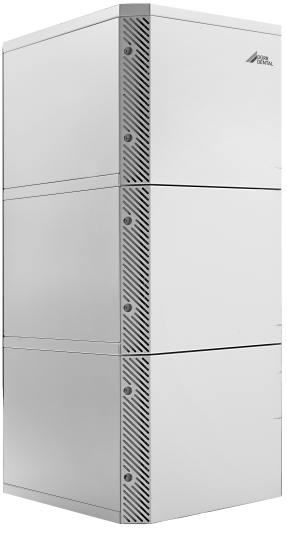
PTS 120



EN Installation and operating instructions

CE 0297

DÜRR DENTAL

9000-619-15/02 2505V004

The current version of the installation and operating instructions is available in the Download Center:

http://qr.duerrdental.com/9000-619-15

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Important information

1 About this document

These installation and operating instructions represent part of the unit.

The manufacturer and the distributor will not offer any guarantee or accept any liability for the safe operation and the safe functioning of the unit if the instructions and information in these installation and operating instructions are not complied with.

The German version of the installation and operating instructions is the original manual. All other languages are translations of the original manual. These operating instructions apply to PTS 120, order number: 0950-52, 0950-53 and 0950-56.

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


Warning – dangerous high voltage


Warning – hot surfaces


Warning - automatic start-up of the unit

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.

CE xxxx CE labelling with the number of the notified body

UA.TR.099 Ukrainian conformity mark with registration number

UK CA XXXX Conformity mark for the United Kingdom of Great Britain and Northern Ireland, with the number of the designated authority

Manufacturer

SN Serial number

REF Order number

Air

MD Medical device

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

Dispose of the packaging material in an environmentally responsible manner.

Wear protective gloves.

1N~ Single phase alternating current with neutral conductor

HIBC Health Industry Bar Code (HIBC)

Disconnect all power from the unit.

Monitor ambient conditions

1.2 Copyright information

2 Safety

The unit has been developed and designed in such a way that dangers are effectively ruled out if used in accordance with the Intended Use. 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 electrical 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

Unit

Noise-insulated central supply of dental compressed air as well as negative pressure for dental suction. Optionally, water and amalgam can be separated.

Compressor

The compressor is designed to supply compressed air for dental applications.

2.2 Intended use

Unit

Central installation of the practice supply units in any room of a dental practice. Due to the noise insulation, the room can also be used for other purposes.

Compressor

The air supplied by the compressor is suitable for driving dental tools.
The compressed air generated by the compressor is delivered to the pipeline system of the surgery. The entire compressed air system must be designed in such a way that the quality of the compressed air generated by the compressor is not impaired.
With this prerequisite, the air provided by the compressor is also suitable for blow-drying tooth preparations.

2.3 Improper use

Unit

Any other usage or usage beyond this scope is deemed to be improper.

Compressor

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.

WARNING

Risk of explosion due to ignition of combustible materials

› Do not operate the unit in any rooms in which inflammable mixtures may be present, e.g. in operating theatres.

– The unit is not suitable for providing an air supply to respirators.
– This unit is not suitable for drawing up fluids or for compressing aggressive gases or potentially explosive gases.

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.
– Comply with the specifications of the Installation and Operating Instructions for the devices installed.
– 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 operator instructed in handling the unit.

Installation and repairs

– The manufacturer recommends that installation, readjustments, alterations, upgrades and repairs be carried out either by the manufacturer itself or by a qualified specialist authorised by the manufacturer.

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 unit at the same time.
– Replace any damaged cables or plugs immediately.

2.7 Only use original parts

– Only use accessories and optional articles named or authorised by the manufacturer.
– Only use only original wear parts and replacement parts.

2.8 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.

Notify the manufacturer of any serious incidents under the following email address: incidents@duerrdental.com.

2.9 Transport

The original packaging provides optimum protection for the unit during transportation.
If required, the original packaging for the unit can be ordered.

The manufacturer and the distributor do not accept liability, even during the warranty period, for damage during transportation due to improper packaging.

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

2.10 Disposal

Unit

The unit must be disposed of properly. Within the European Union, the unit must be disposed of in accordance with EU Directive 2012/19/EU (WEEE).

If you have any questions about the correct disposal of parts, please contact your dental trade supplier.

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://qr.duerrdental.com/P007100155

Product description

3 Overview

3.1 Scope of delivery

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

PTS 120 . . . . . 0950-120/02
- PTS 120 with 1-cylinder compressor and membrane drying unit
- VS 300 S combination suction unit
- Accessories PTS 120 VS 250 S/VS 300 S

PTS 120 . . . . . 0950-120/12
- PTS 120 with 1-cylinder compressor
- V 300 S
- Accessories PTS 120 V 250 S/V 300 S
- Upgrade Kit PTS 120 condensate separator

PTS 120 . . . . . 0950-120/04
- PTS 120 with 1-cylinder compressor and membrane drying unit
- VSA 300 S combination suction unit
- Accessories PTS 120 VS 250 S/VS 300 S

3.2 Optional items

The following optional items can be used with the device:

Upgrade Kit PTS 120 CA1 0950-500-51

3.3 Wear parts and replacement parts

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

Air intake filter 5180-982-00
Fine filter 1610-121-00
Virus bacteria filter 1650100172
Coalescence filter 1650200323
Cup seal repair set 5180-981-00

To configure the required filters or filter sets, you can also use our filter configurator at:
www.duerrdental.com/filterkonfigurator

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

Information about replacement parts can be found on the website portal for specialist dealers under:
www.duerrdental.net

If the mains cable of this unit is damaged it must only be replaced by an original mains cable from the manufacturer.

4 Technical data

General technical data		0950-52 0950-53	0950-56
Dimensions (W x H x D)	mm	500 x 1200 x 625	500 x 1350 x 625
Pressure tank volume	l	20	
Noise level *	dB(A)	54	
Delivery at 0.5 MPa	l/min	60	

* Noise level in accordance with ISO 3744

Electrical data		
Rated voltage	V	230, 1N~
Nominal current	A	7
Frequency	Hz	50
Protection class		I
Type of protection		IP 20

Classification	
Medical Device Class (MDR)	IIa

Compressor technical data		
Pressure tank volume	l	20
Delivery at 5 bar (0.5 MPa)	l/min	60
Safety valve, maximum permissible operating pressure	bar (MPa)	10 (1)
Pressure dew point at 7 bar (0.7 MPa) *	°C	≤ +5

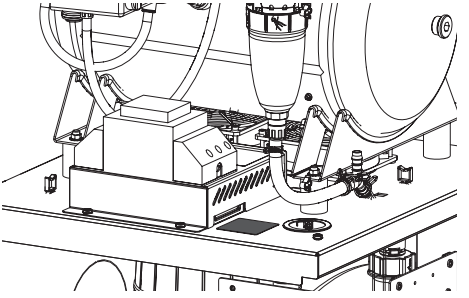
* Value determined at an ambient temperature of +40 °C

Ambient conditions during operation		
Temperature	°C	+10 to +40
Relative humidity	%	Max. 70
Height above sea level	m	< 2000

Ambient conditions during storage and transport		
Temperature	°C	-10 to +60
Relative humidity	%	max. 95

4.1 Type plate

The type plate is located on the middle level of the device.

