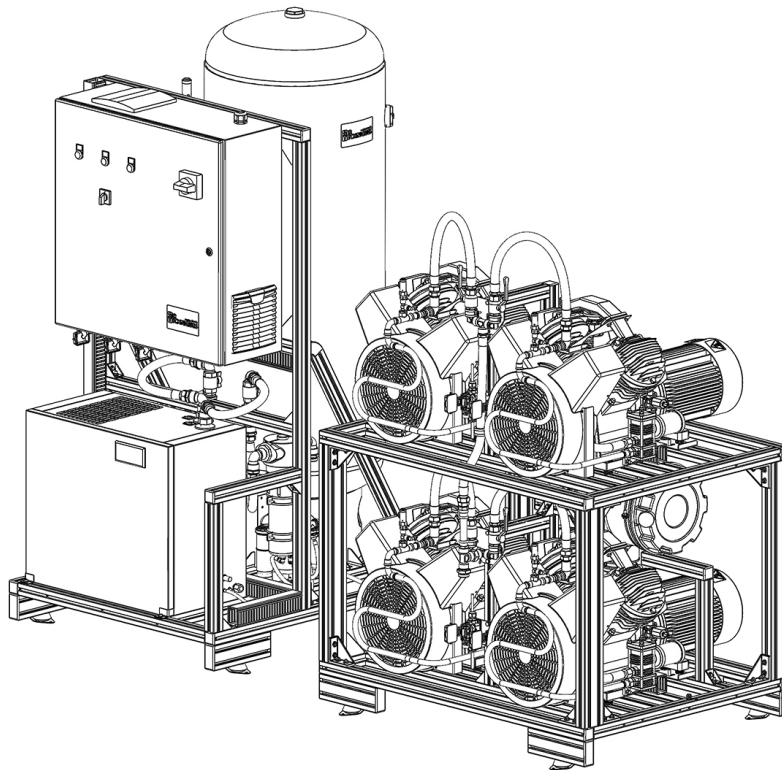


# AirStar Clinical Air Compressor AS60, AS90, AS120, AS60-400 AS90-400 and AS120-400



## INSTALLATION & OPERATING INSTRUCTIONS





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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.



Air Techniques 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.

#### 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



Consult Instructions for Use.

Dispose of according to UL and CSA directive



Date of manufacture



Wear ear protectors



Earthed wire connection



Air



4005460

with respect to electrical shock, fire, mechanical and other specified hazards only in accordance with

UL-508A, CAN/CSA Std. C22.2 No. 286

#### 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 Air Techniques.

#### 1.3 Further documentation

All information and instructions concerning the refrigerant type dryer are contained in the Atlas Copco FD Series dryer manual supplied.

### 2 Safety

Air Techniques 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 Intended Use

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. See Section 4.1 for environmental storage and operating conditions.

## 2.2 Incorrect Usage



### WARNING

Risk of explosion caused by flammable materials

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

The compressed air station must not be used in operating areas, for the operation of respiratory equipment or other similar equipment.

Do not operate the compressed air station in wet or damp rooms or environments. See Section 4.1 for environmental storage and operating conditions. Any usage of the appliance above and beyond the correct usage described in this documentation is considered to be incorrect usage. Air Techniques 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 Air Techniques or by person(s) specifically authorized by Air Techniques.
- Ensure electrical connections are carried out by a suitably qualified licensed electrician.

## 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 Air Techniques or specifically approved accessories may be used with this appliance.
- Use only original working parts and spare parts.



Air Techniques 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.



Air Techniques accepts no liability for damage caused by using inadequate packaging for transport even if this is during the warranty period.

- 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

- Before committing 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 Air Techniques directly or contact your local dealer.



## Product description

### 3 Overview

The compressed air station consists of two separate modules and a transformer when applicable (not shown):

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

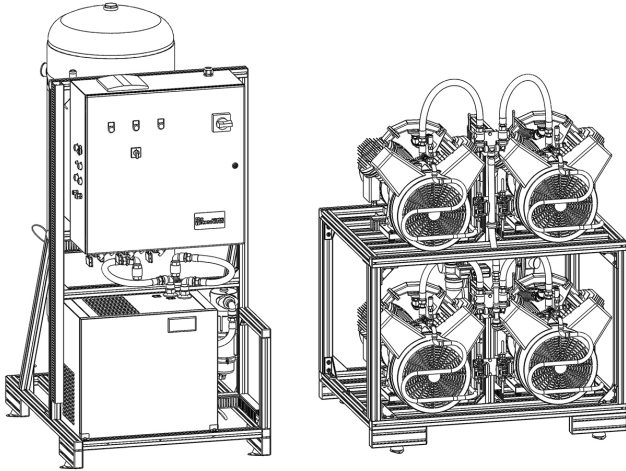


Fig. 1: AS120

- 1 Control module
- 2 Compressor module

#### 3.1 Delivery contents

##### AS60

- Control module
- Compressor module with 2 compressor aggregates
- Connecting cables and hoses
- Mounting materials
- Installation and Operating Instructions

##### AS90

- Control module
- Compressor module with 3 compressor aggregates
- Connecting cables and hoses
- Mounting materials
- Installation and Operating Instructions

##### AS120

- Control module
- Compressor module with 4 compressor aggregates
- Connecting cables and hoses
- Mounting materials
- Installation and Operating Instructions

##### AS60-400

- Control module
- Compressor module with 2 compressor aggregates
- Boost transformer
- Connecting cables and hoses
- Mounting materials
- Installation and Operating Instructions

##### AS90-400

- Control module
- Compressor module with 3 compressor aggregates
- Boost transformer
- Connecting cables and hoses
- Mounting materials
- Installation and Operating Instructions

##### AS120-400

- Control module
- Compressor module with 4 compressor aggregates
- Boost transformer
- Connecting cables and hoses
- Mounting materials
- Installation and Operation Instructions

#### 3.2 Accessories

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

Display panel . . . . .	E5119
Switch (8-port). . . . .	E5186
Gateway. . . . .	E5188

#### 3.3 Working parts and spare parts

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

Bacterial Filter . . . . .	E5131
----------------------------	-------



Information concerning spare parts can be found by contacting your authorized dealer or Air Techniques.

