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IMPORTANT INFORMATION

1. NOTES

1.1 CE- Labelling

CE-Symbol of conformity. This symbol of conformity guarantees that this appliance conforms to the relevant safety guidelines of the European Union.

1.2 Guidelines

This appliance conforms to the following safety guidelines:

- Machine guidelines 98/37EG, with amendments.
- Electro-magnetic Compatibility 89/336/ EWG, with amendments.
- Low-voltage guidelines 73/23/EWG, with amendments.
- Pressure vessel guidelines 87/404/EWG.

1.3 General Notes

- These Installation and Operating Instructions form an integral part of the unit. They must be kept close to the unit and in readiness whenever required. Precise observance of these instructions is a precondition for use of the unit for the intended purpose and for its correct operation. Die Montage- und Gebrauchsanweisung sollte gegebenenfalls an Nachfolger weiter gegeben werden.
- Safety for the operator as well as trouble-free operation of the unit are only ensured if use is made of original equipment parts. Moreover, use may only be made of those accessories that are specified in the technical documentation or that have been expressly approved and released by Dürr Dental for the intended purpose. Dürr Dental cannot guarantee for the safety or proper functioning of this unit in the case where parts or accessories are used which are not supplied by Dürr Dental.
- The guarantee does not cover damage to caused to this unit where parts or accessories are used which are not supplied by Dürr Dental.

- The guarantee is valid for 1 year commencing from the date of delivery. Any work performed under guarantee will neither extend nor renew the guarantee.
- Dürr Dental only regard themselves as being responsible for the equipment with regard to safety, reliability and proper functioning if assembly, resettings, changes or modifications, extensions and repairs have been carried out by Dürr Dental or an agency authorised 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 switches, processes, trade marks, software programs and appliances named in this document are registered names.
- Any reprinting of the technical documentation, in whole or in part, is subject to prior approval of Dürr Dental being given in writing.

1.4 General Safety Notes

This compressor has been designed and constructed by Dürr Dental so that correct usage of the appliance is virtually free of any possible injury or danger. In spite of this, we feel it is our duty to mention the following safety measures in order to prevent any possible danger to all personnel.

- When using this compressor all local and relevant regulations must be observed! In the interests of trouble-free operation the operator is responsible for observing these regulations.
- Retain the packaging for possible return of the product to the manufacturers. Ensure that the packaging is kept out of the reach of children. 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!

- 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.

1.5 Electrical Safety Notes

- The compressor may only be connected to an earthed safety socket or CEE-socket, depending on model of compressor.
- Before connecting the appliance to the power supply check that the electrical current and the frequency of the device as described on the appliance are compatible with that of the power supply.
- Check the appliance and the power supply cables for possible damage before switching on. Damaged cables, plugs and sockets must be replaced before use.
- In danger situations or in cases of technical defect immediately separate from the power supply (unplug).
- In cases of repairs and/or maintenance the compressor must be disconnected from the mains supply, and the air supply hoses as well as the pressurized container must be depressurized.

1.6 Warnings and Symbols

In the Installation and Operating Instructions use is made of the following terms or symbols to denote information of special importance:



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



Warning! High voltage.



Special information regarding the economical use of the equipment and other information.



CE-Labeling



Disconnect from mains supply.



Warning! Hot surface.



Warning! Compressor starts automatically.



Check environment. The appliance should not be used in wet or damp conditions.



Recycling



Observe installation and operating instructions!

2. PRODUCT INFORMATION

2.1 Correct Usage

This compressor is only designed for providing compressed air for dental units or similar applications.

Mounting in medical treatment units:

During the development and production of this surgery compressor all requirements concerning medical products were taken into consideration wherever possible. Thus this appliance can be mounted in medical treatment units.

Where this appliance is mounted in medical treatment units, then the requirements of guidelines 93/42 EWG must be observed on installation and operation.

2.2 Use other than that for the intended purpose



The compressed air provided by this unit is not suitable for use in breathing apparatus or similar facilities without the addition of special filters, such as those used in surgical areas.

- The compressors are designed for use in dry, ventilated rooms with an ambient temperature of +10 to +40 °C.
- Do not set up the compressor in the rain. The machine must not be used in wet or damp conditions. Furthermore, operation in the vicinity of gases or flammable fluids is forbidden.
- Before installing the compressor in medical facilities it must be checked that the available material is designed to satisfy the requirements of the purpose for which is intended. Please observe the technical data.
- Any classification and conformity evaluation should be carried out by the manufacturer of the end product.
- Any other use or use beyond what is specified is deemed to be not for the intended purpose. The manufacturer accepts no liability for damage resulting therefrom. All risk is borne solely by the user.

2.3 Product description

The Dürr Compressor 51../52.. provides an oil-free, dry and filtered pressurized air, for use in medical units.

3. DELIVERY CONTENTS

Compressor with / out Dry Air System (DAS):

Compressor accessories 5410-002-50
Installation and
operating instruction 9000-610-01/01

Compressor with Dry Air System (DAS) only:

Collection tank 3413-001-00
Operating instructions DAS 9000-610-34

3.1 Special Accessories

The following parts are **not** standard and must be ordered separately.