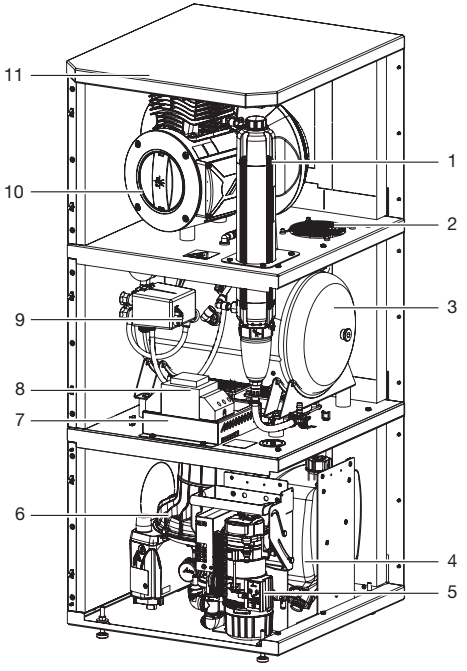


4.2 Evaluation of conformity

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.

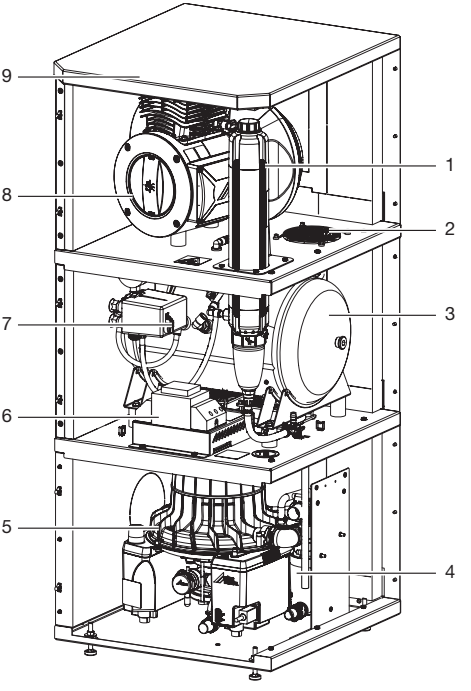
5 Function

5.1 Wet suction system



1 Drying unit
2 Fan
3 Pressure vessel
4 Pressure equalisation tank
5 CA∧1
6 Suction unit
7 Electronics box
8 Transformer
9 Pressure switch
10 Compressor unit
11 Noise reduction hood

5.2 Dry suction system



1 Drying unit
2 Fan
3 Pressure vessel
4 Condensation separator
5 Suction unit
6 Electronics box
7 Pressure switch
8 Compressor unit
9 Noise reduction hood

5.3 Functional description

The Power Tower Silence 120 (PTS 120) systems combine generation of compressed air, suction and amalgam separation in a single housing. The housing is insulated, ensuring an appropriate level of soundproofing. The device contains different individual components, which it controls and monitors.

Assembly

6 Requirements

The unit must not be set up or operated within the vicinity of the patients (within a radius of 1.5 m).

The unit can be installed either at the same level as the surgery room, on a floor below (e.g. cellar) or under the roof.
Due of the amount of noise generated, we recommend that the unit is installed in an adjoining room.
The pipes provided on-site must at least meet the country-specific requirements for drinking water.
The compressed air network to which the unit is connected must be designed for the maximum pressure of the unit (10 bar).

Further information can be found in our separate planning information leaflet for compressed air.

Further information can be found in our suction planning information leaflet.
Order number9000-617-03/..

The room chosen for installation must satisfy the following requirements:
- Closed, dry, well-ventilated room
- It should not be a room made for another purpose (e.g. boiler room or wet cell).
- Set up the unit on a clean, level and sufficiently stable surface (take the weight of the unit into account).
- Set up the units so that the type plate can be easily read and the unit is easily accessible for operation and maintenance.
- Leave sufficient distance from any wall (at least 20 cm).
- Refer to the requirements for environmental conditions in "4 Technical data".

6.1 Pipe materials

Only use vacuum-sealed HT-waste pipes manufactured from the following materials:
- Polypropylene (PP),
- Chlorinated polyvinyl chloride (PVC-C),
- Plasticizer-free polyvinyl chloride (PVC-U),
- Polyethylene (PE).

The following materials must not be used:
- Acrylonitrile-butadiene-styrene (ABS),
- Styrene copolymer blends (e.g. SAN + PVC).

6.2 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

6.3 Installation and routeing of hoses and pipes

1. Execute the on-site pipe installation in accordance with the applicable local regulations and standards.
2. 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.

6.4 Information about electrical connections

The device has no main power switch. For this reason, make sure that the power outlet is easily accessible so that the unit can be unplugged if necessary.

1. Ensure that the electrical connections to the mains power supply are established in accordance with current valid national and local regulations and standards governing the installation of low voltage units in medical facilities.
2. Observe the current consumption of the devices that are to be connected.

Electrical fusing

LS switch 16 A, characteristic C and D in accordance with IEC 60898.

6.5 Information about connecting cables

Control cable

24 V protective low voltage for:
- Hose manifold
- Place selection valve
- Spittoon valve

Installation type	Line layout (minimum requirements)
Fixed installation	– Shielded sheathed cable (e.g. (N)YM (St)-J)
Flexible	– PVC data cable with shielded cable sheathing, as used for telecommunications and IT processing systems (e.g. type LiYCY) or – Lightweight PVC control cable with shielded cable sheathing

Connect the shielding of the cables in accordance with the regulations.

