Hygosuc add-on device with CDS 1

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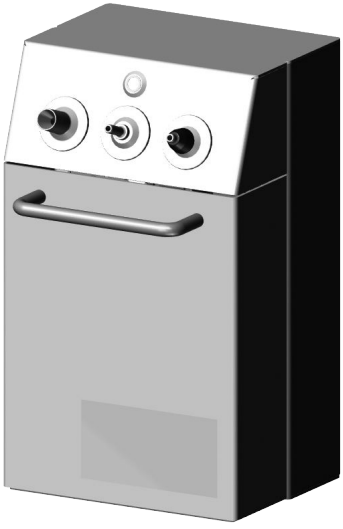

Installation and operating instructions

CE 0297

6005100107L02

DÜRR DENTAL

2110V004

EN

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Important information

1 About this document

These installation and operating instructions represent part of the unit.

If the instructions and information in these installation and operating instructions are not followed, Dürr Dental will not be able to offer any warranty or assume any liability for the safe operation and the safe functioning of the unit.

The German version of the installation and operating instructions is the original manual. All other languages are translation of the original manual. These installation and operating instructions are for the Hygosuc CDS 1, order number: 6005500200.

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

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.

CE xxxx CE labelling with the number of the notified body

Manufacturer

Air

Switch off and de-energise the device (e. g. unplug from mains).

Wear protective goggles.

Wear protective gloves.

REF Order number

SN Serial number

Dispose of correctly in accordance with EU Directive 2012/19/EU (WEEE).

MD Medical device

DC current

AC current

1.2 Copyright information

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2 Safety

Dürr Dental has designed and constructed this unit so that when used properly and for the intended purpose it does not pose any danger to people or property.
Despite this, the following residual risks can remain:

– Personal injury due to incorrect use/misuse
– Personal injury due to mechanical effects
– Personal injury due to electric shock
– Personal injury due to radiation
– Personal injury due to fire
– Personal injury due to thermal effects on skin
– Personal injury due to lack of hygiene, e.g. infection

2.1 Intended purpose

Dosing and supply of a ready-to-use disinfection solution for the subsequent cleaning, disinfection and care of a dental suction system.

2.2 Intended use

The Hygosuc add-on device is housed in a separate housing and can be operated independently of the treatment unit. It has been specially developed and tested for the use of Orotol plus.

2.3 Improper use

Any other usage beyond this scope is deemed to be improper. The manufacturer accepts no liability for damage resulting from improper usage. In such cases, the user/operator will bear the sole risk.
The device must not be installed and operated in an environment with an enriched oxygen atmosphere.

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.
› Comply with the specifications of the Installation and Operating Instructions.
› The Installation and Operating Instructions must be accessible to all operators of the unit at all times.

2.5 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.

2.6 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.

Observe the EMC rules concerning medical devices

› The unit is intended for use in professional healthcare facilities (in accordance with IEC 60601-1-2). If the appliance is operated in another environment, potential effects on electromagnetic compatibility must be taken into account.
› Do not operate the unit in the vicinity of HF surgical instruments or MRT equipment.
› Maintain a minimum distance of at least 30 cm between the unit and other electronic devices.
› Note that cable lengths and cable extensions have effects on electromagnetic compatibility.
› No maintenance measures are required to maintain the EMV basic safety.
› The emissions characteristics of this device render it suitable for use in industrial environments and hospitals (CISPR 11, Class A). When used in a residential environment (which normally requires Class B in accordance with CISPR 11), this device may not provide adequate protection from radio communication services. The operator may need to take corrective measures such as relocating or reorienting the device.

NOTICE

Negative effects on the EMC due to non-authorised accessories

› Use only Dürr Dental parts or accessories specifically approved by Dürr Dental.
› Using any other accessories may result in increased electromagnetic interference emissions or the unit having reduced electromagnetic immunity, leading to an erroneous operation mode.

NOTICE

Erroneous operation mode due to use immediately adjacent to other devices or with other stacked devices

› Do not stack the unit together with other devices.
› If this is unavoidable, the unit and other devices should be monitored in order to ensure that they are working correctly.

NOTICE

Reduced performance characteristics due to insufficient distance between unit and portable HF communication devices

› Keep a distance of at least 30 cm between the unit (including parts and cables of the unit) and portable HF communication devices (wireless units) (including their accessories such as antenna cables and external antennas).

2.7 Essential performance characteristics

The Hygosuc device 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.

2.8 Protection from threats from the Internet

The unit is to be connected to a computer that can be connected to the Internet. Therefore, the system needs to be protected from threats from the Internet.

› Use antivirus software and update it regularly. Look for evidence of possible virus infection and, if applicable, check with the antivirus software and remove the virus.
› Perform regular data backups.
› Restrict access to units to trustworthy users, e.g. via a user name and password.
› Make sure that only trustworthy content is downloaded. Only install software and firmware updates that have been authenticated by the manufacturer.

2.9 Notification requirement of serious incidents

The operator/patient is required to report any serious incident that occurs in connection with the device to the manufacturer and to the competent authority of the Member State in which the operator and/or patient is established/resident.

2.10 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.

2.11 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.

2.12 Disposal

Unit

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

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› 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.

