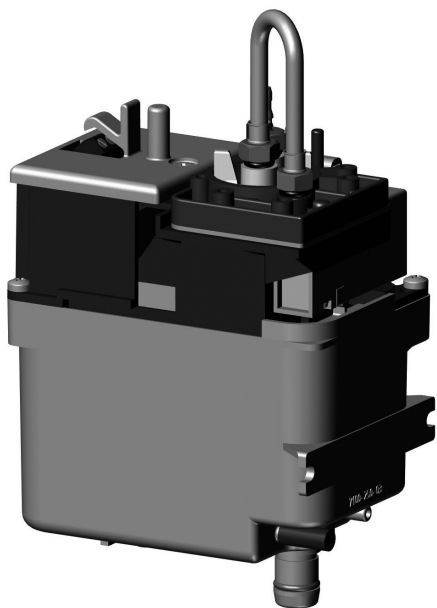


Rinsing unit II

EN



Installation and operating instructions



9000-605-91/30



 DÜRR
DENTAL

21105V002

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EN **! Important information**

1 About this document

These installation instructions are a component of the unit.

 Failure to comply with the specifications of these installation instructions will void the warranty. Dürr Dental will not assume any liability for the safe operation and the safe functioning of the unit.


The German version of the installation instructions is the original manual. All other languages are translations of the original manual. These operating instructions are valid for rinsing unit II 24 V, order number: 7100-250-XX.


1.1 Warnings and symbols

Warnings


The warnings in this document are intended to draw your attention to possible injury to persons or damage to machinery.

The following warning symbols are used:

 General warning symbol

 Biohazard warning

The warnings are structured as follows:

 **SIGNAL WORD**

Description of the type and source of danger

Here you will find the possible consequences of ignoring the warning


- › Follow these measures to avoid the danger.


The signal word differentiates between four levels of danger:


- **DANGER**
Immediate danger of severe injury or death
- **WARNING**
Possible danger of severe injury or death
- **CAUTION**
Risk of minor injuries
- **NOTICE**
Risk of extensive material/property damage


Other symbols

These symbols are used in the document and on or in the unit:

 Note, e.g. specific instructions regarding efficient and cost-effective use of the unit.

 Refer to Operating Instructions.

 Wear protective gloves.

 Disconnect all power from the unit.

 CE labelling

 Order number

 Lot designation

 Manufacturer

1.2 Copyright information

All circuits, processes, names, software programs and units mentioned in this document are protected by copyright.

The installation instructions must not be copied or reprinted, either in full or excerpts thereof, without written authorisation from Dürr Dental.

2 Safety

Dürr Dental has developed and designed the unit in such a way that dangers are effectively ruled out if the unit is used in accordance with the Intended Use. Nevertheless, residual risks can remain. You should therefore observe the following notes.

2.1 Intended purpose

The rinsing unit supplies fresh water to the dental suction system, ensuring that the suction system is kept moist during the suction process.

2.2 Intended use

The rinsing unit can be integrated into either "dry" or into "wet" suction systems.

The rinsing unit may only be connected to a fresh water supply. In case of excessive water pressure, a pressure reducer must be installed upstream from the rinsing unit.

2.3 Improper use

Any use of this appliance / these appliances above and beyond that described in the Installation and Operating Instructions is deemed to be incorrect usage. The manufacturer cannot be held liable for any damage resulting from incorrect usage. The operator will be held liable and bears all risks.

2.4 General safety information

- › Always comply with the specifications of all guidelines, laws, and other rules and regulations applicable at the site of operation for the operation of this unit.
- › Check the function and condition of the unit prior to every use.
- › Do not convert or modify the unit.
- › Observe the installation instructions.
- › Make the installation instructions available to the operator of the unit at all times.

2.5 Systems, connection with other devices

Additional devices connected with medical electrical devices must be proven to conform with their corresponding IEC or ISO standards. All configurations must continue to comply with the standard requirements for medical systems (see IEC 60601-1).

