

INSTALLATION AND OPERATING INSTRUCTIONS DÜRR SPITTOON VALVE HOUSING

GB



9000-606-13/30



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IMPORTANT INFORMATION

1. NOTES

1.1 CE - Labeling

This product bears the CE- Labeling. This signifies that the product has been developed in accordance with the Guidelines of the European Union and satisfy all criteria of the guidelines.

1.2 Guidelines

- This product is in accordance with the Guidelines of the Commission for Medical Products 93/42/EWG.

1.3 General Notes

- These Installation and Operating Instructions form an integral part of the unit. They must be kept close to the unit and in readiness whenever required. Precise observance of these instructions is a precondition for use of the unit for the intended purpose and for its correct operation. These Installation and Operating Instructions should be passed on to any future purchaser or operator.
- Safety of the operator as well as trouble-free operation of the unit are only ensured if use is made of original equipment parts. Moreover, use may only be made of those accessories that are specified in the technical documentation or that have been expressly approved and released by Dürr Dental for the intended purpose.
Dürr Dental cannot guarantee for the safety or proper functioning of this unit in the case where parts or accessories are used which are not supplied by Dürr Dental.
- There is no guarantee against damage arising where parts or accessories are used which are not supplied by Dürr Dental.
- Dürr Dental only regard themselves as being responsible for the equipment with regard to safety, reliability and proper functioning if assembly, resettings, changes or modifications, extensions and repairs have been carried out by Dürr Dental or an agency authorized by Dürr Dental and if the equipment is used in conformity with the Installation and Operating Instructions.
- The device conforms to the relevant safety standards valid at this time. All switches,

processes, trade marks, software programs and appliances named in this document are registered names.

- Any reprinting of the technical documentation, in whole or in part, is subject to prior approval of Dürr Dental being given in writing.

1.4 General Safety Information

This appliance has been so designed and constructed by Dürr Dental that any danger arising from the use of this product is virtually excluded provided it is fitted according to the instructions. However, in order to avoid any possible damage or injury we are obliged to point out the following safety measures.

- When fitting and operating this appliance observe all local rules and regulations! Converting or altering the appliance in any way is forbidden. Any such action will lead to invalidity of all liability. In the interests of ensuring problem-free running the owner and operator are responsible for observing all rules and regulations.
- Retain all packing material for possible return of the product to the manufacturer. Take care that it does not fall into the hands of children. Only the original packing guarantees optimal safety of the appliance during transport.
Should return of the product to the manufacturers be necessary during the guarantee period, Dürr Dental accepts no responsibility for damage occurring during transport where the original packaging was not used!
- Before every use the operator must check the functional safety and the condition of the appliance.
- The operator must be knowledgeable in the operation of the appliance.
- The product is not designed to be used in medical treatment areas where there exists the danger of explosion. Areas where explosions could occur are those where flammable anesthetic material, skin cleansers, oxygen and skin disinfectants are present. Furthermore, this appliance is not to be used in any areas where the atmosphere could cause fire.

1.5 Electrical Safety Notes

- Power is supplied to the appliance via the main treatment unit. This unit may only be connected to an earthed safety socket.
- Before connecting the appliance to the power supply check that the electrical current and the frequency of the device as described on the appliance are compatible with that of the power supply.
- Check the appliance and the power supply cables for possible damage before switching on. Damaged cables, plugs and sockets must be replaced before use.
- In hazardous situations or when technical interference arises the treatment unit must be disconnected from the main power supply.
- The appliance must be disconnected from the power supply during all repairs and maintenance.
- Installation may only be carried out by suitably qualified personnel.

1.6 Warnings and Symbols

In the Installation and Operating Instructions use is made of the following terms or symbols to denote information of special importance:



Information and/or mandatory regulations or prohibitions for the prevention of personal injury or substantial property damage.



Special information regarding the economical use of the equipment and other information



CE-Labeling



In the interests of safety of all operating staff, protective gloves should be worn during installation, maintenance and repair



Check operating environment. Do not use appliance in wet or damp conditions



Recycling



Observe Installation and Operating Instructions



Date of manufacture

2. PRODUCT INFORMATION

2.1 Correct Usage

The spittoon valve housing unit allows the spittoon valve, the treatment unit air valve, the rinsing unit and the supplementary air intake a space-saving and maintenance friendly solution when these should or cannot be fitted directly into the treatment unit itself.



A so-called „dry“ system is understood to mean one where the separation of air and fluids takes place before entry into the suction unit. In the so-called „wet“ system this extraction takes place in a prior separation phase.