Pressure reducer 3410-008-00
Wooden cabinet 5110-500-00
Dry Air System,
upgrade set 1640-500-52

3.2 Disposable material

Filter set compressor 0832-982-00
Filter set DAS 1610-121-00
Sterile filter DAS 1640-981-00

4. TECHNICAL DATA

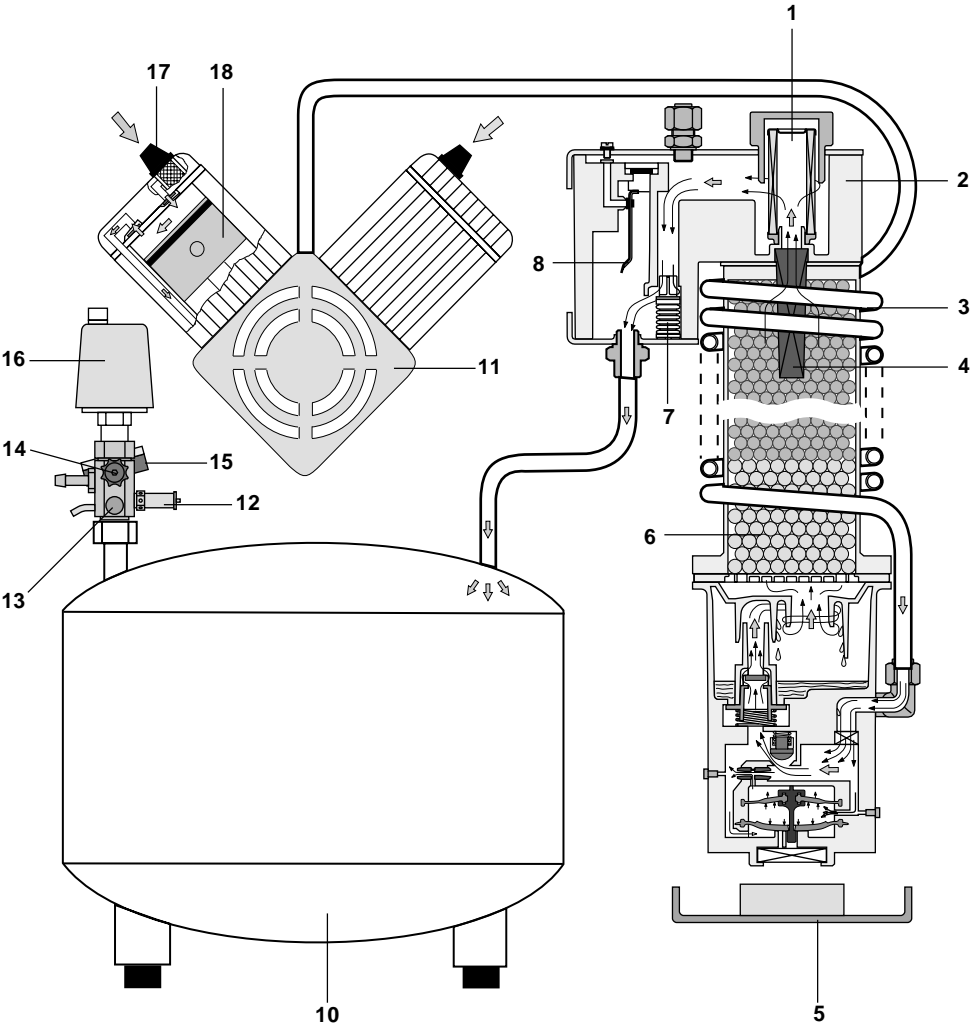
Model		5110-01	5111-01	5120-51	5121-51
Voltage	V	230/1~	230/1~	400/3~	400/3~
Frequency	Hz	50	50	50	50
Current consumption at 7 bar	A	3,8	3,8	1,5	1,5
Motor circuit breaking set at	A	4,2	4,2	1,6	1,6
Power rating	kW	0,68	0,68	0,71	0,71
R.P.M.	min ⁻¹	1400	1400	1400	1400
Mains fuse rating	A	16	16	10	10
Fuse type		IP 44	IP 44	IP 44	IP 44
Noise level	dB(A)	66	66	66	66
No. cylinders		1	1	1	1
Flow rate at 5 bar	l/min	55	53	55	53
* Charge time	min	3	3	3	3
Open/Shutoff pressure	bar	5,5 – 7,5	5,5 – 7,5	5,5 – 7,5	5,5 – 7,5
Safety valve setting	bar	8	8	8	8
Vessel volume	l	25	25	25	25
Duty cycle	%ED	100	50	100	50
DAS		-	yes	-	yes
Filtration, filter (0832-982-00) compr.	µm	10	10	10	10
Filtration, fine filter (1610-121-00) dry air	µm	-	3,5	-	3,5
Filtration, sterile filter (1640-981-00) dry air	µm	-	0,01	-	0,01
Weight	kg	39	48	39	48
Dimensions (H x L x D)	cm	68 x 40 x 39	68 x 39 x 40	68 x 39 x 40	68 x 40 x 48
Transport and storage conditions					
Temperature -25 °C to +55 °C					
Relative humidity 10% to 90% (no condensation)					
Operating conditions					
Temperature +10 °C to 40 °C					
Relative humidity up to 70%					

* Time taken for the compressor to reach the shut-off pressure of 7.5 bar from start-up pressure of 0 bar