7 Installation

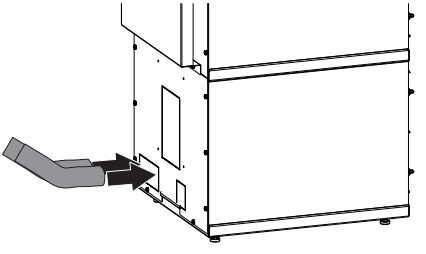
7.1 Combining devices safely

Take care when connecting units together or to parts of other systems as there is always an element of risk (e.g. due to leakage currents).
- Only connect units when there can be no question of danger to operator or to patient.
- Only connect units when it is safe to do so and when there is no risk of damage or harm to the surroundings.
- If it is not completely clear from the data sheet of the unit that such connections can be safely made or if you are in any doubt, always get a suitably qualified person (e.g. the relevant manufacturer) to verify that the setup is safe.

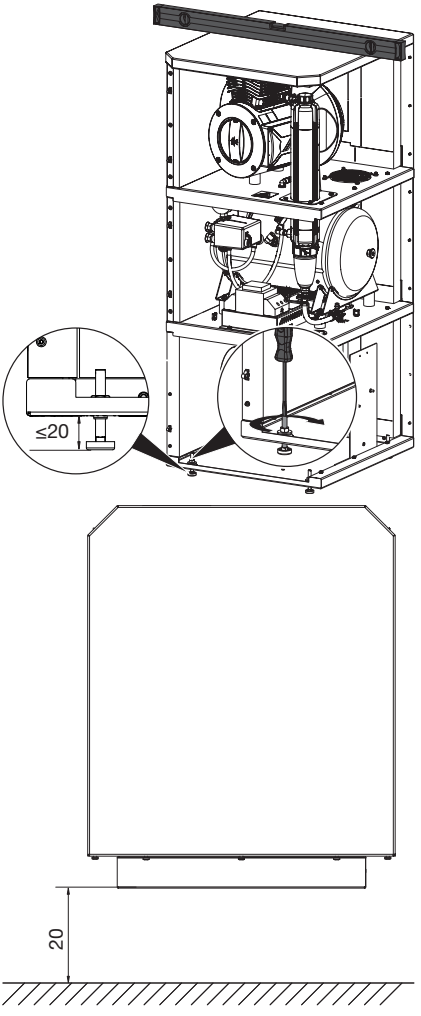
Where applicable, the requirements for medical products have been taken into account in the development and construction of the device. As a result, this device is suitable for installation within medical supply equipment.
- Where this device is integrated in other medical supply equipment, the requirements of European Union Medical Device Regulation 2017/745 and the relevant standards must be observed.

7.2 Setting up the unit

1. Set up the cabinet.
2. Route the exhaust air and suction hose in the cabinet.



3. Place the unit in the correct position and align.

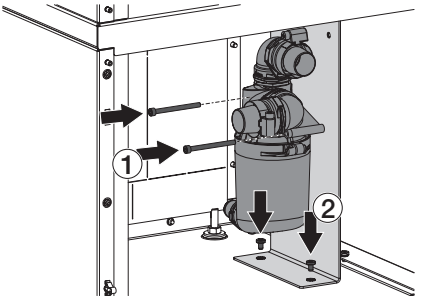


4. Remove the transport protection.

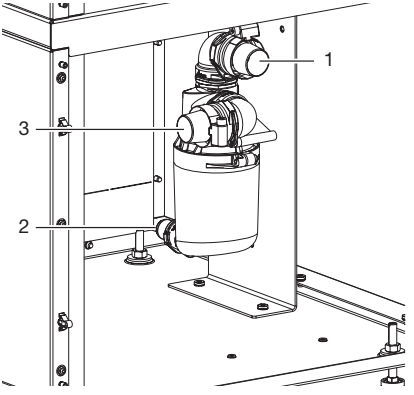
7.3 V 300 S

Condensate separator

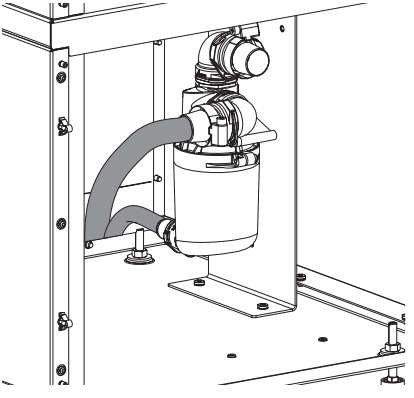
1. Mount the condensate separator.



2. Connect the condensate separator.

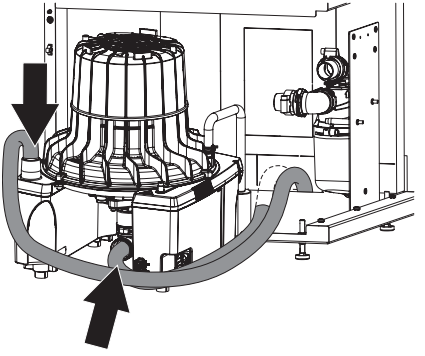


1 Vacuum connection
2 Wastewater connection
3 Hose manifold connection



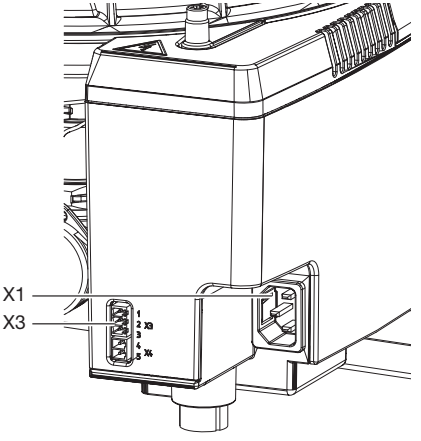
Connecting and positioning the suction unit

1. Connect the suction hose and exhaust air hose to the suction unit.

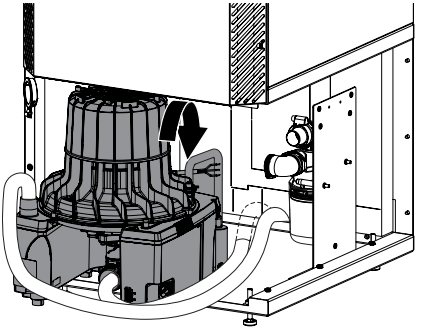


2. Connect the pre-assembled mains cable to plug X1 from the rear. Lay the mains cable so that it does not touch the exhaust air hose.

