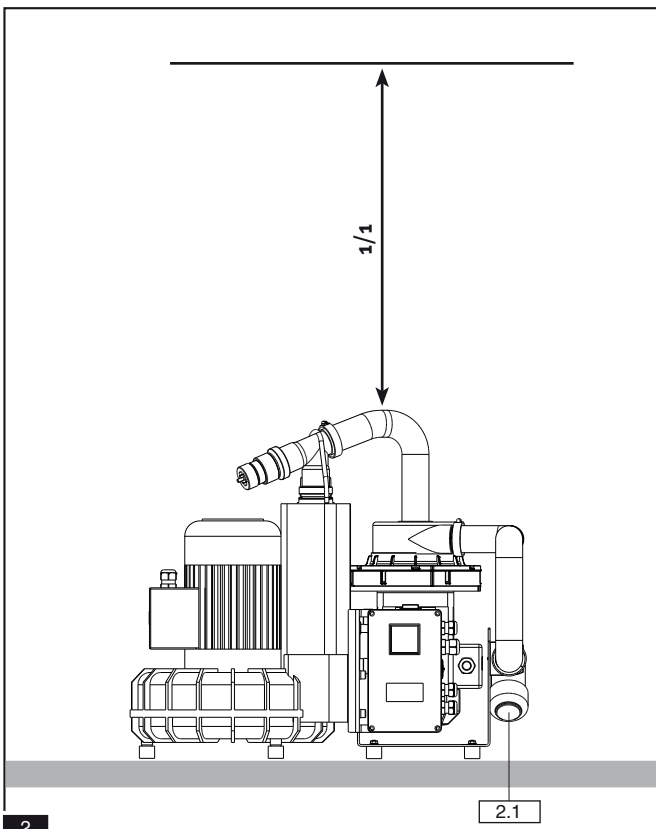
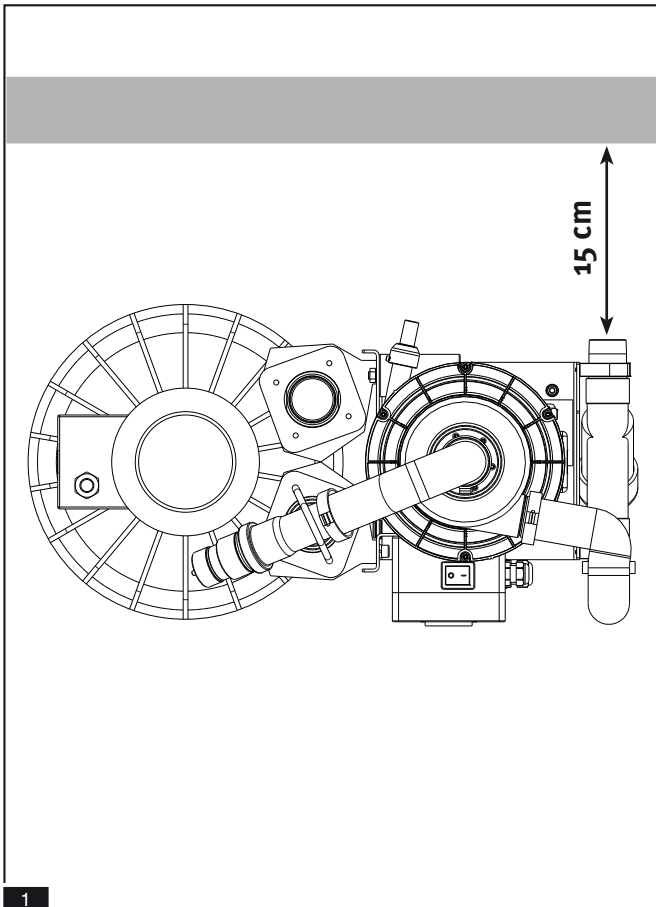
Air inlet valve:

To ensure a complete flush of all material, liquid and particles, even when the suction tube is on, an air inlet valve needs to be installed into the unit farthest away from the central unit.