Model		5210-01	5211-01	5220-51	5221-51
Voltage	V	230/1~	230/1~	400/3~	400/3~
Frequency	Hz	50	50	50	50
Current consumption at 7 bar	A	3,8	3,8	3,5	3,5
Motor circuit breaking set at	A	4,2	4,2	3,6	3,6
Power rating	kW	0,68	0,68	1,5	1,5
R.P.M.	min ⁻¹	1400	1400	1400	1400
Mains fuse rating	A	16	16	10	10
Fuse type		IP 44	IP 44	IP 44	IP 44
Noise level	dB(A)	69	69	69	69
No. cylinders		2	3	3	3
Flow rate at 5 bar	l/min	115	110	155	110
* Charge time	min	1,5	1,5	1,5	1,5
Open/Shutoff pressure	bar	5,5 – 7,5	5,5 – 7,5	5,5 – 7,5	5,5 – 7,5
Safety valve setting	bar	8	8	8	8
Vessel volume	l	25	25	25	25
Duty cycle	%ED	100	50	100	50
DAS		-	ja	-	ja
Filtration, filter (0832-982-00) compr.	µm	10	10	10	10
Filtration, fine filter (1610-121-00) dry air	µm	-	3,5	-	3,5
Filtration, sterile filter (1640-981-00) dry air	µm	-	0,01	-	0,01
Weight	kg	48	56	48	56
Dimensions (H x L x D)	cm	68 x 40 x 45	68 x 40 x 48	68 x 40 x 45	68 x 40 x 48
Transport and storage conditions					
Temperature -25 °C to +55 °C					
Relative humidity 10% to 90% (no condensation)					
Operating conditions					
Temperature +10 °C to 40 °C					
Relative humidity up to 70%					

* Time taken for the compressor to reach the shut-off pressure of 7.5 bar from start-up pressure of 0 bar

5. FUNCTION



6. FUNCTIONAL DESCRIPTION

6.1 Compressor

Atmospheric air is drawn into the cylinder chamber via a suction filter (17). The piston (18) in the cylinder then compresses this air. The inlet/outlet valve cuts off one flow route thereby forcing the air directly into the tank (10) via the non-return valve.

Where a DAS is present (2), the compressed air is led through the spiral cooling pipe (3) to the dry air system (2). In this way the air, warmed on compressing, is now cooled whereby most of the water present in the air is extracted as condensated water. Each time the compressor motor is switched off this condensated water is collected in the collection tank (5). The partially dry air is then fed through the drying agent (6), the Sintermetallfilter (4) and the fine filter (1) as dry and hygienic air into the compressor chamber (10). The non-return valve (7) ensures the compressed air cannot escape. The compressor motor (11) continues to provide compressed air until the pressure switch (16) registers that the pressure correct level has been achieved. (The actual pressure can be read off the pressure gauge (15).)

If the maximum relative humidity in the tank (10) is exceeded, then the Polyamidband Hygrostat (8) expands, whereby a valve is opened and dry air from the tank flows in the reverse direction towards the DAS (2).

During this phase the unit is regenerating. This means that the humidity present in the DAS is carried via the dry air to the collection tank (5). This regeneration procedure repeats itself until such time as the pre-set relative humidity at the Hygrostat (8) is reached.

6.2 Control unit with pressure switch

If a user appliance (turbine etc.) draws off compressed air, the tank pressure drops. If in the tank the pre-set minimum pressure as set at the pressure switch (16) is reached, then the compressor motor is activated. When the pre-set maximum pressure is reached, the compressor motor is switched off.

The control unit is fitted with a pressure gauge (15) which displays the tank pressure. A safety valve (12) prevents the maximum pressure from being exceeded, eg in case of a defect.

The control unit is also fitted with a condensed water drain tap (13) and a shut-off valve (14).

INSTALLATION

7. STORAGE AND TRANSPORT REQUIREMENTS

The compressor is packed in a carton for transport. This prevents any damage to the appliance during transport. Always use the original packing for the machine wherever possible.

Transport the machine in an upright position.



During storage and transport, protect the appliance at all times from damp, dirt and extremes of temperature. Take special care to avoid any electrical parts from becoming wet.

The surgery compressor is ready for immediate installation. If the appliance is in its original packing it can be stored in a warm, dry and dust-free room.
(see technical data)



Retain the original packing if at all possible. If this is not possible dispose of the packing in an environmentally correct way. The transport carton can be disposed of as paper waste.



The compressor must be transported in pressure-free state. Before transport empty the compressor and bleed the hoses.

Vor Before transport or storage any condensated water in the pressure vessel must be drained off. (See section 8.7 Draining condensed water off).

8. REQUIREMENTS FOR SET-UP



Set-up and commissioning should only be carried out by an authorized technician. Observe local rules and regulations

8.1 Environmental Requirements

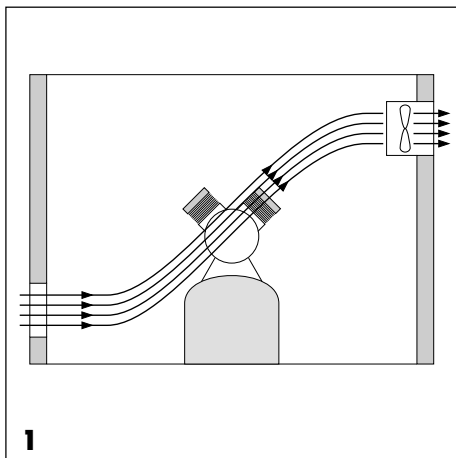
- The appliance should only be installed and operated in a well-ventilated, dry and dust-free room.
- The compressor must be installed in a position that allows the identification plate to be easily visible at all times and where accessible for repairs and maintenance.
- The appliance must be placed on a smooth, flat and stable floor.
(Note compressor weight, see technical data).



The air intake side and the ventilation grille on motor side must both be free and there must be adequate distance from the nearest walls (c. 20 centimeter). The power cable and the air hoses must not be bent or twisted.



As the compressor starts operation automatically as soon as pressure falls below a set amount, a warning sign in accordance with ISO 7000-0017 must be displayed warning of automatic operation.