Whoever connects additional devices to medical electrical devices automatically becomes the system configurator and is responsible for ensuring that the system corresponds with the standard requirements for systems. Local laws take priority over the requirements outlined above.

2.6 Specialist personnel

Operation

Unit operating personnel must ensure safe and correct handling based on their training and knowledge.

- › Instruct or have every user instructed in handling the unit.

Installation and repairs

- › Installation, readjustments, alterations, upgrades and repairs must be carried out by Dürr Dental or by qualified personnel specifically approved and authorized by Dürr Dental.

2.7 Electrical safety

- › Comply with all the relevant electrical safety regulations when working on the unit.
- › Never touch the patient and unshielded plug connections on the device at the same time.
- › Replace any damaged cables or plugs immediately.

2.8 Only use original parts

- › Only use accessories and optional items that have been recommended or specifically approved by Dürr Dental.
- › Only use only original wear parts and replacement parts.

2.9 Essential performance characteristics

The rinsing unit does not have any essential performance characteristics as set out in IEC 60601-1 (EN 60601-1) section 4.3.

The unit complies with the requirements according to IEC 60601-1-2:2014.

2.10 Transport

The original packaging provides optimum protection for the unit during transport.

If required, original packaging for the unit can be ordered from Dürr Dental.



Dürr Dental will not accept any responsibility or liability for damage occurring during transport due to the use of incorrect packaging, even where the unit is still under guarantee.

- › Only transport the unit in its original packaging.
- › Keep the packing materials out of the reach of children.

2.11 Disposal



The unit may be contaminated. Instruct the company disposing of the waste to take the relevant safety precautions.

- › Decontaminate potentially contaminated parts before disposing of them.
- › Uncontaminated parts (e.g. electronics, plastic and metal parts etc.) should be disposed of in accordance with the local waste disposal regulations.
- › If you have any questions about the correct disposal of parts, please contact your dental trade supplier.



An overview of the waste keys for Dürr Dental products can be found in the download area at:
www.duerrdental.com
Document no.: P007100155



3 Overview

3.1 Scope of delivery

The following items are included in the scope of delivery (possible variations due to country-specific requirements and/or import regulations):

Rinsing unit 24 V AC/DC 7100-250-xx

– Installation and operating instructions

3.2 Accessories

Holding bracket 7100-250-10

Parts set with mounting materials

and connection hoses 0781-500-55

3.3 Optional items

The following optional items can be used with the device:

Housing 7100-800-00

Adapter nozzles (set of 5) 7100-250-13E

3.4 Spare parts



Information about replacement parts is available from the portal for authorised specialist dealers at:

www.duerrdental.net

4 Technical data

Electrical data

Rated voltage	V AC/DC	24
Electrical frequency (for AC)	Hz	50/60
Rated power	VA	2.5
Type of protection		IP 00
Protection class		II

General data

Dimensions (H x W x D)	mm	60 x 110 x 80
Weight, approx.	kg	~0.2

Ambient conditions during storage and transport

Temperature	°C	-30 to +60
Relative humidity	%	< 90
Air pressure	hPa	700 - 1060

Ambient conditions during operation

Temperature	°C	+10 to +40
Relative humidity	%	< 95
Air pressure	hPa	700 - 1060

Electromagnetic compatibility (EMC)

Interference emission measurements

High-frequency emissions in accordance with CISPR 11		Group 1 Class B
Interference voltage at the power supply connection CISPR 11:2009+A1:2010		Compliant
Electromagnetic interference radiation CISPR 11:2009+A1:2010		Compliant
Emission of harmonics IEC 61000-3-2:2005+A1:2008+A2:2009		N/A
Voltage changes, voltage fluctuations and flicker emissions IEC 61000-3-3:2013		N/A
N/A = not applicable		

Electromagnetic compatibility (EMC)

Interference immunity measurements

Immunity to electrostatic discharge IEC 61000-4-2:2008		Compliant
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Electromagnetic compatibility (EMC) Interference immunity measurements