Pipe and hose installation:



Any pipe or hose used must be resistant to all chemicals normally used in a dental practise (e.g. HT discharge pipes made from PP, PVC-C, PVC-U, PE-HD)



Installation guidelines

Hose connections

- Only flexible spiral hoses made from PVC or equivalent materials may be used.
- Connections to the EXCOM central suction system must be made by flexible hoses and be as short as possible.
- We recommend a pipe diameters of 40 mm to avoid right-angle bends in order not to lose suction power (recommendation: 2x 45° degree bends).
- Discharge pipes must meet applicable local legislation or DIN 1986, Parts 1 and 2.
- Waste water must be allowed to drain off freely without any backup. Waste water pipes must have a hydraulic gradient of at least 2%.
- The air must be discharged out-of-doors. For reasons of hygiene and in order to avoid noise pollution we recommend that the outgoing air connection is fitted with a bio-filter.
- The diameter of the suction connection must be equal to or smaller than the diameter of the discharge air connection.

12. Hose connections

3 EXCOM Z2

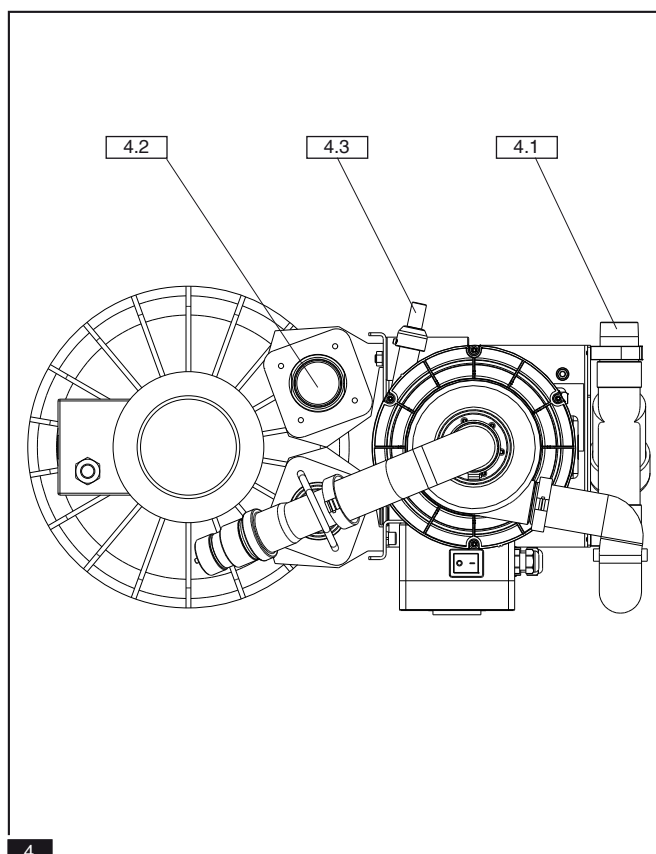
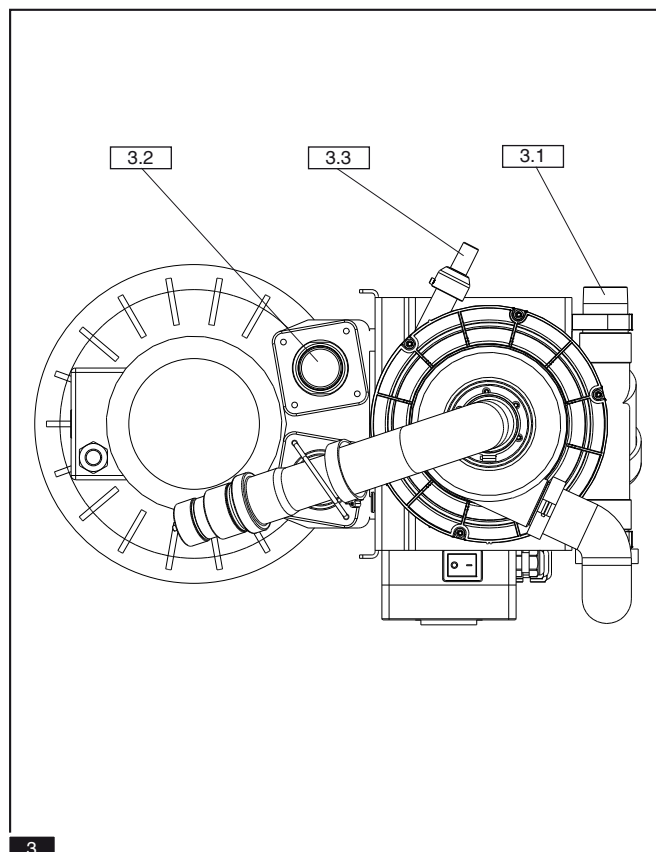
- 3.1 Connection for the suction hose (from the treatment units), 40 mm diameter
- 3.2 Connection for outgoing air, 40 mm diameter
- 3.3 Connection for waste water (clean water discharge) 15 mm diameter.

