Compressed Air Station for Clinics
P 6000, P 9000, P 12000

EN

Installation and Operating Instructions

CE

9000-610-57/01

DÜRR DENTAL

2011/10

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Important Information

1 Notes on this documentation

These Installation and Operating Instructions are a basic component to the appliance. They conform to the model type of the appliance and represent the state of technology at the time of manufacture and initial use.

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Dürr Dental can accept no responsibility and no liability where the instructions and notes contained within these Installation and Operating Instructions are not observed nor guarantee the safe and proper operation of the appliance.

This translation has been carried out in good faith. The German original version is valid and ruling. Dürr Dental does not accept any responsibility for errors in translation.

1.1 Warnings and symbols

Warnings

Any warnings in this document are designed to draw attention to possible injury to persons or to danger to property.

They are marked with the following warning symbols:


General warning symbol


Warning - dangerous electrical voltage


Warning - hot surfaces


Warning - the unit starts up automatically

The warnings are built up as follows:


SIGNAL WORD
Description of type and source of danger
Here you will find the possible consequences of ignoring the warning
• Observe these steps to avoid possible danger.

The signal words denote four different warning levels:

DANGER	Extreme danger which may result in serious injury or death
WARNING	Possible danger which could result in serious injury or death
CAUTION	Possible danger which could result in minor injury
IMPORTANT	Possible danger which could result in serious damage

Further symbols

The following symbols are used within this document and on the actual appliance:


Notes, e.g. special instructions concerning efficient usage of the device


Observe all accompanying documentation.


Dispose of according to EU directive (2002/96/EG-WEEE).


Date of manufacture


CE-labeling


Wear ear protectors


Earthed wire connection


Air

1.2 Notes concerning trade marks, brand names etc.

All switches, processes, names, software and appliances mentioned here are protected under copyright. Making copies of the Installation and Operating Instructions, or parts thereof, is only possible with the written approval of Dürr Dental.

1.3 Further documentation

All information and instructions concerning the refrigerant type dryer are contained in the separate leaflet supplied.

2 Safety

Dürr Dental has designed and constructed this appliance in such a way that under correct usage the product is perfectly safe to use. However, there is always a minimum risk.
For this reason, please observe the following notes carefully.

2.1 Correct Usage

The compressed air station is designed to supply compressed air in order to operate dental units or for similar applications.

The compressed air station has been designed for operation in dry, ventilated rooms with an ambient temperature between circa +10 and +40 °C.

Set up in medical supply equipment

During development and construction of this compressed air station all requirements for medical devices have been taken into consideration wherever possible. As a result this appliance is suitable for installation within medical supply equipment.

2.2 Incorrect Usage

WARNING
Risk of explosion caused by inflammable materials

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

The compressed air station must not be used in operating areas, for the operation of respiratory equipment or other similar equipment without additional preparation.

Do not operate the compressed air station in wet or damp rooms or environments.

Any usage of the appliance above and beyond the correct usage described in this documentation is considered to be incorrect usage. Dürr Dental cannot be held liable for any damage or injury resulting from incorrect usage.

2.3 General safety notes

- When operating this appliance always observe all guidelines, laws, and other rules and regulations which are applicable at the site of operation.
- Check the function and condition carefully every time before using the appliance.
- Do not convert or change the appliance in any way.
- Carefully observe the Installation and Operating Instructions.
- Make the Installation and Operating Instructions available to the person operating the appliance at all times.
- Wear ear protectors for all work where the unit must be started up (e.g. initial start-up, maintenance).

2.4 Qualified staff

Operation

Persons who are expected to operate the appliance must be able to guarantee safe and correct operation as a result of their training and their experience.

- Every person operating the device must be trained in its handling.

Installation and repair and maintenance

- Installation, resetting, alterations, adding of extensions and repairs must be carried out by Dürr Dental or by person(s) specifically authorised by Dürr Dental.
- Ensure electrical connections are carried out by a suitably qualified electrical technician.

2.5 Protection from electric shock

- When working with the appliance observe the appropriate electrical safety procedures.
- Immediately replace any damaged lines and connections.

2.6 Use original parts

- Only parts specified by Dürr Dental or specifically approved accessories and special accessories may be used with this appliance.
- Use only original working parts and spare parts.

Dürr Dental accepts no liability for damage or injury caused by using accessories, special accessories or parts other than original working parts and spare parts which were not specifically approved by the manufacturer

2.7 Transport

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

Dürr Dental accepts no liability for damage caused by using inadequate packaging for transport even if this is during the period of guarantee.

- Only transport the unit secured to the pallet in its original packaging.
- Transport the unit using a forklift truck or lifting device.
- Keep the packaging safely out of the reach of children.

2.8 Disposal

Appliance

Dispose of the appliance properly.
Within the European Union the appliance must be disposed of according to EU directive 2002/96/EG (WEEE).

- Before commiting to waste disposal, open the safety valve and release all the compressed air from the pressure tank.
- If you have any questions concerning the correct disposal of this appliance please contact Dürr Dental directly or contact your local dental trader.

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Product description

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3 Overview

The compressed air station consists of two separate modules:

- Tank module, consisting of pressure tank, dryer and controller
- Compressor module, consisting of 2, 3 or 4 compressor generators

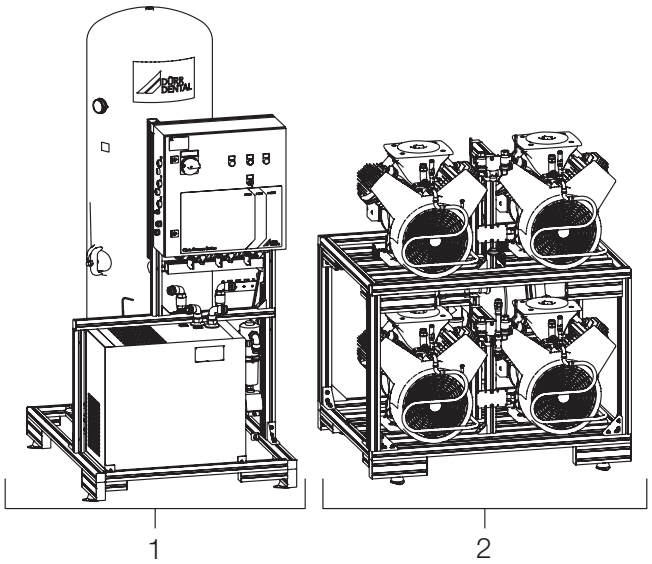

Fig. 1: P 12000
1 Tank module
2 Compressor module

3.1 Delivery contents

Compressed air station P 6000 5922-51

- Tank module
- Compressor module with 2 compressor generators
- Connecting cables and hoses
- Mounting materials
- Installation and Operating Instructions

Compressed air station P 9000 5932-51

- Tank module
- Compressor module with 3 compressor generators
- Connecting cables and hoses
- Mounting materials
- Installation and Operating Instructions

Compressed air station P 12000 5942-51

- Tank module
- Compressor module with 4 compressor generators
- Connecting cables and hoses
- Mounting materials
- Installation and Operating Instructions

3.2 Accessories

The following articles are necessary to operate the appliance depending on particular application:

Display panel 5922-520-51
Switch (8-fold) 5922-521-51

3.3 Special accessories

The following articles are optional and may be used with the appliance:

Noise reducing hood
for P 6000 5922-150-51
Noise reducing hood
for P 9000 and P 12000. 5942-150-51

3.4 Working parts and spare parts

The following parts are subject to wear and tear and should be changed at regular intervals (see section Maintenance):

Filter units for bacterial filter 0705-991-05

Information concerning spare parts can be found in our Spare Parts Catalogue under www.duerr.de/etk.