Immunity to high-frequency electromagnetic fields IEC 61000-4-3:2006+A1:2007+A2:2010	Compliant
Immunity to near fields of wireless HF communication devices IEC 61000-4-3:2006+A1:2007+A2:2010	Compliant
Immunity to fast electrical transients/bursts – AC mains voltage IEC 61000-4-4:2012	Compliant
Immunity to electrical fast transients/bursts – I/O, SIP/SOP ports IEC 61000-4-4:2012	N/A
Immunity to interference, surges IEC 61000-4-5:2005	Compliant
Immunity to conducted disturbances, induced by radio-frequency fields – AC mains voltage IEC 61000-4-6:2013	Compliant
Immunity to conducted disturbances, induced by radio-frequency fields – SIP/SOP ports IEC 61000-4-6:2013	N/A
Immunity to power frequency magnetic fields IEC 61000-4-8:2009	N/A
Immunity to voltage dips, short interruptions and voltage variations IEC 61000-4-11:2004	N/A
N/A = not applicable	

Electromagnetic compatibility (EMC) Interference immunity measurements on the supply input

Immunity to fast electrical transients/bursts – AC mains voltage IEC 61000-4-4:2012 ± 2 kV 100 kHz repetition rate	Compliant
Immunity to surges, line-to-line IEC 61000-4-5:2005 ± 0.5 kV, ± 1 kV	Compliant
Immunity to surges, line-earth IEC 61000-4-5:2005 ± 0.5 kV, ± 1 kV, ± 2 kV	N/A

**Electromagnetic compatibility (EMC)
Interference immunity measurements on the supply input**

Immunity to conducted disturbances, induced by radio-frequency fields – AC mains voltage IEC 61000-4-6:2013 3 V 0.15–80 MHz	Compliant
6 V ISM frequency bands 0.15–80 MHz 80% AM at 1 kHz	
Immunity to voltage dips, short interruptions and voltage variations IEC 61000-4-11:2004	N/A
N/A = not applicable	

**Electromagnetic compatibility (EMC)
Interference immunity measurements SIP/SOP**

Immunity to electrical fast transients/bursts – I/O, SIP/SOP ports IEC 61000-4-4:2012 ± 1 kV 100 kHz repetition rate	N/A
Immunity to impulse voltages, conductor to earth IEC 61000-4-5:2005 ± 2 kV	N/A
Immunity to conducted disturbances, induced by radio-frequency fields – SIP/SOP ports IEC 61000-4-6:2013 3 V 0.15–80 MHz	N/A
6 V ISM frequency bands 0.15–80 MHz 80% AM at 1 kHz	
N/A = not applicable	

**Electromagnetic compatibility (EMC)
Interference immunity measurements on the cover**

Immunity to electrostatic discharge IEC 61000-4-2:2008 ± 8 kV contact ± 2 kV, ± 4 kV, ± 8 kV, ± 15 kV air	Compliant
Immunity to high-frequency electromagnetic fields IEC 61000-4-3:2006+A1:2007+A2:2010 3 V/m 80 MHz–2.7 GHz 80% AM at 1 kHz	Compliant

Electromagnetic compatibility (EMC) Interference immunity measurements on the cover

Immunity to near fields of wireless HF communication devices

IEC 61000-4-3:2006+A1:2007+A2:2010

Compliant

Refer to the table with immunity to interference levels for near fields of wireless HF communication devices.