4 EXCOM Z5

- 4.1 Connection for the suction hose (from the treatment units), 40 mm diameter
- 4.2 Connection for outgoing air, 50 mm diameter (optional 40 mm diameter)
- 4.3 Connection for waste water (clean water discharge) 15 mm diameter.



All hose connections must be secured with hose clamps!



Electrical connections

13. Electrical connections

Mains connection:

The mains connection must only be carried out by a trained electricians.

The electrical installation must be carried out in accordance with applicable local regulations.

Before connecting with the mains, the nominal voltage stated on the type plate on the equipment must be compared with the mains voltage.

The EXCOM suction system must only be connected to the power supply with the supplied power cable. Extension cables must not be used.

Main switch:

In order to allow self-diagnosis, the EXCOM suction system must be switched off at least once per working day.

Connection to the mains must be established after the practise's main switch.

The hose rest signal light:

The control cable for the hose rest signal light is already connected internally by a 2 pole cable, 3 metres long.

The suction system starts when the two contacts are connected.

The control cable is to be properly fixed into a junction box.

External display module:

A 15 metre long connection for the central display module is already included in the scope of supply.

Suction engine:

The suction engine continues to run 90 sec after the suction tubes are on, P2. By turning the potentiometer this running time can be reduced.

Electrical connections EXCOM Z2 **1** / EXCOM Z5 **2** :

13.1 EXCOM z5:

Connectionseparation EXCOM (EXCOM M12 / M13; EXCOM Thermoschutz (= protection overheating): $\mu 10$ / $\mu 11$)

EXCOM z2:

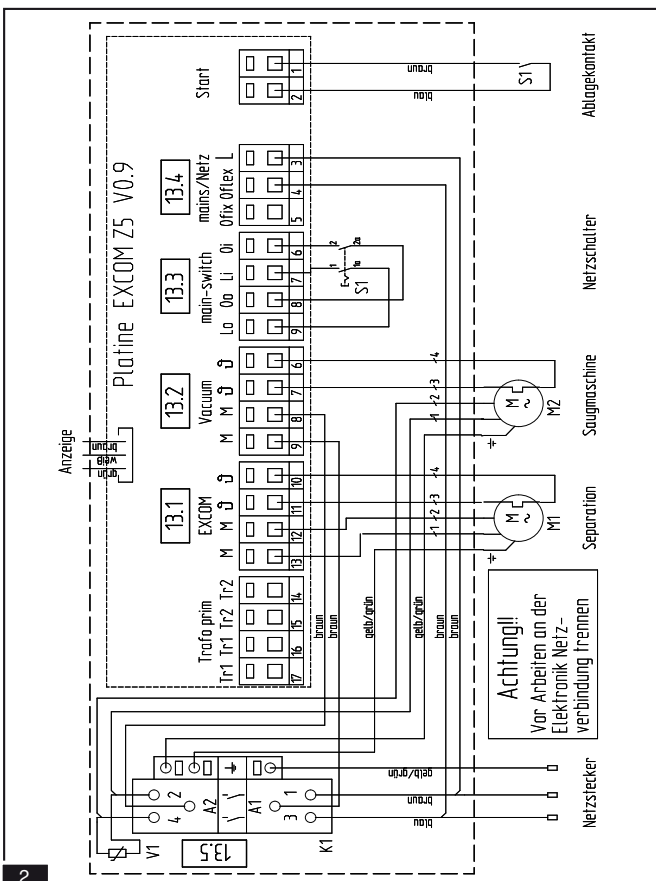
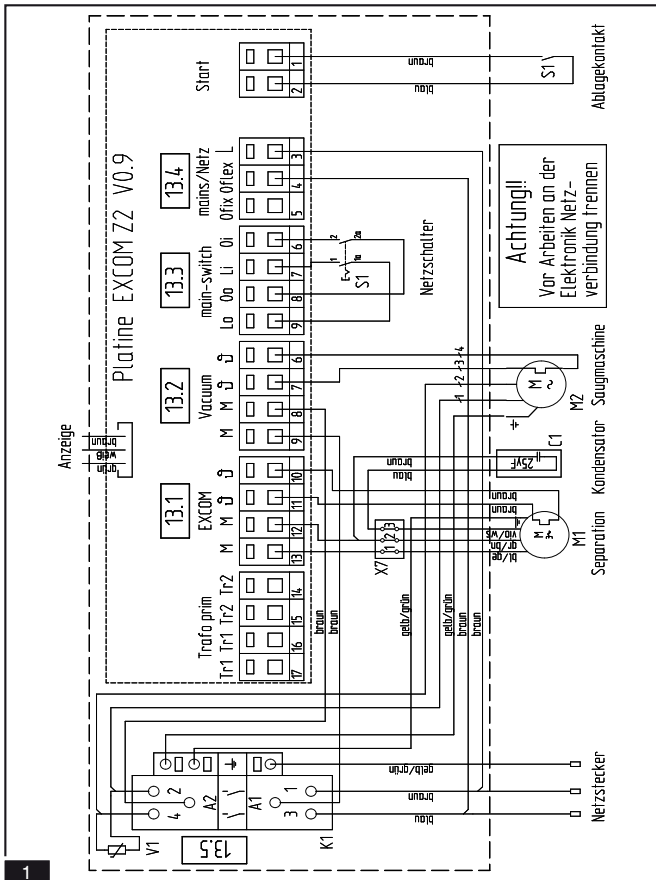
Connectionseparation EXCOM (EXCOM x7 - 1/2; EXCOM Thermoschutz (= protection overheating): $\mu 10$ / $\mu 11$)

