

# Dürr Dental PTS 120



EN

Installation and Operating Instructions



9000-619-15/30



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# Content



## Important Information

<b>1. General</b> . . . . .	4
1.1 Note on Conformity . . . . .	4
1.2 General Notes . . . . .	4
1.3 Appliance disposal . . . . .	4
1.4 Correct Usage . . . . .	4
1.5 Incorrect usage . . . . .	5
1.6 Connecting peripheral appliances . . . . .	5
<b>2. Safety</b> . . . . .	5
2.1 General Safety Notes . . . . .	5
2.2 Electrical safety instructions . . . . .	5
<b>3. Warnings and Symbols</b> . . . . .	6
3.1 Model identification plate . . . . .	6
<b>4. Technical Data</b> . . . . .	7
4.1 PTS 120 . . . . .	7
4.2 Ambient conditions . . . . .	7
4.3 Model Overview . . . . .	7
4.4 Retrofit Sets . . . . .	7
<b>5. Functional Description</b> . . . . .	8
5.1 Compressor generator (A) . . . . .	8
5.2 Drying units (B) . . . . .	8
5.3 Suction machine (C) . . . . .	8
5.4 Amalgam Separator CA 1 (D) . . . . .	8
5.5 VSA 300 S (E) . . . . .	8
<b>12. Installing Amalgam Separator CA 1</b> . . . . .	16
12.1 Install surge tank . . . . .	16
12.2 Installing Amalgam Separator CA 1 . . . . .	17
12.3 Amalgam Separator CA 1 electrical connections . . . . .	19
<b>13. PTS 120 electrical connections</b> . . . . .	20
13.1 Connecting hose manifold . . . . .	20
13.2 Power supply . . . . .	20
<b>14. Finishing touches</b> . . . . .	21
<b>15. Circuit diagram for 230 V 1~ 50Hz</b> . . . . .	22
<b>16. Peripherals connection plan</b> . . . . .	23
16.1 Dry suction units V 300 S, Condensate separator, Compressor Tornado 1, drying units . . . . .	23
16.2 Wet suction units VS 300 S, compressor Tornado 1, drying units . . . . .	24
16.3 Wet suction units VS 300 S, amalgam separator CA 1 . . . . .	25



## Mounting

<b>6. Transport and storage conditions</b> . . . . .	9
<b>7. Set-up and first use</b> . . . . .	9
7.1 Ambient conditions . . . . .	9
7.2 Setting up the PTS . . . . .	10
7.3 Remove transportation safety devices . . . . .	10
7.4 Electrical connection . . . . .	10
<b>8. Connecting compressed air supply to tank (treatment unit)</b> . . . . .	11
<b>9. Installing V 300 S condensate separator</b> . . . . .	12
<b>10. Set up and connection of dry suction units</b> . . . . .	13
10.1 V 300 S . . . . .	13
<b>11. Set up and connection of wet suction units</b> . . . . .	14
11.1 VS 300 S . . . . .	14
11.2 VSA 300 S . . . . .	15



## Important Information

### 1. General

#### 1.1 Note on Conformity

This product has been designed and produced according to the relevant directives concerning such appliances under the European Union and has undergone conformity testing and has been found to adhere to all requirements covered by these directives, see Declaration of Conformity.

#### 1.2 General Notes

- These Installation and Operating Instructions form an integral part of the unit. They must be kept close to the unit at all times. Precise observance of these instructions is a precondition for use of the unit for the intended purpose and for its correct operation. New personnel must be made aware of the contents, and they should be passed on to future operating staff.
- Safety for the operator as well as trouble-free operation of the unit are only ensured if use is made of original equipment parts. In addition, only those accessories may be used which are specifically mentioned in the Installation and Operating Instructions or have been authorised by Dürr Dental. If other accessories are used with this appliance, Dürr Dental cannot guarantee safe operation or proper functioning. No liability on the part of the manufacturer will be accepted in the case that damage arises through the use of non-approved accessories.
- Dürr Dental are only responsible for the equipment with regard to safety, reliability and proper functioning where assembly, resettings, changes or modifications, extensions and repairs have been carried out by Dürr Dental or an agency authorized by Dürr Dental and if the equipment is used in conformity with the Installation and Operating Instructions.
- These Installation and Operating Instructions conform to the relevant version of the equipment and the underlying safety standards valid at the time of going to press. All circuits, processes, names, software and appliances quoted are protected under industrial property rights.

- This translation of the Installation and Operating Instructions has been carried out in all good faith. Dürr Dental deny any liability for inaccurate translation and in the case of any doubts the user should contact Dürr Dental or their supplier. The enclosed German version of the Installation and Operating Instructions is the original.
- Any reprinting of the technical documentation, in whole or in part, is subject to prior approval of Dürr Dental being given in writing.
- Retain the packaging for possible return of the product to the manufacturers. Only the original packaging provides adequate protection during transport of the unit. Should return of the product to the manufacturers be necessary during the guarantee period, Dürr Dental accepts no responsibility for damage occurring during transport where the original packaging was not used! Ensure that the packaging is kept out of the reach of children.

#### 1.3 Appliance disposal

- The EU guideline 2002/96/EC - WEEE (Waste Electric and Electronic Equipment) dated 27 January 2003 and its current implementation in national law determines that dental products are subject to the aforementioned guideline and special disposal must be performed within the European Union..
- Questions on the technically correct disposal of the products should be addressed to Dürr Dental or the dental specialist store.

#### 1.4 Correct Usage

The PTS 120 has been specially designed to provide compressed air, vacuum and amalgam separation (depending on PTS model) in the operation of dental units.

Correct usage of this appliance requires observance of all notes and requirements concerning operation, set up and maintenance.

## 1.5 Incorrect usage

Any usage above and beyond that explicitly mentioned 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.



**Do not operate the PTS 120 in rooms where operations are carried out.**

**The compressed air is not to be used for respiration appliances or for similar uses, e.g. those found in operating theatres.**

**Do not suck up any explosive gases using the vacuum facilities.**

## 1.6 Connecting peripheral appliances

Appliance may only be connected together when absolutely sure that the safety of the patient, operator or the environment will not be endangered in any way whatsoever.

Where any doubts remain concerning the safety when connecting to other units then the operator is obliged to ascertain that such connection can in no way affect the safety of operator, patient or other staff by referring to the manufacturer or a fully qualified and competent expert.

## 2. Safety

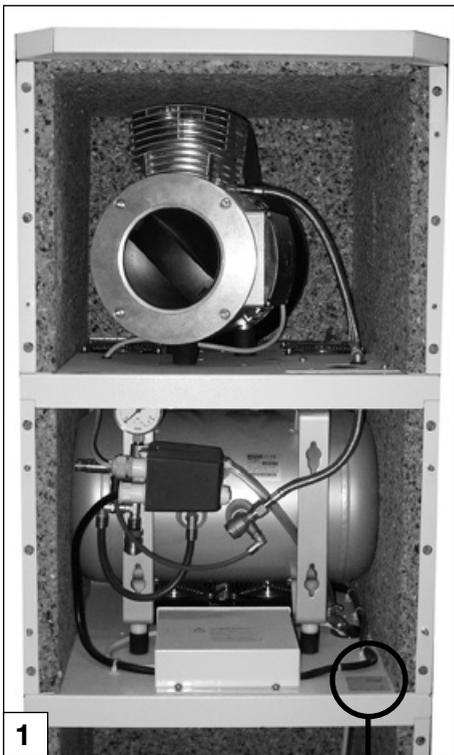
### 2.1 General Safety Notes

This appliance has been so designed by Dürr Dental that any danger in operation is out of the question when the appliance is used correctly. In spite of this, we feel it is our duty to mention the following safety measures in order to prevent any possible danger.

