

OIL-FREE

AIR FOR LIFE

DUO DUO 2V DUO 2



INSTALLATION, OPERATION AND MAINTENANCE MANUAL

EN

ekom[®]

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IMPORTANT INFORMATION

1. CE MARKING

1.1. CE marking

Products labeled with the CE mark of compliance meet the safety guidelines 93/42/EEC of the European Union.

2. WARNINGS

2.1. General warnings

- The Installation, Operation and Maintenance Manual is an integral part of the appliance and must be kept with the compressor. Careful review of the information in this manual will provide the information necessary for correct operation of the appliance. All relevant safety and technical standards must be observed.
- The safety of operating personnel and trouble-free operation of the appliance are guaranteed only if the original parts are used. Only accessories and parts mentioned in the technical documentation or expressly approved by the manufacturer can be used.
- If any other accessories or consumable materials are used, the manufacturer cannot be held responsible for the safe operation of the appliance and the safety of the operator. This guarantee does not cover damages originating from the use of accessories or consumable material other than specified or suggested by the manufacturer.
- The manufacturer guarantees the safety, reliability and function of the appliance only if:
 - Installation, new settings, amendments, extensions and repairs are performed by the manufacturer or its representative, or a service provider approved by the manufacturer
 - The appliance is used in accordance with this Installation, Operation and Maintenance manual
- After its printing, the installation, operation and maintenance manual corresponds with the version of the appliance and the state according to the relevant safety and technical standards. The manufacturer reserves all rights for the protection of its wiring diagrams, methods and names.
- Translation of Manual for Installation, Operation and Maintenance is carried out in accordance with the best knowledge. In the case of ambiguities, the Slovak version of the text prevails.

2.2. General safety warnings

The manufacturer developed and designed the equipment in such a way so that any risks were excluded if it is used according to intention. The manufacturer considers it to be its obligation to describe the following safety measures in order to exclude residual damages.







- Operation of the appliance must be in compliance with all local codes and regulations.
- Original packaging should be kept for the return of the appliance. Only original packaging ensures optimal protection of the appliance during transport. If it is necessary to return the appliance during the guarantee period, the manufacturer is not liable for damages caused by improper packaging.
- Each time the appliance is used, the operator must make sure that it is functioning correctly and safely.
- The user must fully understand the operation of the appliance.
- The product is not intended for operation in areas with a risk of explosion.
- The appliance is not suitable for operation in atmospheres prone to combustion.
- If any problem occurs during use of the appliance, the user must inform his supplier immediately.

2.3. Electrical system safety warnings

- This appliance must be connected to earth (grounded).
- Before the appliance is plugged in, make sure that the mains voltage and mains frequency stated on the appliance are the same as the power mains.
- Prior to putting into operation it is necessary to check for possible damage of the equipment and connected air and electric distributions. Damaged pneumatic and electrical wires must be immediately replaced.
- Immediately disconnect the appliance from the mains (pull out mains plug) if a technical failure occurs.
- During repairs and maintenance, ensure that:
 - Mains plug is pulled out from socket
 - Pressure pipes are vented
 - Pressure is released from the air tank
- The appliance must be installed by an approved, qualified technician.

3. ALERT NOTICES AND SYMBOLS

In the Installation, Operation and Maintenance Manual and on packaging and product, the following labels or symbols are used for important information:

	Information, instructions and cautions for the prevention of damage to health or materials
	Caution! Dangerous electrical voltage
	Read the user manual!
	CE mark of compliance
	Compressor is remote-controlled and may start without warning
	Caution! Hot surface
	Earth (ground) connection
	Terminal for ground connection
	Fuse
	Alternating current
	Handling mark on package – FRAGILE
	Handling mark on package – THIS SIDE UP
	Handling mark on package – KEEP DRY
	Handling mark on package – TEMPERATURE LIMITATIONS
	Handling mark on package – LIMITED STACKING
	Mark on package – RECYCLABLE MATERIAL
	Danger of biological hazard

4. STORAGE AND TRANSPORT

The compressor is shipped in cardboard that protects the appliance from damage during transport.