13.2 Connection Schütz (vacuum: M8 / M9; Vacuum Thermoschutz: $\mu 6$ / $\mu 7$)

13.3 Connection main switch of central suction system (main switch)

13.4 Connection power supply (mains / Netz)

13.5 Connection suction engine (Schütz K1: 2 / 4)



Operating components

14. Explanation of the operating components:

3 See illustration.

External central display:

The external central display must be installed in a readily visible position in the practise.

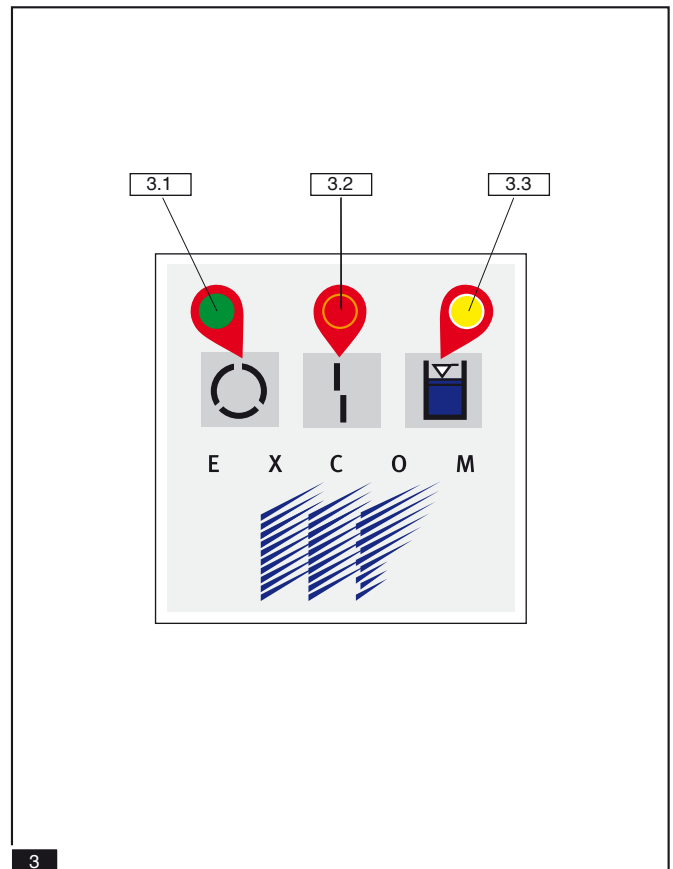
The purpose of the external central display is to inform practise staff of the overall condition of all EXCOM system components.

Should the EXCOM central suction system not work due to a technical defect, the external display will show a malfunction message. If the amalgam separator COMPACT A8 / A16 is installed, the collection container will be shown to be 95% or 100% full. The malfunctions can only be acknowledged directly at the equipment.