Immunity to power frequency magnetic fields

IEC 61000-4-8:2009

30 A/m

N/A

30 Hz or 60 Hz

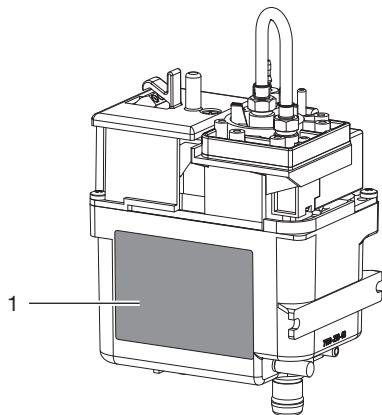
N/A = not applicable

Immunity to interference table, near fields of wireless HF communication devices

Radio service	Frequency band MHz	Test level V/m
TETRA 400	380 - 390	27
GMRS 460 FRS 460	430 - 470	28
LTE band 13, 17	704 - 787	9
GSM 800/900 TETRA 800 iDEN 820 CDMA 850 LTE band 5	800 - 960	28
GSM 1800 CDMA 1900 GSM 1900 DECT LTE band 1, 3, 4, 25 UMTS	1700 - 1990	28
Bluetooth WLAN 802.11 b/g/n RFID 2450 LTE band 7	2400 - 2570	28
WLAN 802.11 a/n	5100 - 5800	9

4.1 Type plate

The type plate is located on the water collection chamber.



1 Type plate

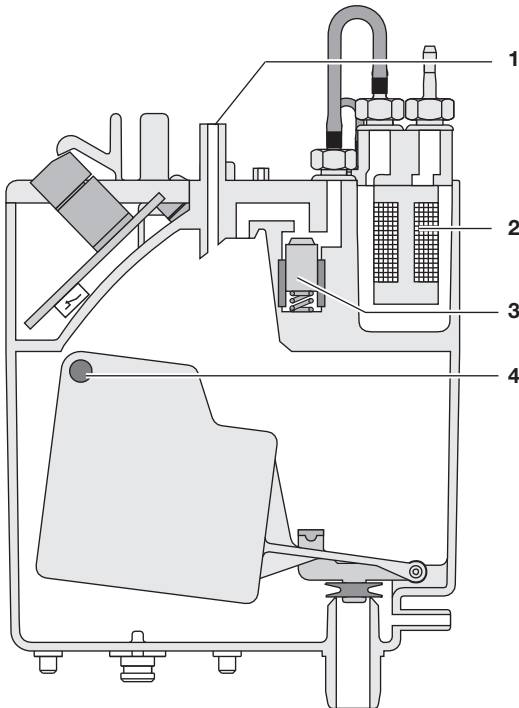
4.2 Evaluation of conformity

This device has been subjected to conformity acceptance testing in accordance with the current relevant European Union guidelines. This equipment conforms to all relevant requirements.

4.3 Operation

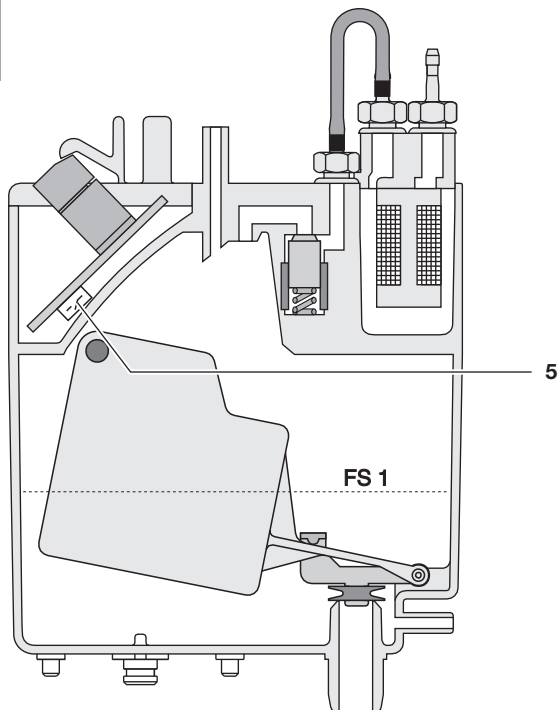
Function of the rinsing unit

The rinsing container is filled via the fine filter and the water valve. The water valve is operated by a Hall-Sensor. The Hall sensor switches on via a magnet in the float in the rinsing unit. The rinsing unit is fitted with 3 additional connecting sleeves of different diameters (see Technical data), so that clean water (e.g. boiler overflow) can be added without pressure and used for rinsing the suction system.



