CA 2 Amalgam separator



EN Installation instructions





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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 installation instructions apply to:

CA₂

REF: 7117-100-95; 7117-100-95E; 7117-95

1.1 CA 2 basic unit

The following information is supplementary to the device installation and operating instructions. As a general rule, the installation and operating instructions for the device must also be observed. These instructions include important information such as safety instructions and information on the setup, electrical connections, disinfection process, cleaning process etc. Installation and operating instructions for CA 2 basic unit. order-number: 9000-606-26

1.2 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 the accompanying electronic documents.



Refer to Operating Instructions.



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



Wear protective gloves.



Wear protective goggles.



Use a face mask.



Sunrise / mornings



Lower and upper temperature limits



Lower and upper humidity limits



Do not reuse



Do not sit on the unit



Do not climb onto the unit



Connection for supply with filter



Drain connection



CE labelling



UK Conformity mark for the United Kingdom of Great Britain and Northern Ireland



Order number



Serial number



Medical device



Health Industry Bar Code (HIBC)



Manufacturer

Safety 2

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

The amalgam separator is designed for the separation of amalgam out of all waste water collected from dental treatment units.

2.2 Intended use

The amalgam separator is designed for installation downstream of an air/water separation system.

Service, maintenance, recurring tests and cleaning must be performed in accordance with the manufacturer's specifications.

The permissible flow rate must be observed. The disposable amalgam containers must only be used once.

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.

This includes:



- Use for separation of dust, sludge or plaster or similar substances.
- Use in conjunction with flammable or explosive mixtures.
- Installation in a manner that does not comply with the installation instructions, in particular set-up in rooms containing a potentially explosive atmosphere.
- Cleaning and disinfection with agents containing sodium hypochlorite or potassium hypochlorite.

2.4 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.

2.5 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.

2.6 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 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.

2.8 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.

2.9 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.

2.10 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:

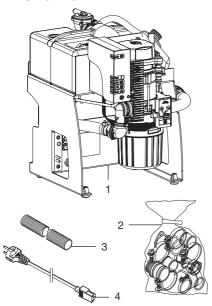


http://gr.duerrdental.com/P007100155



Product description

Overview



- 1 CA 2 Amalgam Separator
- 2 Connection accessories
- Waste water hose
- 4 Mains cable

Scope of delivery 3.1

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

CA 2 Amalgam separator 7117-95

- CA 2 basic unit
- Buffer vessel with unit bracket
- Disposable amalgam container
- Connection parts
- Display panel
- Cable for display panel
- Short description

3.2 Consumables

The following materials are consumed during operation of the device and must be ordered separately:

Orotol plus (2.5 litre bottle) CDS110P6150 MD 555 cleaner (2.5 litre bottle). CCS555C6150 Disposable amalgam container for

3.3 Wear parts and replacement parts

The following working parts need to be changed at regular intervals (refer to the "Maintenance" section):

Throttle with ventilation	. 7117-980-41
Filter unit	0700-702-70E
Relief valve	0700-701-00E
Nonreturn valve (pack of 3)	7128-100-03E

Technical data 4

4.1 CA 2 Amalgam Separator

Electrical data for the mains connection				
Nominal voltage	V	230 AC		
Frequency	Hz	50 / 60		
Nominal current	А	0.5		
Rated power	VA	115		
Fuses in the power plug	А	2 x T 1 AH 250 V		

Electrical data for the transformer				
Nominal voltage	V	24 AC		
Output	VA	100		
Primary fuse	А	T 1 AE 250 V		
Secondary fuse	Α	5A-FKS 32 V		

General data						
Operation mode		S5 95% duty cycle**				
Type of protection		IP 20				
Protection class		1				
Noise level * ca.	dB(A)	44				
Dimensions (H x W x D)	mm	345 x 300 x 310				
Weight	kg	8.8				

Noise level in accordance with DIN EN ISO 3746

DC = duty cycle

Network connection		
LAN technology		Ethernet
Standard		IEEE 802.3u
Data rate	Mbit/s	100
Connector		RJ45
Type of connection		Auto MDI-X
Cable type		≥ CAT5

Ambient conditions during storage and transport					
Temperature	°C	-10 - +60			
Relative humidity	%	< 95			
Ambient conditions during operation					