- During the suction phase the suction unit produces a vacuum which is interrupted by the **spittoon valve (1)**. As soon as fluid is transported from the spittoon towards the suction unit, the valve in the spittoon valve unit automatically opens and the fluid is diverted to the vacuum connection.
- The **treatment unit air valve (2)** allows the flow of air from the hose manifold on the treatment unit to the suction unit to be opened or closed as desired. It must therefore be fitted into this hose system. It can be used in either wet or dry suction systems with several treatment units (with a central suction unit).
- The **rinsing unit (3)** allows cleaning of the suction system by providing a flow of water during suction and can be used in either wet or dry suction systems.

- The **supplementary air intake (4)** provides the suction unit with air in order to provide the the optimal fluid transport via waste connections. It is also fitted with a noise reducer.

Installation in medical facilities:

In the development and production of this spittoon valve housing and the various integrated components all care was taken to meet the requirements of medical products as far as possible. As such, this system may be installed in medical facilities.

When installing and mounting into present medical equipment the requirements as laid down in guidelines 93/42 EWG IEC 601-1 and 60601-1 must be observed as well as all relevant standards.

2.2 Incorrect Usage

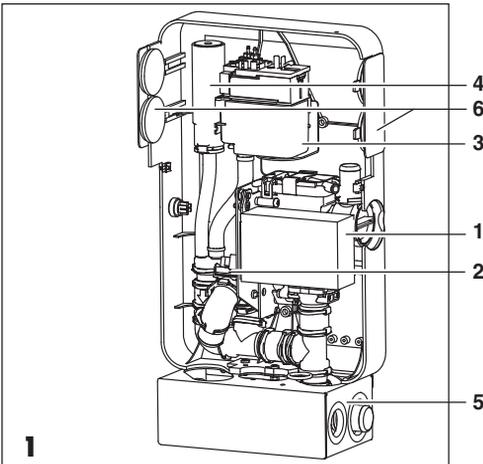
- Any and all use, above and beyond that laid down above can be considered as incorrect usage. The manufacturer is not to be held liable for any damage caused as a result of incorrect usage. The operator bears all risks in this case.

2.3 Product Description

The spittoon valve housing offers a practical space-saving installation for the spittoon valve (1), treatment unit air valve (2), rinsing unit (3) and supplementary air intake (4). These are thus stored so that they are easily accessible for repairs and maintenance.

All electrical and mechanical connections can be optimally carried out. This is made possible by the various openings on the sides of the plastic housing and on the metal plinth (5).

The plastic housing consists of a front and a rear panel housing. Openings in the sides (6) can be closed using the covers provided.



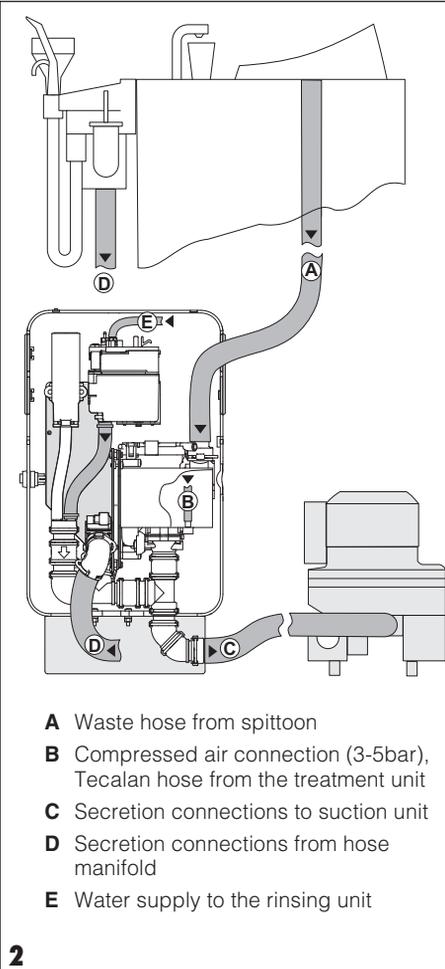
3. CONTENTS

The spittoon valve housing is available in two different models:

- Housing **without** components and with connecting parts **0700-300-50**

i Spittoon valve, treatment unit air valve, rinsing unit and supplementary air intake are **not** included but can be ordered separately.

- Housing **with** components (incl. spittoon valve, treatment unit air valve, rinsing unit and supplementary air intake) complete and ready for connection **0700-300-51**



4. TECHNICAL DATA



The technical details of the various components placed in this spittoon valve housing can be found in the documentation supplied with each relevant unit.

Spittoon valve housing

Dimensions LxHxD cm 22 x 40,5 x 11,4

Compressed air and water connections

Rinsing unit	NW 2,5 / 3
Spittoon valve (water)	NW 20
Spittoon valve (comp. air)	NW 4
Treatment unit air valve	NW 25
Waste pipes (DürrConnect)	NW 25/30

The air and water connections are schematically presented in Fig. 2..

Weight (complete with components) kg 2,7

Electrical connections:

see section 6 „Electrical Connections”

INSTALLATION

5. SET-UP

5.1 Room for installation



Check environmental influences! Do not operate in wet or damp conditions.