3. Connect the pre-assembled control cable from the rear to plug X3 at terminals 1 and 3



4. Position the suction unit in the cabinet.



5. Connect the suction hose to the condensate separator.

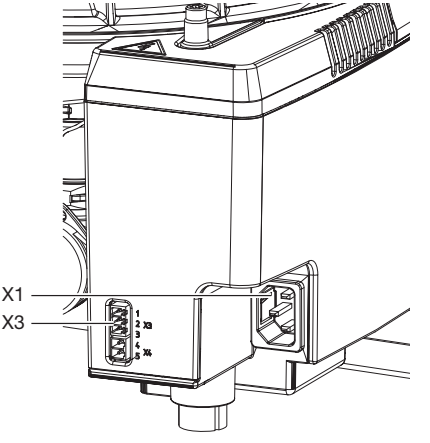
7.4 VS 300 S

Without CA 1

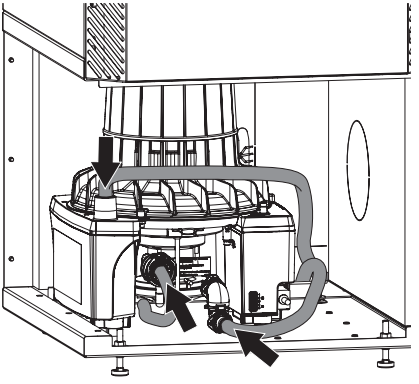
1. Connect the suction hose and exhaust air hose to the suction unit.

2. Connect the pre-assembled mains cable to plug X1 from the rear

3. Connect the pre-assembled control cable from the rear to plug X3 at terminals 1 and 3



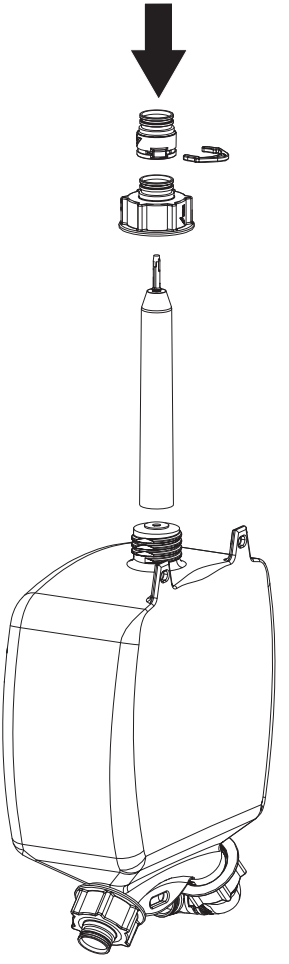
4. Connect the suction hose and exhaust air hose.



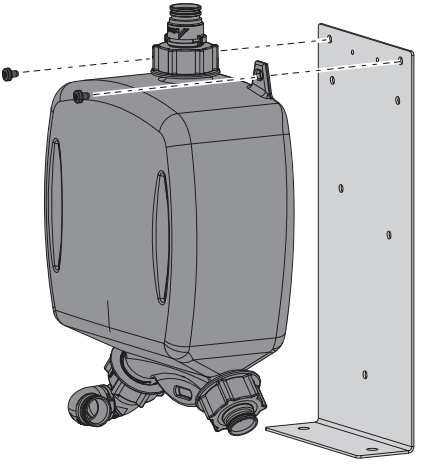
With CA 1

Mounting the pressure compensation container

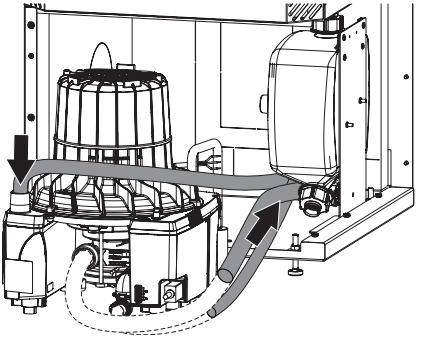
1. Complete the pressure compensation container with DürrConnect ventilation and connection parts.



2. Mount the pressure compensation container on the angled bracket and screw it firmly in place in the cabinet.

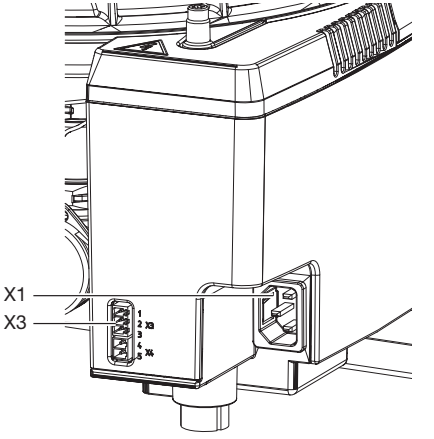


1. Connect the discharge hose to the pressure compensation container and the exhaust air hose to the suction unit.

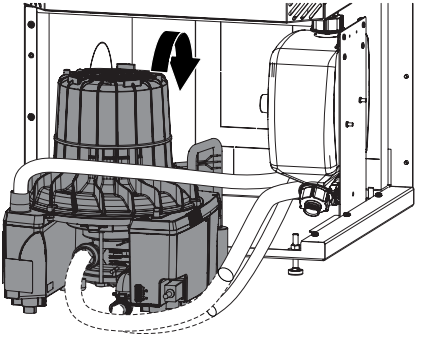


2. Connect the pre-assembled mains cable to plug X1 from the rear
Make sure that the mains cable does not touch the exhaust air hose.

3. Connect the pre-assembled control cable from the rear to plug X3 at terminals 1 and 3

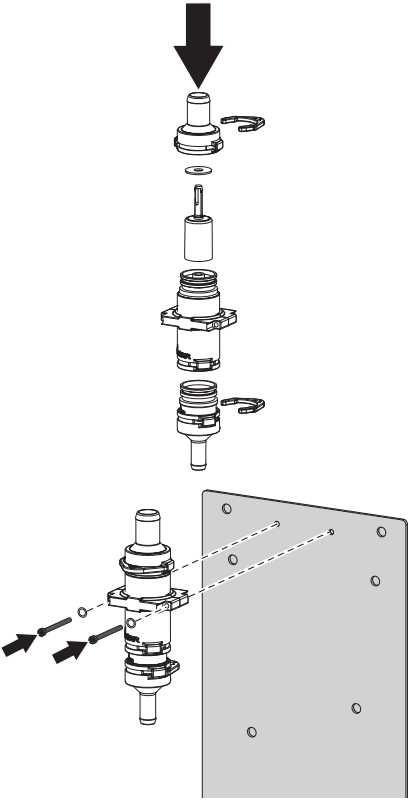


4. Position the suction unit VS 300 S in the cabinet.

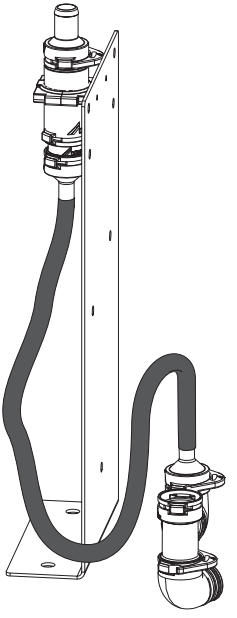


5. Connect the suction hose and discharge hose to the suction unit.
Make sure that the mains cable does not touch the exhaust air hose.