Caution! For transport, always use the original packaging and secure the compressor in the upright position.



Protect the compressor from humidity and extreme temperatures during transport and storage. A compressor in its original packaging can be stored in a warm, dry and dust-free area. Do not store near any chemical substances.



Keep packaging material if possible. If not, please dispose of the packaging material in an environmentally friendly way and recycle if possible.



Caution! Before moving or transporting the compressor, release all the air pressure from the tank and hoses and drain the condensed water.

5. TECHNICAL DATA

	DUO (T*)	DUO 2 (T*)	DUO 2V (T*)
Compressor	DK 50 PLUS	DK 50 2V	DK 50 2V
Suction pump	1	2	1
Nominal voltage / frequency (*) V / Hz	230 / 50 230 / 60	230 / 50 230 / 60	230 / 50 230 / 60
Capacity at 5 bars Lit.min ⁻¹	75	140	140
Capacity at 5 bars with dryer Lit.min ⁻¹	60	115	115
Capacity at 5 bars with KJF-1 Lit.min ⁻¹	75	140	140
Efficiency of suction pump under-pressure at 5 kPa Lit.min ⁻¹	800	2x800	800
Suction pump underpressure kPa	12	12	12
Maximal current A	6.7 (7**) 8 (8.3**)	13.9 (14.2**) 15.7 (16**)	10.8 (11.1**) 12.2 (12.5**)
Capacity of air tank Lit.	25	25	25
Working pressure of compressor unit bar	4.5 – 6.0	5.0 – 7.0	5.0 – 7.0
Safety valve bar	8.0	8.0	8.0
Noise level dB(A)	47	51	51
Duty cycle without dryer	Continual S1-100%	Continual S1-100%	Continual S1-100%
Duty cycle with dryer	Continual S1-100%	Continual S1-100%	Continual S1-100%
Dimensions of compressor w x l x h mm	560x640x1250	560x640x1250	560x640x1250
Weight of compressor kg	111/117 **	128/134 **	112/123 **
Compressor temp drying at atmospheric condensation point	- 20°C	- 20°C	- 20°C
Version according to EN 60 601-1	Appliance of type B, class I		

Climatic conditions during storage and transport
 Temperature : -25°C to +55°C, 24 h to +70°C
 Relative air humidity : 10% to 90 % (no condensation)

Climatic operation conditions
 Temperature : +5°C to +40°C
 Relative air humidity : 70%

(*) - by special request
 (**) - with dryer

5.1. FAD efficiency correction for differences in elevation

FAD correction table

Elevation [mamsl]	0 - 1500	1501 - 2500	2501 - 3500	3501 - 4500
FAD [l/min]	FAD x 1	FAD x 0.8	FAD x 0.71	FAD x 0.60

FAD efficiency refers to conditions at an elevation of 0 mamsl:

Temperature: 20°C
 Atmospheric pressure: 101325 Pa
 Relative humidity: 0%

6. PRODUCT DESCRIPTION

6.1. Model variations and their uses

Compressors are the source of clean, oil-free compressed air used to drive dental appliances and equipment and simultaneously they are the source of vacuum for suction. They are suitable for all types of dental surgeries equipped with suction devices.

Compressors are made according to the purpose in the following versions :

Dental compressor with suction unit - DUO - designed for all types of dental surgeries equipped with suction devices, and thanks to its design it is suitable for installing in the actual surgery.

Dental compressor with suction units - DUO 2 - designed for all types of dental surgeries equipped with suction devices. It is suitable for the running of two surgeries simultaneously.

Dental compressor with suction unit - DUO 2V - designed for all types of dental surgeries equipped with suction devices. This is suitable for surgeries that require higher than average consumption of pressurised air.

Dental compressor with suction unit - DUO T, DUO 2VT - Appliance where switch from unit controls suction pump by voltage from module „T“.

Dental compressor with suction units - DUO 2T - Appliances where switch from unit controls suction pump by voltage from module „T“.

Dental compressor with suction unit - DUO/M, DUO 2V/M, DUO T/M, DUO 2VT/M - Appliances equipped with membrane dryer.