4 Technical data

Model		P 6000 5922-51	P 9000 5932-51	P 12000 5942-51
Number of compressor generators		2	3	4
Treatment stations served at 60% work load		up to 30	up to 50	up to 70
Voltage	V		400/3N/PE	
Electrical frequency	Hz	50 / 60	50 / 60	50 / 60
Power consumption	kW	10.4 / 13	15.1 / 19	19.8 / 25
Current consumption	A	19 / 22.8	27 / 32.2	35 / 41.6
Mains fusing Characteristic C according to EN 60898	A	32	40	50
Minimum cross-section of electrical supply line*	mm^2	4	6	10
RPM	min^{-1}		1450 - 1720	
Fuse type			IP 20	
Protection class			1	
Interference emissions			Conforms to EN 55014-1	
Resistance to interference			Conforms to EN 55014-2	
Duty cycle	%		100	
Switch-on pressure (factory setting)	bar	7 / 7.5	6.5 / 7 / 7.5	6 / 6.5 / 7 / 7.5
Cut off pressure (factory setting)	bar	7.5 / 8	7 / 7.5 / 8	6.5 / 7 / 7.5 / 8
Safety valve settings	bar		10	
Tank volume	L		500	
Delivery rate at 5 bar	l/min	1133 / 1280	1700 / 1920	2280 / 2560
Noise levels at 5 bar **				
- without noise reducing hood	dB(A)	88	91	93
- with noise reducing hood	dB(A)	68	70	71
Weight				
- compressor module	kg	229	379	479
- noise reducing hood	kg	230	380	380
- tank module	kg	285	285	285
Connections				
- compressed air outlet			G 1" internal thread	
- condensate			DN 20	
Volume of condensate ***			150 - 210 cm^3 per condensate drain cycle	
Required room ventilation	m^3/min	15	21	28
Dimensions (H x W x D)				
- compressor module	cm	95x128x99	180x128x99	180x128x99
- compressor module and pallet	cm	110x138x109	195x138x109	195x138x109
- tank module	cm	220x99x128	220x99x128	220x99x128
- tank module and pallet	cm	235x109x138	235x109x138	235x109x138
Total required space	cm	220x350x280	220x350x280	220x350x280

* The cross-section of the electric supply cable must be matched to the current consumption, length of supply line and local situations (see 10.3 Connection line dimensions)

** According to EN ISO 1680 Noise emissions; measured in a sound-proofed room. The values are average values with tolerances of ca. ±1.5 dB(A). Set-up in unfavourable conditions such as sonically hard rooms (e.g. with tiled walls) can lead to higher noise levels being obtained.

*** Dependent on temperature and relative humidity

4.1 Ambient conditions

Ambient conditions for storage and transport

Temperature	°C	0 to +60
Rel. humidity	%	max. 95

Ambient conditions for operating

Temperature	°C	+10 to +40
Rel. humidity	%	max. 70

The ideal ambient temperature for the life-span of the compressed air station and low condensed water buildup is 25 °C.

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4.2 Model identification plate

Each module is fitted with a model identification plate.

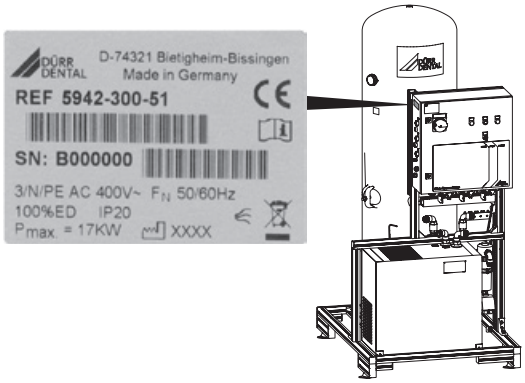

Fig. 2: Tank module model identification plate

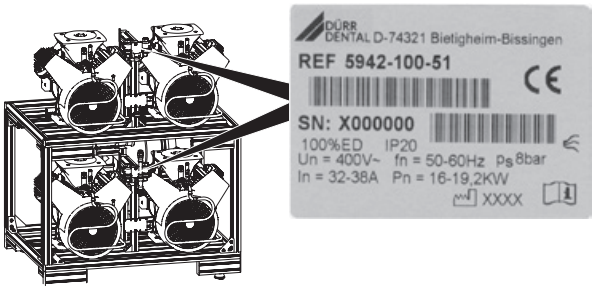

Fig. 3: Compressor module model identification plate

REF Order number / model number
SN Serial number

4.3 Declaration of conformity

Name of manufacturer:	DÜRR DENTAL AG
Address of manufacturer:	Höpfigheimer Straße 17 D-74321 Bietigheim-Bissingen
Name of unit:	DÜRR Clinic compressed air stations P6000 / P 9000 and P 12000

We hereby declare that the product(s) described above conform to all requirements of the directives listed below:

- machinery directive 2006/42/EG in its current version.
- low voltage directive 2006/95/EG in its current version.
- EMC directive 2004/108/EG in its current version.
- simple pressure vessel directive 87/404/EG in its current version.

The assembly consists of pressure units covered by directive 97/23/EG in its current version according to Article 3, Paragraph 3.

Name of the person(s) who is / are responsible for the technical documentation:
A. Hägele (Head of Department, Research and Development).

P 6000
Order number: 5922-51 consists of compressor module (order number: 5922-100-51) and the compressed air tank module (order number: 5942-300-51).

P 9000
Order number: 5932-51 consists of compressor module (order number: 5932-100-51) and the compressed air tank module (order number: 5942-300-51).

P 12000
Order number: 5942-51 consists of compressor module (order number: 5942-100-51) and the compressed air tank module (order number: 5942-300-51).

A. Hägele Head of Department, Development and Research	O. Lange Head of Department, Quality Management

5 Function

The compressed air station produces oil-free, dry and filtered compressed air which is used to operate dental units and similar.
In order to carry out configuration and to call up appliance status (e.g. fault reports) the display panel (see 3.2 Accessories).