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Product description

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):

Hygosuc CDS 1 6005500200

Power supply unit 9000-150-54

– Installation and operating instructions*

– Drill template*

* country-specific

3.2 Accessories

The following items are required for operation of the device, depending on the application:

Orotol plus 6x 1 litre bottle CDS110P5550

3.3 Consumables

The following materials are consumed during operation of the device and need to be reordered separately:

Orotol plus 6x 1 litre bottle CDS110P5550

MD 555 cleaner, special detergent for suction systems, 6x 1 l bottles/carton CCS555C5550

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4 Technical data

4.1 Hygosuc add-on device with CDS 1

Electrical data		
Rated voltage	V AC/DC	24
Nominal current	A	0.3
Rated power	W	5.5
Protection class		II
Type of protection		IP 20
Mains frequency	Hz	50 / 60

General technical data		
Dimensions (W x H x D)	mm	190 x 320 x 160
Weight	kg	6
Compressed air pressure	bar (hPa)	3 – 5 (3000 – 5000)
Water pressure	bar (hPa)	3 – 5 (3000 – 5000)
Disinfectant pressure	bar (hPa)	0.5 – 1.5 (500 – 1500)
Water flow rate of the water supply*	l/min	>0.5
Water flow rate in the device at a water pressure of 5 bar*	l/min	approx. 0.42
Water flow rate with a free outlet at 3 bar*	l/min	>0.5
Water hardness	°dH	up to 12

*Flow rates are provided as guide values and may vary depending on the installation situation.

Ambient conditions during storage and transport		
Temperature	°C	-30 to +60
Relative humidity	%	< 95

Ambient conditions during operation		
Temperature	°C	+10 to +40
Relative humidity	%	< 70

Classification		
Medical Device Class		IIa

Communication interfaces		
Number of inputs		1

Electromagnetic compatibility (EMC) Interference emission measurements		
High-frequency emissions in accordance with CISPR 11		Group 1 Class A

Electromagnetic compatibility (EMC) Interference emission measurements	
Interference voltage at the power supply connection CISPR 11:2009+A1:2010	Compliant
Electromagnetic interference radiation CISPR 11:2009+A1:2010	Compliant

Electromagnetic compatibility (EMC) Interference immunity measurements cover	
Immunity to interference, discharge of static electricity IEC 61000-4-2:2008 ± 8 kV contact ± 2 kV, ± 4 kV, ± 8 kV, ± 15 kV air	Compliant
Immunity to interference, 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
Immunity to interference, near fields of wireless HF communication devices IEC 61000-4-3:2006+A1:2007+A2:2010 See immunity to interference table, near fields of wireless HF communication devices	Compliant
Immunity to power frequency magnetic fields IEC 61000-4-8:2009 30 A/m 30 Hz or 60 Hz	Compliant

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

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Immunity to interference table, near fields of wireless HF communication devices		
Radio service	**Frequency band MHz**	**Test level V/m**
Bluetooth WLAN 802.11 b/g/n RFID 2450 LTE band 7	2400 - 2570	28
WLAN 802.11 a/n	5100 - 5800	9

Electromagnetic compatibility (EMC) Interference immunity measurements supply input	
Immunity to interference, rapid transient bursts – AC voltage grid IEC 61000-4-4:2012 ± 2 kV 100 kHz repetition frequency	Compliant
Immunity to interference by surges, line-line IEC 61000-4-5:2005 ± 0.5 kV, ± 1 kV	Compliant
Immunity to interference by surges, line-earth IEC 61000-4-5:2005 ± 0.5 kV, ± 1 kV, ± 2 kV	Compliant
Immunity to interference, line-conducted disturbances induced by high-frequency fields – AC voltage grid IEC 61000-4-6:2013 3 V 0.15 - 80 MHz 6 V ISM frequency bands 0.15 - 80 MHz 80% AM at 1 kHz	Compliant

Electromagnetic compatibility (EMC) Interference immunity measurements SIP/SOP	
Immunity to interference, discharge of static electricity IEC 61000-4-2:2008 ± 8 kV contact ± 2kV, ± 4 kV, ± 8 kV, ± 15 kV air	Compliant
Immunity to interference, rapid transient bursts – I/O, SIP/SOP ports IEC 61000-4-4:2012 ± 1 kV 100 kHz repetition frequency	Compliant

Electromagnetic compatibility (EMC) Interference immunity measurements SIP/SOP	
Immunity to interference, line-conducted disturbances induced by high-frequency fields – SIP/SOP ports IEC 61000-4-6:2013 3 V 0.15 - 80 MHz 6 V ISM frequency bands 0.15 - 80 MHz 80 % AM at 1 kHz	Compliant

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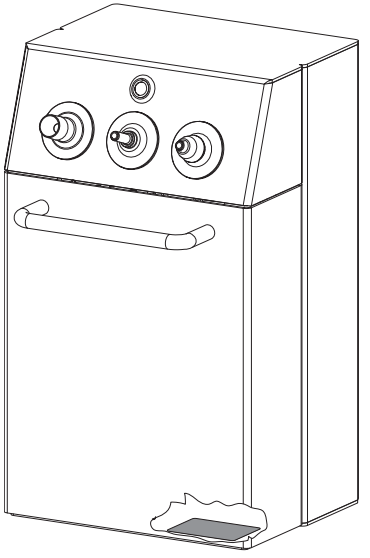
4.2 Type plate

The type plate of the add-on device is located on the base plate.



