Zentrales Saugsystem
EXCOM hybrid 1s
Gerätedokument
Einbau, Betrieb und Wartung

Central Suction System
EXCOM hybrid 1s
Equipment Logbook
Assembly, operation and maintenance

EN

Système d'aspiration centralisée
EXCOM hybrid 1s
Livret d'appareil
Installation, fonctionnement et entretien

Sistema centralizzato d'aspirazione
EXCOM hybrid 1s
Verbale d'installazione
Montaggio, funzionamento e manutenzione

EXCOM hybrid 1s

METASYS

Index · Explanation of the pictograms

Practice personnel / technicians

EN

1. Index

The footnote found on each page defines the user group particular information is aimed at.

2. Explanation of the pictograms

Information

Caution!

General warning sign

Follow instructions for use

I **On**

O **Off**

Protective Earth (Ground)

Dangerous voltage

High voltage

Caution, hot surface

3. General information

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

- EXCOM hybrid 1s are ME equipments externally powered, therefore Class I according to EN 60601-1.
- Assembly, alterations or repairs may exclusively be carried out by authorized service personnel in compliance with EN Standard 60601-1 (International Standard for Medical Electrical Apparatus, in particular Part 1: General Rules for Safety).
- The electrical installation must comply with the regulations of the IEC (International Commission for Electrical Engineering).
- The apparatus must exclusively be used in conformity with the instructions for installation, operation and maintenance.
- Only original parts may be used for repairs or replacements.
- All instructions issued by manufacturers of equipment for the treatment of patients which is connected to the suction engine must be observed.
- After commissioning, complete the proof of installation at the front page of this manual and send this to METASYS in order to define the warranty period.
- All inspection and service work must be entered into the device documentation at the first pages of this manual
- When requested by an authorized engineer, METASYS agrees to make all documents available for the use of technically qualified service personnel.
- METASYS accepts no responsibility for damages caused due to external factors, such as wrong installation, improper use of the apparatus or unauthorized technical intervention.
- Users must study equipment and assure themselves of its good condition before every use.
- Medical products should be treated with respect when it comes to electromagnetic compatibility and special safety measures must be taken. Special instructions concerning electromagnetic compatibility for medical products are given in our special leaflet EMV EN 60601-1-2, which can be found on our website www.metasys.com in the download area.

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

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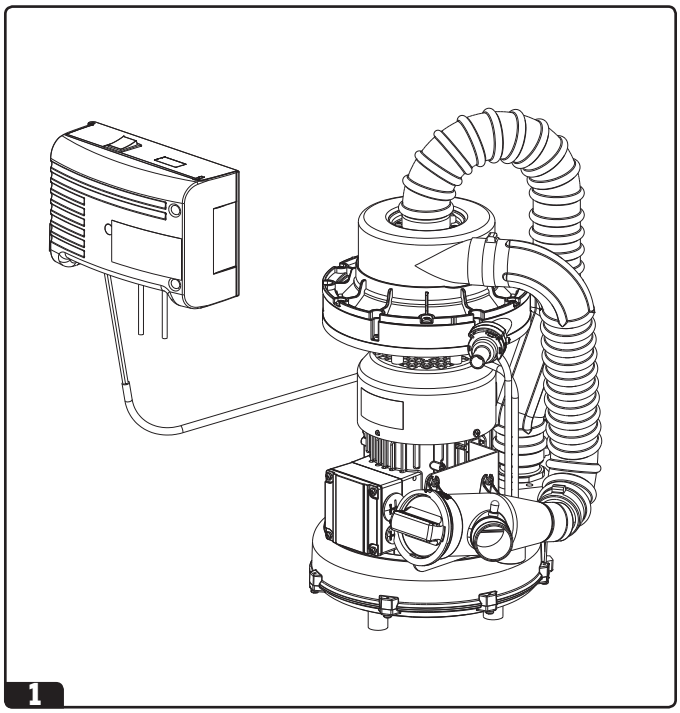