## 4 Technical data

Model		AS60	AS90	AS120
Number of compressor generators		2	3	4
Max Users @ 60%		60	90	120
Max Simultaneous Users @ 100%		40	60	80
Operating Voltage	V	3 ~ 480 VAC		
Electrical frequency	Hz	60	60	60
Power consumption	hp / kW	15 / 11	22.5 / 16.5	30 / 22
Current consumption (400 VAC / 480 VAC)	A	39 / 32	54 / 45	68 / 56
Branch circuit breaker (400 VAC / 480 VAC)	A	50 / 40	70 / 50	90 / 60
Minimum wire gauge of electrical supply line* (400 VAC / 480 VAC)	AWG	8 / 8	4 / 6	3 / 4
RPM	min <sup>-1</sup>	1800		
Circuit Breaker type		IP 20		
Protection class		1		
Duty cycle	%	100		
Switch-on pressure (factory setting)	psi (bar)	102 / 109 (7 / 7.5)	94 / 102 / 109 (6.5 / 7 / 7.5)	87 / 94 / 102 / 109 (6 / 6.5 / 7 / 7.5)
Cut off pressure (factory setting)	psi (bar)	109 / 116 (7.5 / 8)	102 / 109 / 116 (7 / 7.5 / 8)	94 / 102 / 109 / 116 (6.5 / 7 / 7.5 / 8)
Safety valve settings	psi (bar)	10 145		
Tank volume	Gal / L	120 / 454		
Delivery rate at 85 psi (6 bar)	CFM /	60 / 1,700	90 / 2,550	120 / 3,400
100 psi (7 bar)	LPM	56.6 / 1,600	84.8 / 2,400	113.1 / 3,200
Noise levels at or 73 psi (5 bar) **	dB(A)	88	91	93
- without noise reducing hood				
System Weight				
- compressor module	lbs (kg)	505 (229)	835 (379)	1055 (479)
- control module	lbs (kg)	700 (318)	700 (318)	700 (318)
Shipping Weight				
- compressor module	lbs (kg)	605 (275)	940 (425)	11505 (522)
- control module	lbs (kg)	850 (386)	850 (386)	850 (386)
Connections				
- compressed air outlet		1 inch NPT internal thread		
- condensate inch or mm		0.8" / 20		
Volume of condensate		.05 gallon or 200ml or per condensate drain cycle depend on rel. Humidity and Temperature		
Required room ventilation	CFM	530	742	989
Dimensions (H x W x D)				
- compressor module	in. (cm)	38x51x39 (95x129x99)	71x51x39 (180x129x99)	71x51x39 (180x129x99)
- compressor module and pallet	in. (cm)	44x55x43 (110x138x109)	75x55x43 (195x138x109)	(75x55x43) (195x138x109)
- control module	in. (cm)	82x39x51 (209x99x129)	82x39x51 (209x99x129)	82x39x51 (209x99x129)
- control module and pallet	in. (cm)	93x43x55 (235x109x138)	93x43x55 (235x109x138)	93x43x55 (235x109x138)
Total required space	in. (cm)	86x138x111 (220x350x280)	86x138x111 (220x350x28)	86x138x111 (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 approximately  $\pm 1.5$  dB(A).

4.1 Ambient conditions

Ambient conditions for storage and transport

Temperature	°F/°C	32/0 to 140/+60
Relative Humidity	%	max. 95

Ambient conditions for operating

Temperature	°F/°C	50/+10 to 104/+40
Rel. Humidity	%	max. 70

**i** The ideal ambient temperature for the life-span of the compressed air station and low condensed water buildup is 77 °F or 25 °C.

4.2 Model identification plate

Each module is fitted with a model identification plate.

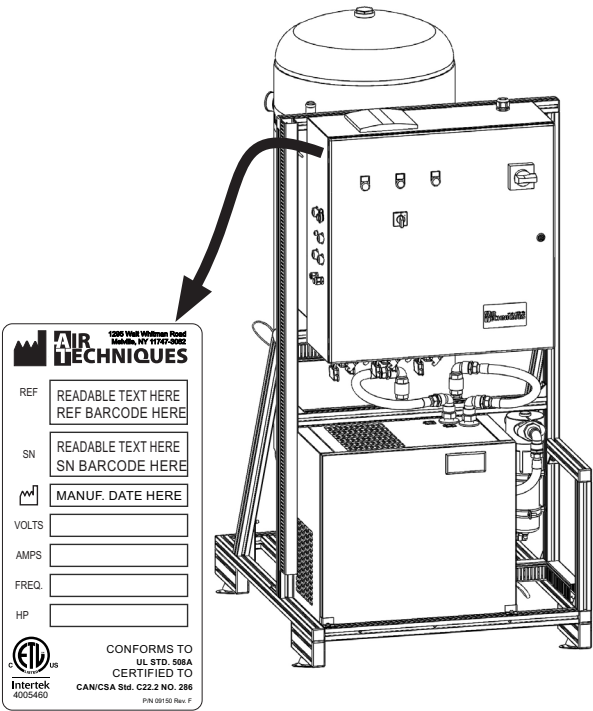


Fig. 2. System model identification plate.

4.3 Statement of conformity

Name of manufacturer: Air Techniques  
Name of unit: AirStar Clinical Air Compressor  
Models: AS60  
AS90  
AS120  
AS60-400  
AS90-400  
AS120-400

Control panel  
Conforms to UL508A, the UL Standard for Construction Of Industrial Control Panels.

Air Receiver Tank  
Conforms to ASME Boiler and Pressure Vessel Code Rules Section VIII, Division I.



## 5 Function

The compressed air station produces oil-free, dry and filtered compressed air which is used to operate dental units, simulation stations ( phantom places ) and similar.