Dental compressor with suction units - DUO 2/M, DUO 2T/M - Appliances equipped with membrane air dryer.



DUO



DUO 2V



DUO 2



MEMBRANE
DRYER

KJF1



Without additional filtration equipment, the compressed air from a compressor is not suitable for the operation of breathing appliances or similar equipment.

6.2. Extra equipment

These items are not components of the compressor and must be ordered separately.

Noise suppressor with filter (DUO)	DS4.....	603011849-000.....	1 pc
Noise suppressor with filter (DUO 2)	DS5.....	603011994-000.....	1 pc
Wall-mounted noise suppressor with filter.....	DS2.....	604001080-000.....	1 pc
Wall-mounted noise suppressor without filter.....	DS2.....	604001079-000	1 pc
Autodrain	AOK 2.....	603001163-000	1 pc
Plug for mains connection, No.0299-0-0032		033200005-000.....	1 pc

7. FUNCTION

Compressor with suction unit (Fig.1)

The compressor motor (1) sucks atmospheric air via input filter (8) and it compresses it via check valve (3) to air tank (2). The appliance takes the compressed air from air chamber via output valve (43), thus pressure shall drop to the switching-on pressure set on the pressure switch (4), at which the compressor shall be switched on. The compressor compresses air to the air chamber up to the value of switching-off pressure, when the compressor shall be switched off. After compressor aggregate is switched off, pressure hose shall be pressure-release solenoid valve (13). Safety valve (5) prevents the pressure in air chamber from rising above the maximal allowed value. Condensate is released from air chamber via drain valve (7). Compressed and clean air free from oil traces is in an air chamber ready for further use.

Suction aggregate (42) (for DUO2 – two aggregates) sucks air, thus it creates negative pressure in sucking pipe that is connected to the equipment and it is a source of negative pressure for exhausting of foreign matters from the working field of a doctor. The sucked air is lead out via exhausting pipe that ends outside the working space of the operators. Sucking aggregate (42) is controlled directly from the set using voltage of 24V AC/DC or signal "I" from a switch (model "T") lead to the exhauster switching block (21).

Compressor with suction unit and dryer (Fig.2)

The compressor unit (1) pulls in outside air through the inlet filter (8) and compresses it through the cooler (14), filter (18) and micro-filter (17) to the dryer (9) and on through the check valve (3) as dry clean air in the air tank (2). Condensate from the filter and micro-filter is automatically drained into the collection vessel. The dryer provides continuous drying of the compressed air. Dry, clean compressed air free from oil traces is stored in the air tank ready for use.

Suction aggregate (42) (for DUO2 – two aggregates) sucks air, thus it creates negative pressure in sucking pipe that is connected to the equipment and it is a source of negative pressure for exhausting of foreign matters from the working field of a doctor. The sucked air is lead out via exhausting pipe that ends outside the working space of the operators. Sucking aggregate (42) is controlled directly from the set using voltage of 24V AC/DC or signal "I" from a switch (model "T") lead to the exhauster switching block (21).

Compressor with condensation unit with filter (Fig.3)

The compressor (1) draws in air through a filter (8) and compresses it through a check valve (3) into an air tank (2). The compressed air from the nozzle flows through a cooler (10) that cools the compressed air. The condensed moisture is trapped in the filter (11) and automatically separates as condensate (12). Dry, clean compressed air free from oil traces is stored in the air tank ready for use.

Suction aggregate (42) (for DUO2 – two aggregates) sucks air, thus it creates negative pressure in sucking pipe that is connected to the equipment and it is a source of negative pressure for exhausting of foreign matters from the working field of a doctor. The sucked air is lead out via exhausting pipe that ends outside the working space of the operators. Suction aggregate (42) is controlled directly from the set using voltage of 24V AC/DC or signal "I" from a switch (model "T") lead to the exhauster switching block (21).

Compressor box (Fig.1, Fig.4)

The soundproof box is compact yet allows sufficient exchange of cooling air. It can be placed in a dentist's office. The ventilator (41) under the aggregate of a compressor provides cooling of compressor and it is in operation at the same time with an engine of the compressor. After a prolonged operation of the compressor, when temperature in a casing rises above 40°C, the cooling ventilator of the casing (19) shall be switched on automatically. After the area in housing is cooled down under ca 32°C, the ventilators shall be automatically switched off. Door of the casing with right opening may be changed to left opening (see Chapter 9).