- The temperature in the room must not fall below + 10 °C and must not exceed + 40 °C.
- Installation in purpose-built rooms, e. g. in a boiler room, must be checked with the relevant experts beforehand.
- Installation in wet or damp rooms is not permitted.

5.2 Mechanical Connections

– Hoses

For waste and suction connections only flexible PVC-hoses with integrated spiral or similar may be used .



The following may NOT be used:
Hoses which are not resistant to dental disinfectants and chemicals, rubber hoses or completely PVC-hoses which are not sufficiently flexible.

– Pipes

Only the following pipe materials MAY be used:

HT-waste pipes of Polypropylene (PP), (PVC-C), (PVC-U) and Polyethylene (PEh).



The following may NOT be used: ABS and SAN+PVC.

Installation of the **waste disposal pipe system** must be carried out according to the legal requirements of the appropriate country.



The connection between the pipe system and the connection to the suction unit should be kept as short as possible and should be straight, with no bends, and carried out using a flexible hose.

– DürrConnect Connection system

The DürrConnect plumbing system serves to connect the various components housed in the unit. The various elements of this plumbing system are easy to put together or to take apart using the clips supplied. To remove, one simply slides the clip out of the grooves on the pipe segment. Depending on the type of clip being used (12 or 13), either the clip is eased out using a screwdriver or similar tool against the central opening or by using the ring fitted to the clip. To fit two sections together, two elements can be pushed together and then fixed by sliding the clip into the pre-cut grooves (Fig. 3).

The double plug (11) contains a non-return valve, to prevent fluids from re-entering the system.



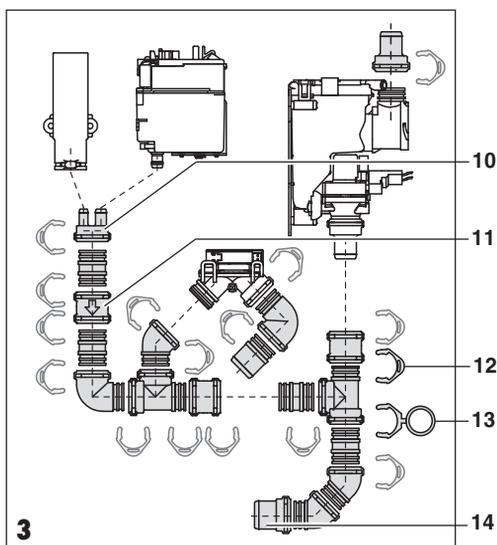
When fitting the double plug (11) note the direction of fitting carefully (see the arrow marking).

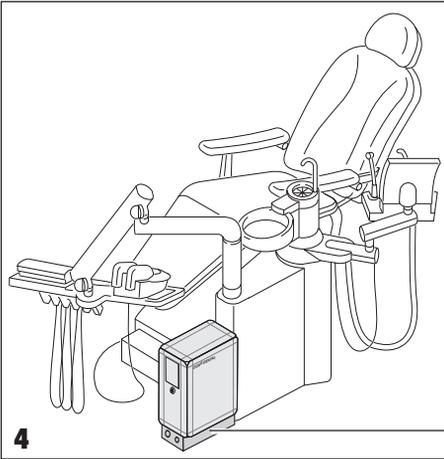
If neither a supplementary air intake nor a rinsing unit is to be installed, then the hose mounting plug (10) must be replaced using the cap (Nr. 0700-700-10) supplied.

Because the individual elements are free to rotate, any required connection layout is possible.



The hose mounting plug (14, No. 0700-720-30) with 30 mm external diameter can, if required, be replaced with the plug with 25 mm diameter (Nr. 0700-720-25) as supplied.



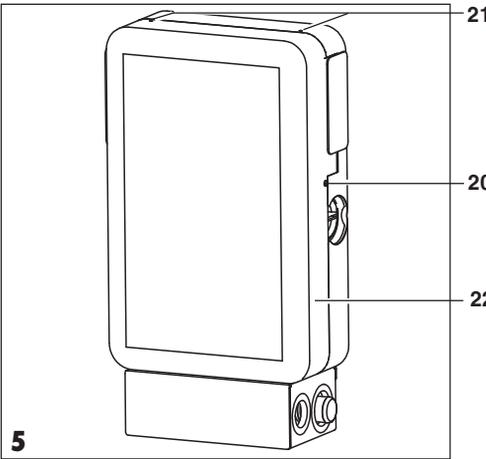


5.3 Placement

i The spittoon valve housing unit should always be installed near to the treatment unit and must stand upright.

The recommended installation is as an extension to the treatment unit itself (Fig. 4). The unit is secured in place using screws that pass through the pre-drilled holes which can be found on the floor or rear of the metal plate (5).