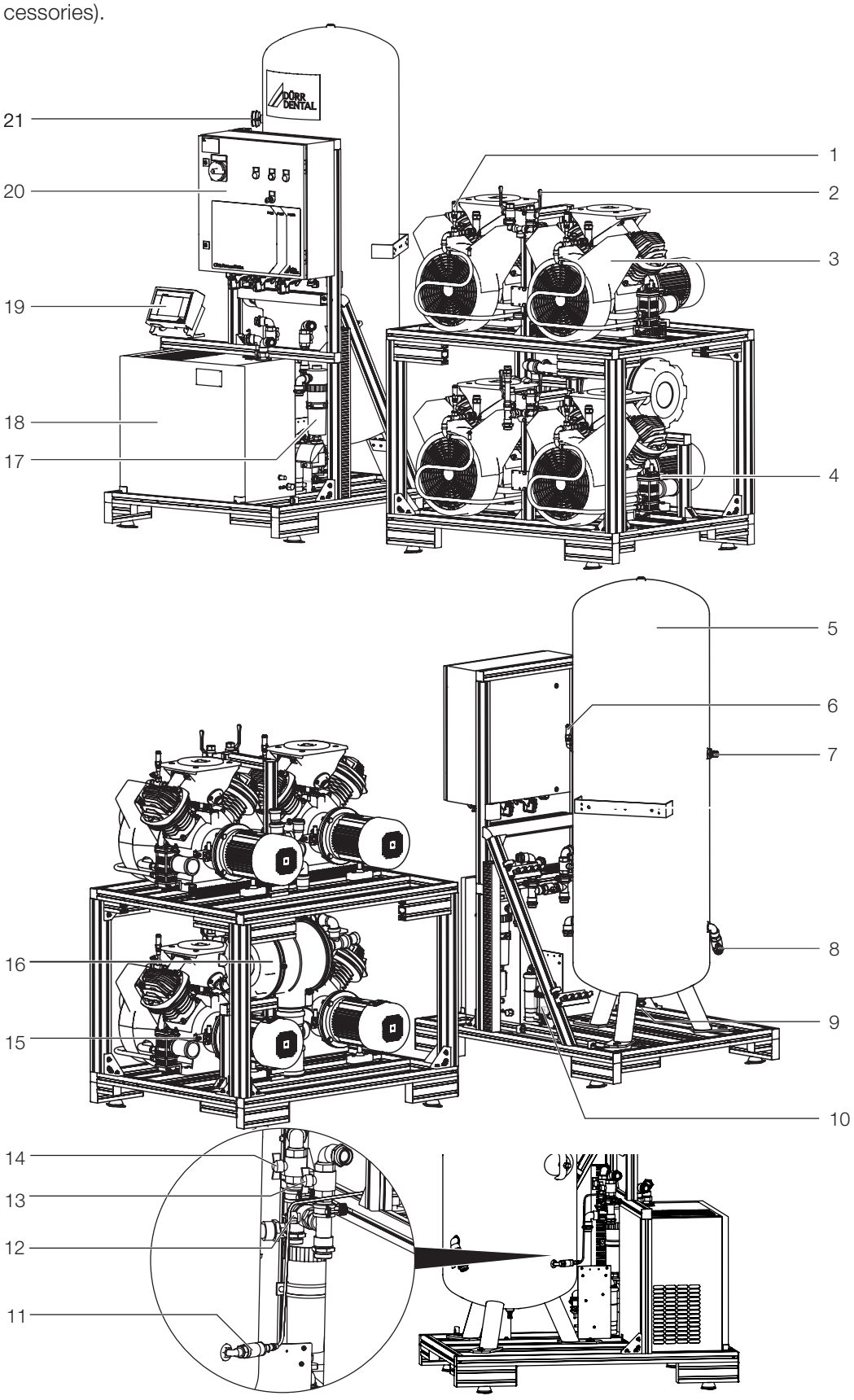

Fig. 4: Compressed air station

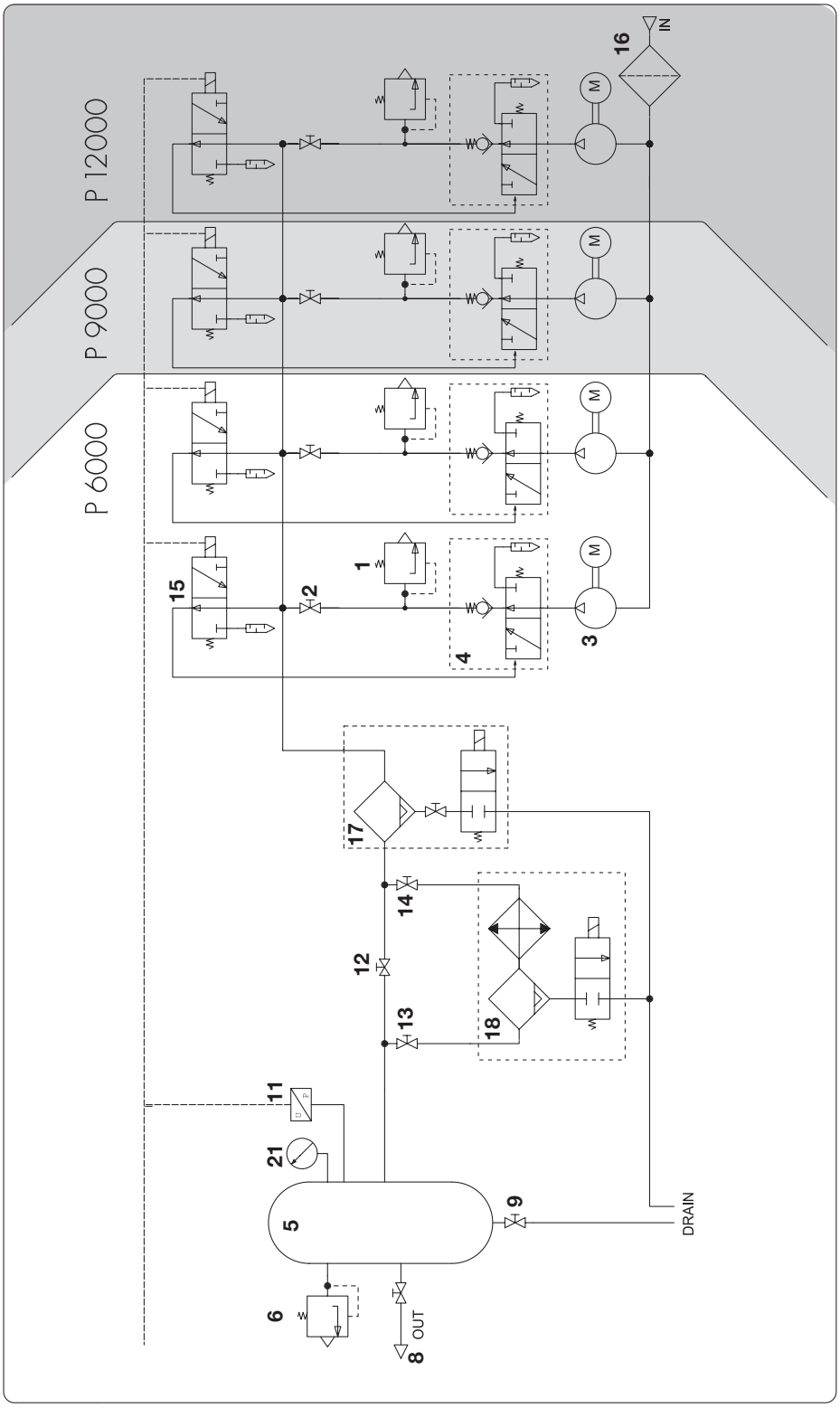

Fig. 5: Pneumatic layout plan

1 Compressor generator safety valve
2 Compressor generator stop valve
3 Compressor generator
4 Non-return relief valve
5 Pressure tank
6 Pressure tank safety valve
7 Measurement connection
8 Compressed air connection to compressed air network
9 Drainage valve
10 Collective condensate separator
11 Pressure sensor
12 Refrigerant dryer bypass stop valve
13 Refrigerant dryer stop valve outlet
14 Refrigerant dryer stop valve inlet
15 Solenoid valve
16 Bacterial filter suction
17 Cyclone separator
18 Refrigerant dryer
19 Display panel (optional)
20 Control unit
21 Pressure gauge