Make sure that nothing impedes the free flow of air under and around the compressor. Never cover the hot air outlet on the top back side of the case.



If placing the compressor on a soft floor such as carpet, create space for ventilation between the base and floor or the box and floor, e.g. underpin the footings with hard pads.

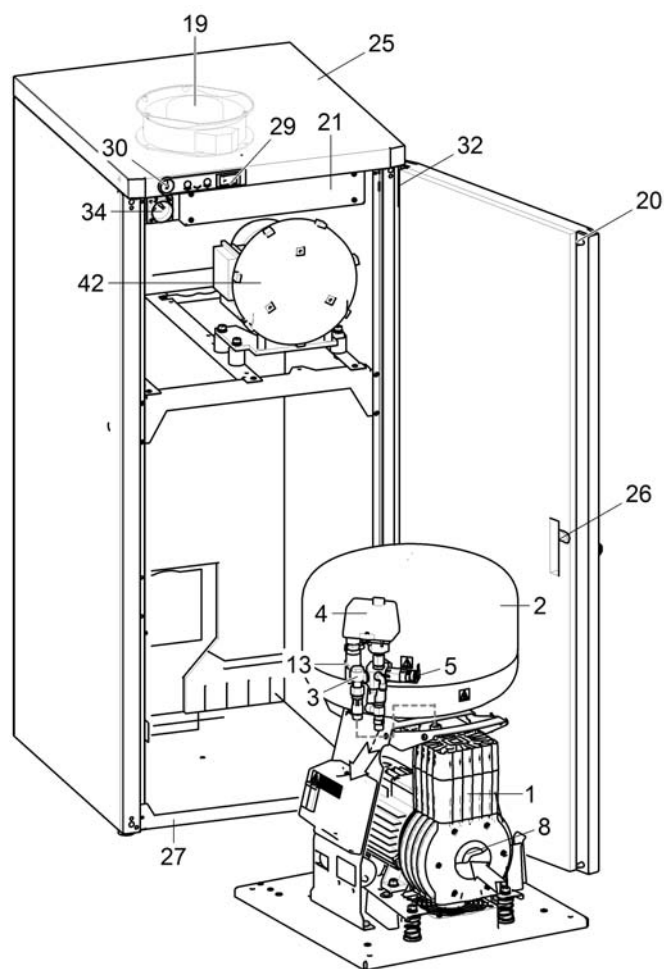
Noise Suppressor

Noise suppressors with a filter and without a filter suppress the "whistling" sounds of circulating wheel of aspirator. The total drop of noise level of aspirator with a suppressor during the operation of an aspirator is by 4 dB.

Noise suppressor with a filter is complemented with a bacteriological filter and thus it is suitable for installation directly in a surgery.

Wall-mounted noise suppressor is intended for fixation onto a wall.

Wall-mounted noise suppressor with a filter is intended for fixation onto a wall and it is complemented with a bacteriological filter.

Fig.1 - Compressor with suction unit

1. Compressor motor
2. Air tank
3. Check valve
4. Pressure switch
5. Safety valve
6. Rectification screw
7. Drain valve
8. Input filter
9. Dryer
10. Pipe cooler
11. Filter
12. Condenser outlet
13. Solenoid valve
14. Cooler
15. Check valve
16. Stopper
17. Micro-filter
18. Filter
19. Box fan
20. Door pin
21. Switching block of suction pump
22. Bottle
23. Compressor handle
24. Hole for condensate discharge
25. Box
26. Lock
27. Connecting reinforcement
28. Wall stopper
29. Switch
30. Manometer
31. Bottle holder
32. Door hinge
33. Wheels
34. Socket on the box
35. Stopper
36. Power indicator
37. Suction unit indicator (for DUO2 – 2x)
38. Cord clip
39. Power cord
40. Hose of manometer
41. Compressor Fan
42. Suction aggregate
43. Outlet Valve