If necessary, this base plinth (5) can also be installed under the plastic covering after rotating 180°. In this case the two screws that secure the plate to the housing must be removed after loosening the two nuts and then reassembled in the new position.



6. INSTALLING COMPONENTS

6.1 Opening the Housing

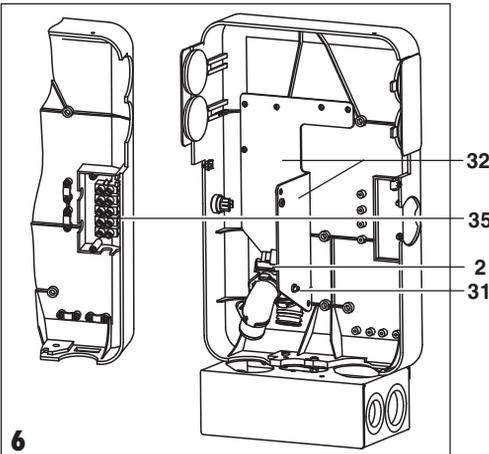
- Remove the two crosstip (Phillips) screws (20).

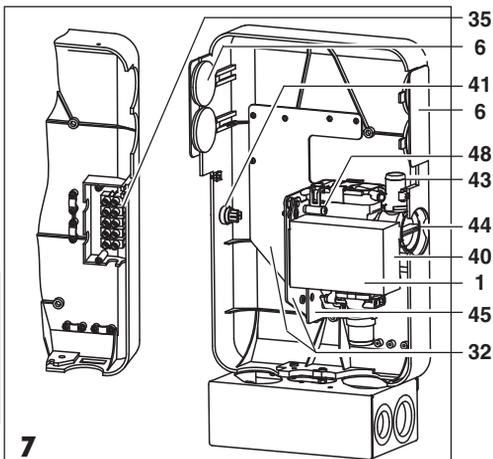
i Do not throw away! The screws will be needed to close the housing later!

- Press both catches (21) inwards on the upper part of the housing and remove the front housing section (22).

6.2 Installation of treatment unit air valve

- The treatment unit air valve (2) should be fitted so that the arrow is pointing in the direction of flow, i. e., the connector to the treatment unit air valve faces backwards and leads to the waste, while the plug faces forwards and is connected to the hose holder unit of the treatment unit.
- Plug the two-wire cable connector to the treatment unit air valve into place and connect the cable as explained in section 7. „Electrical Connections“ to the appropriate connections on the cable terminal strip (35) in the front housing unit.
- Secure the treatment unit air valve to the mounting plate (32) using the screws provided.





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6.3 Installation of spittoon valve

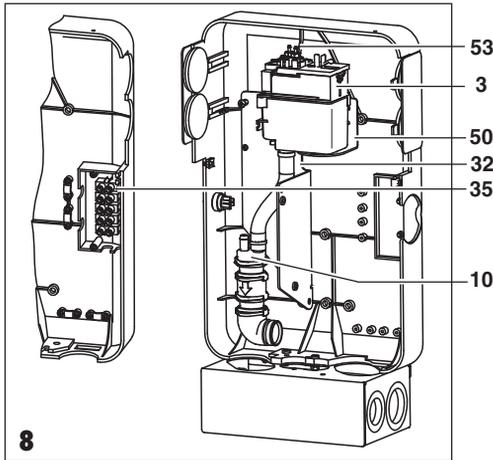
- Unscrew the threaded ring on the switch (41) and pass the cable connector on the two-wire cable through. Connect this to switch, and tighten threaded ring. Place switch in position on left hand side of the rear housing panel.



This switch (41) serves to switch on the suction unit.

In this way blockages in the area of the spittoon can be removed or avoided.

- Open the electronic compartment (40) of the spittoon valve. Undo the Phillips screw on the side of the housing and remove the housing itself.
- Place the connector on the cable in the socket labeled „Switch” on the PCB.
- The two terminals labeled „X4” and „X5” should now be connected according to the instructions in section 7. „Electrical Connections” and connected via two twin-wire cables to the terminals (35) in the front housing panel.
- Slide the spittoon valve cover (40) over the PCB and secure with Phillips screw.
- Slide the Tecalan pipe (compressed air feed from the treatment station) onto the adapters on the rear of the spittoon valve.
- Now connect DürrConnect elements as described in Fig. 3 to the underside of the spittoon valve.
- Slide the keyhole-shaped openings in the side mounting plate (45) of the spittoon valve over the upper mounting bolts on the base plate (32). Place the cutouts at the side of the mounting plate (45) over the lower mounting bolts of the base plate (32). Mounting plate (45) should now be secured by passing the retaining screws (48) through the keyhole openings and into the appropriate threaded drill holes of the base plate (32).
- Connect the waste pipe from the spittoon via the DürrConnect-hose socket (43) to the upper side of the protective sieve (44). Remove of a cover (6) allows the hose to be fed through an opening or to be lead downwards.