3.1 **Indicator light 1 green - power connected. Suction system ready for operation**

3.2 **Indicator light 2 red - malfunction. It is necessary to check the suction system**

3.3 **Indicator light 3 yellow (if COMPACT A8 / A16 is installed) - warning about the collection container level. It is necessary to change the collection container very soon.**



4 See illustration.

EXCOM suction system operating component:

Display for the suction engine and the dynamic separator:

Indicator light 1 - ready for operation.

► **Continuous green - power connected.**

Indicator light 2 - motor malfunction (motor over-heating)

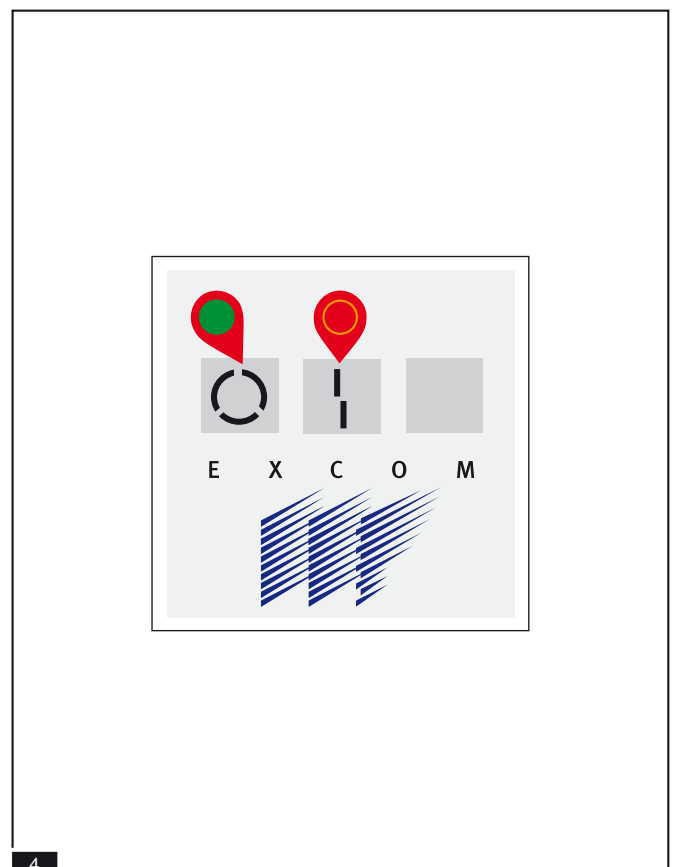
► **Flashing red and buzzer sounds - malfunction.**

► **2 flashes followed by a pause; repeated sequence suction engine malfunction.**

► **3 flashes followed by a pause; repeated sequence - separator unit malfunction.**

Switch the device off at its main switch; wait for 10 minutes and switch on again.

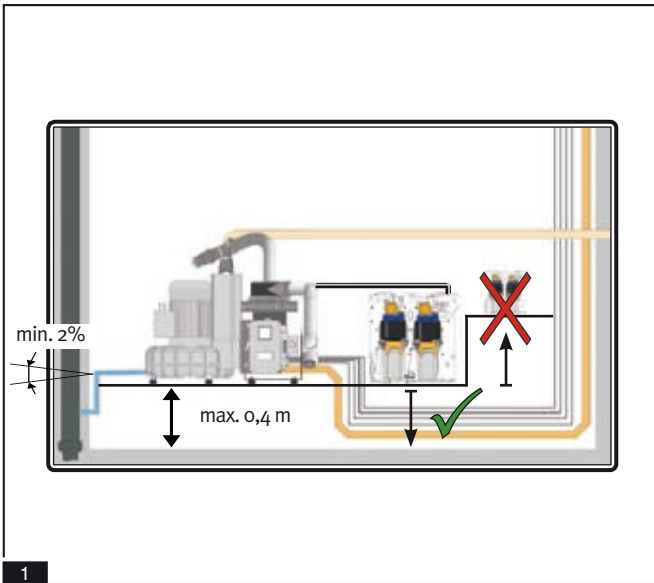
If the malfunction is reappears, contact a service engineer!