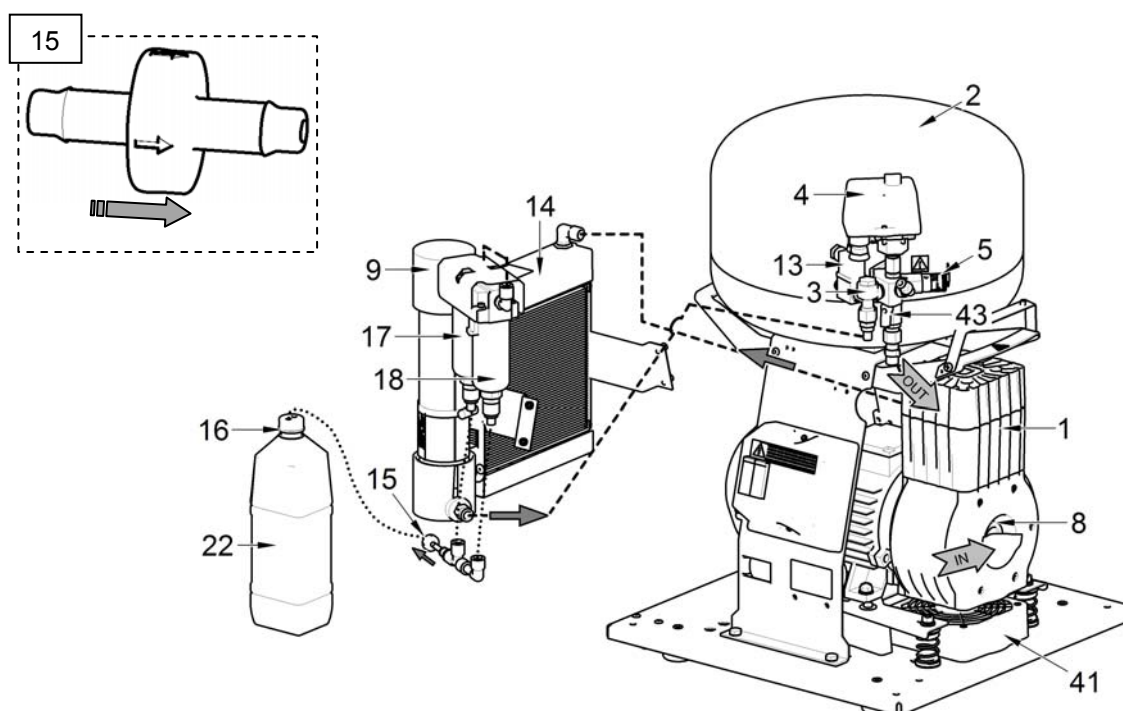
Fig.2 - Compressor with dryer

Fig.3 - Compressor with