4.3 Evaluation of conformity

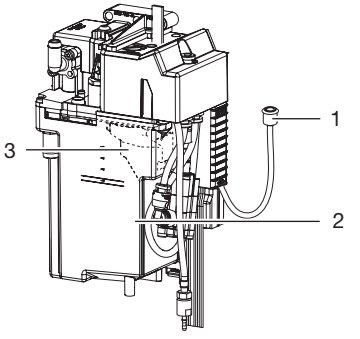
This device has been subjected to conformity acceptance testing in accordance with the current relevant European Union guidelines. This equipment conforms to all relevant requirements.

5 Operation

The device consists of two modules:
– Dosing module
– Suction points

It also features a built-in pump (CDS 1) with empty level detection and a 1 l-Orotol bottle in the housing.

5.1 Dosing module



1 Button
2 Storage tank (250 ml)
3 Dosing tank (4 ml)

After the unit is switched on, the storage tank is filled with 250 ml water for continuous rinsing and flush-cleaning.
During the dosing and supply of a ready-to-use solution, the dosing module mixes the disinfectant with water and provides 5x 200 ml disinfectant solution.

Display/handling

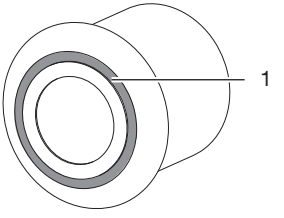


Fig. 1: Button with indicator light

1 Indicator light

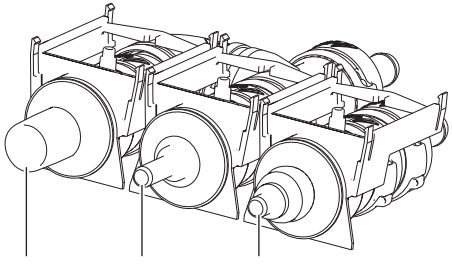
The button is used for the following functions:
– Operating the unit
  – Starting dosing and supply of a ready-to-use solution
  – Acknowledging errors
– Indicating the various unit statuses

The button indicates the following statuses:

Indicator light	Status
Lights up green	Unit ready
Flashing rhythmically – green	Unit running
Flashing non-rhythmically – green	Reaction time running
Flashing red	No disinfectant
Lights up red	Fault

Indicator light statuses (see "9.4 Button with indicator light").

5.2 Suction points



1 Flush-cleaning connection for all suction hoses
2 Small suction hose connection for cleaning and disinfection
3 Large suction hose connection for cleaning and disinfection

5.3 Dosing and supply of a ready-to-use solution with disinfectant

Once all suction hoses are connected to the suction points, press the button to start the dosing and supply of the ready-to-use solution – the button will then flash green (rhythmically).

1. Rinsing with water:
   The suction hoses are rinsed 5 times with 200 ml water.
2. Rinsing with disinfectant solution:
   In the dosing module, 5x 200 ml disinfectant solutions (each made up of 4 ml disinfectant and 196 ml water) are mixed and aspirated through the suction hoses.
3. Reaction:
   During the reaction time (one hour) the button flashes green (non-rhythmically).
   If the treatment unit is switched off during the reaction time, the duration and end of the reaction time are not recorded and documented.

5.4 Flush-cleaning with water

Perform flush-cleaning on the suction hose used after each treatment.

› Hold the suction hose on the blue flush-cleaning connection and hold it firmly in place here during the flush-cleaning.
  Water is aspirated from the storage tank. If the storage tank is empty, the button flashes green (rhythmically).
› Detach the suction hose from the flush-cleaning connection.

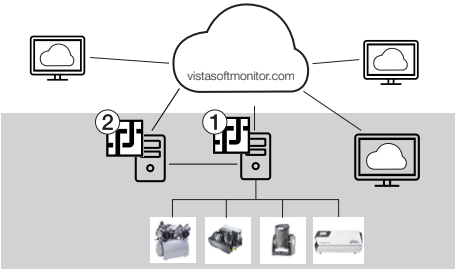
Result:
The storage tank refills with water. The button lights up green (ready for operation).

5.5 Continuous rinsing system (optional)

If the suction hoses of the treatment unit are in use, the suction system is continuously supplied with water from the storage tank via the suction unit vacuum.
This prevents drying out and therefore the build-up of deposits in the suction system that would be difficult to dissolve.

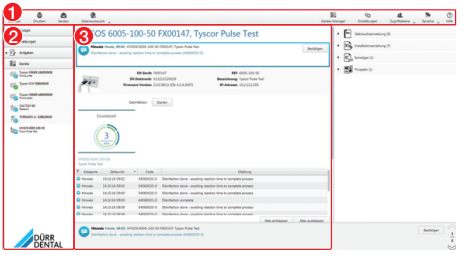
5.6 Tyscor Pulse (optional)

The software is installed on a computer in the local practice network and is connected to the devices of Dürr Dental in the practice.
If there is a message for a device in the practice, the software transfers the message to the cloud (vistasoftmonitor.com). In addition, a message of the VistaSoft Monitor Notifier is shown in the taskbar.
The current status of the devices as well as messages and errors can be viewed using a browser.