- When using this appliance all local and relevant regulations must be observed! Converting or modifying the appliance in any way is strictly prohibited. In such cases, any and all guarantees immediately become invalid. The operation of modified appliances can be punishable by law. In the interests of trouble-free operation the operator is responsible for observing these regulations.
- Installation must be carried out by a technical expert.
- Before every use the operator must check the functional safety and the condition of the appliance.
- The operator must be knowledgeable in the operation of the appliance.
- The product is not designed to be used in medical treatment areas where there exists the danger of explosion. Areas where explosions could occur are those where flammable anesthetic material, skin cleansers, oxygen and skin disinfectants are present. This appliance is not to be used in areas where the atmosphere could cause fire.

### 2.2 Electrical safety instructions

- This appliance is only to be used in connection with a correctly installed power outlet socket.
- Before connecting to the electricity supply the appliance must be inspected and checked that the supply voltage and the supply frequency correspond to that of the local electrical supply.
- Before initial use and start-up the appliance and all supply lines must be checked for any signs of damage. Damaged supply lines and connections must be replaced immediately.
- When using the appliance observe all the relevant electrical safety procedures.



1



2

### 3. Warnings and Symbols

In the operating instructions the following warnings and symbols have been used:



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



Special information regarding economical use of the appliance or other information.

#### 3.1 Model identification plate

The name plate can be accessed from the front, see image 1 and 2.

REF Order no. / model no.

SN Serial-No.



Observe accompanying documentation!



Date of manufacture

## 4. Technical Data

### 4.1 PTS 120

Model 0950-120		/04	/02, /03	/12, /13
<b>Voltage</b>	V	230 / 1~	230 / 1~	230 / 1~
<b>Electrical frequency</b>	Hz	50	50/60**	50/60**
<b>Weight</b>	kg	120	107	106
<b>Electric power</b>	kW		max 1.72	
<b>Current consumption</b>	A		max 10.4	
<b>Protection class</b>			I	
<b>Fuse type</b>			IP20	
<b>Duty cycle</b>	%		100	
<b>Dimensions</b>	D x B x H	62,5 x 50 x 135 cm	62.5 x 50 x 120 cm	
<b>Noise levels *</b>	dB(A)		ca. 54	
<b>On-site plumbing</b>				
<b>Vacuum connection</b>	Ø internal, mm		min 36	
<b>Exhaust air connection</b>	Ø internal, mm		min 36	
<b>Waste water connection</b>	Ø internal, mm		min 36	

\* according to EN ISO 1680 Noise emissions; measured in sound-proofed room. The measurements are average values with tolerance of ca. ±1.5 dB(A). Set-up in an acoustically hard room (e.g. with ceramic wall tiles) can produce higher noise levels.

\*\* at 60Hz up to max. +35 °C

### 4.2 Ambient conditions

#### Environmental conditions for storage and transport

Temperature (°C) . . . . . -10 to +60  
 Rel. humidity (%) . . . . . max. 95

#### Environmental conditions for operation

Temperature (°C) . . . . . +10 to +40\*\*  
 Rel. humidity (%) . . . . . max. 70

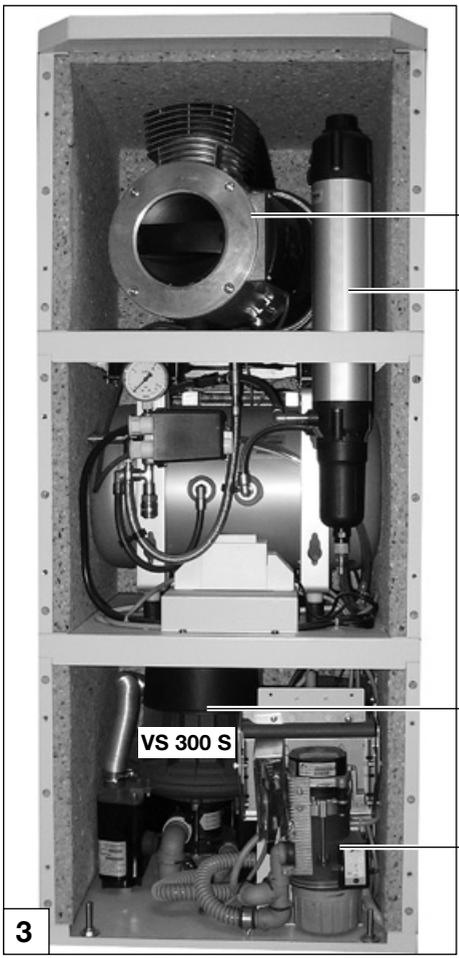
\*\* at 60Hz up to max. +35 °C

### 4.3 Model Overview

Model 0950-120-..	Compressor generator Tornado 1	V 300 S	VS 300 S	VSA 300 S
/02, /03	X		X	
/04	X			X
/12, /13	X	X		

### 4.4 Retrofit Sets

Order number	Amalgam-Separator CA 1	Condensate separator
0950-500-51	X	
0950-500-52		X



## 5. Functional Description

**i** Detailed descriptions of the function of each individual unit can be found in the Installation and Operating Instructions supplied with the appropriate appliance.

**A** The illustration shows only one of the many ways in which the PTS 120 range can be set up.

### 5.1 Compressor generator (A)

The pressure switch serves to switch the compressor unit automatically on and off.  
 5.5 bar start-up pressure  
 7.5 bar switch-off pressure  
 Air at atmospheric pressure is drawn in through the suction filter and the inlet valve into the cylinder chamber.  
 The air is compressed free of any oil using the plunger in the cylinder and is then fed to the holding tank.

### 5.2 Drying units (B)

The still damp, compressed and warmed air is then cooled using the cooling element and membrane dryer, dried and filtered. This process serves to drastically reduce the relative humidity.

### 5.3 Suction machine (C)

**D** The suction unit is started via the hose manifold by simply removing one of the suction hoses from its holder.  
 The vacuum created by the extraction machine provides the treating location with suction power.



### 5.4 Amalgam Separator CA 1 (D)

The CA 1 is designed to provide amalgam separation for the complete waste water of the treatment unit. The CA 1 is used in combination with wet-type suction unit systems (VS 300 S) within the PTS 120.

### 5.5 VSA 300 S (E)

The amalgam separator is already integrated in the suction machine of the VSA 300 S combination suction unit..



## Mounting

### 6. Transport and storage conditions

The PTS 120 is delivered in various parts for reasons of weight and transportation and is sent in transport boxes to the factory. This serves to protect the appliance from any damage during shipping.

**The PTS must be transported in an upright condition.**



The PTS must be protected from dampness, dirt and extremes of temperature during transport and storage.



**Danger of injury**  
**The PTS must be under no pressure when transported. Before transport the pressure tank and the pressure hoses must be bled or vented.**

### 7. Set-up and first use



**Only fully qualified personnel are allowed to set up this appliance, to install it or to carry out commissioning.**

The PTS must not be set up in the vicinity of patients.

For reasons of noise and the observance of the regulations concerning medical products it is strongly recommended to install the PTS in a side room.

Installation in a purpose-built room, e.g. in a boiler room, must be checked with local building regulations.