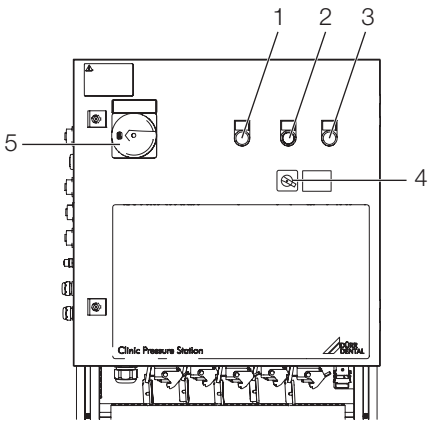

Fig. 6: Control unit

1 Green LED "Operational"
2 Yellow button "Reset"
3 Red LED "Fault"
4 Rotating switch Emergency mode
5 Main power switch

5.1 Start operation

After switching on at the main power switch of the control unit the refrigerant type dryer is switched on and cools the heat exchanger to its normal operating temperature. Depending on the actual ambient temperature this cooling can take up to 3 minutes (see the temperature display on the refrigerant dryer). After ca. 60 seconds the controller switches on the first compressor generator. At intervals of ca. 3 seconds the other compressor generators in the system will be switched on. A pressure sensor monitors the pressure in the tank vessel. On reaching the cut off pressure set in the controller (see section Technical Data) the compressor generators will be switched off one after the other.

5.2 Normal operation

A sensor monitors the pressure in the tank vessel. . When compressed air is taken from the pressure tank, the pressure within the tank falls. At 7.5 bar the first compressor generator switches on. If the pressure within the tank continues to fall, then further compressor generators are switched on consecutively according to the switch-on pressures set (see 4 Technical data).
Each compressor generator starts up in a pressure free state. After ca. 3 seconds the solenoid valve opens the pressure line and the compressor generator begins to supply the pressure tank.
When the pressure within the tank rises, the compressor generators are switched off one after the other as soon as the preset cut off pressure has been reached (see 4 Technical data).

When more compressed air is extracted than the compressor generator can provide, the pressure within the tank continues to fall. When the tank pressure falls below 1 bar, the compressed air station switches over to emergency mode (one compressor generator remains in continuous operation).

While the compressor generator is in operation the accumulating condensate is separated by being conveyed through the electronic cyclone separator and, in a second step, through a refrigerant type dryer and then extracted to the waste water system. This process is carried out automatically using a solenoid valve in the cyclone separator and the refrigerant dryer controller, dependent on the level present.

A special load controller monitors the compressor generator operation and implements an alternation of compressor operation on a rolling system. The alternation is carried out according to the number of operating hours each individual compressor generator has performed.

The pressure in the tank can be read off using a pressure gauge and also at the display panel.

Auxiliary operation

Depending on the amount of compressed air required and the particular set up of the compressed air network it may be necessary for two (or more) compressed air stations to work together on one network. In this particular set up one compressed air station operates in main operation, the other(s) in auxiliary operation.
The settings for auxiliary operation are carried out on initial set up and configuration of the complete unit using the display panel. In auxiliary operation the control range for cutting in and cutting off pressure for the compressed air station is lowered by 0.1 bar. In this way the compressed air station generators switch in main and auxiliary operation alternately on and off.

5.3 Emergency mode

Emergency mode can only be used for short periods in order to maintain an emergency supply of compressed air in the cases of a possible defect in the system.

Turning the switch to the Emergency mode setting "1" switches on the first compressor generator and it starts up in pressure free state. After ca. 3 seconds the switch can be rotated to position "2". The solenoid valve opens the pressure line and the compressor generator begins to supply the pressure tank. The compressor generator then runs in continuous operation. The alternation of generators no longer takes place.
When no air is extracted, the pressure in the tank climbs to 10 bar and will be maintained at this level by the opening of the safety valve. The safety valve produces a loud venting noise when it is in the open position.

Mounting

6 General Notes

6.1 Compressed air system requirements

The compressed air network to which the compressed air station is connected must be so set up that there is a maximum pressure of (10 bar).

6.2 Set up in medical supply equipment

- When assembly and installation is carried out in facilities supplying medical services the requirements laid down under directives 93/42 EWG and IEC 60601-1, as well as any other relevant standards must be observed.
- Before installation ensure that the compressed air available is suitable to satisfy all requirements for its particular usage.
- Unit classification and evaluation of conformity must be carrried out on installation by the manufacturer of the end product.

7 Transport

WARNING
During transport parts can come loose when the compressed air station is still under pressure

- Only transport the compressed air station in a pressureless state.
- Before transport bleed off all compressed air from the pressure tank and the pressure hoses.

8 Set-up

8.1 Set-up location

Set-up location requirements:
- dry and well ventilated room (for required ventilation see 4 Technical data)
- ambient temperature of +10 to +40 °C
- max. 70 % room air relative humidity

- Installation in purpose built rooms, e.g. boiler room, must be checked against building regulations beforehand.
- Do not operate the units in damp or wet environments.
- Use a noise reducing hood (see 3.3 Special accessories).
- Clearly indicate that the room may only be entered by staff wearing ear protectors.

Some 70% of the electrical energy taken up by the compressed air station is converted into heat and given off to the surroundings.

- If it is possible that the required room temperatures will be exceeded then ventilation or some form of cooling will be required and must be installed.

8.2 Module layout

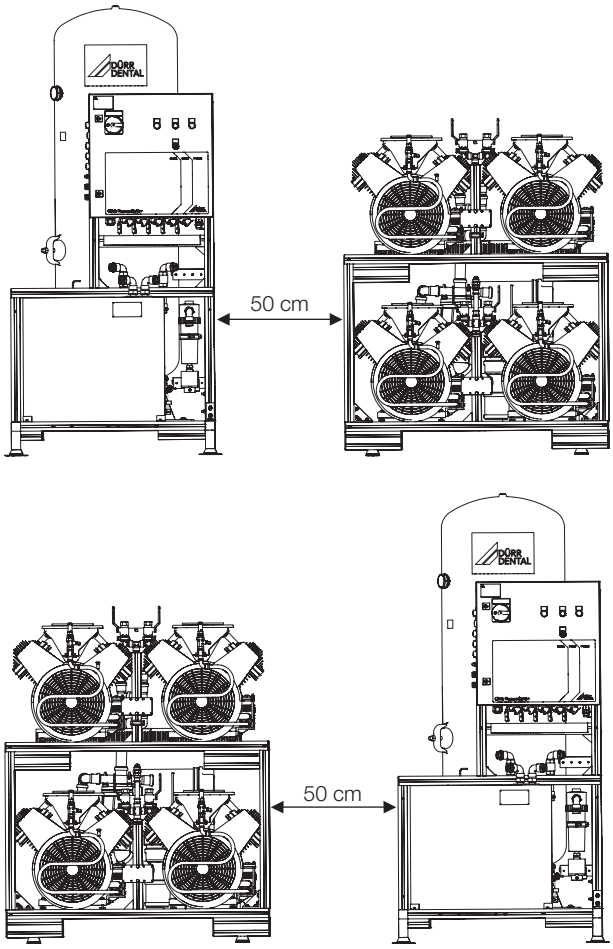

Fig. 7: Distance between tank and compressor module

- The compressor module can be set up either left or right of the tank module.
- Maintain a distance between the modules of ca. 50 cm to allow sufficient space for maintenance.