6.4 Installation of rinsing unit

If a new rinsing unit (3) is to be fitted, then the jumper labeled „X2” on the PCB of the rinsing unit must first be changed. To do this the transparent plastic cover on the upper side must be removed (unscrew Phillips screw). The connector must bridge both pins. Replace cover securely.

In order to fit the rinsing unit into the housing:

- Screw the bracket (50) using two Phillips screws onto the base plate (32) top right.
- Connect the rinsing unit via the transparent plastic hose to the waste system. Place the hose onto the adapters on the underside of the rinsing unit and onto the 10 mm supports of the hose socket (10) and secure both ends of the hose with cable ties.



If no supplementary air intake is to be fitted, then the second opening on the DürrConnect element can be closed using the cap supplied.

- Remove the sleeve provided from the retaining loop, slip over the Tecalan hose and slide onto the adapters (53) of the rinsing unit. Slide the sleeve downwards.
- Place the rinsing unit into the bracket and fix using the securing ring.
- Connect the electric cable between the rinsing unit (two-pin socket, „X1” on the PCB) and terminals (35) according to the instructions in section 7. „Electrical Connections”.

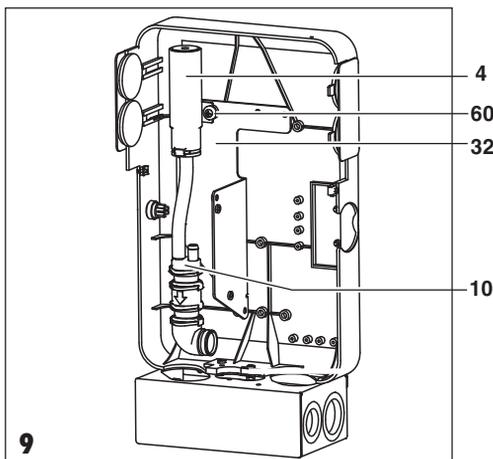
6.5 Installation of supplementary air intake

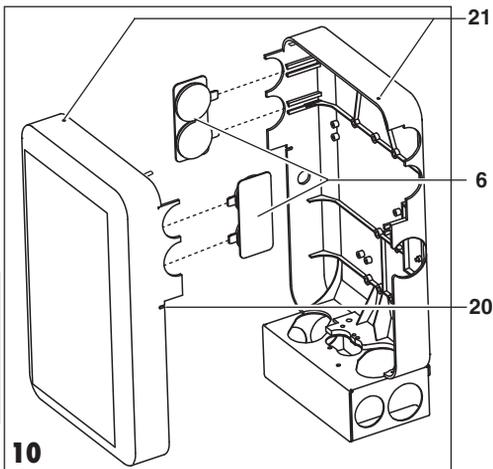
- Attach the black rubber hose to the adapters at the lower end of the supplementary air intake (4) and to the 8 mm adapters of the hose plug (10).



If no rinsing unit is to be fitted, then the second opening on the DürrConnect element can be closed using the flexible cap supplied.

- Place the wire protecting sleeves (60) into the slots on the supplementary air intake holder and using the Phillips screws attach to the pre-drilled threadings in the base plate (32) upper left.





6.6 Closing the Housing



The covers on the side (6) of the housing are designed to allow free configuration for the entry of hoses, pipes (compressed air and water feed) and cables. Furthermore, the rectangular covers can be separated from the circular cover plates.

- Remove the appropriate covers on the side of the housing for hoses and pipes. Lay the hoses and pipes through the cutouts and into the housing.
- Place the two housing halves together ensuring that the two small clips of the clasp (21) click into place in the upper housing panel.
- Secure using the two Phillips screws (20).

7. ELECTRICAL CONNECTIONS

The components which are to be stored in the housing will be supplied with electrical power through the treatment station itself (protective low voltage 24 V).

The electrical connections are to be carried out according to the following circuit diagrams and are connected to the terminals (35, Fig. 8) in the front housing panel.



The terminal strip is covered with a plastic lid.

7.1 Connection details

24V Controller, protective low voltage for

- Hose manifold (holder)
- Treatment unit air valve / rinsing unit
- Spittoon valve

Fixed connection: (N)YM (St)-J 4x1.5 mm² sheathed shielded cable.