Installation in a wet-room is not permitted.

We recommend guiding the exhaust air to the outside.



For reasons of hygienic, we recommend installing an exhaust air bacteria filter in the exhaust air line (order no. 7120-143-00).

If the Power Tower is installed in the practice and the exhaust air cannot be guided outside, it is essential to install an exhaust air bacteria filter.

Replace the exhaust air bacteria filter after 1-2 years at the latest according to its condition

### 7.1 Ambient conditions

The unit may only be set up and operated in a dry, well-ventilated and dust-free room.

The PTS must be set up so that it is easily accessible for both operation and maintenance and the model plate can be read easily (see section 3.1).



The PTS must be so set up that immediate unplugging from the mains supply is possible at all times.

The PTS must be set up on a flat surface (floor) and the surface must be sufficiently stable to support the unit. (Weight of PTS is ca. 100 kg, depending on model type)

For reasons of vibrations, a distance of at least 2 cm must be maintained between the power tower and the side limits (e.g. cupboards).



**Both suction inlets and exhaust outlets of the PTS must be free. Ensure that no items are located in front of the PTS, see diagrams 5 and 6.**

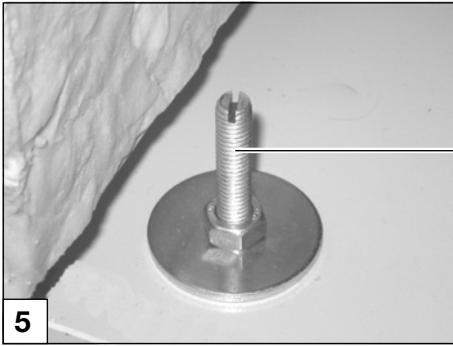
The room temperature must not be lower than +10 °C and must not exceed +40 °C, otherwise error-free operation of the PTS work is not guaranteed. If the room temperature exceeds +40 °C then supplementary ventilation must be installed, e.g. ventilator or fan, see fig. 5.

The ideal ambient temperature lies between +10 °C and +25 °C.

At 60Hz the maximum room temperature is +35 °C.



Ca. 70% of the electrical energy created by the compressor aggregate and the suction machine is converted to heat and released into the environment.



## 7.2 Setting up the PTS

- Take the PTS out of its packaging and place it in its intended location.



Handling will be made easier if the central cover (7) is first removed and will provide more grip for carrying.

- Set the PTS on the 4 adjustable feet (5) horizontally. Tighten the lock nuts on the adjustable feet, see figs. 5 and 21. (This avoids jack-knifing of the feet.)



The maximum height adjustment of the feet is 2 cm and maintain a minimum distance of at least 2 cm between the PTS to any side object (e.g. cupboard).

## 7.3 Remove transportation safety devices

Remove the upper cover (6) of the PTS 120 and remove the packing protection (8) to the compressor unit, see figs. 7 and 8.

## 7.4 Electrical connection

### Safety for the electrical connection

- The appliance may only be connected to a correctly installed socket outlet.
- Make sure the connection lines to the appliance are not subject to any mechanical tension.
- Before initial start-up, check the supply voltage with the voltage information on the model identification plate (see also "4. Technical Data").

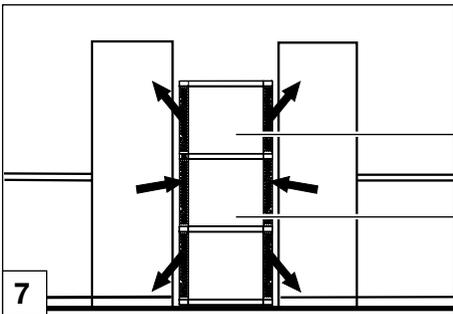
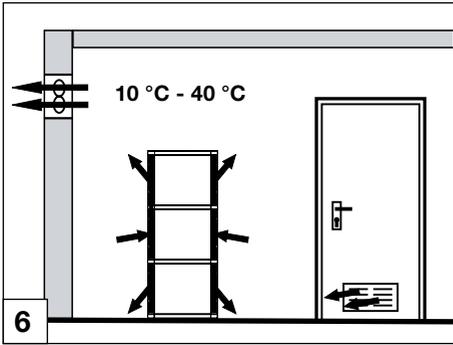
### Establish electrical connection

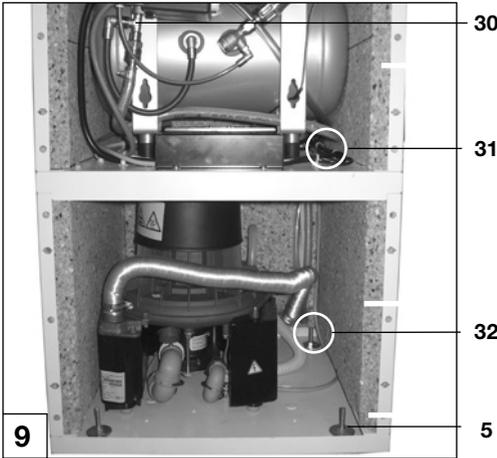


#### **DANGER**

#### **Electric shock caused by defective mains cable**

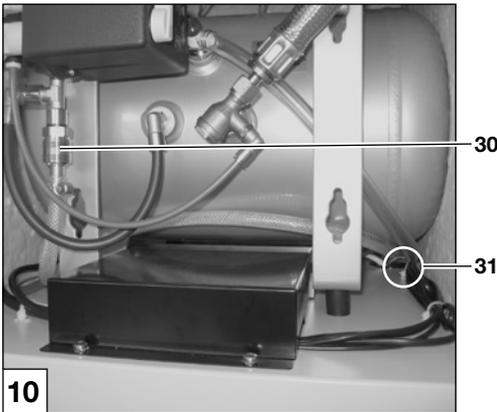
- Mains cables must not come into contact with the hot surfaces of the appliance.
- Lay mains cables free of any mechanical tension.
- Plug the unit into an earthed socket outlet. The appliance starts immediately after the plug is inserted

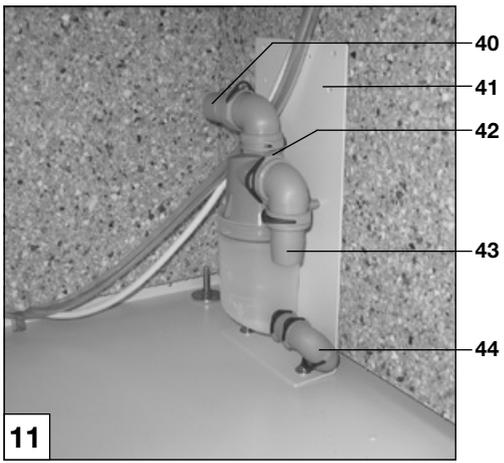




## 8. Connecting compressed air supply to tank (treatment unit)

- Feed the compressed air hose  $\varnothing 8 \times 3 \times 14$  through the cable ducts (31 and 32) of the PTS and secure them to the connection nozzles (30) of the tank with hose clamps, see figs. 9 and 10.