The room temperature must not be allowed to fall below 10 °C otherwise a trouble-free operation of the control unit within the machine cannot be guaranteed. If room temperatures exceed 40 °C, additional ventilation must be provided by installing a fan (see Fig. 1).

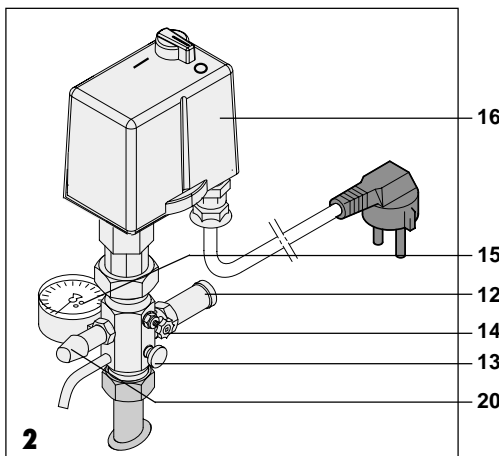


The compressor unit gives off about 70 % of its electrical energy as heat energy causing the ambient temperature to rise if ventilation is inadequate.

The motor fan provides efficient cooling to the motor. For this to happen the air intake and output must be unhindered. In extreme cases a separate ventilation system must be installed, see Fig. 1.



Do not place any objects on or against the compressor; by a room temperature of c. 40 °C the cylinder and cylinder heads can warm up to over 110 °C. Fire risk!



8.2 Tryckluftanslutning

The compressor is fitted as standard with a control unit consisting of:

Pressure switch (16), pressure gauge (15), safety valve (12), shut-off valve (14) and condensed water drainage tap (13).



In order to ensure a constant pressure flow, a pressure reducer (as accessory) is recommended.

The pressure connection is carried out at the connector nozzle (20) or the pressure reducer (as accessory).

- The flexible pressure hose LW10 should be pushed onto the connector nozzle and secured from slipping using a hose clip.



The use of a flexible hose between the fixed air connection and the compressor helps to prevent the transmission of vibration and noise.

8.3 Electrical connection



Electrical connections should only be carried out by a qualified electrician.

(with the exception of those models delivered supplied with either a standard EEC plug or a shockproof domestic plug according to model)

The compressor is supplied with a standard EEC plug in the 400 V configuration and with a shockproof domestic plug on the 230 V model. All local and national regulations concerning electrical connections must be observed.

Mains voltage and frequency must coincide with those shown on the identification plate.



No cables should be laid on the unit. The hot surface of the unit will melt and destroy the cable insulation.

If the unit is connected directly to the mains power supply then a power off switch must be located in the vicinity of the unit that has a minimum 3 mm contact gap (e.g. fuse box).

If the unit is connected to the mains power supply via a plug and socket then, for safety reasons, the socket must be easily accessible so that the unit can be disconnected in dangerous situations.

The relevant circuit must be fitted with a fuse of maximal 16 A.



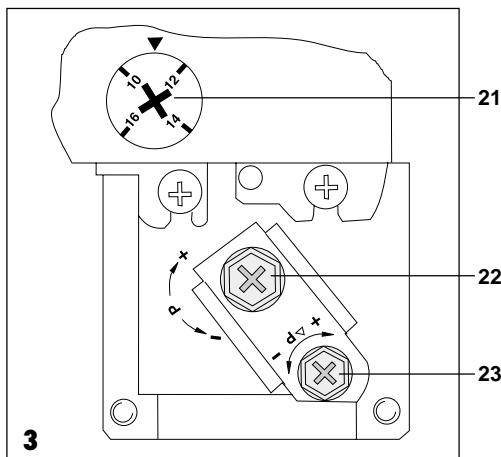
Observe the correct turning direction for the alternating current compressor unit (400 V):

The direction is clearly indicated by an arrow on the ventilator cover. If the direction of rotation is incorrect, there is danger of the compressor unit overheating.

If the turning direction is incorrect, disconnect the unit at the mains and swap the polarity of the two pressure switch power supply cables.



When connecting the appliance to a different outlet, check direction of rotation!



8.4 Pressure switch check and setting

The pressure switch (16) is factory-set.
At 5.5 bar the motor is switched ON.
At 7.5 bar the motor is switched OFF.



If required, the working pressure of the compressor can be altered at the pressure switch.

To do this, first the shutoff pressure and then the connecting pressure must be set using the pressure difference (ΔP).



Before removing the protective cap on the pressure switch, the appliance must be disconnected from the mains.

Adjust cut-off pressure P using the adjusting screw (22). (In direction of arrow (+) it increases and in direction of arrow (-) decreases). The pressure difference itself is not altered in this operation. Note maximum pressure (8 bar) as set at safety valve. The shut-off pressure must be at least 0.5 bar below that of the safety valve, otherwise the safety valve will open and the compressor motor runs continuously as it never achieves the shut off pressure.

Adjust pressure difference ΔP between connecting pressure and shutoff pressure at the adjustment screw (23), by turning it towards plus (+) or minus (-).

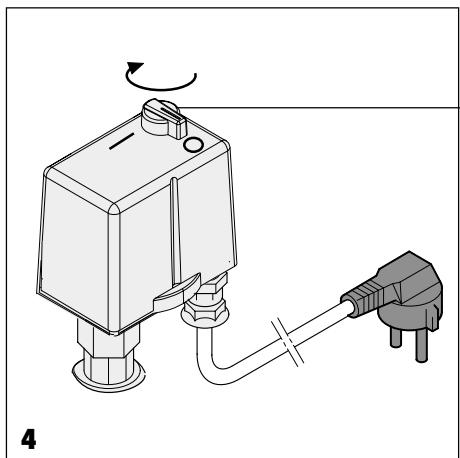
The tank must be under pressure when this adjustment is carried out.