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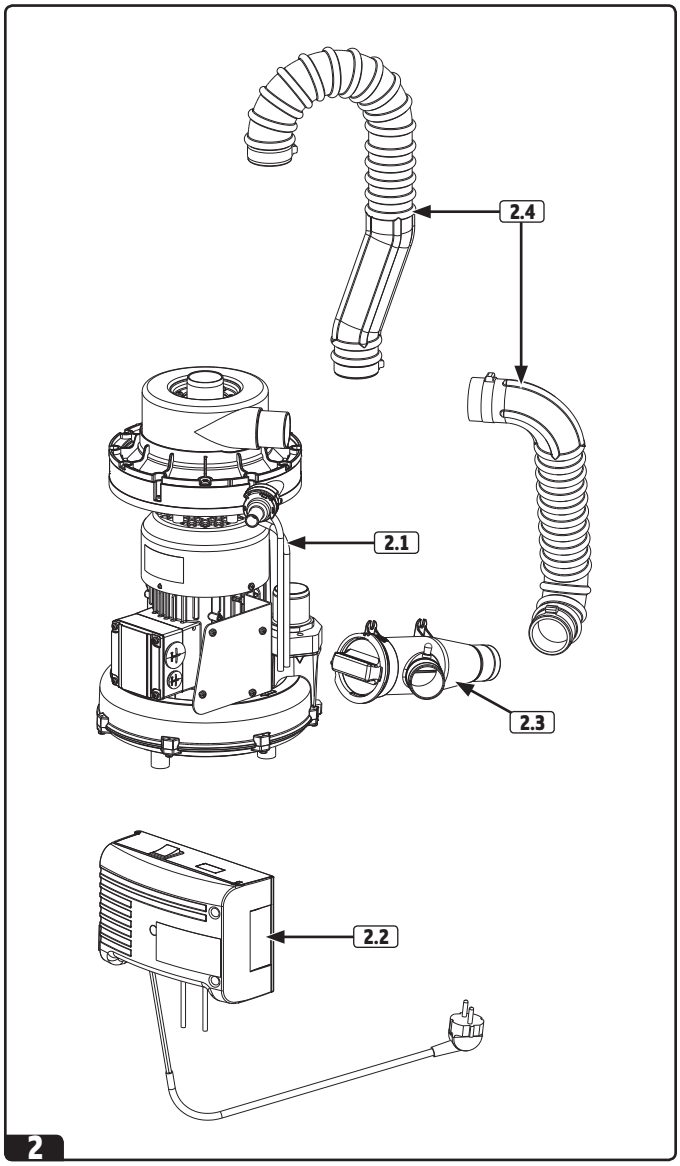

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4. Application

1 EXCOM hybrid is a central suction system with integrated separation. It supports the connected dental units as a remote accessory, separating dynamically liquids and solids from air during the dental treatment. Dental units connected with EXCOM hybrid suction systems must not have own separation devices installed within the units.

EXCOM hybrid 1s is a central suction system with integrated air/water separation for one dental unit.

The EXCOM hybrid is a remote accessory for the connected dental units (for example: a-dec, Belmont, Planmeca, Castellini, Sirona,...).

Application specification

Intended medical indication	Dental treatment
Intended patient population	Dental patients
Intended part of the body or type of tissue applied to or interacted with	No direct contact with patients
Intended user profile	Dentists, educated dental personnel, technicians for maintenance
Intended conditions of use	Place: stationary installation in remote rooms for machinery in dental practices Environment: installaton guidelines Frequency of use: during dental treatment, not permanently
Operating principle	Side channel blower pump for generation of vacuum with integrated separation

5. Construction

2.1 Suction engine with dynamic separation unit

The suction engine is a powerful dry vacuum engine operating according to the principle of the side channel vacuum pump.
The dynamic separation unit centrally separates liquids and solids from the air stream without interruption of the suction's output. This eliminates the need for a separator in the treatment unit.

2.2 Control unit

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

2.3 Prefilter

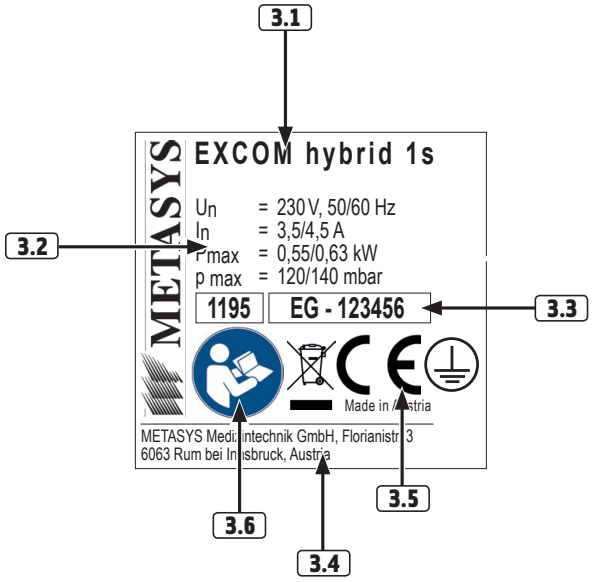
Coarse solid particles are held back in the prefilter.