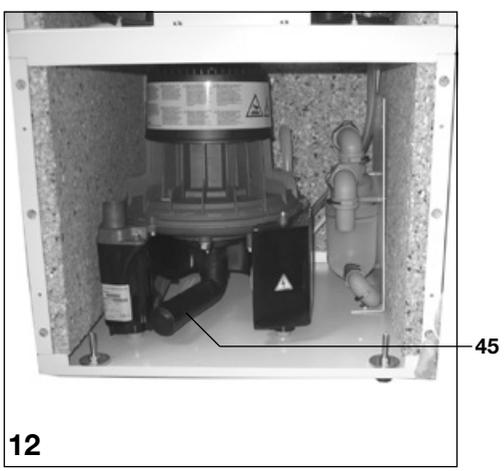




## 9. Installing V 300 S condensate separator

**i** Where the PTS 120 **is not fitted with a** condensate separator (conversion set 0950-500-52) then proceed to section "10. Set up and connection of dry suction unit".

- Screw the condensate separator (42) to the mounting bracket (41) and then secure mounting bracket onto the base plate of the PTS 120.
- Connect the condensate separator.
  - Connection (43) to hose manifold in treatment unit
  - Connection (40) to vacuum connection V 300 S (45)
  - Connection (44) to on-site waste water system



**i** Because of the wide selection of PTS 120 models available, we recommend the Service Technician to select the model being installed from the following list, e.g. wet suction units, VS 300 S on page 14.

<b>Dry suction units</b>	
<b>V 300 S</b> .....	13
<b>Wet suction units</b> .....	14
<b>VS 300 S</b> .....	14
<b>VSA 300 S</b> .....	15



## 10. Set up and connection of dry suction units



### **Danger of overheating**

Dürr Dental strongly recommends that the warm and contaminated air be extracted outside the building. If cable and hose layout to the outside of the building is not possible, then an exhaust air bacterial filter (7120-143-00) must be installed.



### **DANGER**

**electric shock due to defective connection cable**

- The connection cable of the suction machine must not touch any hot surfaces.

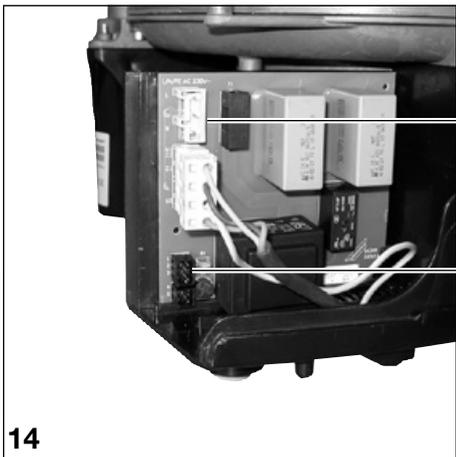
### 10.1 V 300 S

#### **Placing V 300 S in PTS 120**

- Place the V 300 S into the PTS.
- Guide the suction and exhaust air hoses through the openings (32) of the PTS, see fig. 11.
- Connect the vacuum connections (44) with the suction hose of the treatment unit or with the condensate separator, see fig. 11.
- Connect exhaust air pipe (aluminium hose) (45) to the exhaust air hose or an existing on-site air extraction pipe.

#### **V 300 S Electrical connection**

refer to "11.1 VS 300 S Electrical Connections"



14

## 11. Set up and connection of wet suction units



**Danger of overheating**  
Dürr Dental strongly recommends that the warm and contaminated air be extracted outside the building. If cable and hose layout to the outside of the building is not possible, then an exhaust air bacterial filter (7120-143-00) must be installed.

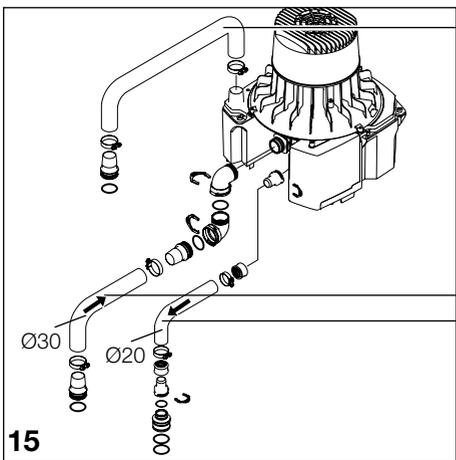


**DANGER**  
**electric shock due to defective connection cable**

- The connection cable of the suction machine must not touch any hot surfaces.



Where the PTS 120 is fitted with an amalgam separator (CA 1) then the surge tank together with plumbing must be installed before installation of the VS units, proceed to section "12.1 Installation of a surge tank."



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### 11.1 VS 300 S

#### VS 300 S electrical connections

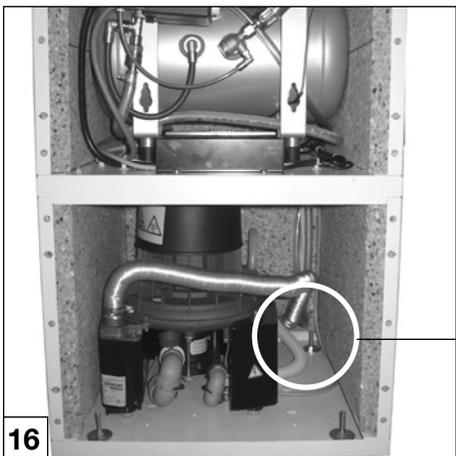
- Guide the mains cable ( ) supplied through the openings on the VS 300 S terminal box and secure to connector X1 (45).
- Clamp the bridge contact (46) to terminal X3, 1 and 3.
- Secure the cable with a cable relief.
- Place cover onto terminal box and screw tightly.

#### Connecting suction, exhaust air and waste water hoses

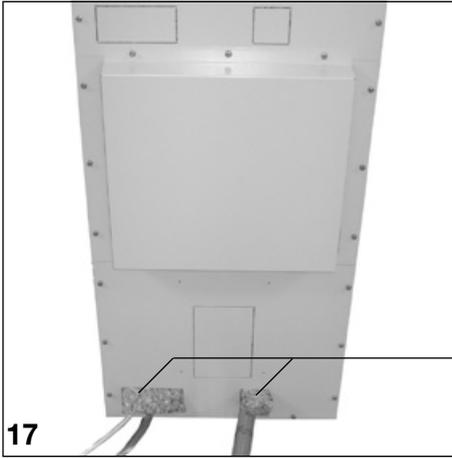
- Place aluminium exhaust air hose Ø30 mm (48) in position and secure with a hose clamp.
- Suction hose (49) Ø30 mm.
- Waste water hose (50) Ø30 mm.

#### Place the VS 300 S into the PTS.

Guide the exhaust air, suction and waste water hoses through the openings (32) of the PTS and connect to the existing building installations, see figs. 15 and 16.



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## 11.2 VSA 300 S

### VSA 300 S electrical connections

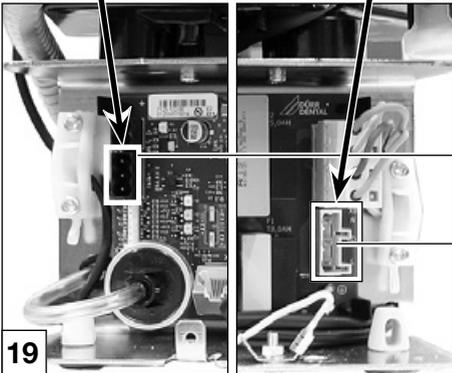
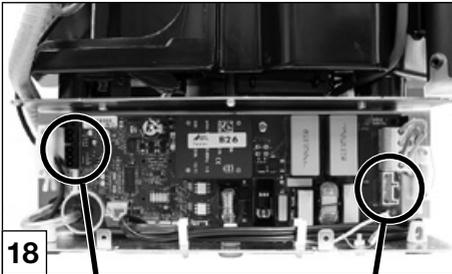
- Guide the mains cable () supplied through the openings on the VSA 300 S terminal box and secure to connector X8 (77).
- Clamp the bridge contact (76) to terminal X2, 1 and 3.
- Secure the cable with a cable relief.
- Place cover onto terminal box and screw tightly.