Do not leave too great a distance between the modules, otherwise the supply lines between the modules may be subject to greater mechanical strain.

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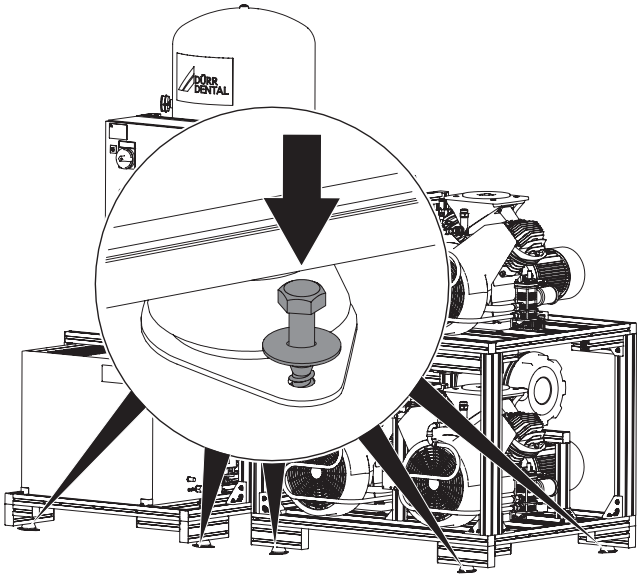
8.3 Set up and secure modules

The mounting materials are supplied in the scope of delivery.

- Loosen the modules from the pallets (undo transportation safety devices).
- Use a forklift truck or lifting equipment to move both modules to the location chosen for set up.
- Drill required holes into the floors for the fixtures.
- Insert plugs.
- Secure the modules to the floor with bolts.



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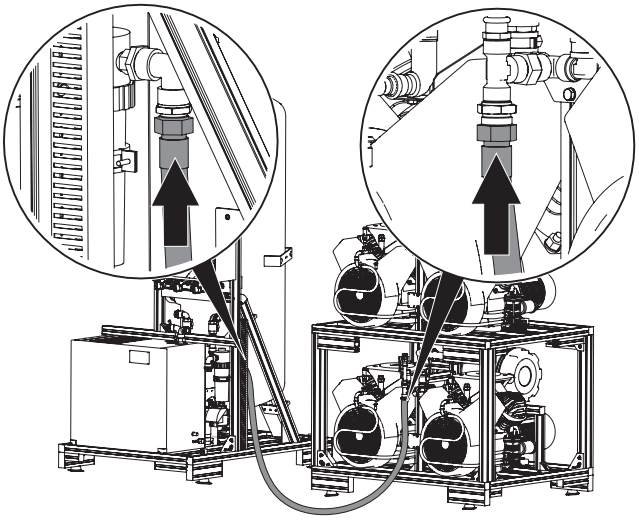
9 Installation

The following tools will be required:
- two flat wrenches (spanners) NW 41

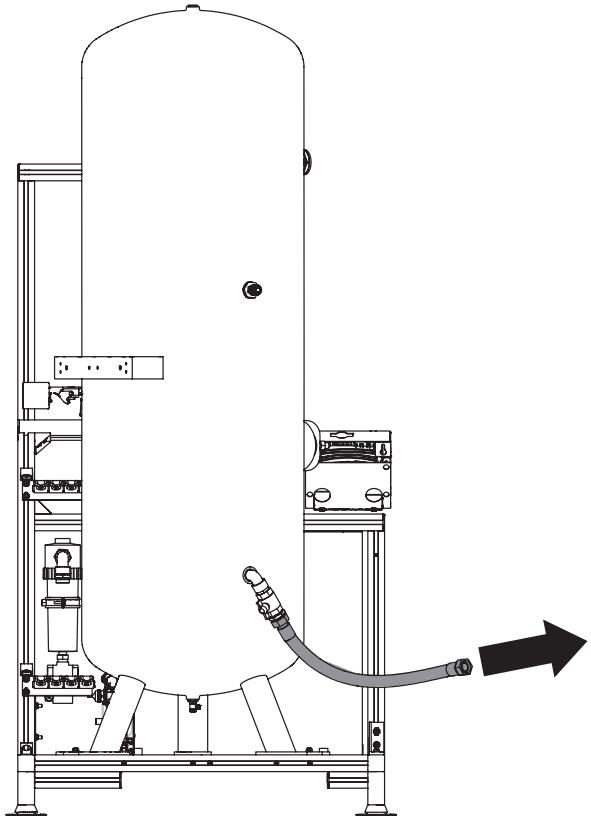
The pneumatic circuit plan can be found in the control unit.

9.1 Connect the compressed air connection to the cycloneseparator



9.2 Connect the pressure tank to the compressed air supply net

- Connect the pressure tank to the supply network using a flexible compressed air hose (on-site connection: G 1" external thread).

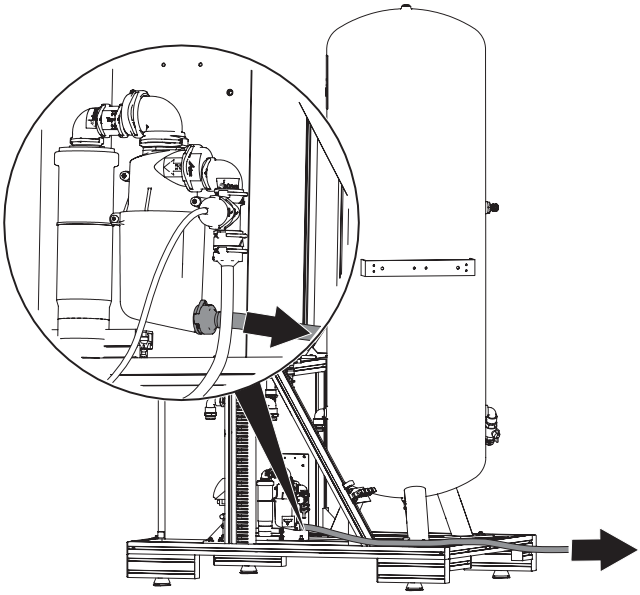


9.3 Connect the condensate drain outlet to the waste water system

The condensate is led without pressure via the condensate separator collector to the waste water system.

When carrying out connections to the waste water system observe national and local regulations on-site (siphon etc.).

- Connect the condensate drain outlet to the waste water system.