1 PC in local network with server installation
2 PC in local network with client installation (optional)

The *cockpit* shows the devices with the current characteristic data and provides a quick overview of the functional status of the devices.
The software interface consists of the menu bar, the side bar and the contents area.



1 Menu bar
2 Side bar
3 Contents area

The contents area depends on the tab selected on the side bar. The current messages are always displayed in the lower part of the contents area.
If there are several current messages, then the mouse wheel or the or buttons can be used to scroll through the messages.

The views and rights depend on the selected access level (Operator, Administrator or Service Technician).

While the software is running (even if the software window is closed), the access level is visible in the task bar (or Mac OS menu bar). The symbol shows the current status of the devices (see "Querying messages"). If a new message appears, a speech bubble tip also appears.

Assembly

6 Requirements

6.1 Setup options

– Free-standing installation or attachment to a wall in dental surgeries or dental clinics.

6.2 Connections

The device has no main power switch. Power is supplied to the device from the dental treatment unit. The device is disconnected from the power supply via the main power switch of the dental treatment unit or via the main power switch of the practice.

The device can be operated with the power supply unit included in the scope of delivery. Alternatively it can be connected to a power supply voltage meeting the following requirements (see "4 Technical data"):

– Electrical connection 24 V AC/DC / 0.3 A / 5.5 W / IP 20
– The supply voltage to the unit must satisfy the requirements for two means of patient protection (MOPP) of IEC 60601--1 in relation to the supply network.
– Compressed air connection 3 – 5 bar
– Water connection 3 – 5 bar / up to 12°dH
– Disinfectant connection
  CDS 1: 0.5 – 1.5 bar

6.3 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 that are not sufficiently flexible

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7 Installation

7.1 Connection overview for the dosing module

Dosing module

NOTICE

Equipment damage due to use of unauthorised hose material

› Only use hose material specifically approved by Dürr Dental.

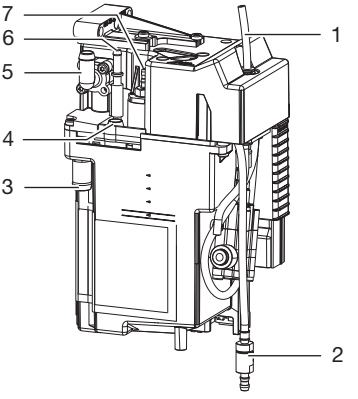

Fig. 2: Dosing module connections

1	Compressed air connection	mm	2 x 1 x 4
2	Disinfectant connection	mm	4 x 2 x 8
3	Overflow connection, internal diameter 10 mm	mm	10 x 1.8 x 13.6
4	Suction point connections for flush-cleaning	mm	7 x 2 x 11
5	Suction point connection for aspiration of the ready-to-use disinfectant solution	mm	7 x 2 x 11
6	Continuous rinsing connection	mm	3 x 1.5 x 6
7	Water connection (blue), max. length 6 m	mm	2 x 1 x 4

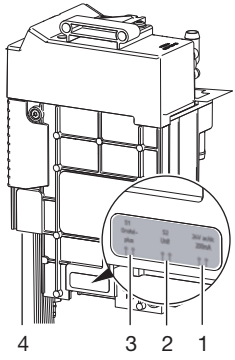

Fig. 3: Dosing module connections (rear)

1 Supply 24 V AC/DC
2 Controlled output e.g. for displaying the reaction time
3 Controlled output for disinfectant supply (e.g. CDS 1 or CDS 60)
4 Network connection

CDS 1

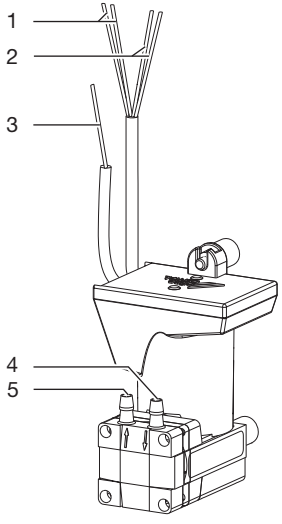

Fig. 4: Connections, CDS 1 pump module

1 Inputs for switch signal (brown and orange)
2 Supply 24 V AC/DC (red and black)
3 Cable, CDS 1 pump module to suction head
4 Intake connector (to the suction head)
5 Outlet connector (to the dosing module)

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7.2 Setting up the unit

Free-standing installation or attachment of the device to a wall: refer to the separate installation instructions (order no. 6005100082).

7.3 Connecting the modules

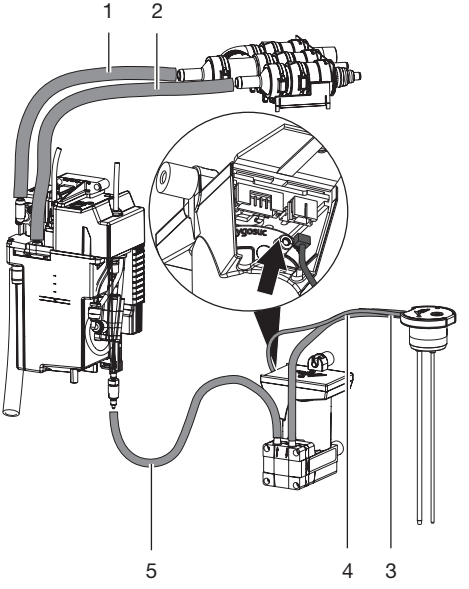


Fig. 5: Connection overview for modules with CDS 1

1 Connection of suction points for aspiration of the ready-to-use solution with disinfectant
2 Suction point connection for flush-cleaning
3 Cable, CDS 1 pump module to suction head
4 Suction head connection to the pump module
5 Pump module connection to the dosing module (disinfectant)

Properly route all hoses during installation. Look out for sharp edges, tight bends etc.