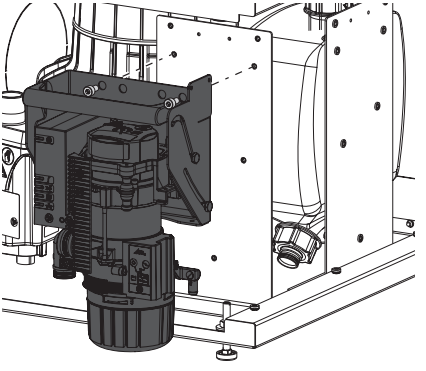
6. Push the DürrConnect ventilation valve for CA 1 together and screw it onto the retaining plate CA 1.



7. Connect the ventilation valve and the elbow piece with transparent hose.

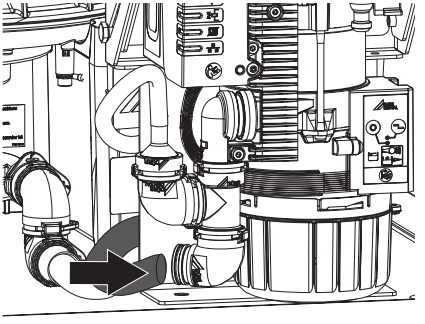


8. First mount the retaining plate with ventilation valve in the device, then fasten the CA 1 on the retaining plate.

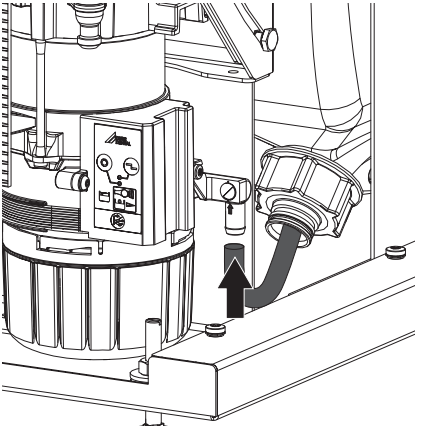


9. Fit the elbow piece with transparent hose onto the wastewater connection of the CA 1 and secure it with a clip so it cannot slip off.

10. Connect the wastewater connection of the in-house installation to the CA 1.



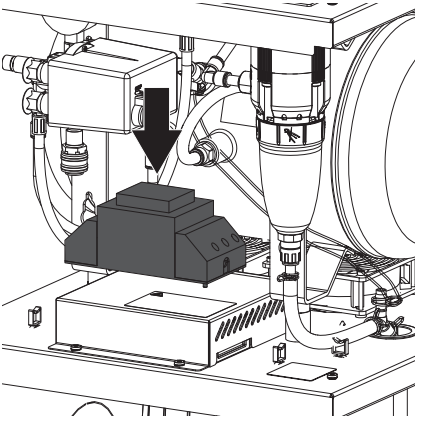
11. Establish a wastewater inlet between the pressure compensation container and the CA 1.



Electrical connection of the CA 1

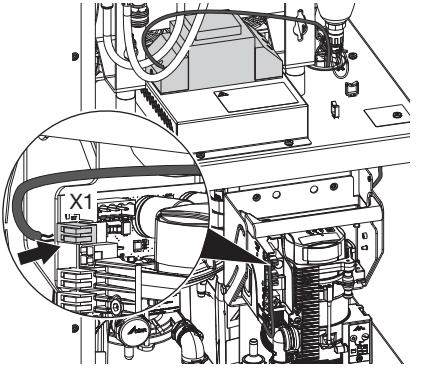
1. Connect a two-pole cable to the 230 V input side of the transformer and to X7 of the electronics board of the device, see "11 Electric wiring diagram, version 230 V, 1N~".

2. Position the transformer required for the power supply of the CA 1.



3. At the electronics board of the CA 1, connect a two-pole cable to X1.

4. Route a two-pole cable through the cable guides of the device to the transformer and connect it to the 24 V output side.



5. Connect a three-pole cable for the transformer power supply to the 230 V input side.

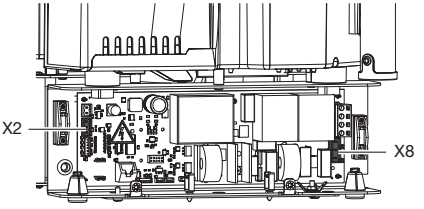
6. Connect the transformer power supply to the circuit board PTS 120 at connector X7.

7.5 VSA 300 S

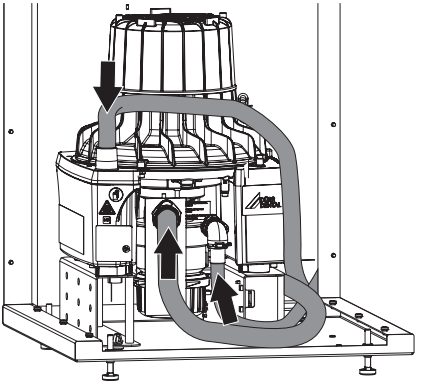
1. Position the suction unit VSA 300 S in the cabinet.

2. Pull the mains cable through the terminal box VSA 300 S and connect it to connector X8.

3. Connect the pre-assembled control cable from the rear to plug X9 of the PCB PTS 120
4. Pull the control cable through the terminal box VSA 300 S and connect it to the circuit board VSA 300 S, connector X2 terminals 1 and 3.



5. Fasten the cable with pull relief devices.
6. Connect the suction hose, wastewater hose and exhaust air hose.

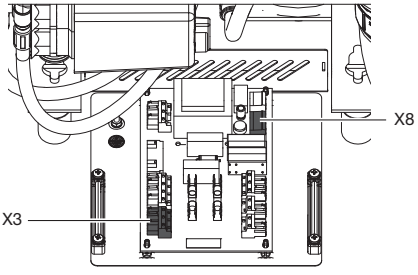


7.6 Connecting the unit

1. Make sure that none of the electrical cables leading to the unit are under any mechanical tension.
2. Before start-up, check the mains voltage against the voltage indicated on the type plate (see also "4.1 Type plate").