Connection COMPACT A8/A16 with EXCOM Z2/Z5

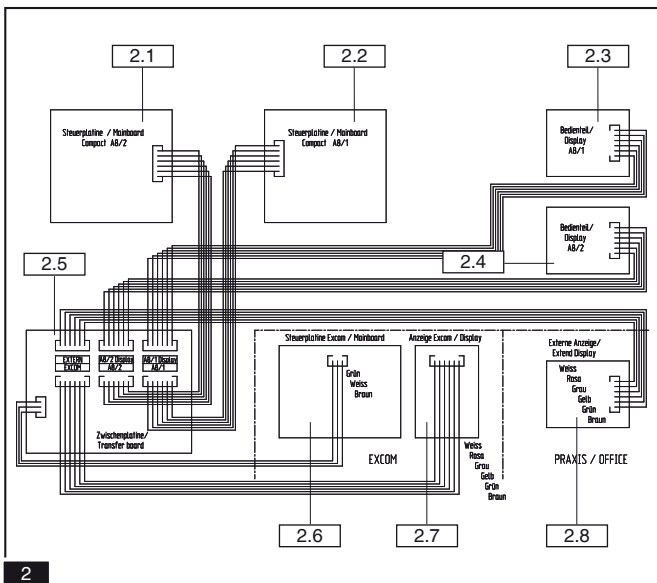
15. Connection of the amalgam separators COMPACT A8/ A16 with EXCOM Z2/Z5:

1 Connection of the tubes and pipes



2 Electrical connections

- 2.1 circuit board COMPACT A8/2
- 2.2 circuit board COMPACT A8/1
- 2.3 control unit A8/1
- 2.4 control unit A8/2
- 2.5 Additional main board on COMPACT A8/A16 for connections
- 2.6 circuit board EXCOM, cable 3-polar
- 2.7 Display EXCOM, cable 6-polar
- 2.8 External display, cable 6-polar



Care, cleaning and disinfection with GREEN&CLEAN M2

- ➔ **Changing the collection container:** see **COMPACT A8 / A16 "Installation, Operating and Maintenance Manual"**
- ➔ **Disposal of the collection container when full:** see **COMPACT A8 / A16 "Installation, Operating and Maintenance Manual"**

16. Care, cleaning and disinfection:

with METASYS GREEN&CLEAN M2 cleaning and disinfection agent for suction equipment and amalgam separators.

6 See illustration

Activate the spittoon flush for a short period after each treatment.

7 See illustration

Suck some water through the suction hose after each treatment.

8 See illustration

After having sucked some water first, use GREEN&CLEAN M2 twice a day.

Ideally GREEN&CLEAN M2 disinfectant should also be used if the equipment has remained unused for a while (lunch break, holiday).

9 See illustration

Also clean and flush the spittoon bowl using the METASYS spittoon cleaner GREEN&CLEAN MB twice a day.

► Cleaning the filter

At least once a week clean the and empty the filter. The cleanout can also be carried out more frequently if necessary.

10 See illustration

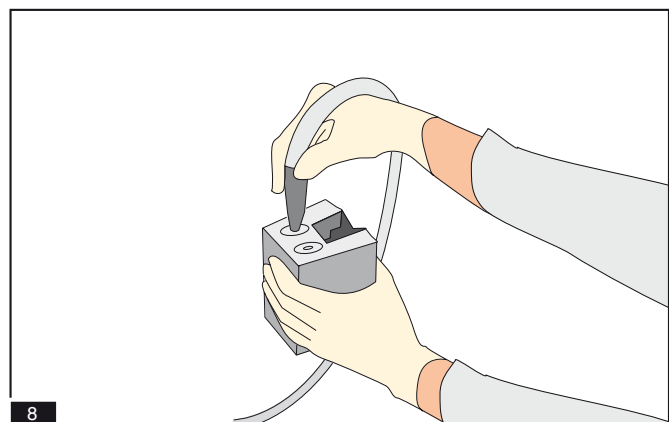
Collect the residues containing amalgam from the primary filter in METASYS's own ECOCENTER collection container and recycle through DENTAL ECO SERVICE's ECOTRANSFORM.