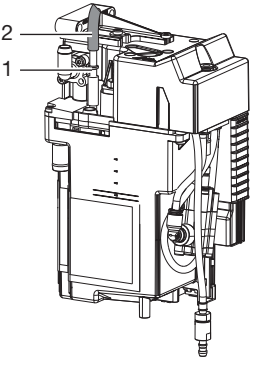
› Connect the modules with hoses and secure them with the enclosed hose clamps.

7.4 Connecting the unit

› Connect the compressed air supply.
› Connect the water supply.
› Connect the continuous rinsing system (optional).
› Connect the power supply (24 V).

Connecting the device to the continuous rinsing system (optional)

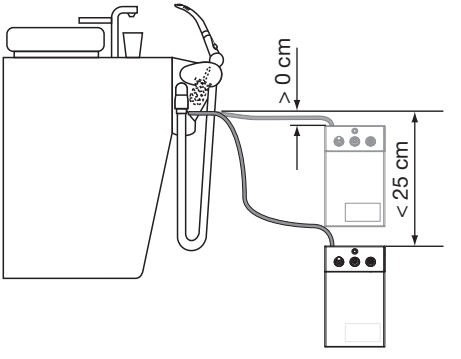
› Use an adapter nozzle.



1 Adapter nozzle
2 Continuous rinsing connection

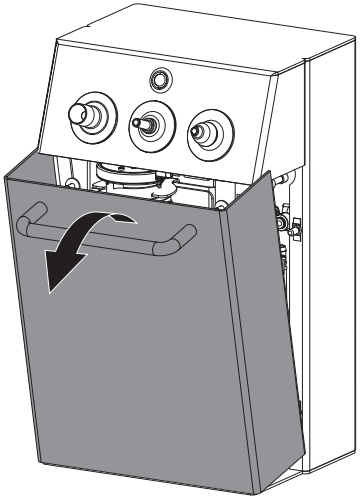
The amount of water for rinsing the hoses is reduced. Only the same amount of water is aspirated as is re-supplied when the solenoid valve is opened.

› When using the continuous rinsing function, observe the height difference between the continuous rinsing connection on the basic unit and the rinsing connection in the suction pipe.



Connecting the unit to the mains supply

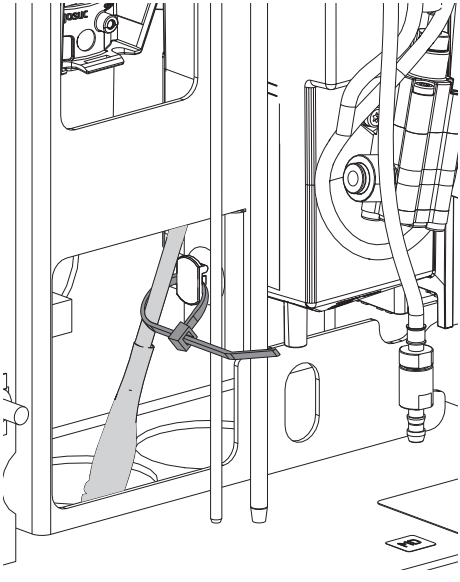
› Remove the cover from the device.



Electrical connection with power supply unit

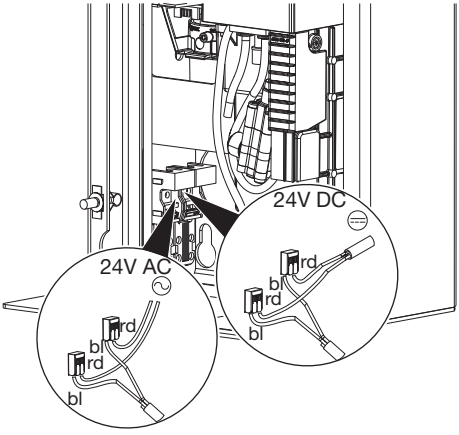
The device is delivered fitted with a connection for the power supply unit.

› Secure the pull relief for the power supply unit with cable ties



Power supply

› Connect the plug to establish the connection to the power supply.



CAUTION

Risk of crushing when fitting the device cover

Fingers are at risk of being crushed if you fail to take due care when fitting the device cover

› Take care when fitting the device cover.

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8 Commissioning

8.1 Function test

› Check the hose connections for leak-tightness.
› Perform flush-cleaning.
› Press the button for dosing and supply of the ready-to-use solution with disinfectant.
› Check that the overflow removes the maximum accumulating water volume.
› Check that the accumulating water volume is removed with 5 bar water pressure "4.1 Hygosuc add-on device with CDS 1".