The device has no main power switch. For this reason, make sure that the power outlet is easily accessible so that the unit can be unplugged if necessary.

3. Ensure that the electrical connections to the mains power supply are established in accordance with current valid national and local regulations and standards governing the installation of low voltage units in medical facilities.
4. Observe the current consumption of the devices that are to be connected.
5. Route the pre-assembled cable for suction unit and hose manifold in the unit and connect it to the control board.

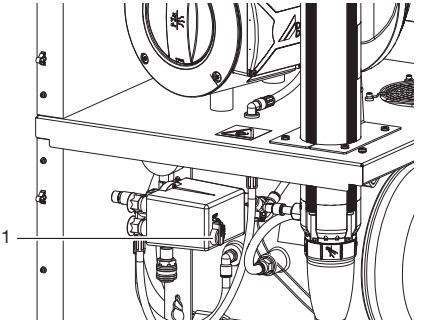


6. Mount the cover on the control box.
7. Mount the cover in the unit via the floor connections and side panels.

8 Commissioning

8.1 Switch on the unit

1. Switch on the device at the press switch.



1 Pressure switch

8.2 Checking the switch-on/cut-off pressure

The switch-on/cut-off pressure is preset at the factory. Check the adjustment during first start-up.
When the mains plug is connected the compressor will start after a short delay.

1. Read off the cut-off pressure from the pressure gauge.
2. Drain the air from the pressure tank (e.g. via the condensate drain valve) until the unit starts and then close it again.
3. Read off the pressure when the unit starts up.
   If the readings deviate from the values preset at the factory, adjust the values to the factory settings. If other pressure values are required, take care to observe the maximum pressure difference.

8.3 Checking the safety valve

The functioning of the safety valve must be checked at regular intervals in accordance with national regulations.

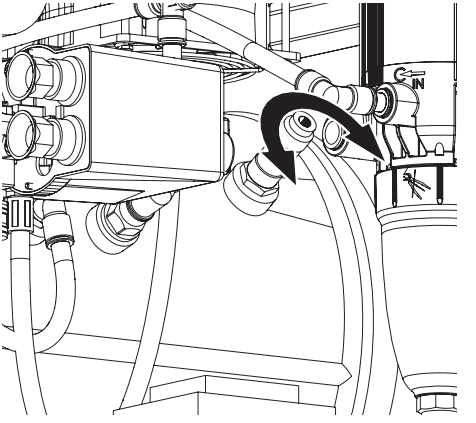
WARNING

Risk of damage to the safety valve

Risk of explosion of the pressure tank and pressure hoses due to a defective safety valve

› Do not use the safety valve to vent the pressure tank.

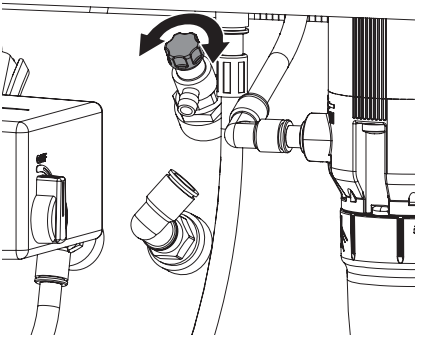
1. Switch on the unit at the pressure switch and fill the pressure tank to the cut-off pressure.
2. To open, rotate the screw of the safety valve anti-clockwise until the valve begins to blow off. Only allow the safety valve to blow for a short period.
3. Then turn the screw clockwise as far as it will go to close the valve. The valve must now be closed again.



8.4 Draining the condensation water

During transport, condensation water can accumulate in the pressure tank due to changes in temperature.
This also applies to compressors with a membrane drying unit.

1. At maximum tank pressure, slowly open the condensate drain valve.



2. Close the condensate drain valve as soon as all of the condensation water has been blown out.

8.5 Electrical safety checks

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

1. Perform the electrical safety check according to national law.
2. Document the results.

9 Maintenance

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

1. Comply with the specifications of the Installation and Operating Instructions for the devices installed.

WARNING

Risk of infection due to burst filters

Particles enter the compressed air network and can therefore enter the mouth of the patient.

› Replace filters in accordance with the maintenance schedule.

9.1 Maintenance schedule

NOTICE

Risk of damage to the unit due to blocked filters

Continuous running due to reduced delivery. Damage to the unit due to burst filters.

› Replace filters in accordance with the maintenance schedule.

Every time you work with the unit, check it visually for damage to ensure safe and reliable operation. Damaged units must not be taken back into use.

Maintenance interval	Maintenance work
Maintenance interval	› Empty the collector tray under the drying unit (the interval may vary depending on the ambient conditions and method of working; empty it daily if the humidity is high).
Annually	› Replace the air intake filter in the compressor unit – do this every six months if there is a high concentration of dust. › Replace the fine or virus bacteria filter. › Replace the coalescence filter.
In accordance with national law	› Check the safety valve. › Carry out recurring safety inspections (e.g. pressure tank inspections, electrical safety inspections) in accordance with applicable national laws.

9.2 Wear parts and replacement parts

The following wear parts must be replaced at regular intervals:

Air intake filter 5180-982-00
Fine filter 1610-121-00
Virus bacteria filter 1650100172
Coalescence filter 1650200323
Cup seal repair set 5180-981-00

To configure the required filters or filter sets, you can also use our filter configurator at:
www.duerrdental.com/filterkonfigurator

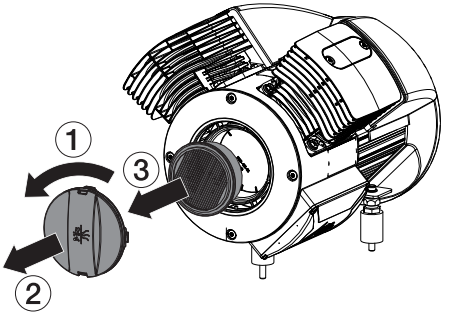
Any repairs exceeding routine maintenance may only be carried out by qualified personnel or our service.