The display panel is used to configure the operation of the device, monitor the operating status (e.g. fault reports) and troubleshoot faults.

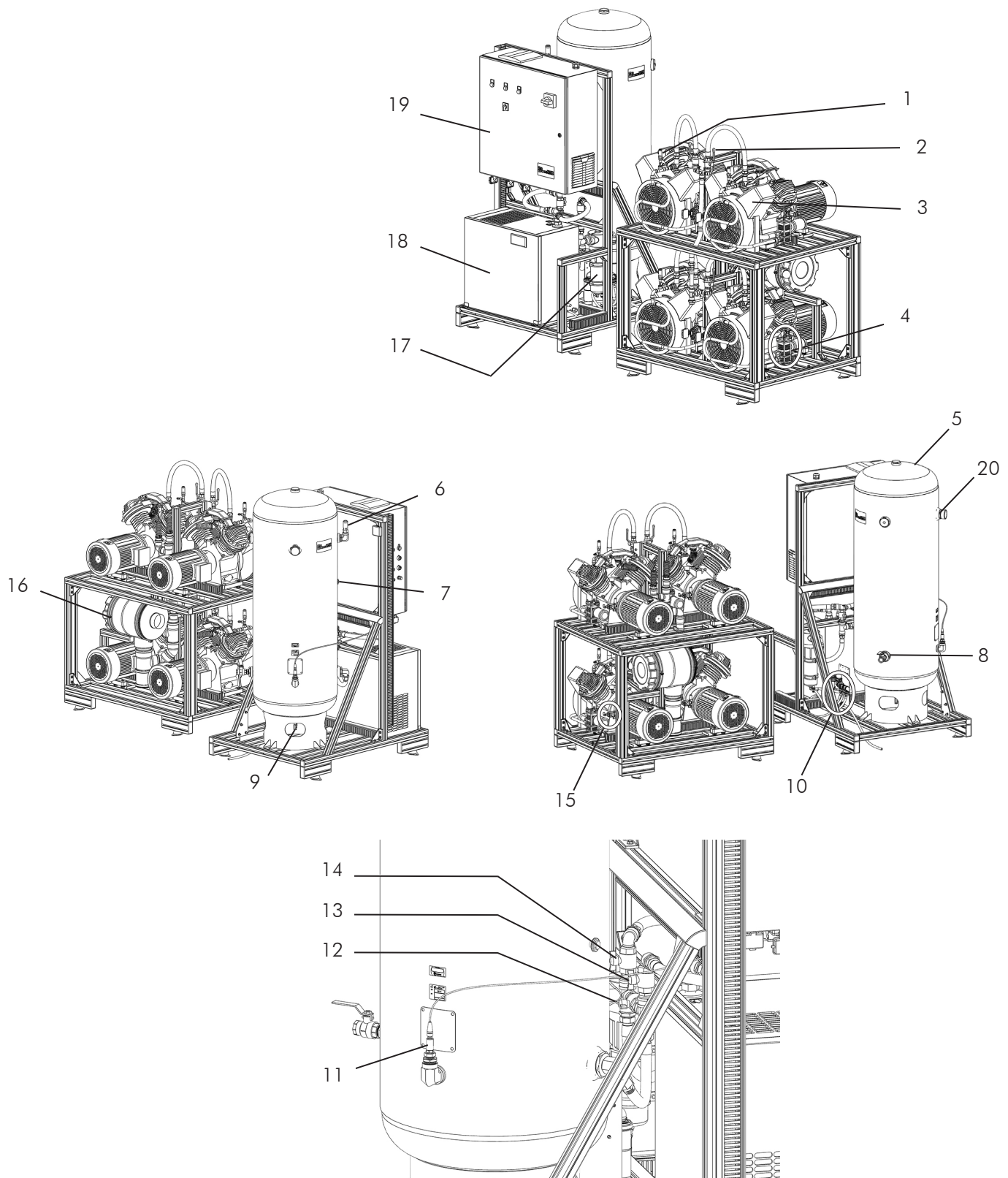


Fig. 3: Compressed air station

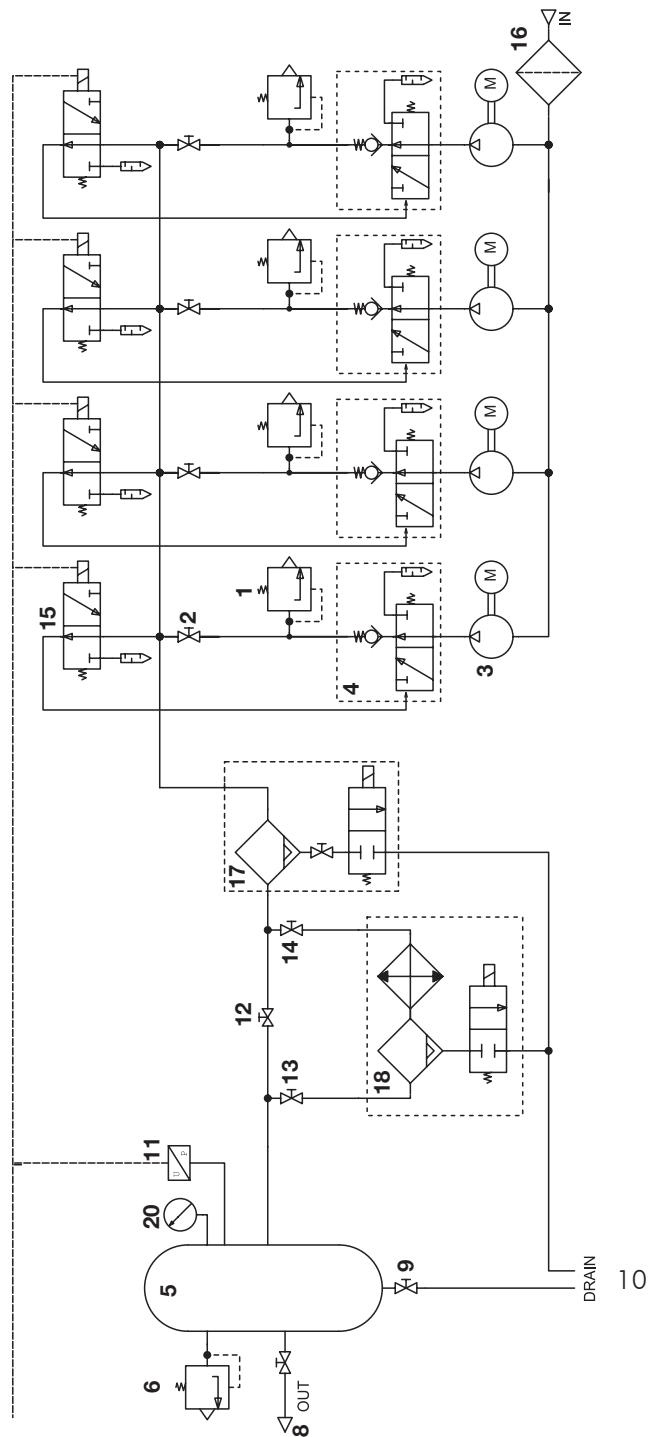


Fig. 4: Pneumatic layout plan

- |  |                                   |
|--|-----------------------------------|
| 1 Compressor aggregate safety valve            | 11 Pressure sensor                |
| 2 Compressor aggregate shutoff valve           | 12 Refrigerant dryer bypass valve |
| 3 Compressor aggregate                         | 13 Refrigerant dryer valve outlet |
| 4 Pressure relief valve                        | 14 Refrigerant dryer valve inlet  |
| 5 Pressure tank                                | 15 Solenoid relief valve          |
| 6 Tank safety valve 145 psi (10 bar)           | 16 Bacterial intake filter        |
| 7 Control connection                           | 17 Cyclone separator              |
| 8 Tank connection to air network ( 1 inch NPT) | 18 Refrigerant dryer              |
| 9 Condensate drain                             | 19 Control unit with PLC          |
| 10 Condensate separator drainage               | 20 Pressure gauge                 |

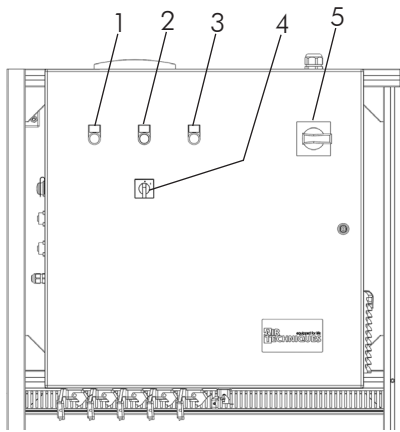


Fig. 5: Control unit

- 1 Red LED "Fault"
- 2 Blue button "Reset"
- 3 Green LED "Run"
- 4 Emergency mode switch
- 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 approx. 60 seconds the controller switches on the first compressor aggregate. At about 3 seconds the next compressor aggregate will be switched on. A sensor monitors the pressure inside the tank, which is shown by the display. Upon reaching the set pressure in the controller (see section Technical Data) the aggregates will be turned off sequentially.

## 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 109 psi (7.5 bar) the first compressor aggregate switches on. If the pressure within the tank continues to fall, then further compressor aggregate are switched on consecutively according to the switch-on pressures set (see 4 Technical data).

Each compressor aggregate starts up in a pressure free state. After approximately 3 seconds the solenoid relief valve opens the pressure line and the aggregate begins to supply the pressure tank.