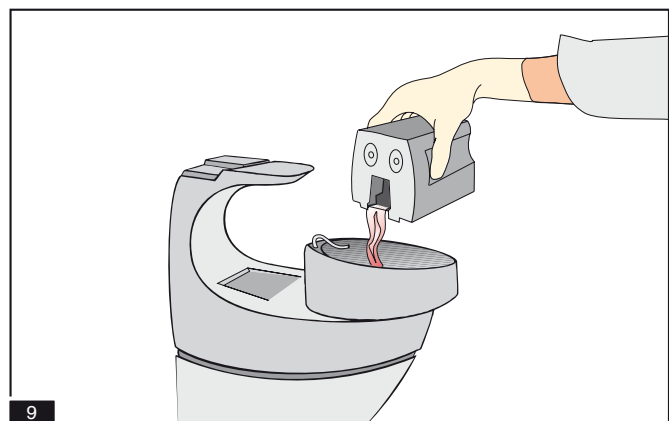
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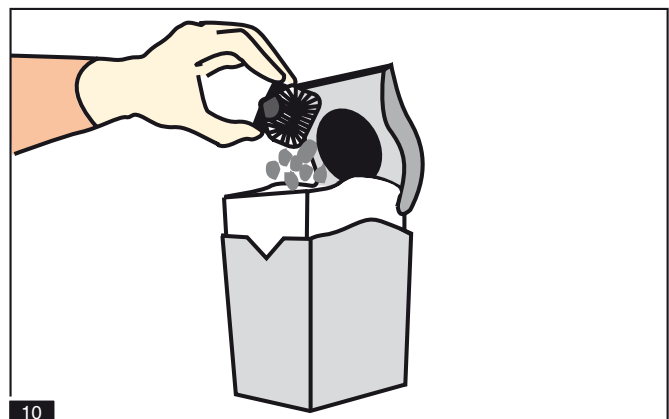
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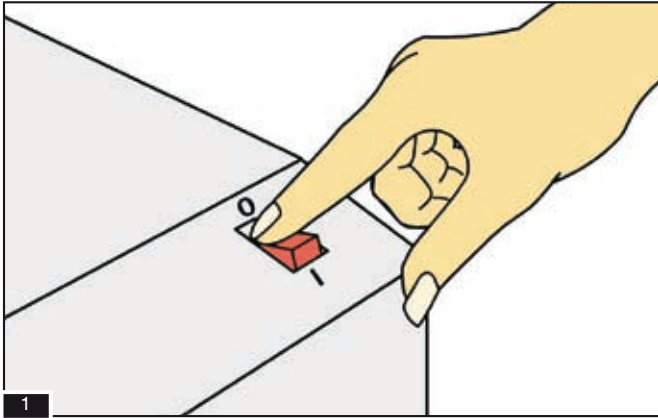


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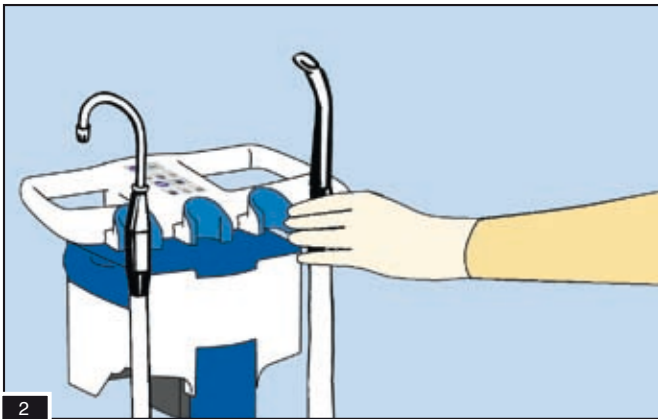
Commissioning



17. Commissioning:

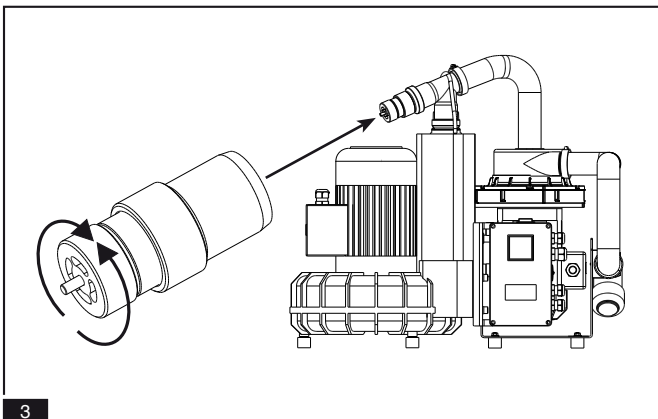
1 See illustration

- Switch on practise and the equipment main switch.



2 See illustration

- Remove the suction hose from its holder.
- Check that all hose connections and other connections in the suction pipe are air-tight.



3 Adjust the air-inlet valve – see illustration

- The suction flow at the large sucker should be at least 300 l/min.
- Adjustments are made by turning the adjustment screw on the air-inlet valve whilst measuring the air flow at the large sucker using a flow meter.