Information about replacement parts can be found on the website portal for specialist dealers under:
www.duerrdental.net

9.3 Replacing the air intake filter

Units without a noise reduction hood

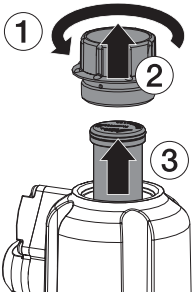
1. Switch off the compressor at the pressure switch.
2. Disconnect all power from the device.
3. Release the filter cover by rotating it **anti-clockwise** and then take it off.
4. Remove the air intake filter.
5. Insert a new air intake filter.
6. Place the filter cover in position and lock it by turning it **clockwise**.



9.4 Replacing the filter of the membrane drying unit

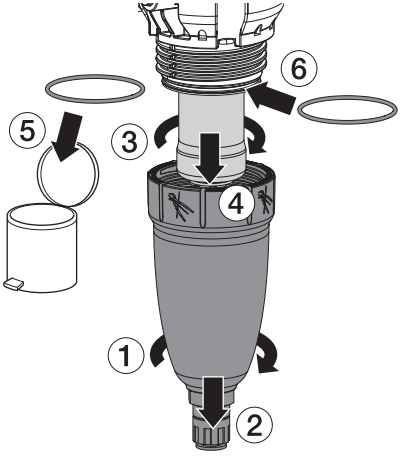
Fine/sterile filter

1. Unscrew and remove the filter cover.
2. Remove the filter.
3. Insert a new filter.
4. Replace the filter cover and close.



Sintered filter

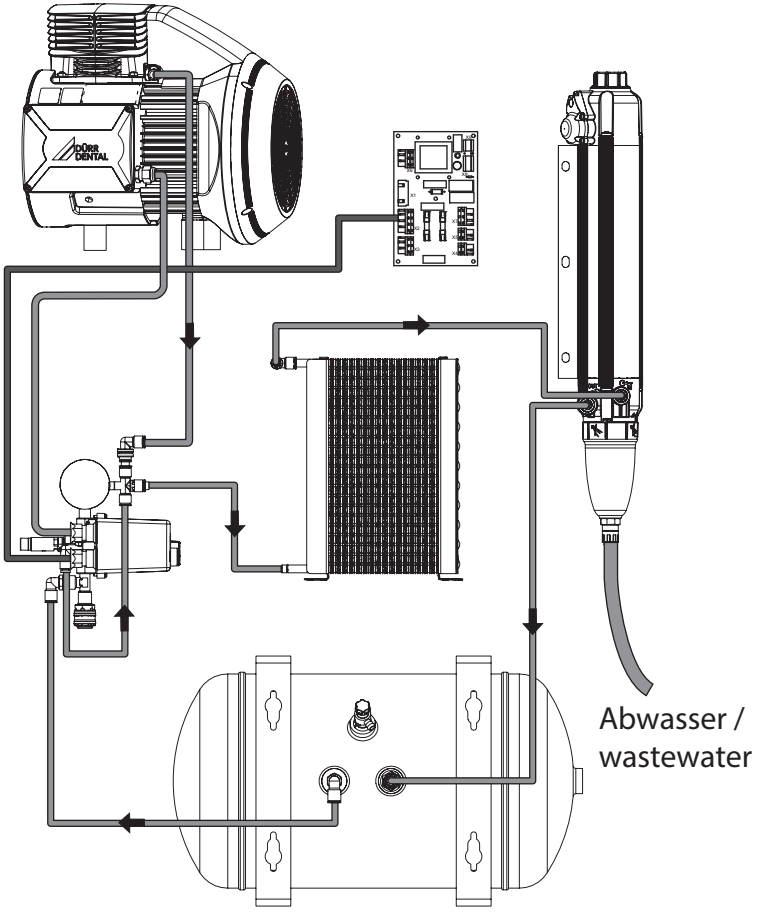
1. Unscrew and remove the filter housing.
2. Remove the filter.
3. Replace O-ring.
4. Insert a new filter.
5. Replace the filter housing and close.