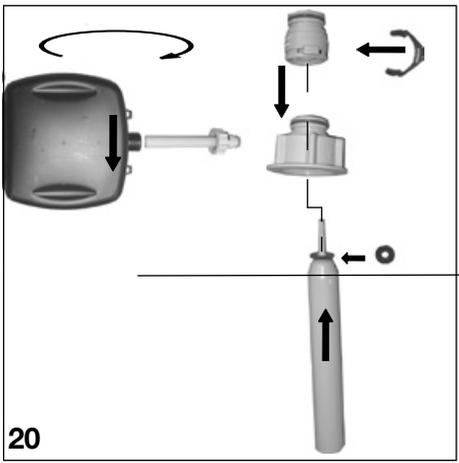
### 32 Connecting suction, exhaust air and waste water hoses

- Place aluminium exhaust air hose Ø30 mm (48) in position and secure with a hose clamp.
- Suction hose (49) Ø30 mm.
- Waste water hose (50) Ø30 mm.

### Place the VSA 300 S into the PTS.

Guide the exhaust air, suction and waste water hoses through the openings (32) of the PTS and connect to the existing building installations, see figs. 15 and 16.





## 12. Installing Amalgam Separator CA 1

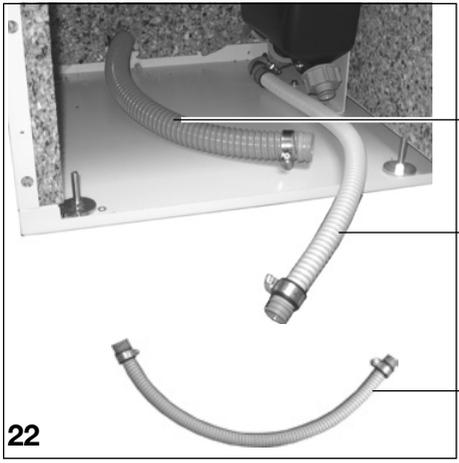
### 12.1 Install surge tank

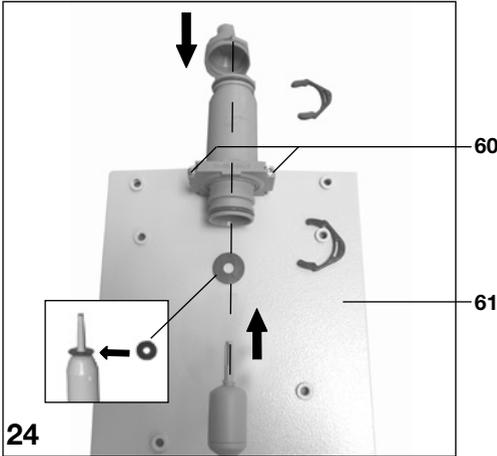
- Assemble the surge tank (53) using DürrConnect ventilation and connection pieces.
- Screw the surge tank into position on the mounting bracket and into the PTS 120 (54).



- Connect the waste water intake (56) between the VS 300 S and surge tank.
- Guide the suction hose (55) from behind through the hose openings (32) of the PTS 120, see fig. 22.

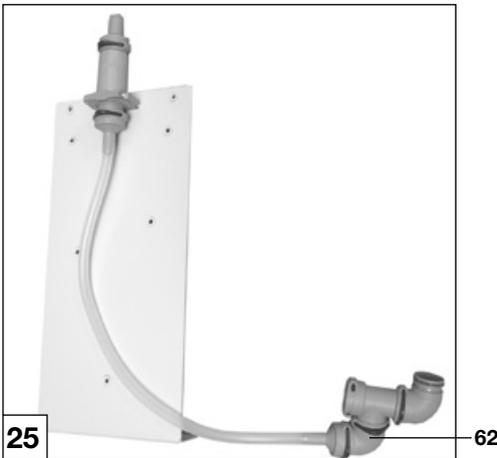
**i** Return to section "11.1 VS 300 S electrical connections" and follow the instructions.



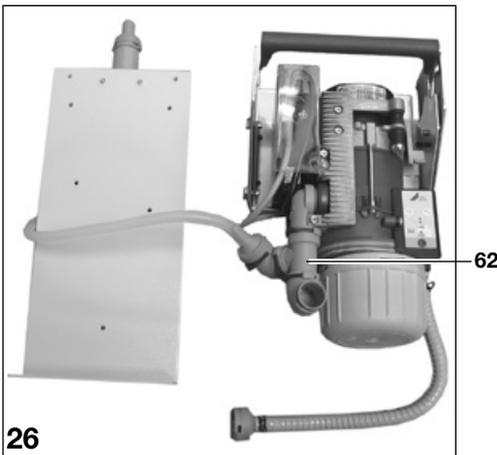


## 12.2 Installing Amalgam Separator CA 1

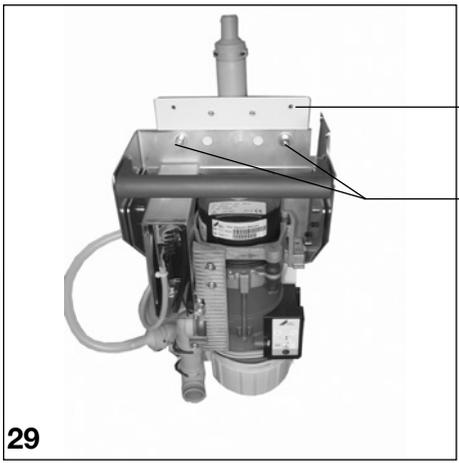
- Clip the DürConnect ventilation valve unit for CA 1 together (60) and screw in place on mounting plate (61).



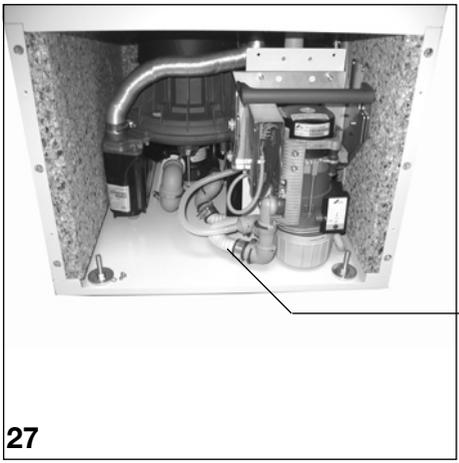
- Connect the ventilation valve and elbow piece (62) together using a transparent piece of hose.



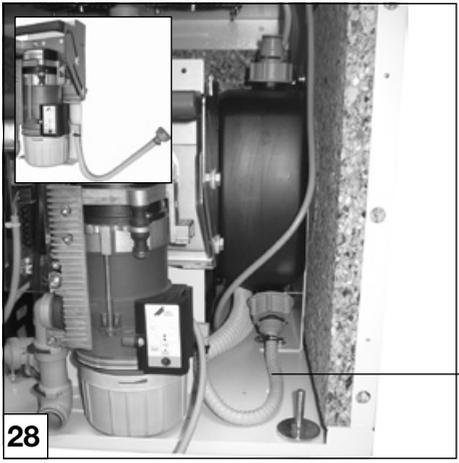
- The elbow piece (62) is now attached to the waste water connection of the CA 1 and secured against slipping using a clip.