4 See illustration

- Suck 3 litres of water and check that the EXCOM central suction system is operating correctly.
- Undertake electrical safety checks as required by local legislation, and record that the checks have been made.

Maintenance

Equipment disposal

18. Maintenance:

5 See illustration

► **The following filters must be checked and cleaned every week:**

- ❖ The filter in the hose rest or the suction hose – not illustrated.
- ❖ The filter in spittoon bowl outlet and the spittoon valve 5.1
- ❖ The base filter 5.2

► Cleaning the filters:

The prefilters must be cleaned at least once a week. However, depending on the method of working, this may be necessary every day.

A clogged prefilter is perceivable by a reduction of suction power.

► Exhaust air filters:

The optional exhaust air bio-filter must be changed at least once a year.

19. Disposal of the equipment:



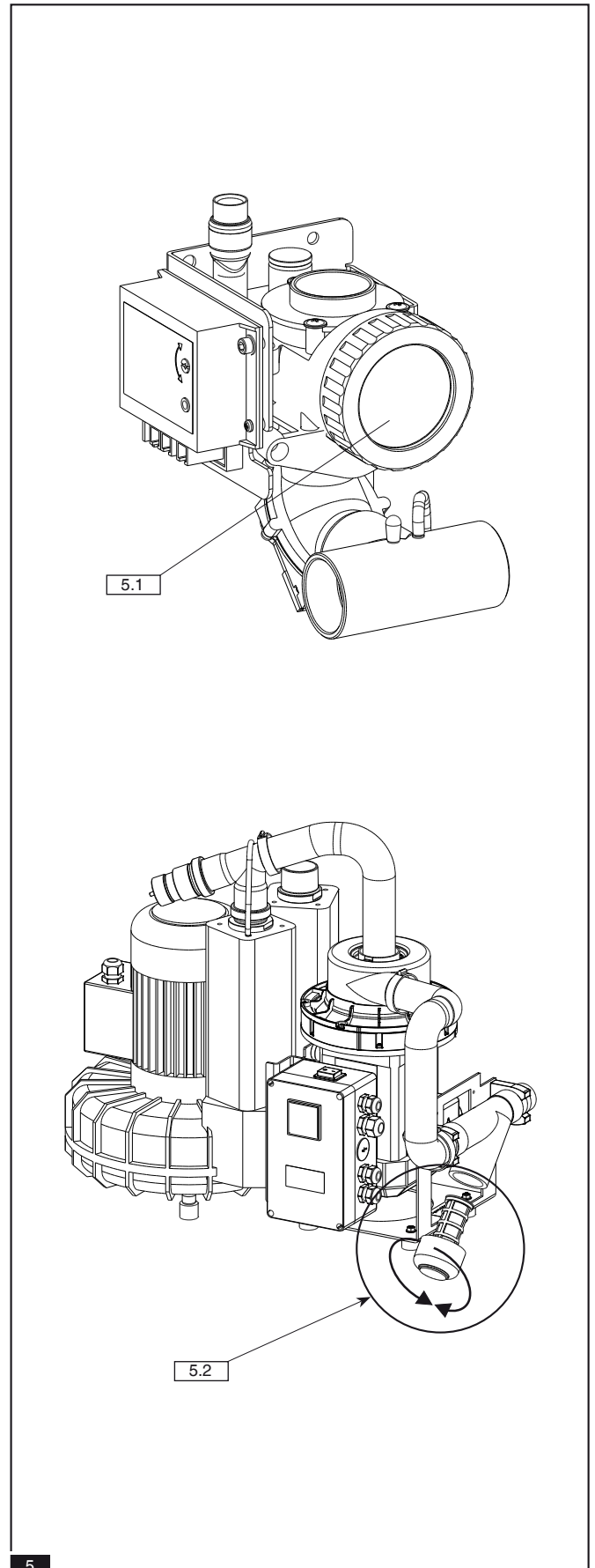
The devices may be contaminated. Please inform the disposal company of this so that the necessary precautions can be taken.

Disposal of amalgam separator components, such as sieves, filters, hoses etc., must also comply with local regulations.

Uncontaminated plastic components of the suction system may be re-cycled.

The built-in control unit, electronic circuit boards and components may be disposed of as electro-technical scrap. Other metal components may be disposed of as ordinary metal scrap.

If the device is returned, for example to the dealer or METASYS Medizintechnik GmbH, all connections must be sealed so that they are water-tight.



Notes

Notes



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