8.5 Motor circuit breaker adjustment

The motor circuit breaker (21) has been factory-set. This value should be checked during installation.

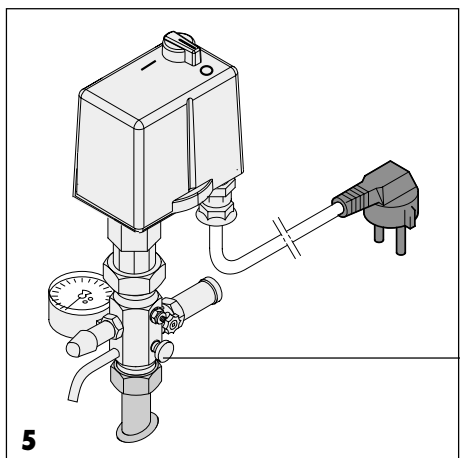
The motor circuit breaker is situated under the pressure switch cover (16).
(See section 4. Technical Data).

- Measure max. current (value shortly before shut off pressure is reached).
- Increase motor circuit breaker by adjusting screw (21) approx. 0.3 A.



8.6 Commissioning

- Check all compressed air connections.
- The unit must be connected to the power supply correctly.
- Check that air filters are fitted correctly.
- Turn compressor at switch (16) to on. (Position 'I')
- Check for abnormal noises from unit on first use.
- For 400 V - compressors check rotation of motor.
- Check on and shut-off pressures of the compressor. (Approx. 5.5 and 7.5 bar).
- Check safety valve for correct function, (see 9.2 Safety valve).



8.7 Draining off condensed water

During transport condensated water may accumulate in the tank due to temperature differences. Each time a compressor is set up, first drain off the condensated water – even from those compressors fitted with DAS.

Proceed as follows:

- With the **compressor switched on**, and maximum tank pressure, open the condensated water drain tap (13) as far as possible.
- Wait for the condensated water to be blown completely out of the tank.
- Close the drain tap once more.

9. REPAIRS AND MAINTENANCE



Repairs and maintenance should only be carried out by a qualified and authorized technician. Only use parts and accessories approved by the manufacturer.



Before all repairs and maintenance the compressor must be switched off and disconnected from power supply (disconnect at mains).



The compressor surfaces are hot. Let the compressor cool before all repairs and maintenance.

9.1 Draining off condensed water

See 8.7.

9.2 Safety valve

The safety valve is set to **8 bar** by the manufacturer and then tested and stamped. **It may not be readjusted!**

The safety valve must be checked for correct functioning every six months.

To do this, open the knurled screw (12) at max. tank pressure until air escapes from the safety valve. Briefly allow air to blow freely through the safety valve. Retighten the knurled screw.

9.3 Filter change

The filter replacement interval will largely depend on the extent of dust in the air. Under normal conditions the filter needs changing once a year.



See Installation Instructions
9000-416-016

Filter order numbers:

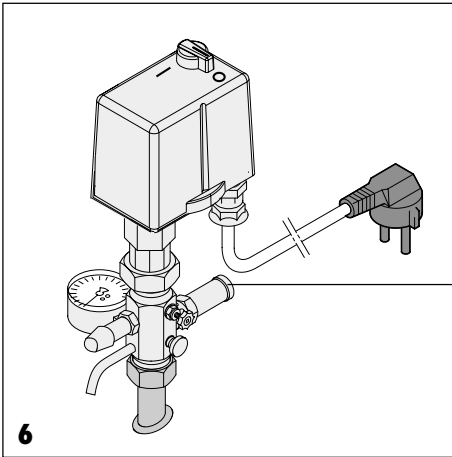
Compressor

Filter set 0832-982-00

Dry Air System

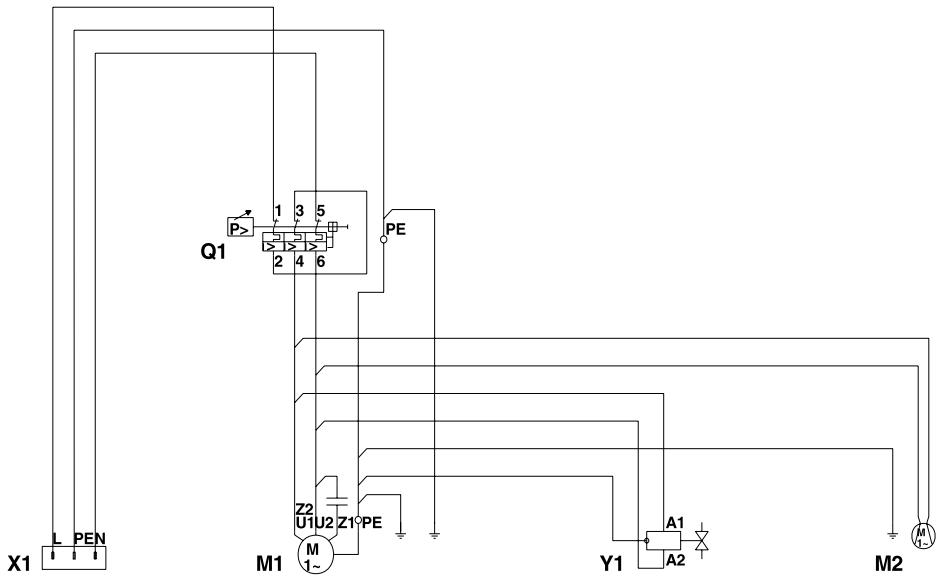
Fine filter 1610-121-00

Sterile filter 1640-981-0



10. CIRCUIT DIAGRAM

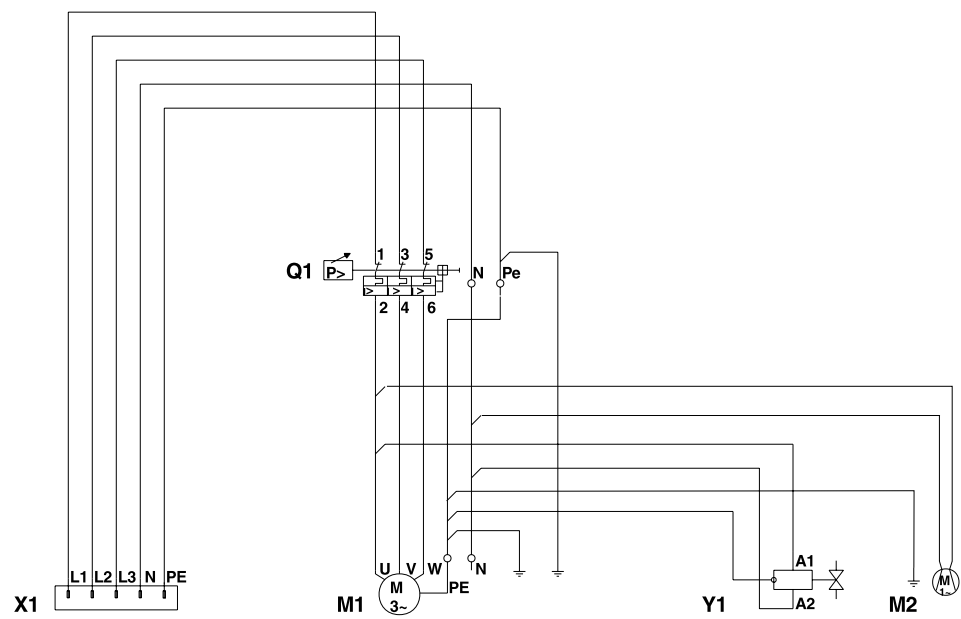
10.1 Version in 230 V 1~



Geräteliste

- Q1** Pressure switch
- X1** Power supply 230 V 50 Hz
- M1** Compressor motor
- Y1** Solenoid valve
(only for compressors without DAS)
- M2** Ventilator
(only with anti-noise cover)

10.2 Version in 400 V 3~



Parts list

- Q1** Pressure switch
- X1** Power supply 3/N/PE AC 400V 50Hz
- M1** Compressor motor
- Y1** Solenoid valve
(only for compressors without DAS)
- M2** Ventilator
(only with anti-noise cover)

USE

11. OPERATION

Operation of the compressor is relatively easy and for the most part automatic.



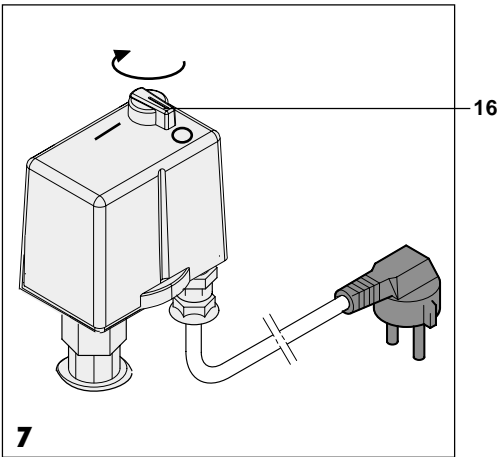
In case of any danger disconnect power supply (disconnect from mains).



The compressor surfaces get hot. Touching the surfaces could lead to burns.

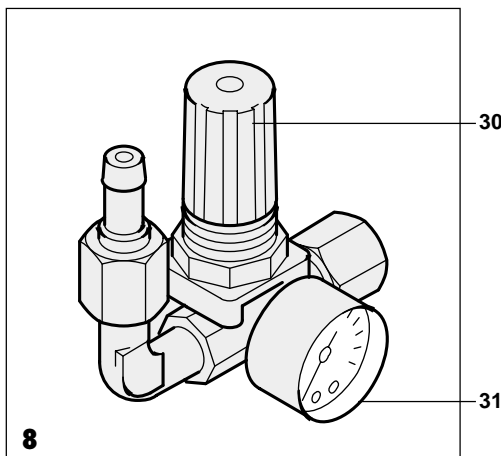


Automatic start-up. If the pressure in the tank falls below a certain level the motor starts and continues to provide compressed air until the maximum pressure is reached.



11.1 Turning on the compressor

The compressor is switched on by turning the handwheel on the control unit (16) to position 'I'. The motor starts and the compressor fills to the maximum. On reaching the shut-off level the motor stops. The maximum permitted operating pressure must not be exceeded. The maximum permitted operating pressure is indicated on the pressure gauge with a red line. If the maximum permitted operating pressure is exceeded, the compressor motor must be disconnected from the power supply (unplug at mains socket). Inform the technician responsible.



12. MAINTENANCE

In order to check that the compressor is functioning absolutely correctly, the following maintenance steps should be carried out regularly.