- First place the mounting plate (61) into the PTS 120 and screw down, then fix the CA 1 onto the mounting plate (63), see figs. 26 and 27.



- Connect the CA 1 (64) to the existing building waste water system.

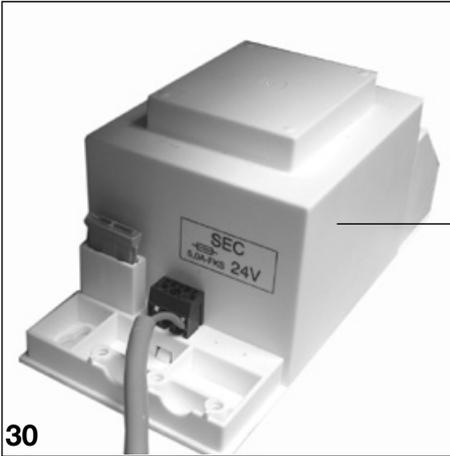


- Connect the waste water intake (65) between the CA 1 and surge tank.

### 12.3 Amalgam Separator CA 1 electrical connections



The transformer supplied is necessary to provide the correct power supply to the CA 1 and must be installed, see section "15. Electrical connection plan".



30

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31

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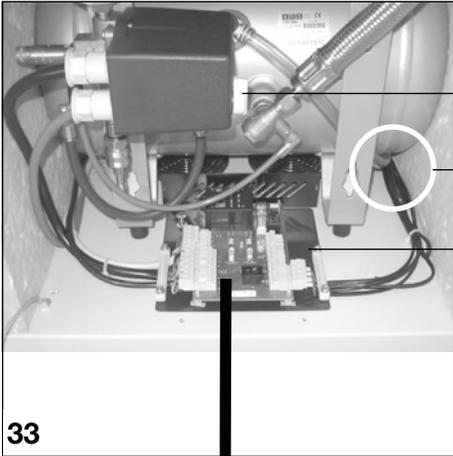
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71

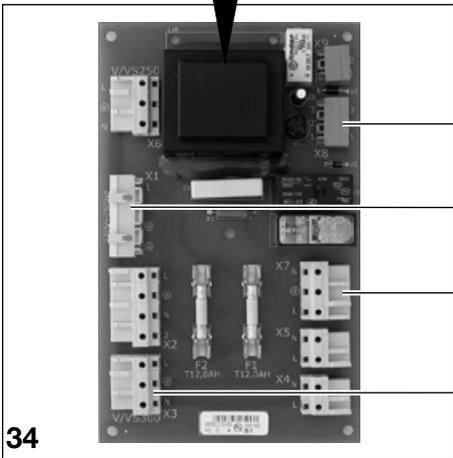
- Attach a two-wire cable to the electronic circuit board terminal (71) X1 of the amalgam separator CA 1. Guide the two-wire cable through the cable openings of the PTS 120 and connect to the transformer unit (70) at 24 V output connection.
- Connect the two-pin cable (N, L) to the 230 V input side of the transformer unit and to the PTS 120 PCB (main board) (74) terminal X7.



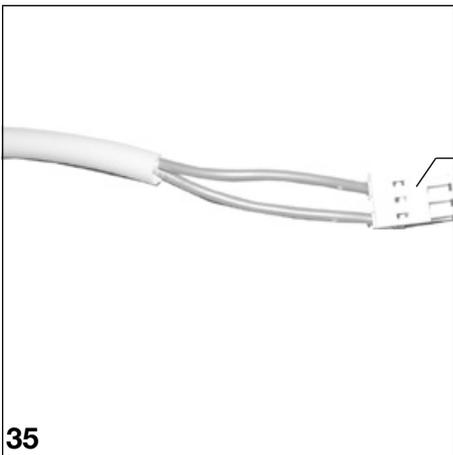
32



33



34



35

## 13. PTS 120 electrical connections

- 72 The mains power supply must be carried out using an earthed safety contact and should be connected via the main power switch of the treatment unit or via the main surgery switch.
- 73



**The supply lines to the unit must be laid without mechanical strain.**

74

### 13.1 Connecting hose manifold

- Feed 2 pin cable from the hose manifold of the treatment unit through the cable duct of the PTS to the main board (74).
- Place the connector (75) on the cable of the hose manifold and attach to the PCB connections X8 (1 and 3).

### 13.2 Power supply

- Feed the mains cable leaving the main board X1 (L, N, and PE) with a connector through the opening of the PTS and place the connector in the safety socket.



**The socket for the mains connection of the PTS must be easily accessible so that the power supply can be cut off in the case of emergencies or service.**

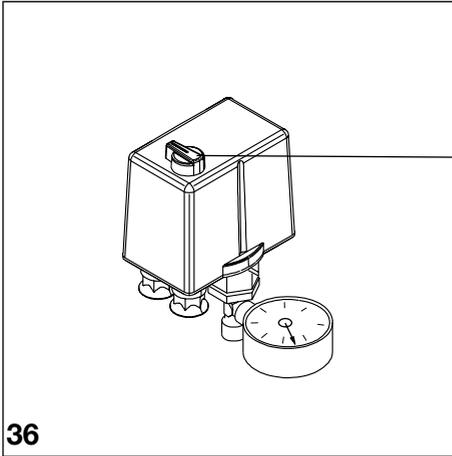
X8

X1

X7

X3

- Replace the cover to the PCB (76).
- Position the transformer unit (70) on top of the PCB cover, see figs. 31 and 32.



## 14. Finishing touches

Before operating the supply voltage, check the voltage information on the model identification plate.