When the pressure within the tank rises, the compressor aggregates are switched off one after the other as soon as the preset cut off pressure of 116 psi (8 bar) has been reached (see 4 Technical data).

When more compressed air is taken from the tank the pressure falls and the next aggregate switches on automatically. When the tank pressure falls below 15 psi (1 bar), the compressed air station switches over to emergency mode (one compressor aggregate remains in continuous operation).

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

A special load controller monitors the compressor aggregate 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 aggregate 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 1.5 psi (0.1 bar). In this way the compressed air station aggregates 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 (4) to the Emergency mode setting "1" switches on the first compressor aggregate and it starts up in pressure free state.

After approximately 3 seconds the switch (4) can be rotated to position "2". The solenoid valve opens the pressure line and the compressor aggregate begins to supply the pressure tank.

The compressor aggregate then runs in continuous operation. The alternation of aggregates no longer takes place.

When no air is taken from the tank, the pressure in the tank increases to 145 psi (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 system is connected must be set up so that there is a maximum pressure of 145 psi (10 bar).

#### 6.2 Set up equipment

- 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 carried out on installation by the manufacturer of the end product.

### 7 Transport



#### WARNING

During transport of the compressed air system parts can come loose.

- Only transport the compressed air system with no pressure in tank.
- 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 range of 50 and 104° F.  
(+10 and +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.
- 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.
- The compressor module can be set up either left or right of the control module.
- Maintain a distance between the modules of approximately 20 inches (50 cm) to allow sufficient space for maintenance.