2.4 Hose connections

6. Explanation of the type plate

3 Type plate

- 3.1 Equipment type
- 3.2 Mains supply data
- 3.3 Serial number
- 3.4 Address of the manufacturer
- 3.5 CE mark of conformity
- 3.6 Follow instructions for use



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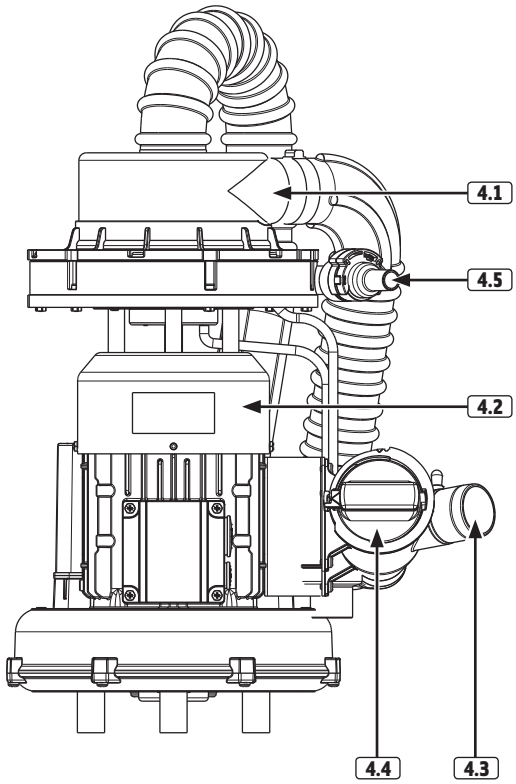
7. Technical data

Power supply	230 V AC
Frequency	50/60 Hz
Max. current consumption	3,5 / 4,5 A
Max. electrical shaft power	0,55 / 0,63 kW
Max. ambient temperature	40° C
Air flow rate	1100 l/min
Max. liquid throughput	4,5 l/min
Negative pressure	120/140 mbar
Operating time	100%
Weight	15 kg
Noise level	63 dB(A)
Dimensions (L x W x H) mm	530 x 320 x 350

8. Functional description

4 On removing a suction hose from its rest in the treatment unit, the dynamic separation 4.1 and the EXCOM hybrid 1s central system suction engine 4.2 start.
The mixture of liquids, solids and air sucked from the treatment units flows through the suction connection 4.3 and prefilter 4.4 into the separation chamber 4.1. 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 and into the suction engine 4.2.The dry air is discharged via the optional bio filter into the atmosphere through the exhaust air connection.

The centrifuged liquids and solid particles smaller than the mesh of the prefilters 4.4 are either led into the normal sewage system via the water outlet 4.5 and the drainage connection.



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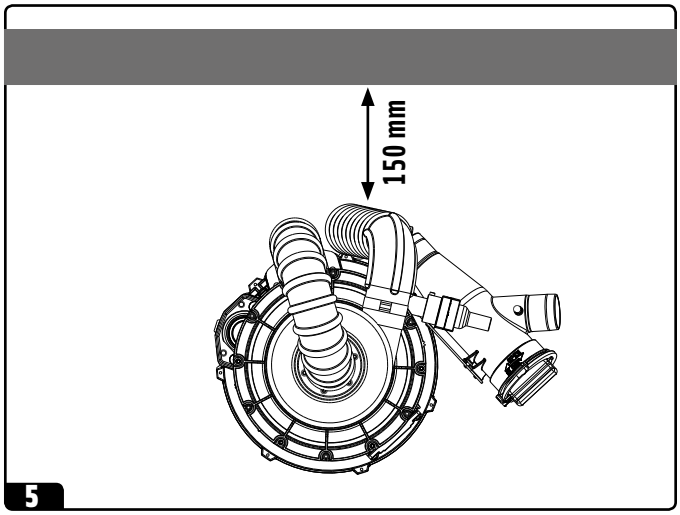