condensation unit KJF-1

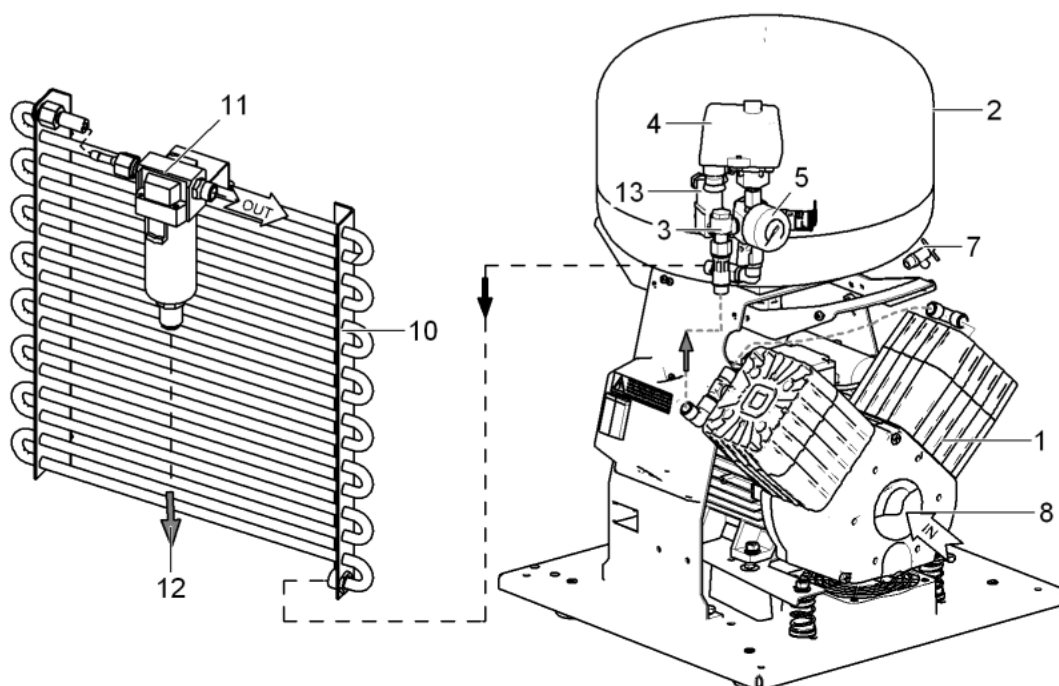
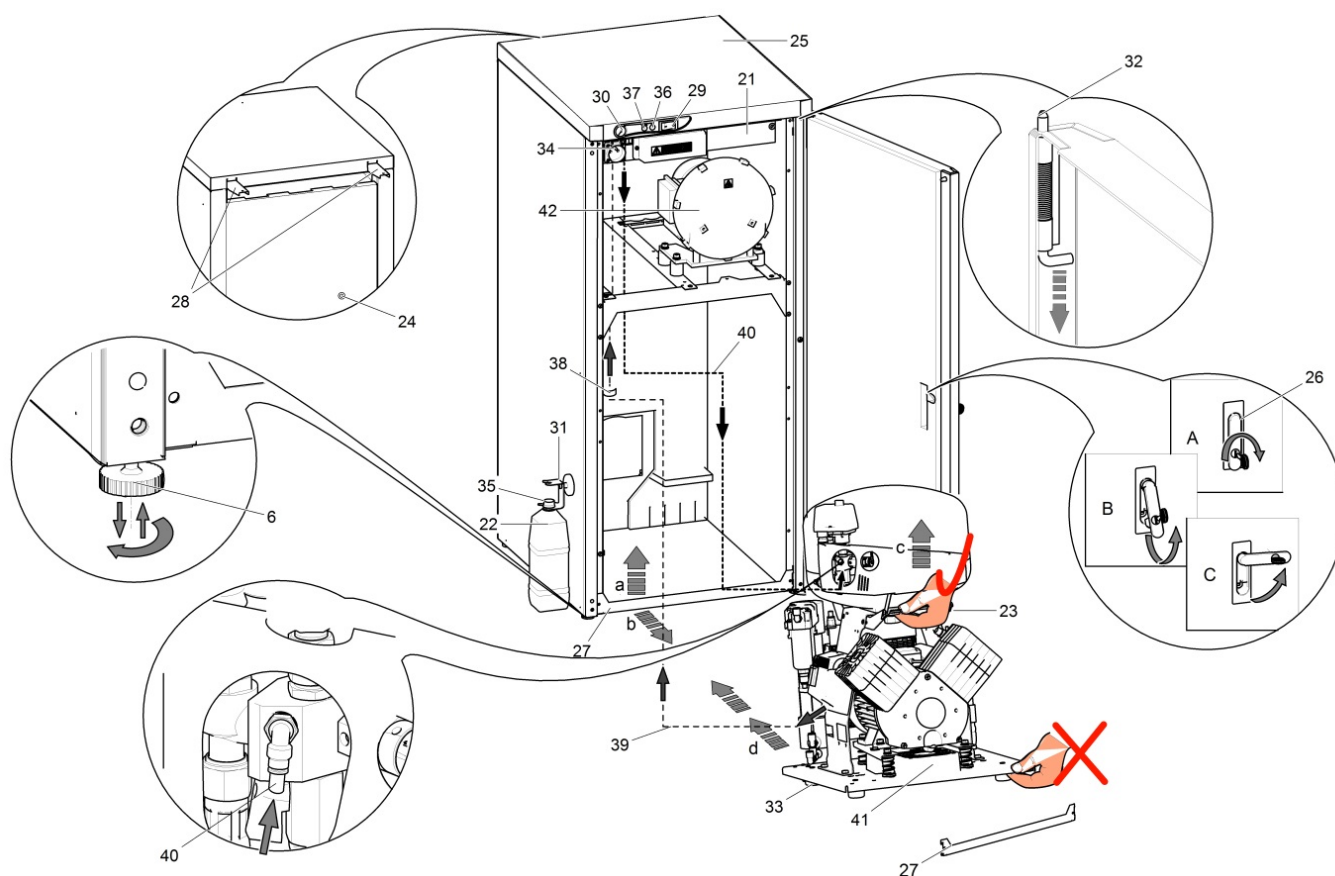