10 Electrical Connection

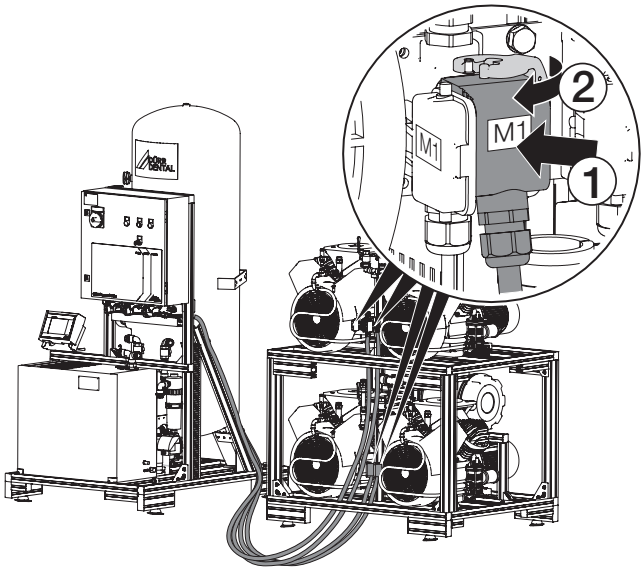
The circuit diagram can be found in the control unit.

10.1 Electrical connection and safety

- Electrical connections should only be carried out by a suitably qualified electrician.
- Observe all technical rules and regulations concerning the set up of low voltage equipment in rooms used for medical purposes.
- Before initial start-up compare the local voltage and electrical frequency with the ratings on the model identification plate.
- Only connect the units correctly to a fixed appliance connection box with terminal strips or directly to the electricity supply.
- Lay all supply lines so that they are protected from any possible mechanical damage (e.g. away from sharp edges, pinching, hot surfaces etc.).

10.2 Connecting modules

- Lay the connection lines from the control unit to the individual compressor generators and secure with strain reliefs. Note coding (e.g. M1) carefully.



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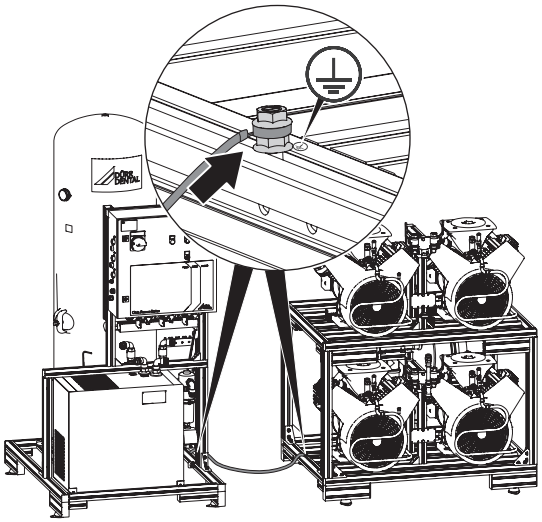
- Secure the connections to earth at the marked points of both modules.



10.3 Connection line dimensions

The following information on connection lines is based on German and European standards. Always observe the relevant national standards and local rules and regulations.

Diameter of the connections

The diameter of the connections is dependent on the current consumption, length of supply lines and the ambient temperatures on site.

Informationen on current consumption and minimum cable cross-sections can be found under 4 Technical data.

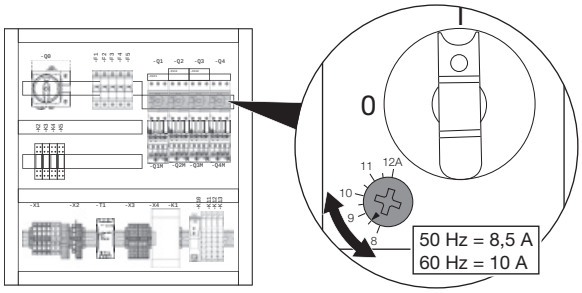
Line layouts

Type of connection	Line layout (minimum requirements)
400 V-Power Supply, permanent	- NYM-J
400 V-Power Supply, flexible cable	- PVC-hose connection H05 VV-F or - rubber connection H05 RN-F, H05 RR-F

10.4 Match motor protection switch to network frequency

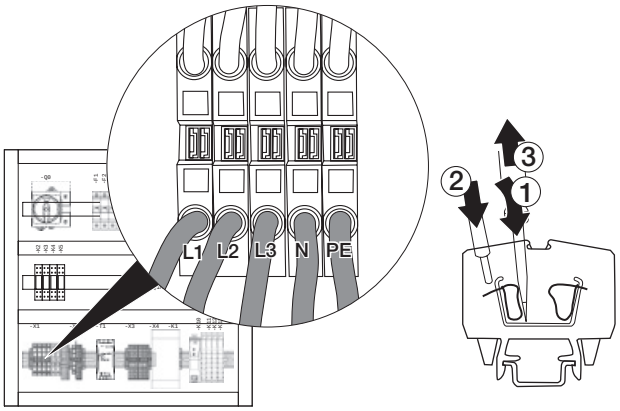
The motor protection switch settings depend on the actual electrical frequency:
- at 50 Hz: 8.5 A (preset)
- at 60 Hz: 10 A

- Where electrical frequency is 60 Hz set the motor protection switch at 10 A.



10.5 Connect control unit to the mains power supply

- Ensure circuit is fitted with an all pole circuit breaker (all-pole switch or all-pole breaker for line protection) with > 3 mm contact opening width.
- Pull the five strand cable through the strain relief at the control unit.
- Connect the wires to terminals L1, L2, L3, N and PE.



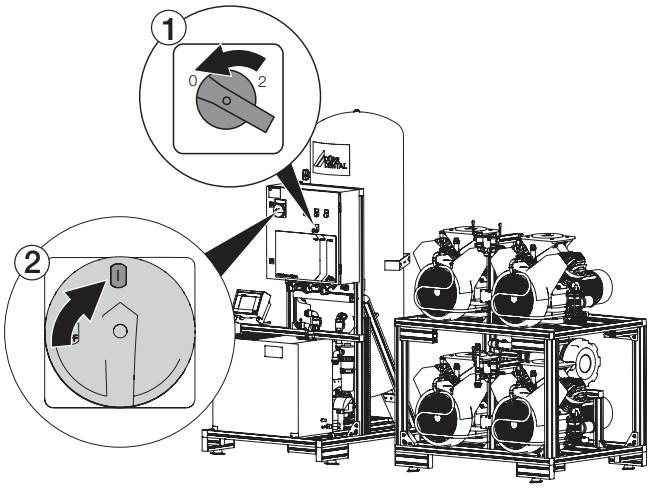
- Secure the strain relief in the control unit.

11 Initial start-up

Wear ear protectors.

11.1 Switching on compressed air station

- Check that the stop valve to the compressed air network is closed.
- Rotate switch to Emergency Mode setting "0".
- Switch on at main power switch.
  When the controller is ready the display "Operational" is shown.

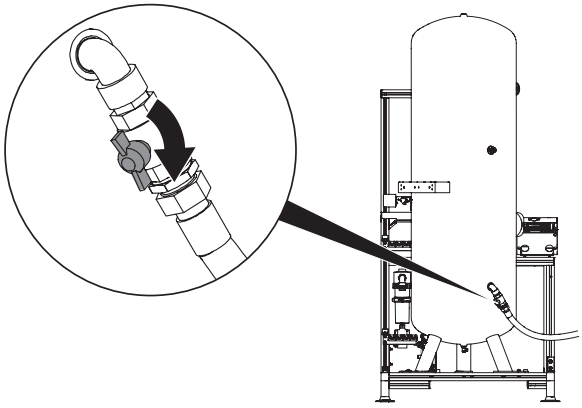


- If the refrigerant dryer does not automatically switch on, use the operating panel and switch it on from here.