8.2 Electrical safety checks

› Carry out the electrical safety check according to the national law (e. g. in accordance with IEC 62353).
› Document the results.

8.3 Combining devices safely

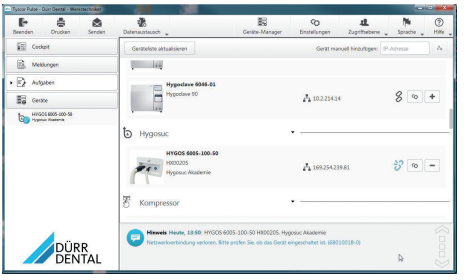
› When connecting the unit to other devices, such as a PC system, comply with the requirements set out in section 16 of IEC 60601-1 (EN 60601-1).
› When setting up the PC system in the vicinity of the patients:
Only connect components (e.g. computer, monitor, printer) that comply with the standard IEC 60601-1 (EN 60601-1).
› When setting up the PC system outside of the vicinity of the patients:
Connect components (e.g. computer, monitor, printer) that comply at least with the standard IEC 60950-1 (EN 60950-1) at least.

8.4 Monitoring the unit via the network

Further information on Tyscor Pulse can be found in the software help and in the Tyscor Pulse manual, order number 0949100001.

The following requirements must be met in order to monitor the unit on the computer:
– Unit connected to the network
– Current monitoring software installed on the computer

Add device



Connection icons:

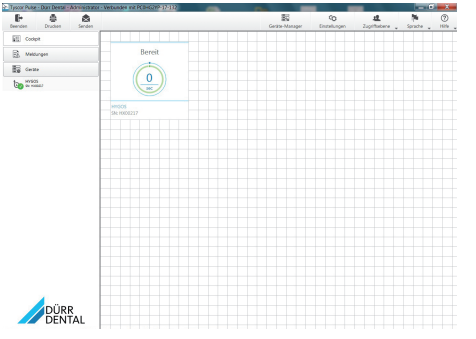
The unit is present in the network and connected to the software.

The unit is present in the network but not connected to the software.

The network connection between the software and the unit has been interrupted, e.g. the device is switched off.

Requirements:
✓ Unit is switched on and connected to the network
✓ Administrator or service technician access level selected in the software
› Working in the menu bar, click on *Device Manager*.
The list of units appears. A symbol displays the connection status to the software:
The new unit that is not yet connected, is displayed with the connection status.
› Select the unit and click on +.
The unit appears in the side bar.

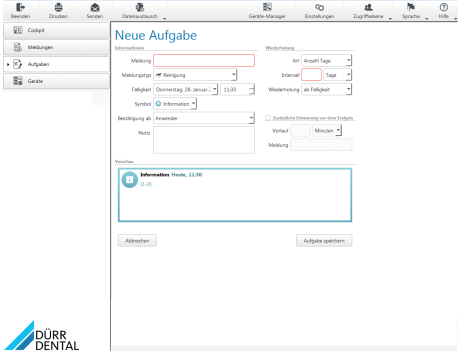
Adding the device in the cockpit



All devices that are connected to the software can be added to the cockpit. When the unit is

first connected to the software, the unit is automatically added to the cockpit.
Requirements:
✓ Administrator or Service Technician access level selected.
› Click on the device in the device list with the left mouse button and keep the mouse button pressed.
› With the mouse key pressed, drag the unit onto the cockpit.
› Release the mouse key.
The block with the current characteristic data and the name of the device appear in the cockpit.
› To change the position of the device block, click on the block and, with the mouse key pressed, drag it to the required location.

Transferring the maintenance schedule to the software



We recommended transferring the tasks from the maintenance schedule (see "10 Maintenance") into the maintenance schedule of the software.
› Select the *Tasks* view in the software.
› Adding a task.

Result:
The task appears on the side bar and in the maintenance schedule.

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Usage

9 Operation

Requirements:
- The suction hoses are undamaged (no leaks).
- The supplied water is of drinking water quality (see "5.1 Dosing module").
- The unit is positioned horizontally.
- The connected pump is in operation.

9.1 Dosing and supply of a ready-to-use solution with disinfectant

Use daily after treatment is complete; with higher workloads, before the midday break and in the evening.
The disinfectant needs to react for one hour in order to achieve the desired level of disinfection. Do not use the suction unit on the treatment unit during this time.

If the treatment unit is switched off during the reaction time then the operator must ensure that the required reaction time is still met.

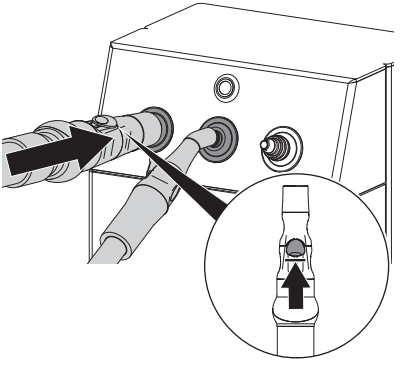
Requirements:
✓ Disinfectant bottle full (see also "9.3 Changing the disinfectant bottle").

Before pushing on the hoses, make sure that the cannula has been removed. In the event of contact between the suction connectors and the cannula they will need to be wipe-disinfected.