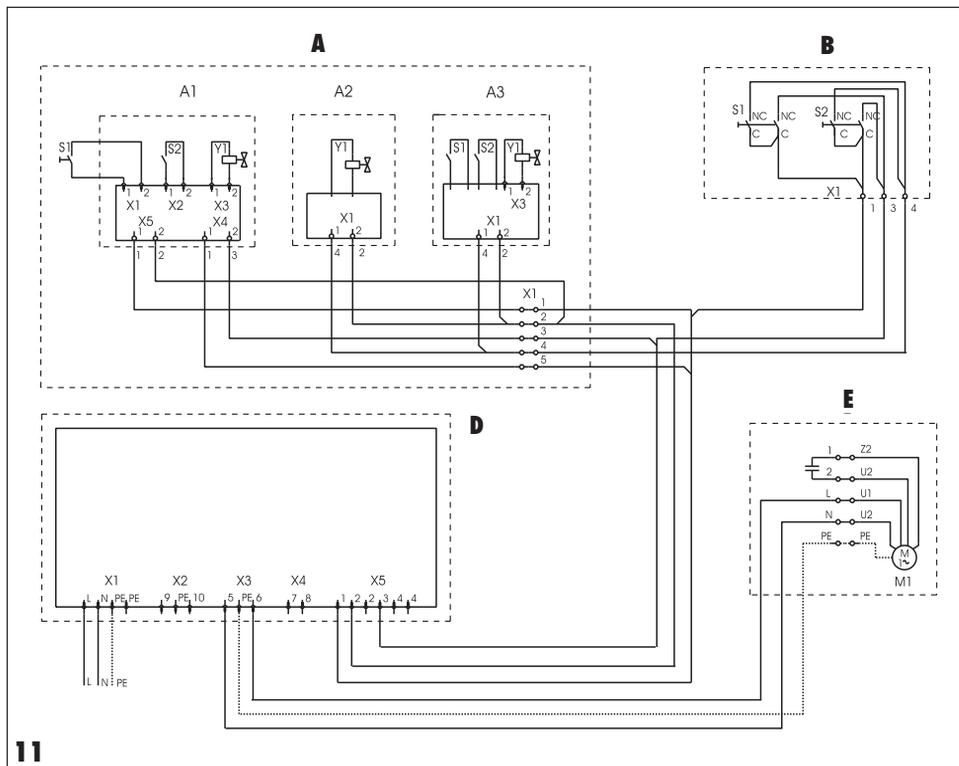
Flexible connection: PVC-Data cable LiYCY 4x1.0 mm², sheathed shielded cable as used in telecommunications and EDP or light-PVC-control sheathed shielded cable.

The connections inside the housing can be carried out in two different ways:

- Cable harness for complete component package
- Up to four individual cables for selected units.

7.2 Typical Connection

Multi-station situation with central suction unit



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A Spittoon valve housing

X1 Supply terminal

A1 Spittoon valve

X1 Switch

X2 Reed-switch

X3 Solenoid valve

X4, X5 Supply terminal

X1-X5 PCB connection Spittoon valve

A2 Treatment unit air valve

Y1 Solenoid valve

X1 PCB connection Treatment unit air valve

A3 Rinsing unit

S1 Reed-switch

S2 Reed-switch

Y1 Solenoid valve

X1 PCB connection Rinsing unit

B Hose manifold (holder)

D Control unit PCB

X1 Power supply 1/N/PE/AC 230 V

X2 Output 230 V 300 VA

X3 Output 230 V connected

X4 Closer, voltage free

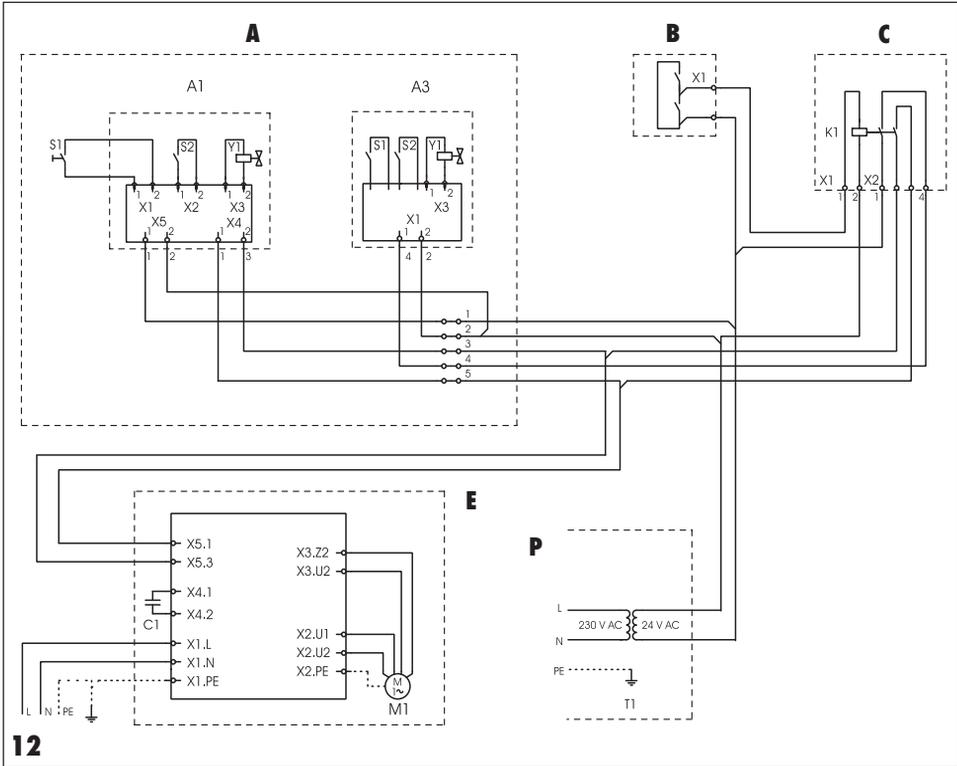
X5 Output 24 V AC (1,2); Start signal (3), Input 24 V AC