Once the refrigerant dryer is switched on the dew point temperature is shown.

After ca. 60 seconds the compressor generators start up one after the other.
After two to three minutes the refrigerant dryer displays a temperature between 0 °C and +4 °C.
Once the cut off pressure has been reached the compressor generators switch off one after the other.

- Check all compressed air connections and lines for any signs of leakages.
- Open the stop valve to the compressed air network.



11.2 Choose operational mode

When two or more compressed air stations are connected to the same network then one compressed air station must run in main operating mode, all others must be set to run in auxiliary operating mode. The factory setting is for main operating mode.

In order to use more than one compressed air station connected to a single display panel, a special switch (order number 5922-521-51) is required.

- Set the appropriate operational mode of the compressed air station at the display panel. Further information can be found in the display panel instructions sheet (order number 9000-606-109/..).

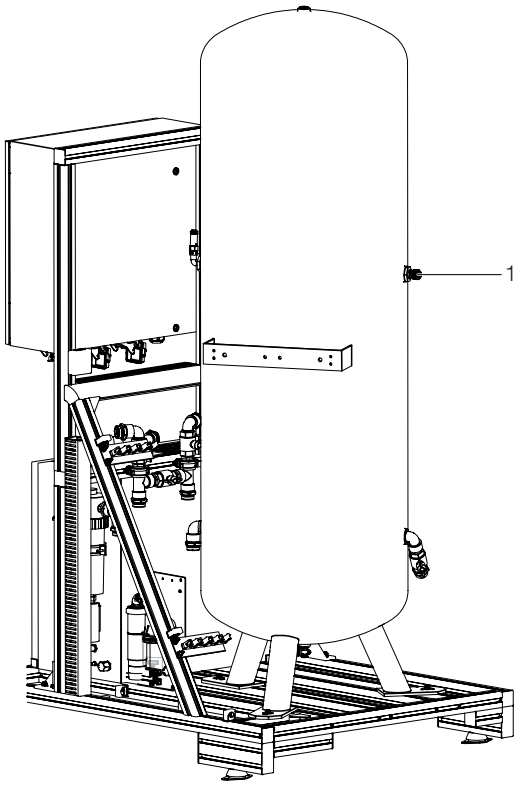
11.3 Document acceptance test

- Check the compressed air station according to the final testing/handover examination and record (see appropriate form in Appendix).

11.4 Measuring dew point (optional)

Only carry out dew point measurements after ca. four complete fillings of the pressure tank (ca. 16 m^3) have been used.

- The compressed air for the dew point measurement should be taken from the measuring connection point (1).



EN

Use

12 Activating emergency mode

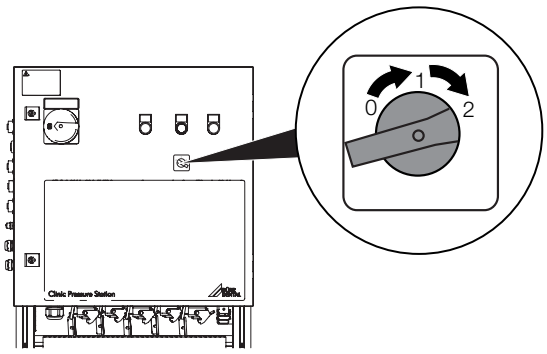
When the controller breaks down the units can be operated for a short period under Emergency Mode, in order to maintain an emergency supply.
One compressor generator then runs under continuous operation, any excess pressure (10 bar) is vented using the safety valve.

EN

Wear ear protectors.
Venting the excess pressure via the safety valve causes a loud noise of escaping air.

Only operate the units for short periods in Emergency mode. Longer periods will shorten the life-span of the compressor generator.

- Rotate Emergency Mode switch to setting "1" and wait ca. 3 seconds.
  The compressor generator begins to run under zero pressure.
- Rotate switch to Emergency Mode setting "2".
  The compressor generator then runs in continuous operation.
  The red LED "Fault" shows.



13 Decoupling a single compressor generator

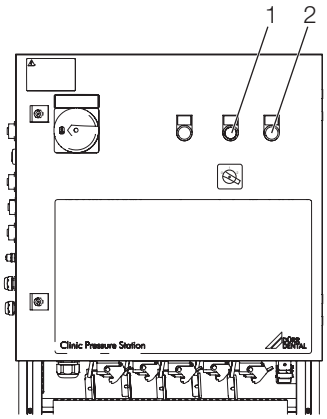
Where a single compressor generator stops working, the unit can continue operating temporarily. However, the defect compressor generator must be taken out of operation.

- Close the stop valve to the compressed air connection to the compressor generator.
- Activate the motor protection switch manually.
- Inform your service team.

14 Fault rectification

When a fault arises the red LED "Fault" is displayed. Depending on the type of fault identified the unit will either continue to run or will stop (see also Trouble-shooting).

Further information on faults can be called up via the display panel, see the display panel instruction sheet (order number 9000-606-109/..).



1 Yellow button "Reset"
2 Red LED "Fault"

- Call up fault at the display panel and rectify.
- Press "Reset" to reset the fault warning display.

15 Maintenance

15.1 Maintenance plan

All maintenance work must be carried out by a suitably qualified expert or one of our after-sales service technicians.

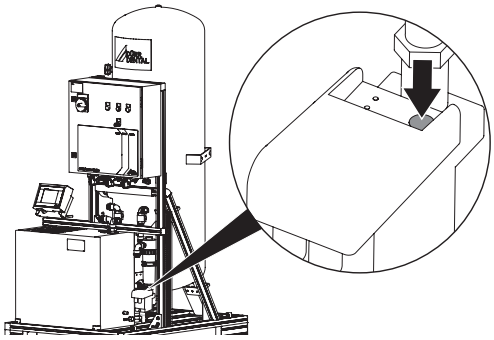
Maintenance interval	Maintenance to be carried out
Monthly	• Check the condensate line from the cyclone separator.
	• Check function and connections of the condensate separator collector.
	• Check the air grille on the refrigerant dryer. It must not be covered by anything nor allowed to get dirty. When necessary, remove dirt or obstacles from the grille.
Every year	• Visual general check of compressed air station and check for loud noises, if necessary tighten screws.
	• Check the compressed air connections for any signs of leakages, if necessary seal
	• Check the operating hours of the compressor generators. Where there are large differences in the compressor generator running hours contact your service technician.
	• Check the compressor generator switching, both on and off (compare 5.2 Normal operation).
	• Check and replace nonreturn relief valves if necessary.
	• Check tank for condensate, if necessary check the functions of the refrigerant dryer and cyclone separator.
Every 8000 operating hours	• Change the filter inserts of the suction bacterial filter (order no. 0705-991-05).
Depending on local rules and regulations	• Carry out regular pressure tank check according to local rules and regulations (i.e. in Germany the "Betriebssicherheitsverordnung").

Carry out maintenance of the refrigerant dryer according to the separate instructions.