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



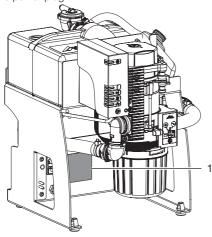
Classification

Medical Device Class

I

4.2 Type plate

The type plate is located on the bracket next to the power plug

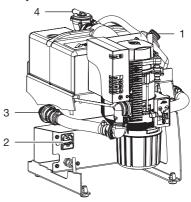


1 Type plate

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



- 1 Inlet connecting piece
- 2 Mains connection
- 3 Outlet
- 4 Vent

5.1 Operation

The function of the CA 2 amalgam separator is to provide continuous amalgam separation for the waste water system from treatment units. The amalgam separator can e.g. be installed downstream of a suction unit with separation. The liquid flows through the inlet connector into a buffer tank and from there into the amalgam separator. The liquid is buffered in the buffer tank if the CA 2 is temporarily supplied with more liquid than the amalgam separator can process. This allows waste water from multiple treatment units to be disposed of via the CA 2. After the liquid has been processed in the amalgam separator, it flows into the building drain system via the outlet on the CA 2.

A relief valve is installed at the top on the buffer tank. The relief valve contains a float switch that closes the relief valve if too much liquid has flown into the buffer tank.

The supply voltage for the CA 2 is provided via a transformer that is integrated in the unit and is itself supplied with power via a dedicated power plug. The CA 2 operates independently of the suction unit and starts automatically when fluid from the treatment units flows in.



6 Requirements

6.1 Installation/setup room

The room chosen for set up must fulfil the following requirements:

- Closed, dry, well-ventilated room
- Should not be a room made for another purpose (e. g. boiler room or wet cell)
- Mains cable plug connections must be freely accessible so they can be quickly disconnected if there is any danger.

6.2 Setup options

The following options for setting up the unit are available:

- In a side room, in conjunction with a combination suction unit or in conjunction with a suction unit in a wet suction system with downstream separation.
- As a central amalgam separator in a dry suction system.
- Standing on the floor.
- Hanging on the wall.
- Mounted on a Dürr wall holder.
- On a Dürr console for floor-mounted installation.

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 made completely of PVC
- Hoses that are not sufficiently flexible

6.4 Installation and routeing of hoses and pipes

- Execute the on-site pipe installation in accordance with the applicable local regulations and standards.
- Lay the hose installation of the drains to or from the unit at a sufficient incline.



If incorrectly laid, the hoses can become blocked with sedimentation.

6.5 Information about electrical connections

- Ensure that electrical connections to the mains power supply are carried out in accordance with current valid national and local regulations and standards governing the installation of low voltage units in medical facilities.
- Description of the devices that are to be connected.

6.6 Display panel



The display panel is used to indicate messages acoustically and visually (via LEDs).

A display panel is already integrated in the unit and should be visible/audible at all times. If the display panel is not visible/audible, fit an additional display panel in an easily visible location. The display panel is connected to the X6 socket (RJ-45 socket). An existing Dürr Dental display panel with a 6-pin connector can be connected to the X6A connector when replacing an older device.

If the installation of the amalgam separator in a neighbouring room or in the basement results in distances of more than 3 m, we recommend installing a shielded network cable with RJ-45 sockets.

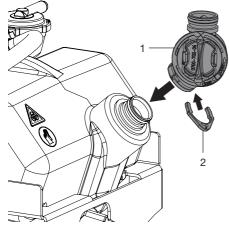
Installation 7

7.1 Installing the filter unit



Before installing the CA 2, install the filter unit on the inlet connector of the buffer tank.

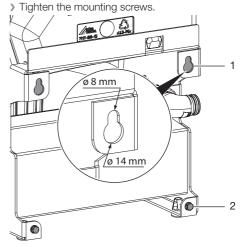
- > Fit the O-ring on the inlet connector.
- > Turn the filter unit so that the inlet and outlet are set at an angle of 45° to one another.
- Insert and align the filter unit on the inlet connector. The inlet connector of the filter unit should point vertically upwards.
- > Insert the ring clamp.



- Filter unit
- 2 Ring clamp

Wall mounting 7.2

- > Drill mounting holes for suitable wall anchors at a horizontal distance of 21 cm.
- > Use suitable mounting anchors for the wall and fully insert the screws.
- > Mount the unit on the key holes and insert the screws.
- > Horizontally align the unit in the other plane using the adjusting screws.



- Key hole for mounting
- 2 Adjusting screw

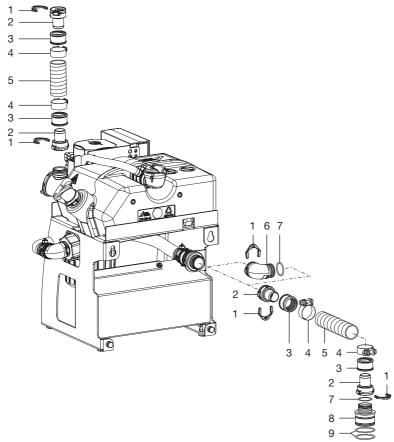
With installation on a separate wall holder or console for floor-mounting, the unit must be screwed tight to the holder / console.