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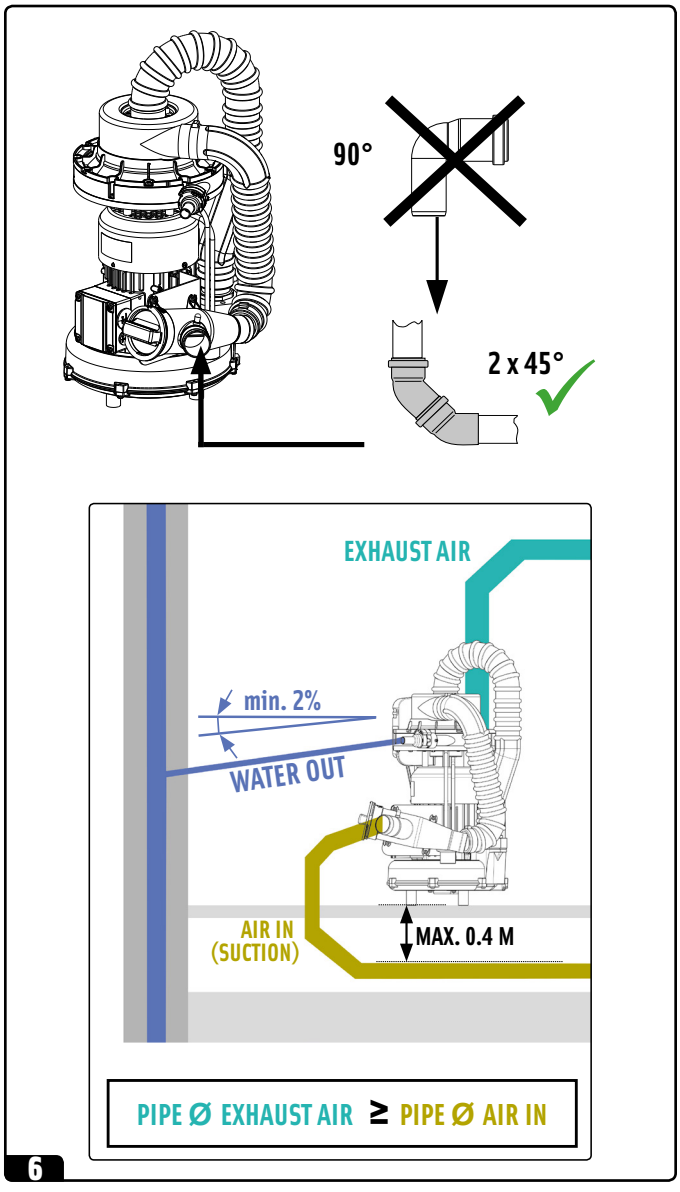

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9. Installation guidelines

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

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

- The operating temperature ranges from between +10° C and +35° C. The relative humidity must not exceed 70%.
- The storage and transport temperature ranges from between +0° C and 70°C. The relative humidity must not exceed 80%.
- In case of a room temperature of more than +35° C, a fan must be installed for additional ventilation.
- Installation can be on the same level as the dental units, in a side room or one floor lower.
- In order to avoid vibrations, the suction system must be installed on a firm base.
- The maximum altitude is 3000 m.

5 When the EXCOM hybrid suction system is installed, the connection side must be placed at least 150 mm from the wall so that the hoses can be connected.

The front of the device must be easily accessible. If the EXCOM hybrid system is installed with the covering hood, nothing must be 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 is required. There must be clear space of approx. 50 mm around the device to guarantee adequate air circulation.

Do not lift the device at separation!
While the suction is used, the device must not be switched off at the main switch!

6 Pipe and hose installation

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

Connections to the EXCOM hybrid 1s central suction system must be made by flexible hoses and be as short as possible.

To avoid a loss of suction power, a pipe diameter of 40 mm is recommended.

Avoid right-angle bends in order not to lose suction power (recommendation: 2 x 45° degree bends).

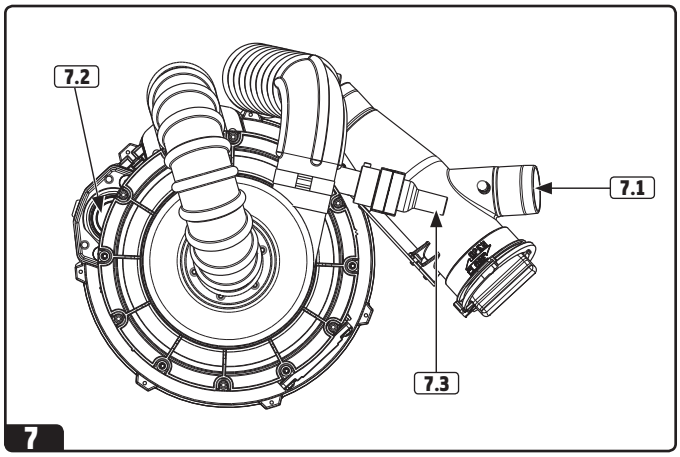
Discharge pipes must meet applicable local legislation or DIN 1986, Parts 1 and 2.