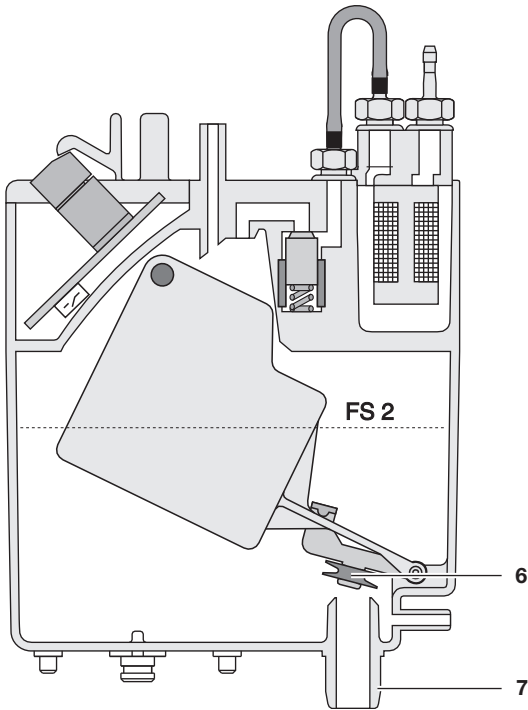
- 1 Connecting sleeve
- 2 Fine filter
- 3 Water intake valve
- 4 Magnet

When the rinsing unit is provided with current, the water valve opens until the Hall sensor is activated. The water in the collection vessel can now be sucked up through two rinsing connectors (2) via the suction unit. When the magnet in the float leaves the vicinity of the Hall sensor, the water valve opens again and the collector vessel will fill.



5 Hall sensor

If more water flows through the inflow connections into the rinsing unit so that the normal water level is exceeded, the float will open the overflow valve. The accumulating water will be fed via the waste water connection to the drainage system. When using a rinsing unit in a wet suction system, the waste water connection can be connected directly to the suction pipe.



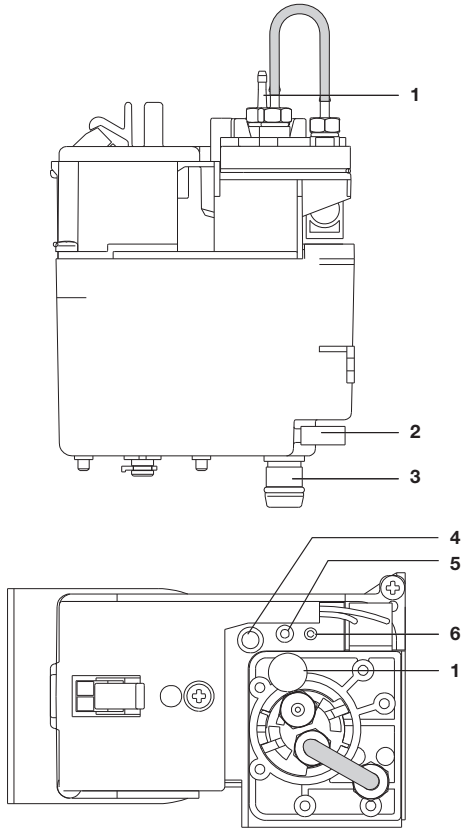
- 6 Overflow valve
- 7 Waste water connection

EN 4.4 Certification

DVGW: on request

4.5 Connections

Connecting sleeve



- 1 Water connection \varnothing 2 mm
- 2 Rinse connector \varnothing 3.7 mm
- 3 Waste water connection \varnothing 10.5 mm
- 4 Additional water inlet connection \varnothing 6 mm
- 5 Additional water inlet connection \varnothing 4 mm
- 6 Additional water inlet connection \varnothing 2.8 mm