7.3 Connect the hoses and lay correctly



Install the hoses so they are as short as possible and with sufficient incline.

- > Cut the hoses to the required length.
- > Screw hose sleeves onto the hose ends.
- > Connect the hoses to the DürrConnect connections and secure them with hose clips.
- > Connect the hoses on the inlet and outlet sides.



- Ring clamp 1
- 2 Hose sleeve ø 20 mm
- 3 Hose sleeve
- 4 Hose clamp
- 5 Waste water hose ø 20 mm (internal diameter)
- 6 Angle connector piece 90°
- 7 O-ring 20 x 2
- 8 Connector ø 36 mm (external diameter)
- 9 O-ring 30 x 2

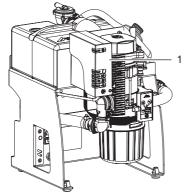
7.4 Display panel



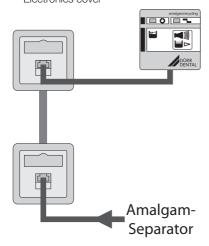
If required, a second, external display panel can be connected to the amalgam separator.

There must be a direct line connecting the RJ-45 socket on the unit and the RJ-45 socket on the display panel. Do not toggle network units (e. g. switch or router).

- Remove the cover from the electronics.
- Connect a cable with a RJ-45 socket to the electrics and in the RJ-45 socket.
- > Fix the cable to the unit.
- Connect the external display panel to the RJ-45 socket and fasten in place.



Electronics cover



7.5 **Network connection**



All connected IT units must correspond to the currently-valid edition of IEC 60950.

Purpose of the network connection

The network connection is used to exchange information or control signals between the unit and a software installed on a computer, in order to, e. q.:

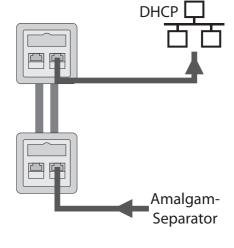
- Display parameters
- Select operating modes
- Indicate messages and error situations
- Change unit settings
- Activate test functions
- Transmit data for archiving
- Provide documents concerning the units

Connecting the device to the network



During initial installation, a router or server with DHCP is recommended so the unit is detected in the network.

- > Remove the cover from the electronics.
- > Plug the network cable into the electronics and into a network socket.
- Attach the network cable to the device.
- Create a connection to the network in the surgery with the network cable.





7.6 **Electrical connections**

Safety when making electrical connections

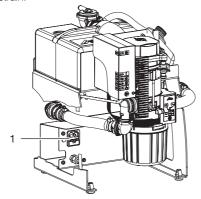


The unit has no main power switch. For this reason it is important that the unit is be set up in such a way that the plug can be easily accessed and unplugged if required.

- The unit must only be connected to a correctly installed power outlet.
- Make sure that none of the electrical cables leading to the unit are under any mechanical tension.
- > Before initial start-up check that the mains supply voltage and the voltage stated on the type plate match (see also "4. Technical data").

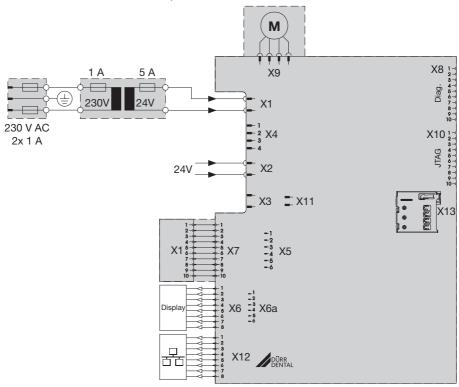
Power supply

- Connect the power socket into the power plug on the CA 2.
- > Connect the plug to the power outlet.
- > Secure the mains cable to the existing cable tie holder without subjecting it to any mechanical strain.