Fig.4 - Box



INSTALLATION

8. USE

- The appliance must be installed and operated in a dry, well ventilated and dust-free area where ambient temperature is within the range of +5°C to +40°C and relative air humidity does not exceed 70%. The compressor must be installed so that it is accessible at all times for operating and maintenance. Please ensure that the appliance label is accessible as well.
- The appliance must stand on a flat, sufficiently stable base. See paragraph 5 (Technical data) when positioning or lifting the compressor.
- Compressors cannot be exposed to outdoor environments. The appliance cannot be used in moist or wet environments. Do not use the compressor in the presence of explosive gases, dust or combustible liquids.
- Before connecting the compressor to medical equipment, the supplier must confirm that it meets all requirements for its use. Refer to the technical data of the product for this purpose. When a unit is to be built-in, classification and evaluation of compatibility must be done by the manufacturer or supplier of the product to be used.
- Any use other than that described in this manual is not covered by the guarantee, and the manufacturer is not liable for any damages that may result. The operator/user assumes all risk.

9. INSTALLATION



Only qualified personnel can install and start up the appliance and train operating personnel in its correct use and maintenance. Installation and training of all operators shall be confirmed by the installer's signature on the certificate of installation.



Prior to installation, ensure that the compressor is free of all transport packaging and stabilizers to avoid any risk of damage to the product.



Caution! When in operation, the compressor is hot. Burns or fire may result if contact is made by the operator or any flammable material.