#### 8.2 Module layout

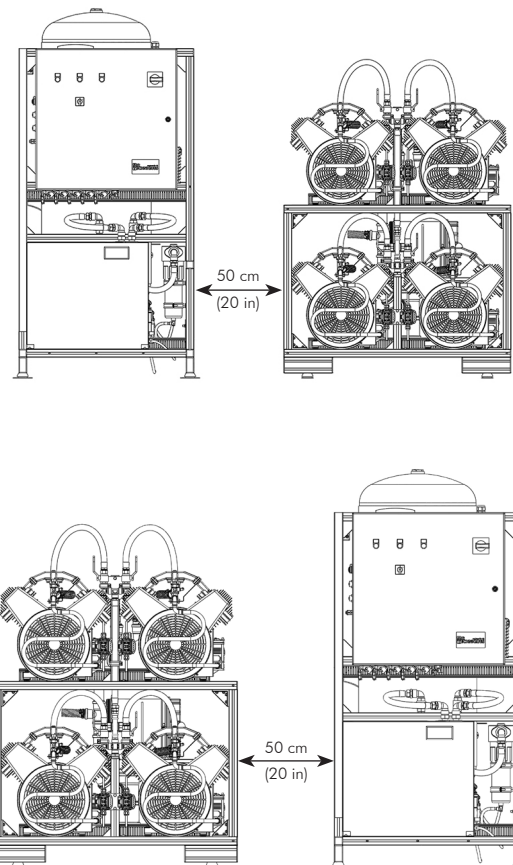


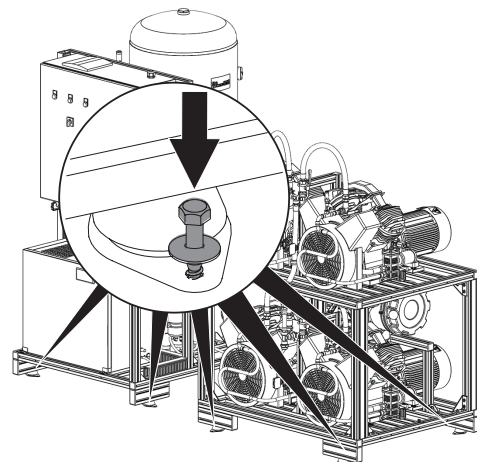
Fig. 6: Distance between control and compressor module

#### 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.



## 9 Installation

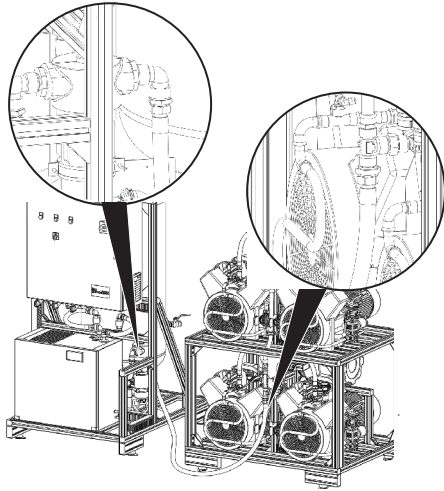
The following tools are required:

- two adjustable wrenches nominal diameter 41mm



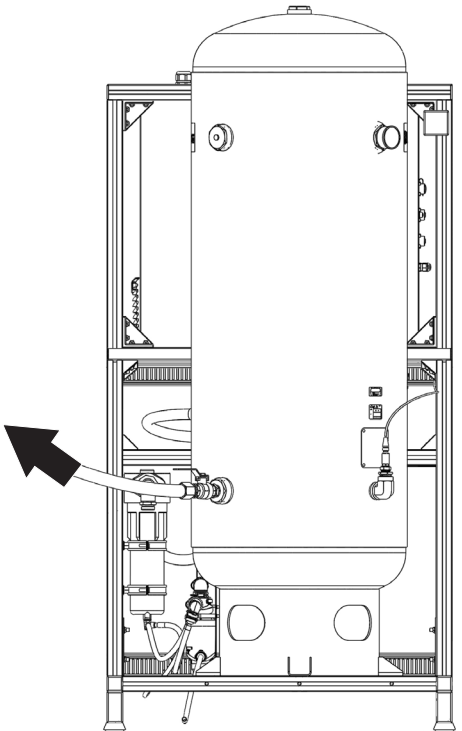
The electrical circuit diagram can be found in the control unit.

### 9.1 Connect the compressor module to the cyclone separator



### 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: 1 inch NPT external thread).

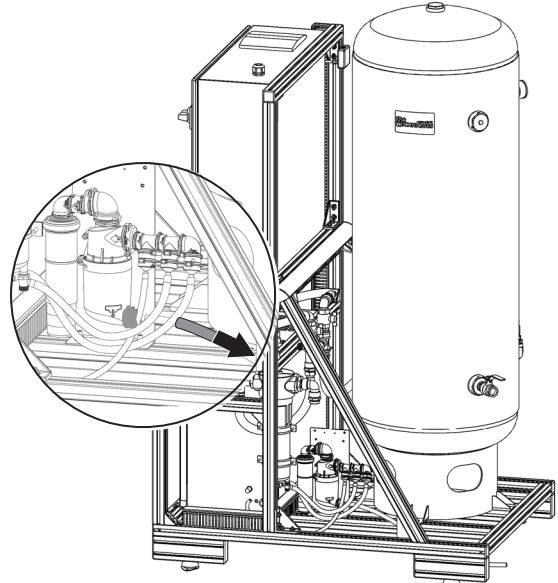


### 9.3 Connect the condensate drain outlet to the waste water system. The condensate is led without pressure via the condensate separator collector to the waste water system.



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

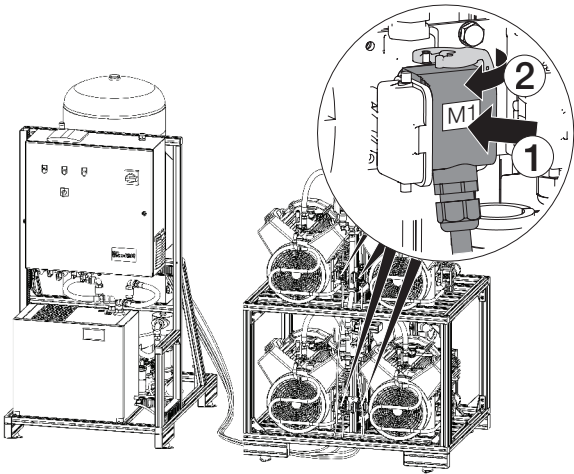
**i** The circuit diagram can be found in the control unit.