E Multi-station Suction Unit

Suction unit connection (external controller)

M1 Motor

Singleplace system



A Spittoon valve housing

- A1** Spittoon valve
X1 Switch
X2 Reed-switch
X3 Solenoid valve
X4, X5 Terminals
- A3** Rinsing unit
X1 Terminals
X3 Terminals

B Hose manifold (holder)

- X1** Hose manifold connection

C Relay-Unit

- X1, X2** Relay unit connection

E Suction unit – single station

- M1** Motor
C1 Capacitor
 Power supply 1/N/PE/AC 230 V
 PCB connection suction unit

P Power supply (from treatment unit)

- T1** Transformer

8. COMMISSIONING

Before operating the appliance for the first time the following tests must be carried out and the results recorded:

- Visual check that installation has been carried out correctly, taking special care to check all connections and hose connections, labelling of connections and that installation is complete.
- Plug in at mains.
- Turn on appliance at on/off switch or at main practice switch.
- Safety checks, including correct grounding of appliance.
- Functional test, in accordance with correct use of appliance, and check all connections for possible leaks.
- In Germany a declaration in accordance with Article 12 Paragraph 2 of the Guidelines concerning Medical Appliances must be completed for systems and treatment units.
- Assessment and recording of all tests including the results obtained.

When carrying out the above tests, all the relevant national and/or international standard tests for medical appliances must be observed.

OPERATION

9. CLEANING AND DISINFECTION OF SUCTION SYSTEM

9.1 Clean after every treatment

- Activate the water feed to the spittoon, the spittoon valve will automatically start up the suction unit.
- Press the **green button** (on spittoon valve housing) **for approx. 10 seconds**. This ensures that an added air supply in combination with water is transported via the spittoon valve to the suction unit thus providing a better cleaning effect.

9.2 Cleaning and disinfecting during the midday break and after work

- Clean the suction system with water, see section 9.1
- Disinfect using the Dürr cleaning beaker or the Dürr OroCup and a non-foaming disinfectant (e. g. Orotol Plus) which will not harm the material
During this time, press the **green button** (on spittoon valve housing) **for approx. 10 seconds..**

(For further information see instructions for Cleaning and Disinfecting Suction Units, order No. 9000-605-10/01)

DISPOSAL

10. APPLIANCE DISPOSAL

- The spittoon valve housing and the components housed therein should be disassembled:
see section 11 „Repairs“.
- As far as possible separate the individual parts of the housing.



Plastic parts such as the housing itself and the DürrConnect elements as well as cables can be added to recycling-waste.

- Solenoid valves and switches, PCBs and other electronic components should be disposed of as electronic waste.

11. REPAIRS

Should any defect occur on any of the appliances housed in this appliance then the defect part should be replaced with a working component.



In order to safeguard from possible injury during and/or infection, protective gloves should be worn during disassembly. Remove power from the treatment station before opening this housing.

11.1 Opening the housing

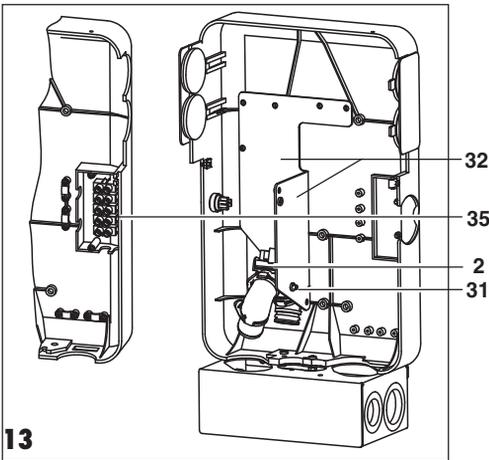
Proceed as described in section 6.1.