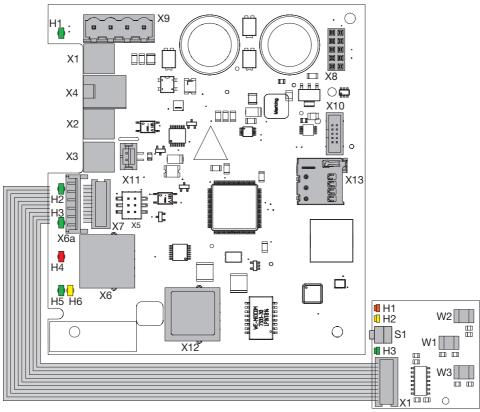
Power plug

7.7 Electrical connections, controller



- X1 Power supply, protective low voltage in accordance with EN 60601-1, 24 V AC
- Signal input 24 V AC/DC (optional) X2
- X6 Display panel, external
- X7 Sensor technology
- Χ9 Motor
- X12 Network connection (when using Tyscor Pulse)

7.8 Connections and displays of the control



Main PCB (main board)

- X1 Power supply in accordance with EN 60601-1, 24 V AC
- X2 Signal input 24 V AC/DC (optional for CA 1 + 2)
- X3 Rinsing unit or place selection valve / safety valve (CAS 1 only)
- X4 CAN bus
- X6 Display panel, external (X6a = connection for predecessor model)
- X7 Sensor technology
- X8 Production interface
- X9 Motor
- X10 JTAG programming interface
- X11 Integrated place selection valve / safety valve (CAS 1 only)
- X12 Network connection (when using Tyscor Pulse)
- X13 SD card holder (for Micro SD), optional
- H1 Motor display
- H2 Manifold display
- H3 Display, place selection valve
- H4 Display, collecting container missing
- H5 Network display
- H6 Network display

Sensor PCB

- X1 Main PCB (main board)
- H1 Display red
- Yellow LED display H2
- НЗ Green LED display
- S1 Service key
- Fork light sensor W1
- W2 Fork light sensor
- W3 Fork light sensor

Assembly

Commissioning 8



In many countries technical medical products and electrical devices are subject to regular checks at set intervals. The owner must be instructed accordingly.

- > Turn on the unit power switch or the main surgery switch.
- Carry out an electrical safety check in accordance with applicable local regulations (e.g. the German Ordinance on the Installation, Operation and Use of Medical Devices / Medizinprodukte-Betreiberverordnung) and record the results as appropriate, e.g. in the technical log book.
- Check the start function by supplying water.
- Check the connections, hoses and device for leaks.



Further information, e.g. about handling and care, is provided in the installation and operating instructions for the CA 2 basic unit.

Tests 9



Information about the yearly inspection of the unit and the inspection every 5 years to make sure the unit is in good working order (in accordance with the Wastewater Decree, Annex 50, Dental Treatment) can be found in the installation and operating instructions for the CA 2 basic unit.

10 Maintenance



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



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).



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

Maintenance interval	Maintenance work
Dependent upon the level of usage of the device	 Replace the amalgam collecting container when a fill level of 95% or 100% is indicated on the display panel Clean or replace protective sieves during replacement of the amalgam collecting container. At the latest, do this when the suction or draining power of the device decreases.
Annually	 Cleaning of the suction unit in accordance with the operating instructions. Clean the float. * Replace the bellows. *
Every 3 years	 Replace the rubber grommets on the connections. * Replace the float. *
Every 5 years	 Replace the centrifuge drum and seal. * Replace all O-rings (from the replacement parts kit) in the device. * Replace the rubber grommets on the connections. * Replace the float. *
* to be done by service	technicians only

Additional maintenance work for CA 2 10.1

Monthly Check the yellow filter at the inlet of the buffer vessel a sary. Annually Check the throttle at the inlet of the CA 2 basic unit for clean if necessary.* Every 3 years Replace the throttle with ventilation. *	
clean if necessary. *	nd clean if neces-
Every 3 years > Replace the throttle with ventilation. *	contamination and
Replace the ventilation valve. *Replace the nonreturn valve. *	



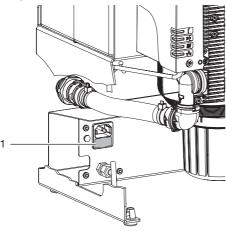
Replacing the fuse



Disconnect all power from the unit.

Unit plug 11.1

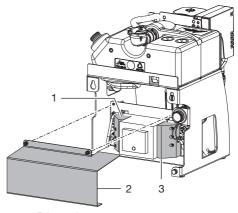
- > Remove the fuse holder on the unit plug.
- > Remove then fuses from the holder.
- > Check the fuses.
- > Replace the defective fuses.



Fuse holder

Transformer 11.2

- > Unscrew the screws of the transformer and remove the cover.
- > Unscrew and remove the safety cover.
- > Remove the fuse from the bracket.



- Primary fuse cover
- 2 Transformer cover
- 3 Secondary fuse cover



12 Country representatives

Country

Address

GB



UK Responsible Person:
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Kettering, Northants NN 16 8PS



Hersteller / Manufacturer:

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