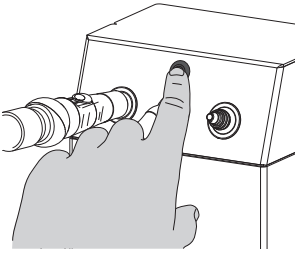
Disinfection of the suction hoses is no substitute for cleaning and disinfection of the suction handpieces. Follow the cleaning instructions provided by the manufacturer of the suction handpieces.

› Connect all suction hoses to the matching suction connections.

› In the case of suction handpieces with a slider: open the slider.



› Press the button.



Cleaning begins. The button flashes green (rhythmically).
The suction hoses are rinsed 5 times with 200 ml water. Afterwards, 200 ml disinfectant solution is aspirated through the suction hoses 5 times.
The reaction time of 1 hour begins. During the reaction time the button flashes green (non-rhythmically).

› Remove the suction hoses and hang them in the hose manifold.
Otherwise the connected suction system will keep running in continuous operation.

The reaction time can be interrupted at any time. To do this, press the button for approx. 2 seconds until the button lights up green (ready for operation).

› Wait for the reaction time to elapse (one hour). The button then lights up green.

Use of the device is no substitute for regular disinfection of the suction connectors. The suction connectors need to be wipe-disinfected separately after each use.

WARNING

Risk of cross contamination

- › Before every treatment the suction handpieces must be disinfected.
- › Before every treatment the connecting pieces must be wipe-disinfected.

9.2 Flush-cleaning with water

Perform flush-cleaning on the suction hose used after each treatment.

- › Hold the suction hose on the blue flush-cleaning connection and hold it firmly in place here during the flush-cleaning.
  Water is aspirated from the storage tank. If the storage tank is empty, the button flashes green (rhythmically).
- › Detach the suction hose from the flush-cleaning connection.

Result:
The storage tank refills with water. The button lights up green (ready for operation).

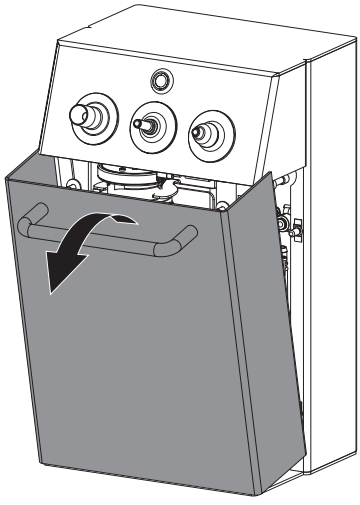
9.3 Changing the disinfectant bottle

Wear protective goggles.

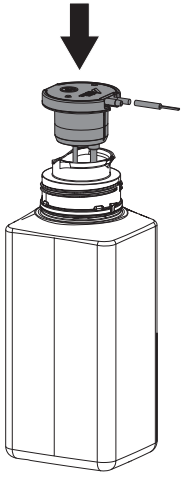
Wear protective gloves.

During the disinfection cycle, the system will display if the disinfectant bottle needs to be changed. After replacing the bottle, restart the disinfection cycle.

- › Remove the cover from the device.



- › Remove the empty disinfectant bottle from the add-on device.
- › Remove the suction head from the empty disinfectant bottle.
- › Attach the suction head to the full disinfectant bottle.



- › Insert the disinfectant bottle into the add-on device.

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› Press the device cover firmly into the spring clips.
› Acknowledge the fault. To do this, press the button for 2 seconds.
› Press the button to restart the disinfection.

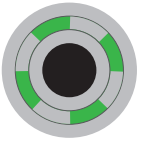
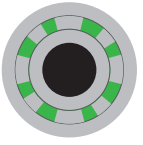
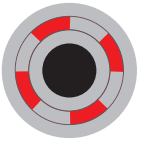
CAUTION

Risk of crushing when fitting the device cover

Fingers are at risk of being crushed if you fail to take due care when fitting the device cover

› Take care when fitting the device cover.

9.4 Button with indicator light

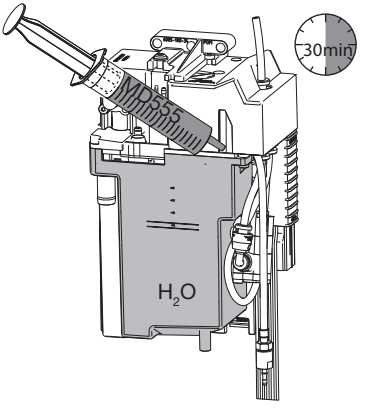
Button lights up green		Device ready for operation
Button flashes green (rhythmically)		Device running
Button flashes green (non-rhythmically)		Reaction time running
Button flashes red (rhythmically)		No disinfectant
Button lights up red		An error has occurred

9.5 Cleaning the storage tank

In the event of visible deposits on the internal wall of the tank, clean the storage tank with a cleaner that has been approved by Dürr Dental (e.g. MD555 cleaner, Dürr Dental).

Water amount / ml	Cleaning agent / ml
250	12.5

› Using a disposable syringe, add the cleaning agent to the water in the storage tank.
› After a reaction time of 30 min, aspirate the cleaning solution via the flush-cleaning connection.