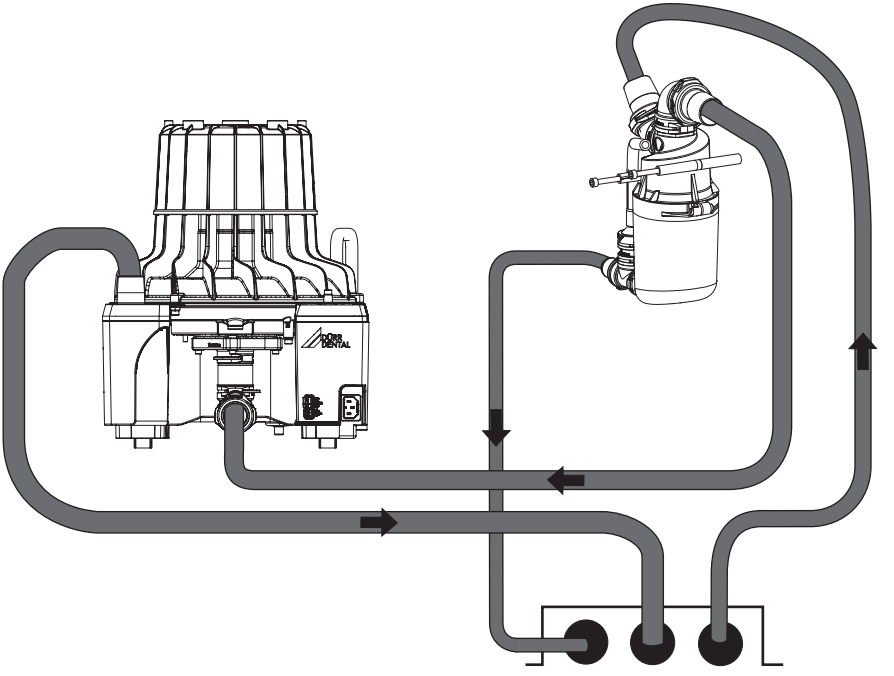
Appendix

10 Connection media plan

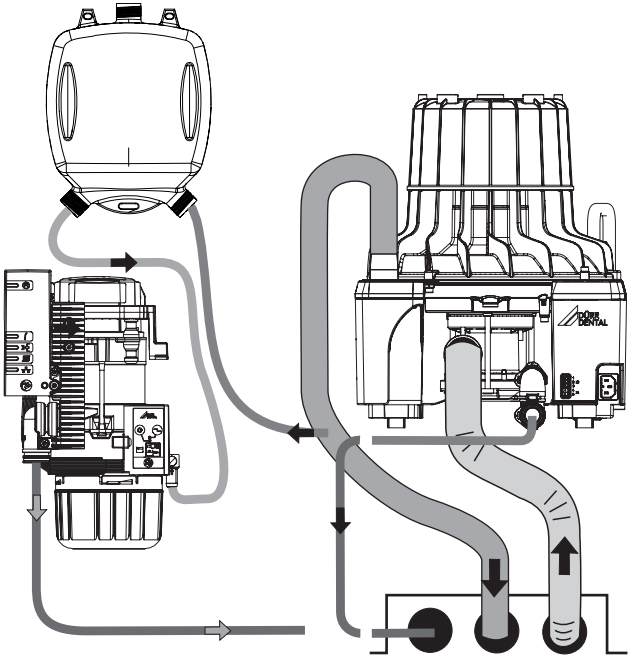
10.1 Compressor



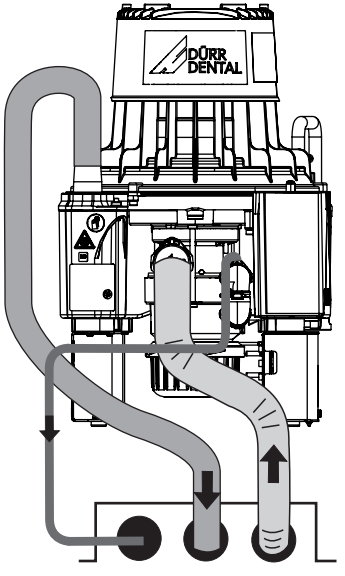
10.2 V 300 S



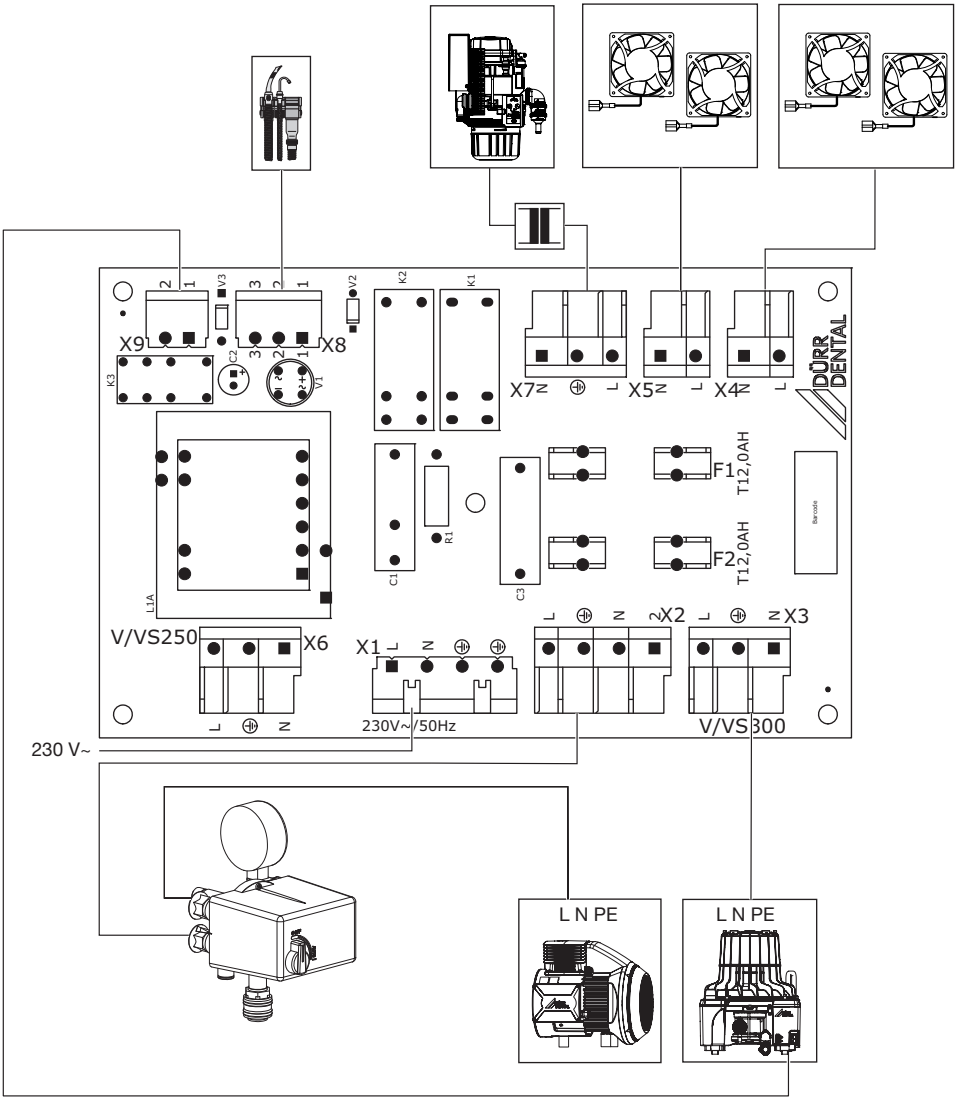
10.3 VS 300 S with CA 1



10.4 VSA 300 S



11 Electric wiring diagram, version 230 V, 1N~



12 Handover record

This document confirms that a qualified handover of the medical device has taken place and that appropriate instructions have been provided for it. This must be carried out by a qualified adviser for the medical device, who will instruct you in the proper handling and operation of the medical device.

Product name	Order number (REF)	Serial number (SN)

- ☐ Visual inspection of the packaging for any damage
- ☐ Unpacking the medical device and checking for damage
- ☐ Confirmation of the completeness of the delivery
- ☐ Instruction in the proper handling and operation of the medical device based on the operating instructions

Notes:

Name of person receiving instruction:	Signature:

Name and address of the qualified adviser for the medical device:

Date of handover:	Signature of the qualified adviser for the medical device:

13 Country representatives

Country		Address
GB	UKCA XXXX	**UK Responsible Person:** Duerr Dental (Products) UK Ltd. 14 Linnell Way Telford Way Industrial Estate Kettering, Northants NN 16 8PS
UA	UA.TR.099	**Уповноважений представник в Україні:** Приватне підприємство “Галіт” вул. 15 квітня, 6Є, с. Байківці, Тернопільський р-н, 47711, Україна тел.: 0800 502 998; +38 050 338 10 64 www.galit.te.ua; e-mail: office@galit.te.ua Виробник: Дюрр Дентал ЕсЕ Хьопфігхаймер Штрассе 17, Д-74321 Бітігхайм-Біссінген, Німеччина email: info@duerrdental.com

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