12.1 Pressure reducer (accessory)

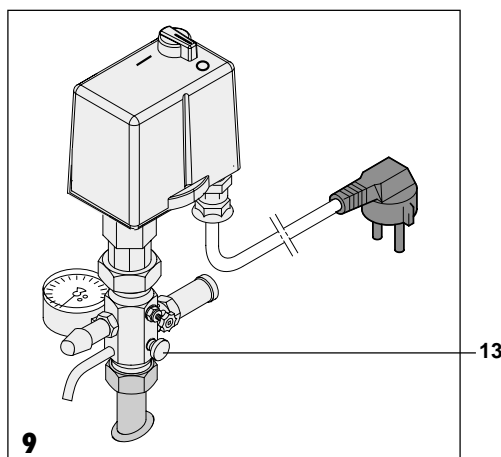
The fitting of a pressure reducer is strongly recommended. (vor den Verbraucher)

The pressure reducer regulates the pressure flow to achieve the desired operating pressure. The pressure reducer is mounted on the pressure switch.

12.2 Adjusting the pressure reducer

To adjust the pressure rate, operate the nozzle, turbine, etc., lift up the adjusting ring (30) and turn in the direction of the arrow + (increase flow rate) or in the direction of the arrow - (decrease flow rate), until the desired flow rate is displayed. When finished replace the adjusting ring, until it clicks gently in place and the pressure reducer is protected from unintentional adjustment. The desired flow rate is now set. It can be read on the pressure gauge (31).

For correct flow rates, see the manufacturer's operating instructions (e.g. turbine etc.).



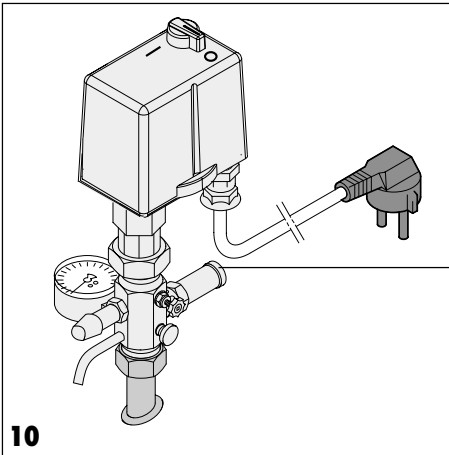
12.3 Draining off condensed water

Condensated water is removed automatically in compressors fitted **with** a dry air system. For compressors **without** DAS the condensated water must be drained off at least once a month!

In countries with high air humidity water must be drained off daily!

Proceed as follows:

- With the compressor switched on, and maximum tank pressure, open the condensated water drain tap (13) as far as possible.
- Wait for the condensated water to be blown completely out of the tank.
- Close the drain tap once more.



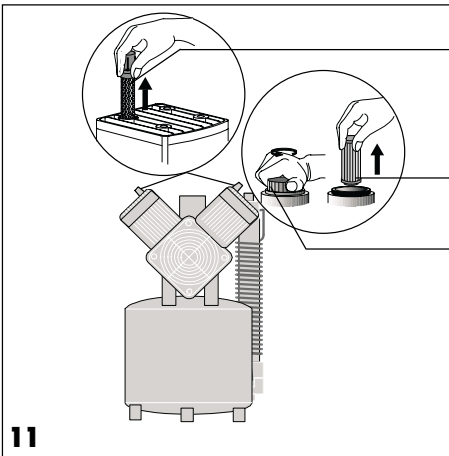
12.4 Safety valve

The safety valve is adjusted to **8 bar** by the manufacturer and then tested and stamped.

It may not be readjusted!

The safety valve must be checked for correct functioning every six months.

To do this, open the knurled screw (12) at max. tank pressure until air escapes from the safety valve. Briefly allow air to blow freely through the safety valve. Retighten the knurled screw (12).



12.5 Filter change

The filter replacement interval will largely depend on the extent of dust in the air. Under normal conditions the filter needs changing once a year.

See Installation Instructions 9000-461-016.

- Changing the suction filter (17). Pull out the filter unit by the cap. Change the complete filter unit.
- Changing the fine filter (1) of the DAS. Unscrew cover (35). Pull out the fine filter (1) and place new filter in position. Replace cover.

Filter order numbers:

Compressor

Filter set 0832-982-00

Dry Air System

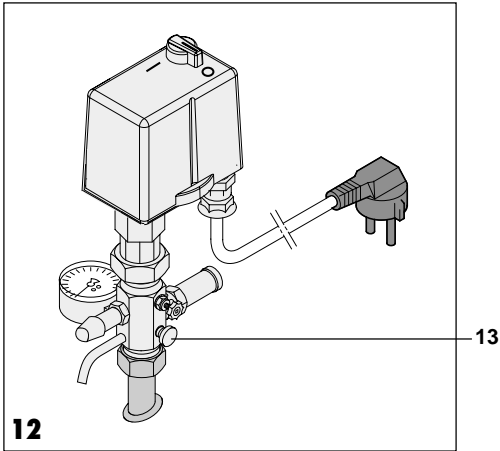
Fine filter 1610-121-00

Sterile filter 1640-981-00

13. MAINTENANCE INTERVALS - OPERATOR / TECHNICIAN

Maintenance procedure	Section	Interval
Adjust pressure reducer	12.2	yearly
Drain condensated water *)	12.3	monthly daily
Check safety valve	12.4	every six month
Filter change	12.5	yearly

*) Only for non-DAS appliances.
In countries with high air humidity water must be drained off daily!



14. DECOMMISSIONING

If the compressor is not going to be used for a long period of time, it is recommended draining the condensated water from the tank. Allow the compressor to run for c. 10 minutes with the condensated water drain tap (13) open. Then switch off at the main switch, close the drainage tap and disconnect from the mains.