### 10.1 Electrical connection and safety

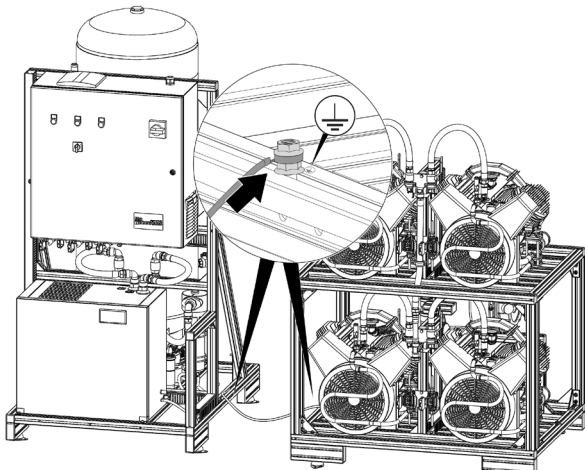
- Electrical connections should only be carried out by a suitably qualified electrician.
- When using optional 400 to 480v transformer (E5123), connect transformer per manufacturer's instructions.
- Observe all technical rules and regulations concerning the set up of low voltage equipment in rooms used 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 aggregates and secure with strain reliefs. Note coding (e.g. M1) carefully.



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



### 10.3 Connection line dimensions

**i** The following information on connecting electrical lines is based on US and Canada standards. Always observe the relevant national standards and local rules and regulations.

#### Diameter of the connections

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

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

The electrical connection can be 480 VAC, 3 phase permanent or flexible cable (S-Type).

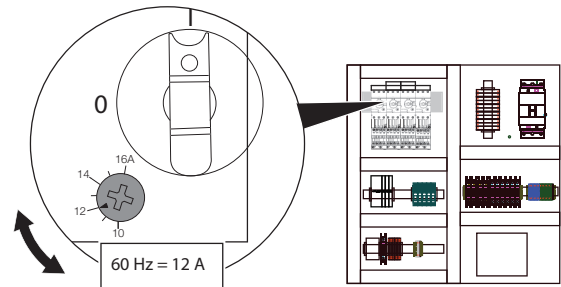
Connect per national standards and in accordance with all local codes and regulations

### 10.4 Match motor protection switch to external power frequency

The motor protection switch settings depend on the electrical power frequency:

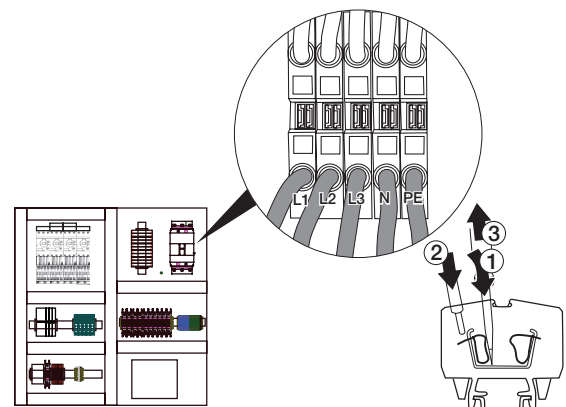
- at 60 Hz: 12 A

- All motor protection switches should be set the same.



### 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).
- 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.



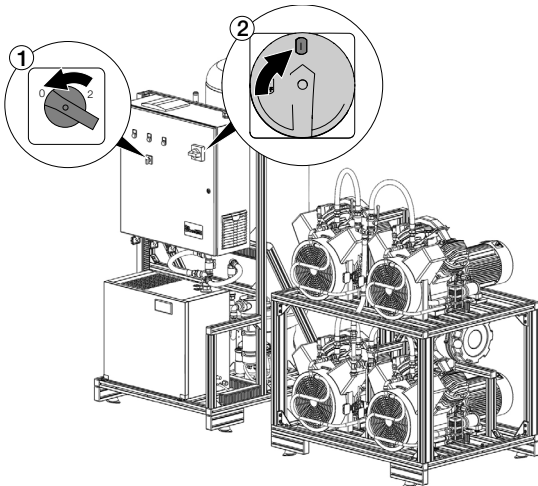
## 11 Initial start-up



Wear ear protectors.

### 11.1 Switching on compressed air station

- Check that the shutoff valve (on the tank ) 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.

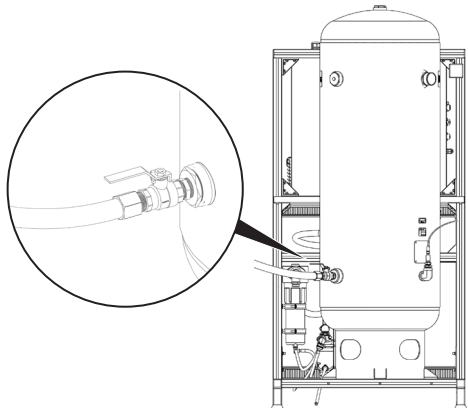


Once the refrigerant dryer is switched on the dew point temperature is shown.

After approximately 60 seconds the compressor aggregate start up one after the other.

After two to 3 minutes the refrigerant dryer displays a temperature between 32°F / 0 °C and 39,2°F / +4 °C. Once the cut off pressure has been reached the compressor aggregates switch off one after the other.

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



### 11.2 Choose operational mode

When 2 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, all the units must be connected to one network.

- Set the appropriate operational mode of the compressed air station at the display panel.

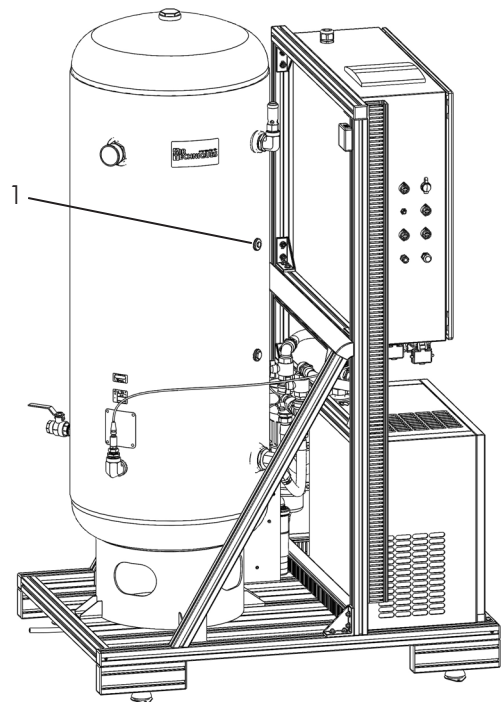
### 11.3 Document acceptance test

- 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 approx. 4 complete fillings of the pressure tank (approximately 16 m³) have been used.