Waste water must be allowed to drain off freely without any backup. Waste water pipes must have a hydraulic gradient of at least 2%.

9. Installation guidelines

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 discharged air connection must be equal to or bigger than the diameter of the suction connection.



10. Hose connections

Picture 7

7.1 Connection for the suction hose (from the treatment units): Ø 40 mm

7.2 Connection for exhaust air: Ø 40 mm

7.3 Connection for waste water (clean water discharge): Ø 15 mm

All hose connections must be secured with hose clamps! For the exhaust air connections only heat-resistant (≥ 130° C) hose and pipe material must be used.

In case of water discharge at the water collector all connections, especially the water discharge pipe, must be checked.

11. Electrical connections

Mains connection

The mains connection must only be carried out by a trained electrician. 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 hybrid suction system must only be connected to the power supply with the supplied power cable. Extension cables must not be used.

The electrical connections must be carried out observing all technical regulations concerning the setup of low voltage systems in areas used for medical purposes.

The motor connection cable must be laid in such a way that it does not come into contact with hot surfaces. The motor connection cable may not contact hot surfaces!

- Before start-up, check the mains voltage against the voltage indicated on the model identification plate.
- When connecting to the mains electricity supply, ensure that the circuit is fitted with an allpole disconnect switch (all-pole switch)
- Suction units can only be connected to the mains power supply using a fixed cable connection.

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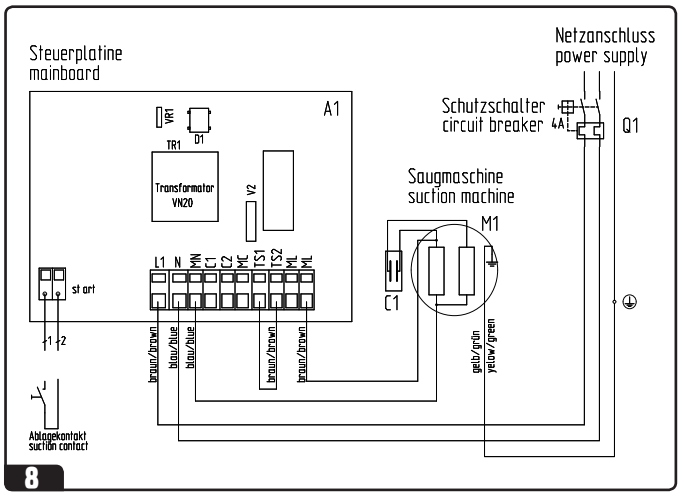

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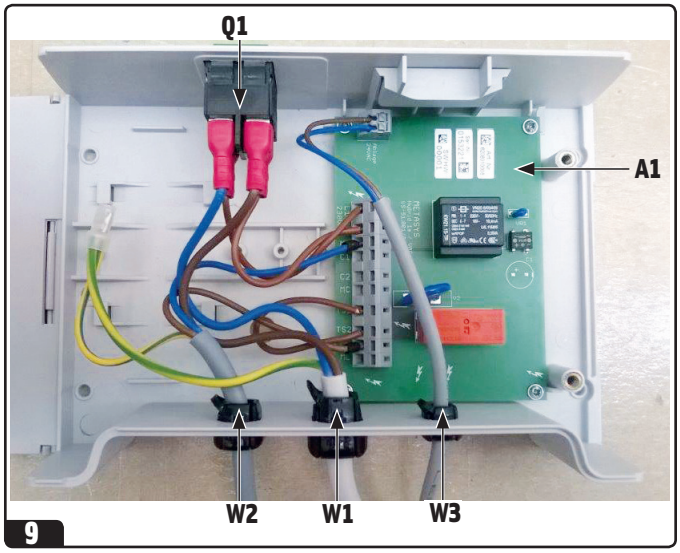

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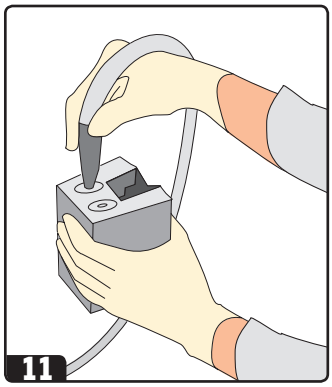