11.2 Removal of treatment unit air valve

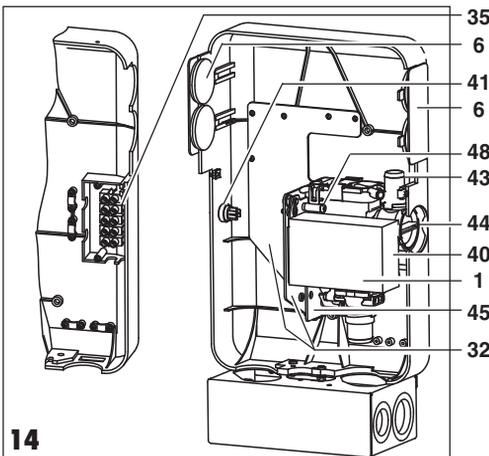
- Remove the two-wire cable connector at treatment unit air valve (2).
- Unscrew the treatment unit air valve out of the threaded bore holes (31) on base plate (32).
- Remove the treatment unit air valve from the DürrConnect elements after removing the retaining clips between these elements and the valve assembly.

11.3 Removal of spittoon valve

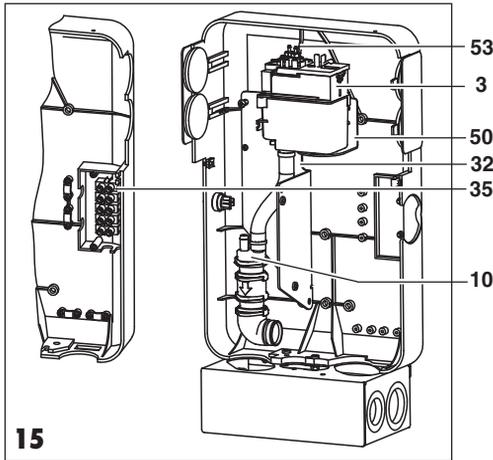
- Separate the waste hose from the spittoon valve (1), by removing the DürrConnect hose plug (43) from the upper side of the protective filter (44) (slide out securing clip, see section 5.2 „Mechanical Connections”).
- Remove the DürrConnect double plug element under the spittoon valve by removing the safety clip between the double plug element and the valve connector (see section 5.2 „Mechanical Connections”).
- Unscrew the retaining screw (48) out of the threaded bore holes (32). Slide the side mounting plate (45) of the spittoon valve upwards, so that the board is freed from the lower bolts on which it is hanging (32). Lift the plate (45) so that the keyhole openings become free of the retaining bolts (32).
- Slide the Tecalan pipe (compressed air connection) away from the adapters on the rear of the spittoon valves.
- Open the electronic terminal box housing (40, Fig. 14) of the spittoon valve. Loosen the Phillips screw on the side of the housing and lift.



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- Undo the electrical connections between the PCB thus freed, and undo the terminals (35) in the front side of the housing of the spittoon valve: The two screw clamps „SM” and „24V” must be opened.
- Remove the connector on the cable of the pressure switch (41, Fig. 14) from the socket labeled „Switch” on the PCB.

11.4 Removal of rinsing unit

- Remove the split-pin under the rinsing unit (3) and lift the rinsing unit from the mounting bracket (50), by which it is attached to the base plate (32).
- Remove the transparent plastic hose which leads to the rinsing unit from the DürrConnect hose plug (10) (undo cable ties beforehand).



In order to operate the suction unit temporarily without the rinsing unit, the adapter now laid free on the hose plug (10) should be closed using the flexible plastic cap provided or (if the supplementary air intake is no longer present) hose plug (10) should be closed using the cap provided 0700-700-10.

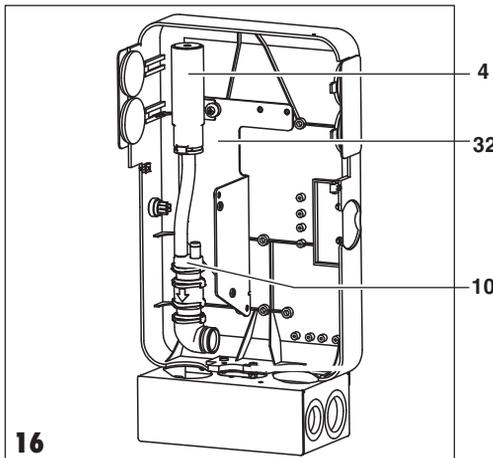
- Fit cable connections between the rinsing unit and terminal strip (35) as explained in section 7. „Electrical Connections”.

11.5 Removal of supplementary air intake

- Unscrew the two Phillips screws used to hold the supplementary air intake (4) in place from the pre-drilled threaded holes upper left on the base plate (32).
- Remove the black plastic hose which leads to the supplementary air intake, from the adapters on the DürrConnect hose plug (10).



In order to operate the suction unit temporarily without the rinsing unit, the adapter now laid free on the hose plug (10) should be closed using the flexible plastic cap provided or (if the supplementary air intake is no longer present) hose plug (10) should be closed using the cap provided 0700-700-10.



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