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





## 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 aggregate then runs under continuous operation, any excess pressure 145 psi (10 bar) is vented using the safety valve.



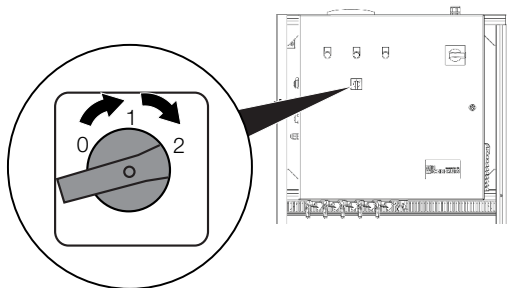
Wear ear protectors.

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 aggregates.

- Rotate Emergency Mode switch to setting "1" and wait approximately 3 seconds.  
One compressor aggregate begins to run without producing pressure.
- Rotate switch to Emergency Mode setting "2".  
The compressor aggregate then runs in continuous operation.  
The red LED "Fault" shows.



### 13 Decoupling a single compressor aggregate

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

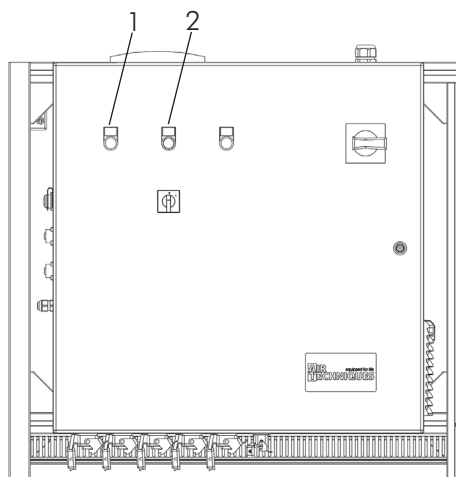
- Close the shutoff valve of the compressed air connection to the compressor aggregate.
- Activate the motor protection switch inside the control unit manually.
- Inform your service team.

### 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.



- 1 Red LED "Fault"
- 2 Blue button "Reset"

- 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	<ul style="list-style-type: none"><li>• Check the condensate line from the cyclone separator.</li><li>• Check function and connections of the condensate separator collector.</li><li>• Check the air grill on the refrigerant dryer. It must not be covered by anything nor allowed to get dirty. When necessary, remove dirt or obstacles from the air grill.</li></ul>
Every year	<ul style="list-style-type: none"><li>• Visual check of compressed air station and check for loud noises, if necessary tighten screws.</li><li>• Check the compressed air connections for any signs of leakages, if necessary seal.</li><li>• Check the operating hours of the compressor aggregates. If there are large differences in the compressor aggregates running hours contact your service technician.</li><li>• Check the compressor aggregates switching, both on and off. (compare 5.2 Normal operation).</li><li>• Check and replace non-return relief valves if necessary.</li><li>• Check tank for condensate, if necessary check the functions of the refrigerant dryer and cyclone separator.</li></ul>
Every 8000 operating hours	<ul style="list-style-type: none"><li>• Change the filter inserts of the suction bacterial filter (E5131).</li></ul>
Depending on local rules and regulations	<ul style="list-style-type: none"><li>• Carry out regular pressure tank check according to local rules and regulations.</li></ul>



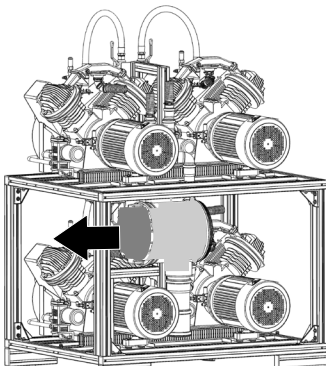
Perform refrigerant dryer maintenance according to supplied the Atlas Copco FD Series dryer manual.

## 15.2 Maintenance

Check the condensate line from the cyclone separator

Change the filter insert of the bacterial filter

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



- Replace filter insert.
- Close cover.

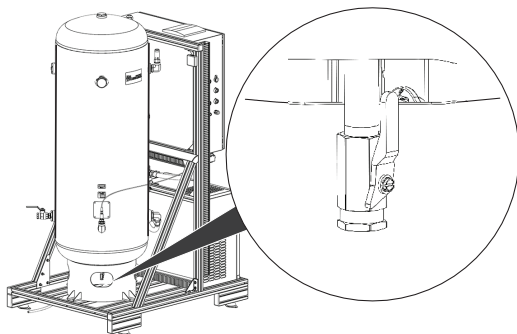
Check non return relief valve

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

After approximately 5 seconds the non return relief valve switches over and the compressor aggregate produces pressure.

Check the tank for signs of condensed 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 "Run" and "Fault" are not lit	• Controller not functioning due to power failure	• Check circuit breaker F1.
	• Power unit defective	• Check power unit, if necessary replace control unit.
Dew point too high, condensed 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

Problem	Probable cause	Solution
Display: "Temperature alarm" Units do not function, red LED "Fault" lit	• Ambient temperature too high > 122 and 113° F (50 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 (60 Hz: 12 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.
Display: "Temperature" too high Units function in Emergency Mode, red LED "Fault" lit	• Ambient temperature too high > 113°F (45°C) for more than 5 minutes	• Check ventilation.