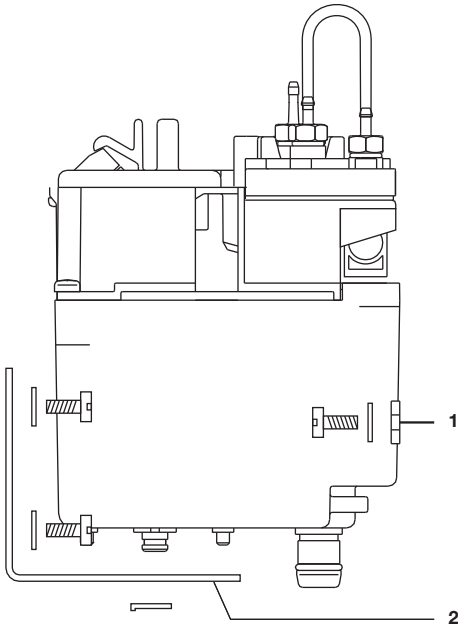
Assembly

5 Requirements

5.1 Mounting

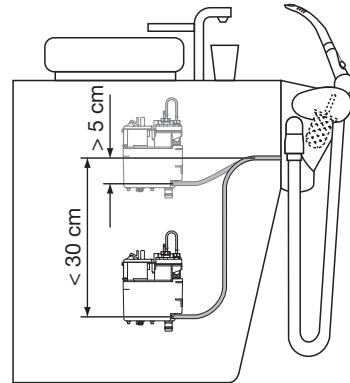
The rinsing unit can be mounted in two different ways:

- An installation location can be achieved with the PVC flaps attached to the housing.
- When a holding bracket is used as a fixing, it is possible to install the rinsing unit in 45° steps, rotated on the holding bracket.



- 1 PVC flaps
2 Holding bracket

5.2 Fitting position

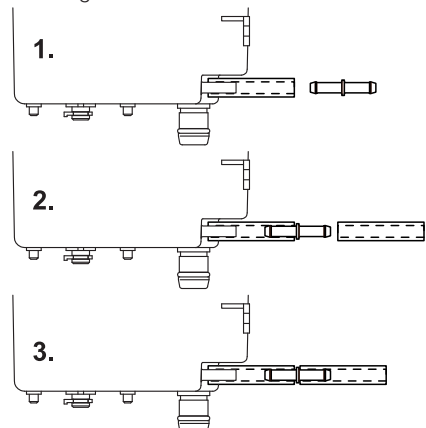


When installing the rinsing unit the height distance between the rinsing unit outlet and the rinse connection of the suction pipe must be observed. The height difference must be greater than 5 cm but must not exceed 30 cm.

5.3 Mounting the reducing nozzle

The reducing nozzle is designed to reduce the amount of water required to rinse out the suction pipe so that only as much water is drawn from the rinsing unit as the amount which can actually pass through the solenoid valve.


- › Attach the short hose piece to a rinsing connection.
- › Push reducing nozzle into the rinsing hose.
- › Attach rinsing hose to the reducing nozzle for rinsing.



5.4 Hose materials

For waste connections and suction lines only use the following hose types:


- Flexible spiral hoses made of PVC with integrated spiral or equivalent hoses
- Hoses that are resistant to dental disinfectants and chemicals

 Plastic hoses will display signs of ageing over time. Therefore, they should be inspected regularly and replaced as necessary.

The following types of hoses must not be used:

- Rubber hoses
- Hoses made completely of PVC
- Hoses that are not sufficiently flexible

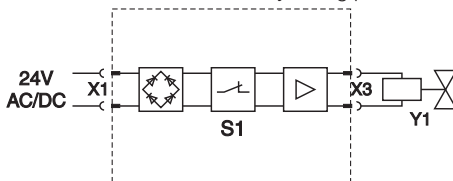
6 Installation

 Prior to working on the unit or in case of danger, disconnect it from the mains.

6.1 Electrical connections


- › The supply voltage to the device must satisfy the requirements for two means of patient protection (MOPP) as set out in IEC 60601-1 in relation to the supply network.
- › The supply voltage must satisfy the following voltage/power requirements:
24 V AC/DC, 50–60 Hz, at least 3 VA

The rinsing unit should be connected via a 2-pin connector (X1) to the connection line. The power supply must be controlled via the hose manifold or using a 2-pole relay parallel to the place selection valve, so that the rinsing unit can only be refilled when suction is actually taking place.