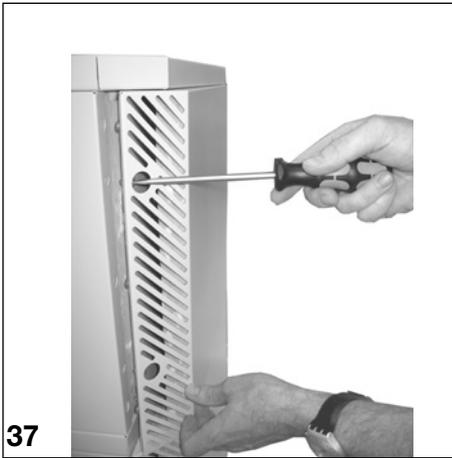
72



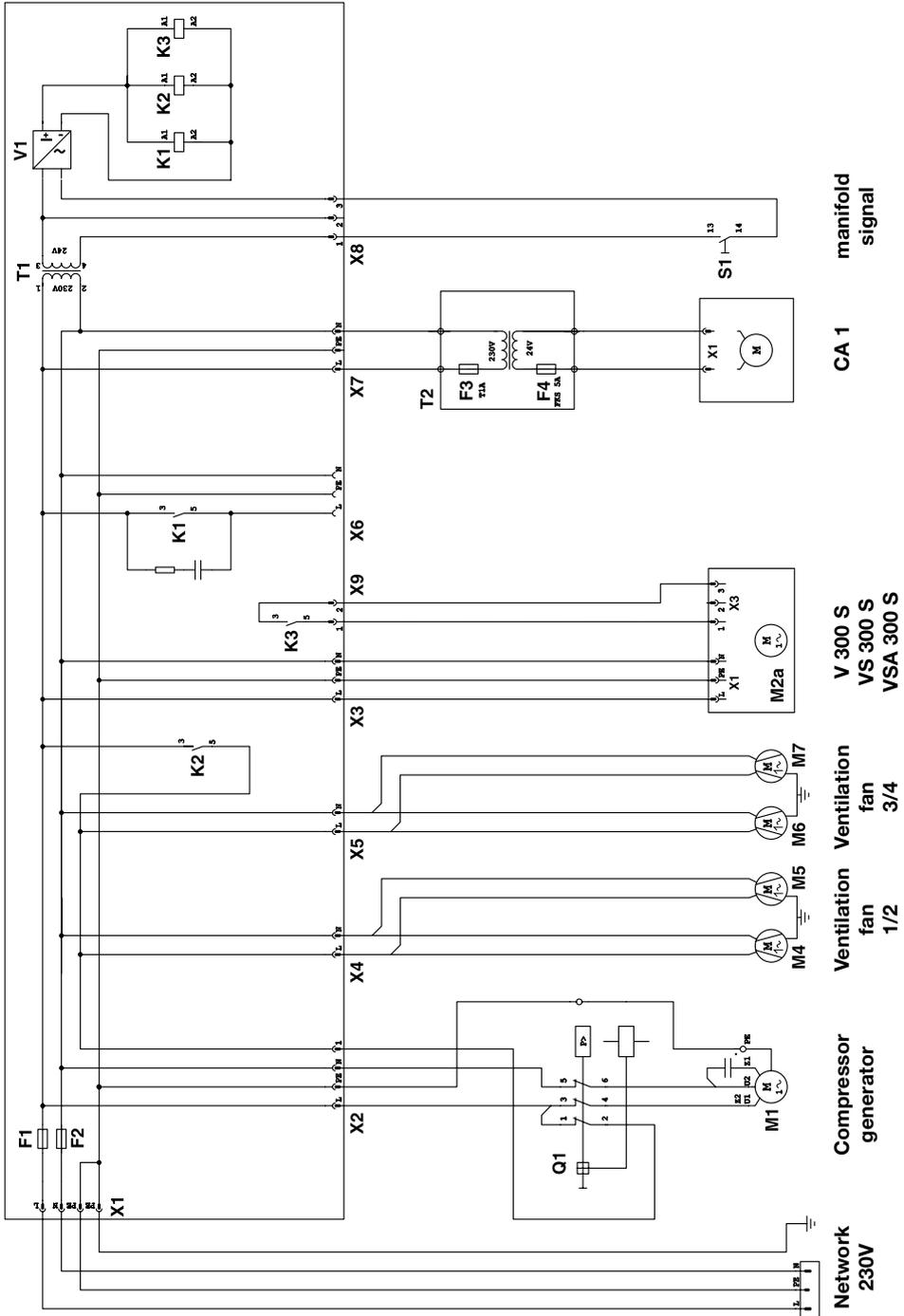
**The supply lines to the unit must be laid without mechanical strain.**

- Plug in at the mains.
- Switch the compressor generator on to position "I AUTO" by turning the switch (72). The compressor generator will start and switches off on reaching c. 7.5 bar.
- Switch on the suction machine by removing the suction hose.
- Close the three noise-reducing panels to the PTS 120 again, see figs. 37 and 38.