TROUBLE-SHOOTING

15. TIPS FOR TECHNICIANS

The following list of possible problem causes is designed for use by qualified technicians. Repairs must only be carried out by qualified personnel.

Problem	Probable cause	Solution
1. Compressor does not switch on.	<ul style="list-style-type: none">• No power.• Pressure switch not on.• Current higher than nominal rating.• Current continuously equal to nominal rating.• Ventilating valve defect, unit runs with back pressure (non-DAS compressors only)	<ul style="list-style-type: none">• Check mains fuse, if necessary reset circuit breaker; if fuse is blown, replace it. Check mains current.• Connect pressure switch and wait 30 seconds. If the pressure switch remains connected briefly and then switches the motor off, check the power consumption: for all three phases if three-phase and for one phase if AC.• Undervoltage: measure voltage, call an electrician if necessary. Capacitor defective (230 V 1~): Check capacitor, replace if necessary.• Unit blocked mechanically, piston seized (motor circuit breaker triggered): pull out mains plug, remove cover from crank housing of overheated compressor and turn fan wheel. In the event of this not being possible, replace piston and cylinder, or entire unit.• Motor circuit breaker set too low (3~ only): measure current. Adjust motor circuit breaker accordingly (0.3 A higher than current measured). Motor circuit breaker defective: Check motor circuit breaker and replace if necessary.• Check to ensure that ventilating valve opens after unit is switched on. Remove blockage or replace.

Problem	Probable cause	Solution
2. Compressor fails to switch off.	<ul style="list-style-type: none"> Defective plate valve (inlet and/or outlet valve) between cylinder head and cylinder. Air escapes at ventilating valve (non-DAS compressors only). Air blows through the DAS into the collection tank. Leakage in compressed air system Compressor capacity too low; excessive air drawn off per workstation, approx. 50 l/min. Worn piston compression seal. 	<ul style="list-style-type: none"> Dismantle cylinder head and install new plate valve. Check ventilating valve. (The valve is open when power is off) Check dry air system control head. Open shut-off valve and subject tubes to pressure. Use spray to find leak if necessary. Seal leak. Determine air requirements, replace with larger compressor if necessary. Replace piston and cylinder, or entire unit.
3. Compressor switches on intermittently without any air being drawn off by user.	<ul style="list-style-type: none"> Air escaping down through dry air system. Air escaping at non-return valve. Leakage in connections. 	<ul style="list-style-type: none"> Dry air system is in regeneration phase, air humidity in tank is being reduced. Check non-return valve for air leaks. Clean or replace non-return valve. Locate leak and seal.
4. Excessive compressor noise (e.g. knocking sound).	<ul style="list-style-type: none"> Damaged bearings 	<ul style="list-style-type: none"> Check motor shaft bearings and crankshaft bearings, replace if necessary.
5 Supply performance loss, compressor takes longer to charge tank (For charging periods, see Technical Data).	<ul style="list-style-type: none"> Suction filter badly soiled. Defective plate valve (inlet and/or outlet valve). Worn piston compression seal. 	<ul style="list-style-type: none"> Suction filter should be replaced at least once a year. Never clean the filter with petrol or oil! Dismantle cylinder head and install new plate valve. Replace piston and cylinder, or entire unit.
6. Water drips from handset.	<ul style="list-style-type: none"> Condensated water im tank. 	<ul style="list-style-type: none"> The condensed water must be drained off at least once a month. Or daily in tropical zones or locations with high air humidity. Observe ambient temperature of the compressor, (refer to the requirements in the set-up instructions.

16. TIPS FOR OPERATORS

Problem	Probable cause	Solution
1. Compressor does not switch on.	<ul style="list-style-type: none"> • No power. • Pressure switch not on. 	<ul style="list-style-type: none"> • Check mains fuse, if necessary reset circuit breaker; if fuse is blown, replace it. Check mains current. • Connect pressure switch and wait 30 seconds. • Contact your technician.
2. Compressor fails to switch off.	<ul style="list-style-type: none"> • Compressor capacity too low; excessive air drawn off per workstation, approx. 50 l/min. 	<ul style="list-style-type: none"> • Determine air requirements, replace with larger compressor if necessary. • Contact your technician.
3. Compressor switches on intermittently without any air being drawn off by user.	<ul style="list-style-type: none"> • Air escaping down through dry air system. • Air escaping at non-return valve. • Leakage in connections. 	<ul style="list-style-type: none"> • Dry air system is in regeneration phase, air humidity in tank is being reduced. • Check non-return valve for air leaks. • Locate leak and seal. • Contact your technician.
4. Excessive compressor noise (e.g. knocking sound).	<ul style="list-style-type: none"> • Damaged bearings. 	<ul style="list-style-type: none"> • Contact your technician.
5. Supply performance loss, compressor takes longer to charge tank (For charging periods, see Technical Data).	<ul style="list-style-type: none"> • Suction filter badly soiled. 	<ul style="list-style-type: none"> • Suction filter should be replaced at least once a year. Never clean the filter with petrol or oil!
6. Water drips from handset.	<ul style="list-style-type: none"> • Condensated water im tank. 	<ul style="list-style-type: none"> • The condensed water must be drained off at least once a month. Or daily in tropical zones or locations with high air humidity. Observe ambient temperature of the compressor, (refer to the requirements in the set-up instructions).

DISPOSAL

17. DISPOSAL OF APPLIANCE

- Unplug the unit
- Drain the compressor tank of air by opening the condensated water tap.
(See 8.7 Draining off condensated water)
- Dispose of the compressor according to local regulations concerning waste material.