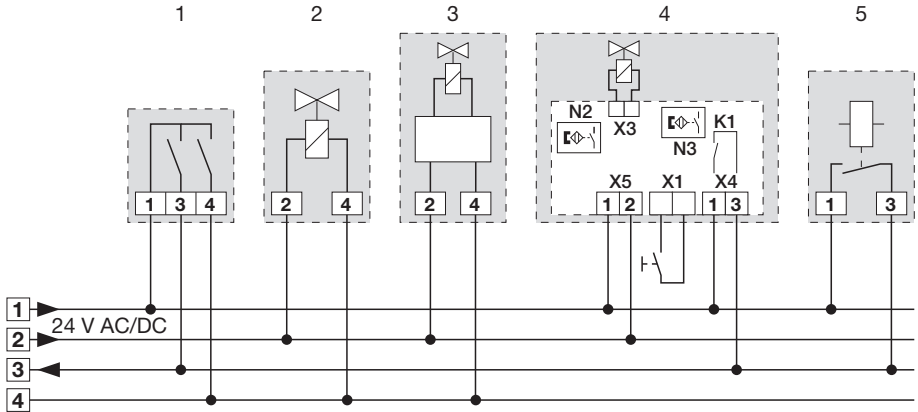


- X1 Power supply connection
- S1 Hall sensor
- X3 Solenoid valve connection
- Y1 Solenoid valve

6.2 Rinsing unit water connections

-  The water connection must be established to a free connection in the treatment unit or by way of a T-piece. The water pressure (4 ± 1 bar) must be observed at the connection; install a pressure reducer if necessary.
- › The water hose from the rinsing unit must be attached to the water connection and secured using a retaining clamp \varnothing 4 mm.

6.3 Circuit diagram




- 1 Hose manifold
- 2 Station selection valve
- 3 Rinsing unit
- 4 Spittoon valve
- X1 Cleaning button for switch control panel
- X3 Solenoid valve
- X4 Control line for suction unit
- X5 Power supply
- K1 Suction unit relay
- N2 Float sensor detection
- N3 Cleaning button detection sensor
- 5 Suction machine relay in the treatment unit

7 Commissioning

- › Turn on the unit power switch or the main surgery switch.
- › Carry out a function check of the system.
- › Check all connections for leak tightness.
- › Carry out an electrical safety check in accordance with applicable regulations (e.g. regulations concerning set up, operation and application of medical devices) and record the results as appropriate, e.g. in the technical log book.

8 Maintenance

 All maintenance work must be performed by a qualified expert or by one of our Service Technicians.



NOTICE

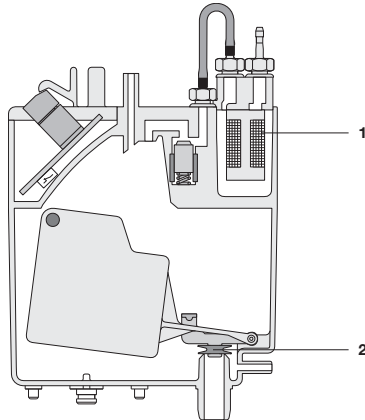
Electronic defect due to escaping Water

- › Disconnect water supply.



Prior to working on the unit or in case of danger, disconnect it from the mains.

At least once a year, but depending on the water quality at more frequent intervals, it is important to clean the fine filter. It is also necessary that the service technician checks the amount of dirt on the float monitor and to clean this where required.



- 1 Fine filter
- 2 Overflow valve

? Troubleshooting

9 Tips for service technicians



Any repairs exceeding routine maintenance may only be carried out by qualified personnel or our service.



WARNING

Infection due to contaminated unit

- › Clean and disinfect the suction before working on the unit.
- › Wear protective equipment when working (e. g. impermeable gloves, protective goggles and mouth and nose protection).

Error	Possible cause	Remedy
No suction power	Valve membrane closed.	<ul style="list-style-type: none"> › Check voltage on solenoid valve. › Clean valve membrane. › Clean air ducts. › Check vacuum.



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