9.6 Monitoring the unit via the network

Further information on Tyscor Pulse can be found in the software help and in the Tyscor Pulse manual, order number 0949100001.

Monitoring operation

The device must have been added to the cockpit for the graphical device block to be shown in the cockpit.

Shown in the unit block:
– Remaining run-time, Hygosuc
– Remaining run-time, reaction time

Querying messages

Normal operation

Fault
Operation of the device interrupted

Notice
Operation of the device restricted

Note
Important information about the device

Information

Establishing a connection to the device

Connection to the device interrupted

If a message occurs for an device, the symbol next to the device in the side bar changes. The message appears in the cockpit and in the device details.
If several messages occur, the symbol of the highest message level in each case is displayed.

As soon as a message concerning a device occurs, the symbol in the task bar (or Mac OS menu bar) also changes to the relevant message symbol. If required by the message an acoustic signal also sounds.

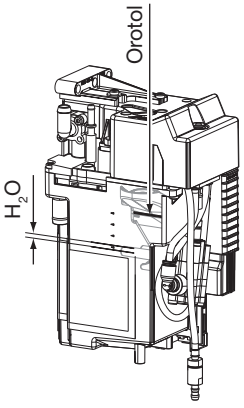
› To query the message details, switch to the cockpit or to the device.

Creating a report

You can print out a current report or sent it via e-mail.
The report contains all messages and a screen-shot of the view that is displayed when the report is created.

9.7 Performing a visual check of the mixing ratio

› Check the fill level of the Orotol. The dispensing container must be filled to at least the marker.
› Check the fill level of the water. Do not fill the water container past the top marker.
Fill the water container so that the water level is between the two markers.



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10 Maintenance

Only trained specialists or personnel trained by Dürr Dental may service the device.

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

Inspection interval	Inspection work
Annually	› Check the water connection for correct and secure seating.
	› Check the Orotol connection for correct and secure seating.
	› Check the mixing ratio, see "9.7 Performing a visual check of the mixing ratio".
	› Remove and, if necessary, clean the coarse filter for the water connection.

Maintenance interval	Maintenance work
Every six months	› Clean the inner wall of the tank with a cleaner that has been approved by Dürr Dental (e.g. MD 555 cleaner, Dürr Dental), see "9.5 Cleaning the storage tank".

Troubleshooting


Wear protective goggles.


Wear protective gloves.

11 Tips for operators

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

Error	Possible cause	Remedy
Button flashes red	No disinfectant	› Check the disinfectant supply. › If necessary swap the tank. Then press the button for 2 seconds and restart the disinfection cycle.
Button lights up red	Suction hose has been pulled off the connection	› Reconnect the suction hose to the connection. Press the button for two seconds. Restart the disinfection.
	Insufficient suction power	› Check the compressed air supply 3 bar ≤ p ≤ 5 bar? › Is the suction unit running? › Inform a Service Technician.
	Storage tank does not fill with water	› Check the water supply 3 bar ≤ p ≤ 5 bar. › Check the water connection. › Inform a Service Technician.
	Leak at the suction hoses	› Inform a Service Technician.
	Dosing module defective	› Inform a Service Technician.
	Suction hose was held onto the suction connectors for flush-cleaning for longer than 60 seconds	› Remove the suction hose from the connection. › Press the button for two seconds.

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12 Tips for service technicians

The following information about troubleshooting is intended solely for service technicians. Repairs must only be carried out by service technicians.

Error	Possible cause	Remedy
Button flashes red	No disinfectant	› Fill up with disinfectant. › Check the supply hoses for leaks/permeability. › Check the compressed air supply 3 bar ≤ p ≤ 5 bar? › Check the interface. › Is the CDS 1 working? › Pressure 0.5 to 1.5 bar?
Button lights up red	Water mixture is not aspirated	› Check the compressed air supply 3 bar ≤ p ≤ 5 bar? › Check the interface. › Does the green LED light up on the PCB? › Is the suction unit running?
	Storage tank does not fill with water	› Check the interface. › Is there a leak in the water line or is the water line blocked? › Is the coarse water filter blocked? › Check the "water fill level" calibration.
	Dosing module defective	› Replace the dosing module.

13 Error messages in Tyscor Pulse

Error	Possible cause	Remedy
No disinfectant. Replace the disinfectant container and confirm the message. Check the disinfectant supply lines if necessary.	No disinfectant	› Fill up with disinfectant. › Check the supply hoses for leaks/permeability. › Check compressed air supply. › Check the interface. › Is the CDS 60 or CDS 1 working?
Disinfection failed. Suction interrupted or insufficient. Repeat disinfection. Check the suction performance on the suction hoses and the compressed air supply. Inform a Service Technician if necessary.	Water mixture is not aspirated	› Check the compressed air supply 3 bar ≤ p ≤ 5 bar? › Check the interface. › Does the green LED light up on the PCB? › Is the suction unit running?
No water supply	Storage tank does not fill with water	› Check the interface. › Does the green LED light up on the PCB? › Is there a leak in the water line or is the water line blocked? › Is the coarse water filter blocked? › Check the "water fill level" calibration.
Water fill level too high. Inform a Service Technician.	Water fill level too high	› Stop the water supply, check the operation of the water valve.
Sensor malfunction	Dosing module defective	› Replace the dosing module.

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