EN



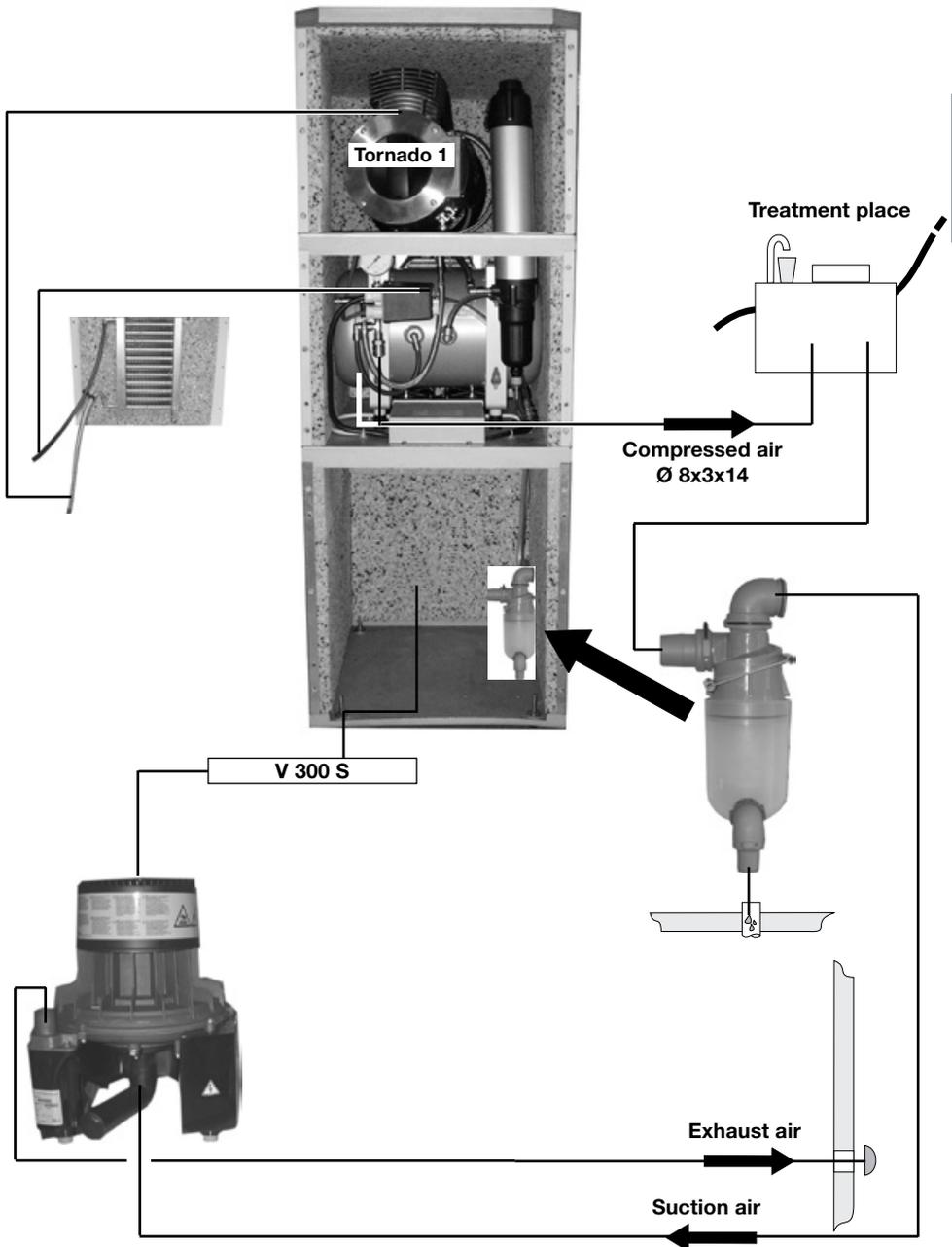
# 15. Circuit diagram for 230 V 1~



# 16. Peripherals connection plan

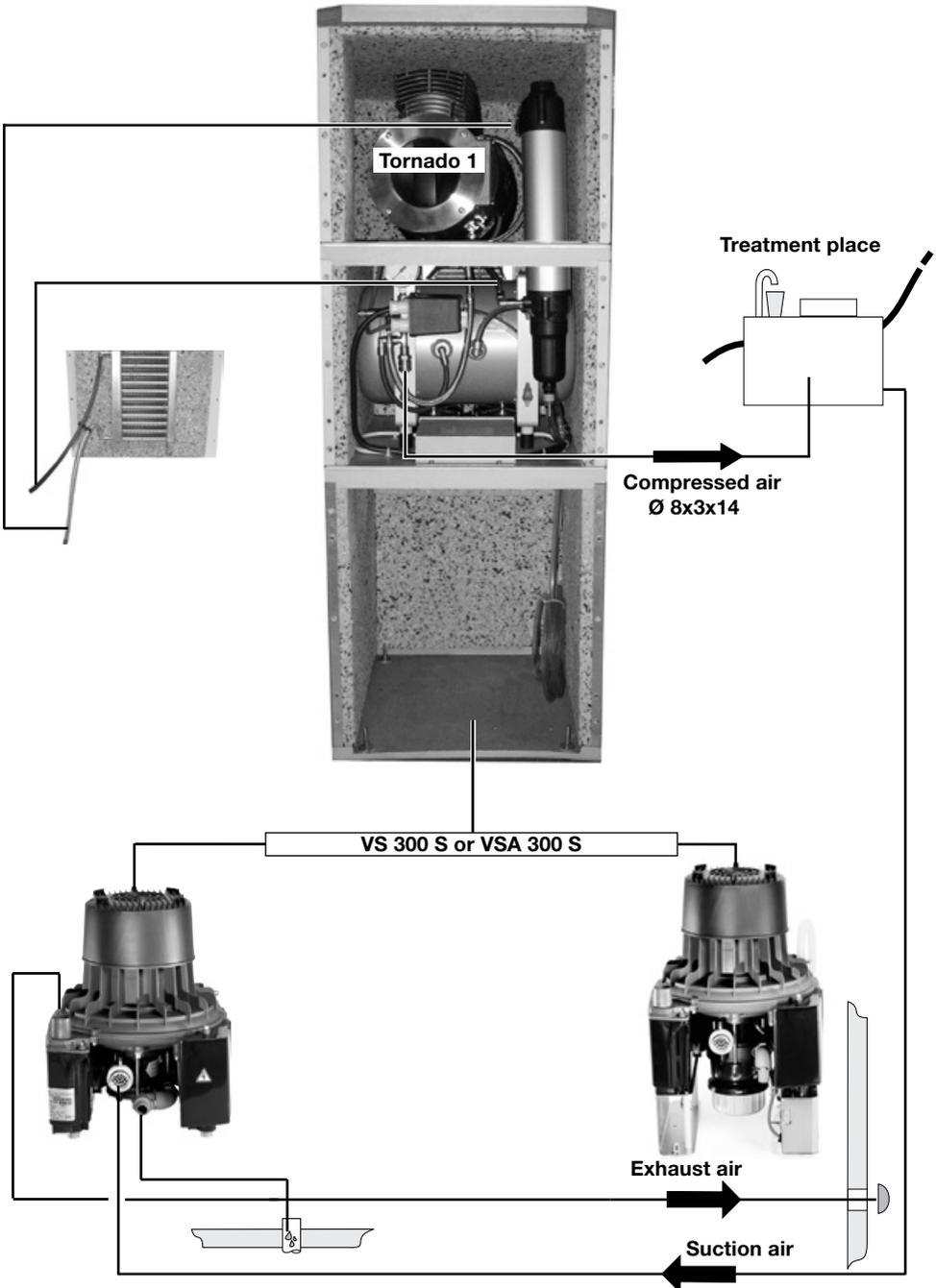
## 16.1 Dry suction units V 300 S, Condensate separator, Compressor Tornado 1, drying units

PTS 120

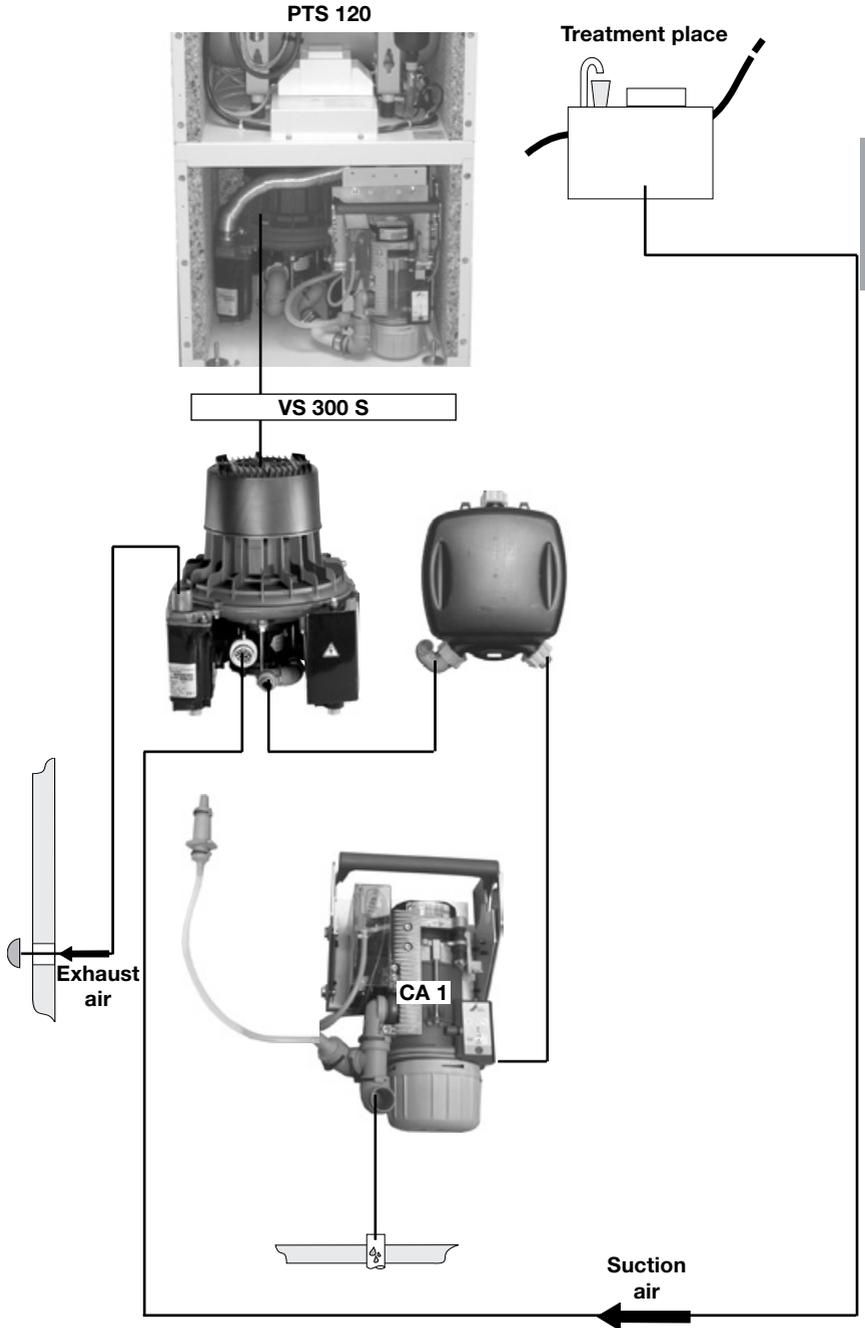


## 16.2 Wet suction units VS 300 S, compressor Tornado 1, drying units

PTS 120



### 16.3 Wet suction units VS 300 S, amalgam separator CA 1



EN





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