15.2 Maintenance

Check the condensate line from the cyclone separator

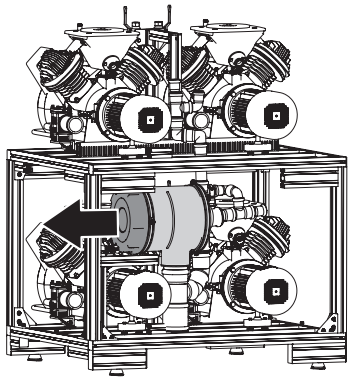
- Press "Test".



The solenoid valve on the cyclone separator opens for a brief moment and vents off condensate (if present).

Change the filter insert of the bacterial filter

- Switch off compressed air station.
- Remove the cover to the bacterial filter.



- Replace filter insert.
- Close cover.

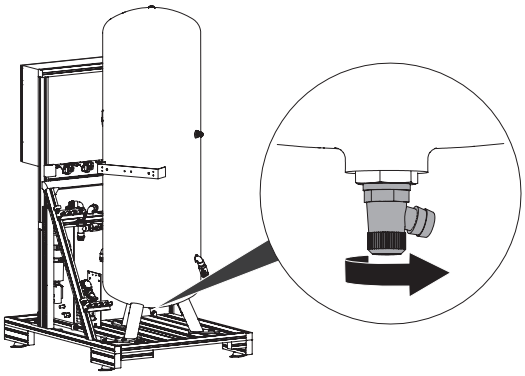
Check nonreturn relief valve

- Change the controller at the display panel to manual.
- Switch on the individual compressors manually using the display panel.

After ca. 5 seconds the nonreturn relief valve switches over, the compressor generator produces vacuum.

Check the tank for signs of condensated water

- Open drain valve.



- When water is present in the tank, drain off the water completely and check the functions of the refrigerant dryer and the cyclone separator.

Trouble-shooting

16 Tips for operators and technicians

Any repairs above and beyond routine maintenance must be carried out by suitably qualified personnel or one of our service technicians.

Problem	Probable cause	Solution
Units do not function, LEDs "Operational" and "Fault" are not lit	• Controller not functioning due to power failure	• Check fuse F1.
	• Power unit defective	• Check power unit, if necessary replace control unit.
Dew point too high, condensated water in pressure tank	• Refrigerant dryer switched off or defective	• Check that refrigerant dryer is switched on. • For further Trouble-shooting see refrigerant dryer instruction sheet.

16.1 Faults that appear on the display panel

To call up faults via the display panel, see the display panel instruction sheet (order number 9000-606-109/..).

Problem	Probable cause	Solution
Display: "Temperature alarm" Units do not function, red LED "Fault" lit	• Ambient temperature too high (> 50 °C or > 45 °C for more than 15 minutes)	• Check ventilation and allow room to cool. • Press "Reset". • Switch unit on.
Display: "Low pressure" Units do not function, red LED "Fault" lit	• Units or compressed air line has leak	• Check units and air supply for signs of leakages, if necessary seal leaks.
Display: "Pressure sensor 1 defect" Units do not function, red LED "Fault" lit	• Connection between pressure sensor and controller interrupted	• Check connection between pressure sensor and controller .
	• Pressure sensor 1 defect	• Replace pressure sensor.
Display: "Motor protection" Units function, red LED "Fault" lit	• Compressor generator blocked	• Check setting value of motor protection switch (50 Hz: 8.5 A, 60 Hz: 10 A). • Allow motor protection switch to cool. • Press "Reset". • Switch unit on. • If fault recurs, call the service technician.
Display: "Fault refrigerant dryer" Units function, red LED "Fault" lit	• Connection between controller and refrigerant type dryer interrupted	• Check connection, if necessary reestablish.
	• Refrigerant type dryer defective	• Refer to refrigerant type dryer instructions sheet
Display: "Fault cyclone separator" Units function, red LED "Fault" lit	• Connection between controller and cyclone separator interrupted	• Check connection, if necessary reestablish.
	• Cyclone separator defective	• Refer to cyclone separator instructions sheet.

Problem	Probable cause	Solution
Display: "Temperature" too high Units function in Emergency Mode, red LED "Fault" lit	• Ambient temperature too high (> 45 °C for more than 5 minutes)	• Check ventilation.
Display: "Temperature sensor defect" Units function, red LED "Fault" lit	• Connection between controller and temperature sensor interrupted	• Check connection, if necessary reestablish.
	• Temperatur sensor defective	• Replace temperature sensor.
Display: "Fault Module Monitoring" Units function, red LED "Fault" lit	• Controller module defective or loss of contact	• Check module contacts, if necessary replace module.

16.2 Further messages at display panel

The following messages give information, but do not indicate a fault or downtime of the units.

Message	Probable cause	Solution
"Bacterial filter needs changing"	• Maintenance interval reached	• Change the filter inserts of the suction bacterial filter (order no. 0705-991-05).
"Temperature too high"	• Ambient temperature too high (> 45 °C for more than 1 minute)	• Check ventilation.
"Temperature not yet low enough."	• Ambient temperature still too high (not yet under 40 °C)	• Check ventilation.
"No connection to unit"	• Networking connection between units and display panel interrupted	• Reestablish connection.

Final Testing/Handover Examination Documentation for Clinic Compressed Air Stations

Models: 5922-51, 5932-51, 5942-51

Order number: _____

Address of set-up location (clinic):

_____

_____

_____

Name and address of customer:

_____

_____

_____

Inspection of delivery for:

- ☐ possible damage to packaging
- ☐ possible damage to units/appliances
- ☐ completeness of the delivery

Name and address of installation company/service technician:

_____

_____

_____

This document confirms the qualified handover and instructions in use pertaining to the following unit(s):

Tank module(s)	Model:	_____	Serial number(s):	_____
Compressor module(s)	Model:	_____	Serial number(s):	_____
Compressor generators	Model:	_____	Serial number(s):	_____ _____ _____ _____
Display panel(s)	Model:	_____	Serial number(s):	_____
Noise reducing hood(s) (optional)	Model:	_____	Serial number(s):	_____

☐ Installation arrangement of units (photodocumentation) is appended.

Date of installation: _____ Set-up location: _____

Comments:

_____

_____

- ☐ A check that the earth connection to ground is not interrupted has been carried out.
- ☐ The electrical safety of the system according to current national regulations has been checked and confirmed.
- ☐ Instructions in the operation and handling of the unit(s) has been carried out.
- ☐ The delivery rate was checked indirectly using measurements of time taken according to pressure build up between 4 bar and 6 bar for P 6000 < 50 seconds, for P 9000 < 38 seconds and for P 12000 < 25 seconds.
- ☐ The system was checked for signs of leakages.
- ☐ All connections were laid correctly, made secure and checked according to the necessary requirements.
- ☐ The system was handed over according to the components listed.
- ☐ Acceptance was successful without any restrictions or annotations.
- ☐ Acceptance was not successful or only partially successful due to the following reasons:

_____

I hereby confirm handover and acceptance according to the information above:

_____ _____

Date / Signature of service technician | Date / Signature on behalf of customer

Please send this Final Testing/Handover Examination form to the following address or fax it to the number below:

DÜRR DENTAL AG, PM Clinics, Höpfigheimer Strasse 17, 74321 Bietigheim-Bissingen
Fon: +49 (07142) 705-199, Fax: +49 (07142) 705-595, kliniken@duerr.de

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