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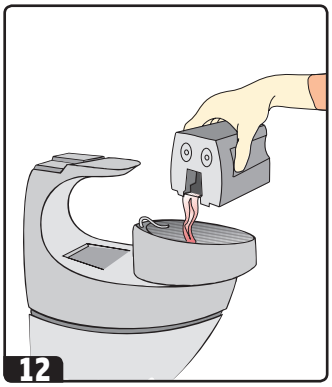

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11. Electrical connections

- Replacement of supply cord only by authorized person according to EN 60601-8.11.3
- The suction unit is operated using the controller located in the external control box.

Circuit protection: LS switch 16 A, characteristics C according to EN 60898

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

8 Wiring diagram

A1 control board
K1 motor contactor
M1 motor for vac
Q1 protection switch

9 Control box

A1 control board
Q1 protection switch
W1 power supply
W2 motor cable for hybrid 1s
W3 cable for suction contact

12. Maintenance, cleaning and disinfection

9 Shortly flush spittoon bowl after each treachment!

10 Suck some water through all suction hoses after every treatment.

11 Twice a day, after having sucked off some water, use either the prescribed disinfectant for suction systems GREEN&CLEAN M2 for cleaning and disinfecting, or the prescribed cleanser for suction systems GREEN&CLEAN CL.

12 The spittoon bowl should also be rinsed with GREEN&CLEAN M2 or GREEN&CLEAN CL twice a day.
Cleaning the prefilter: The prefilter must be emptied and cleaned at least once a week. This may also be carried out daily, depending on workload.

13 The amalgam residue from the prefilter box must be collected in the METASYS ECO CENTER and disposed of properly with ECO TRANSFORM.

Please go to
www.metasys.com/collection_centers
to locate your national collection point.

13. Commissioning

14 Switch on practice and the equipment main switch.

15 Remove the suction hose from its holder. Check that all hose connections and other connections in the suction pipe are airtight.

16 Suck 600 ml of water and check that the EXCOM hybrid 1s central suction system is operating correctly.

Perform electrical safety checks as required by local legislation, and record that the checks have been made.

14. Maintenance

17 The following filters must be checked and cleaned every week:

- filter in the hose rest or the suction hose (not shown)
- filter in spittoon bowl outlet and the spittoon valve
- base filter 17.1

Cleaning the prefilter:
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 filter:
The optional exhaust air bio filter must be replaced at least once a year.

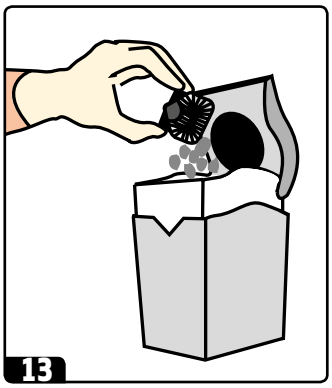
15. Disposal of the equipment

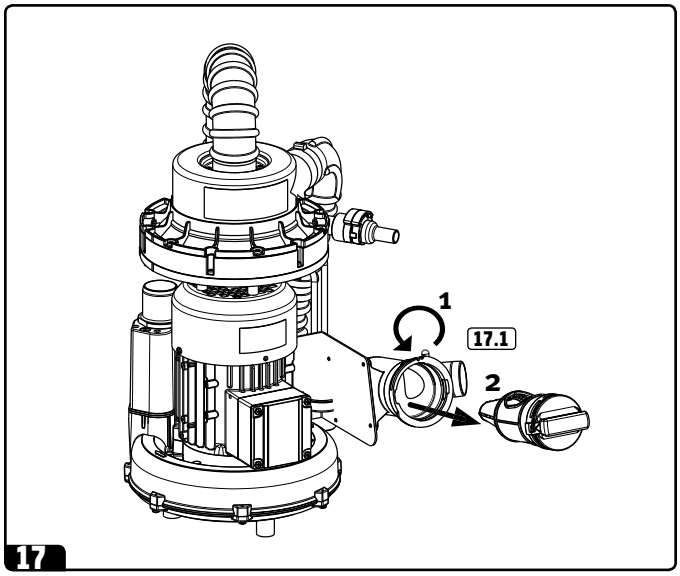
The devices may be contaminated. Please inform the disposal company of this so that the necessary precautions can be taken.

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 recycled.
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 watertight.





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METASYS ... makes the difference!

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