Problem	Probable cause	Solution
Display: "Temperature sensor defect" Units function, red LED "Fault" lit	<ul style="list-style-type: none"> <li>• Connection between controller and temperature sensor interrupted</li> <li>• Temperatur sensor defective</li> </ul>	<ul style="list-style-type: none"> <li>• Check connection, if necessary reestablish.</li> <li>• Replace temperature sensor.</li> </ul>
Display: "Fault Module Monitoring" Units function, red LED "Fault" lit	<ul style="list-style-type: none"> <li>• Controller module defective or loss of contact</li> </ul>	<ul style="list-style-type: none"> <li>• Check module contacts, if necessary replace module.</li> </ul>

## 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"	<ul style="list-style-type: none"> <li>• Maintenance interval reached</li> </ul>	<ul style="list-style-type: none"> <li>• Change the filter inserts of the suction bacterial filter (E5131).</li> </ul>
"Temperature too high"	<ul style="list-style-type: none"> <li>• Ambient temperature too high &gt; 113°F (45°C) for more than 1 minute</li> </ul>	<ul style="list-style-type: none"> <li>• Check ventilation.</li> </ul>
"Temperature not yet low enough."	<ul style="list-style-type: none"> <li>• Ambient temperature still too high not yet under 104°F (40°C)</li> </ul>	<ul style="list-style-type: none"> <li>• Check ventilation.</li> </ul>
"No connection to unit"	<ul style="list-style-type: none"> <li>• Networking connection between units and display panel interrupted</li> </ul>	<ul style="list-style-type: none"> <li>• Reestablish connection.</li> </ul>

# Final Testing/Handover Examination Documentation for

## AirStar Clinical Air Compressor

Order number: \_\_\_\_\_

Models: AS60, AS90, AS120, AS60-400, AS90-400 and AS120-400

Address of set-up location (clinic):

Name and address of customer:

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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:

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

System	P/N	Serial number:	_____
Control Module	P/N	Serial number:	_____
Compressor Module	P/N:	Serial number:	_____
Compressor generators		Serial numbers:	_____ _____
Display panel(s)	P/N:	Serial number(s):	_____
Noise reducing hood (optional)	P/N:	Serial number:	_____

☐ Installation arrangement of units (photo documentation) is appended.

Date of installation: \_\_\_\_\_ Set-up location: \_\_\_\_\_

Comments:

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- ☐ A check that the connection to ground is not interrupted has been carried out.
- ☐ The electrical safety of the system according to current national and local code has been checked and confirmed.
- ☐ Training in the operation and handling of the unit(s) has been carried out. See back page.
- ☐ The delivery rate of compressed air was checked indirectly by measuring the duration of time (t) taken to build pressure from 4 bar to 6 bar. Acceptable durations are as follows; AS60: t < 50 seconds; AS90: t < 38 seconds; AS120: t < 25 seconds.  
Measured Duration: \_\_\_\_ 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:

\_\_\_\_\_  
Date / Signature of Installer

\_\_\_\_\_  
Date / Signature on behalf of customer

NOTE: Return signed sheet to Air Techniques Manufacturing Engineering department.

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## ***TRAINED PERSONNEL LOG***

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Name

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Signature

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Date

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Date

## WARRANTY

**AirStar Clinical Compressor System** is warranted to be free from defects in material and workmanship from the date of installation for a period of 2 years (24 months) on complete unit.

All part and component returns and replacement equipment under warranty require a Return Materials Authorization (RMA). Warranty returns must be received within three months of the RMA issue date. Items returned without an RMA, or included with other products for which an RMA has been issued, may be returned to the customer at the discretion of Air Techniques, Inc.

Any item returned under warranty, will be repaired or replaced at our option at no charge provided that our inspection shall indicate it to have been defective. Air Techniques, Inc. is not liable for indirect or consequential damages or loss of any nature in connection with this equipment. Dealer labor, shipping and handling charges are not covered by this warranty.

Warranty credit will not be applied to product returns that exhibit damage due to shipping, misuse, careless handling or repairs by unauthorized personnel. Credit, or partial credit, will not be issued until products/parts have been received and assessed. Warranty is void if product is installed or serviced by anyone other than an authorized Air Techniques' dealer or service personnel.

This warranty is in lieu of all other warranties expressed or implied. No representative or person is authorized to assume for us any liability in connection with the sale of our equipment.

## WARRANTY REGISTRATION

Please complete the warranty registration form below. This registration ensures a record for the warranty period and helps Air Techniques keep you informed of product updates and other valuable information.

### Practice Information \* Required

First Name\*

Last Name\*

Practice Name\*

Role\*

Address\*

Work Phone\*

City\*

Mobile Phone

State\*

Zip\*

Work Email\*

Country

Dental Specialty\*

### Product Information

Product Name\*

Part Number\*

Serial Number\*

Installation Date\*

Dealer Name\*

☐ I agree to the Warranty Terms & Conditions

☐ I would like to receive email notifications of news and promotions from Air Techniques.

For over 50 years, Air Techniques has been a leading innovator and manufacturer of dental products. Our priority is ensuring complete satisfaction by manufacturing reliable products and providing excellent customer and technical support. Whether the need is digital imaging, utility room equipment or merchandise, Air Techniques can provide the solution via our network of authorized professional dealers. Proudly designed, tested and manufactured in the U.S., our products are helping dental professionals take their practices to the next level.

Air Techniques' family of quality products for the dental professional include:

- ☐ **Digital Imaging**
  - Digital Radiography
  - Intraoral Camera
  - Caries Detection Aid
  - Intraoral X-ray
  - Film Processors
  
- ☐ **Utility Room**
  - Dry Vacuums
  - Wet Vacuums
  - Air Compressors
  - Amalgam Separator
  - Utility Accessories
  - Utility Packages
  
- ☐ **Merchandise**
  - Surface Disinfectant
  - Enzymatic Cleaner
  - Hand Sanitizer and Lotion
  - Waterline Cleaner
  - Evacuation System Cleaner
  - Imaging Accessories
  - Chemistry
  - Processor Accessories

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