PLACEMENT OF THE APPLIANCE

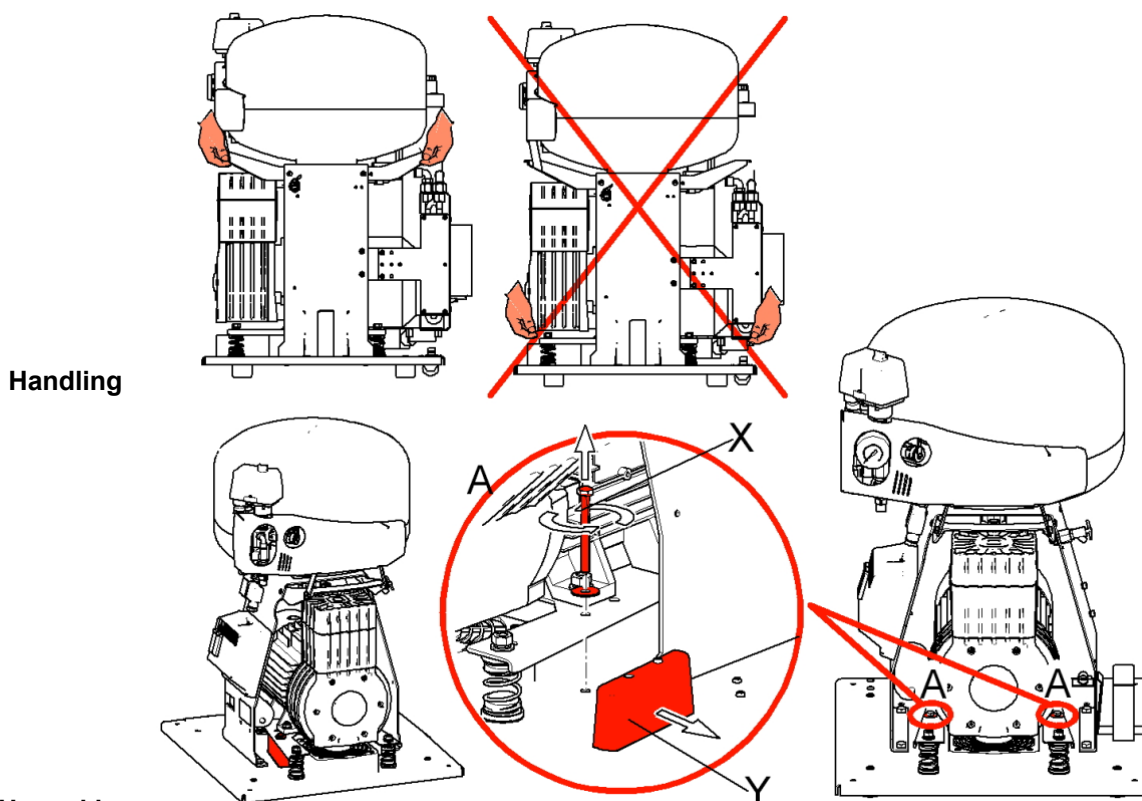


Fig.5 - Unpacking

Dental compressor with suction unit DUO, DUO 2, DUO 2V (Fig.4, Fig.5)

After unpacking the product from a packaging place it with its base onto the floor in a room, free it from packaging materials and remove fixation parts (X,Y) - detail A. Place the wall-mounted stopper (28) - 2 pcs onto the compressor housing in the rear top part of the housing and put the housing onto a required place. The stoppers provide a sufficient distance of the housing from a wall for thorough ventilation. Open the door on the housing using the attached key. If necessary, disassemble the doors by pulling the pin of door hinge (32). Connect the equipment via ready made distributions in a floor according to installation plan or via the holes on the rear side of the housing (Chapter 9. 1). Connect the exhauster control cord of 24 V AC/DC from the set (Chapter 9.2). Remove the connecting reinforcement (27) in the front part of the housing. Thread the pressure hose via a hole in housing and connect it to an appliance in a suitable way (Chapter 9.3). Grasp the compressor at its handle and put it into the casing using built-in wheels (33) so that the front part of the base was ca 20mm from the connecting reinforcement (27). Fix the hose (40) of a manometer (30) in a hose into the fast-on coupling on a compressor, put the connecting reinforcement (27) back and connect the pressure hose to a compressor. Insert the electric power cord (39) of a compressor into a socket (34) on a housing and insert the free cord to a clip (38). By slight rotation of rectification screws (6) set the correct position of door against the casing frame. When closing the door the pin (20) on the door must easily snap in the opening in the casing frame. Close the housing doors and duly lock the lock (26). Connect the mains plug into the mains socket.

It is not allowed to leave a key in a lock! It is necessary to keep it back from uninstructed persons!

Dental compressor with suction unit DUO/M, DUO 2/M, DUO 2V/M (Fig.4, Fig.5)

After unpacking the product from a packaging place it with its base onto the floor in a room, free it from packaging materials and remove fixation parts (X, Y) - detail A. Place the compressor into housing similarly as in the previous paragraph. Prior to placing the compressor into housing, protrude house for condensate drain via hole in housing (24) and connect it to a bottle (22). The magnetic holder (31) with a vessel (22), for entrapping condensate from a dryer may be fixed at the sides of housing or from the front on its doors. When fixing the holder with a vessel at the housing side it is necessary to consider a space of at least 11 cm between the housing and furniture. Distance smaller than the specified one may cause problem with handling of the vessel.



The vessel must always be installed so that the lower section is near the floor; any other installation may damage the dryer!

Noise suppressor for casing DUO, DUO2 (Fig.6)

Fix the suppressor (1) to the base of aspirator using 4 screws M5 and washers. Interconnect the output (2) from the aspirator with a suppressor using the delivered hoses with $\varnothing 30 - 400\text{mm}$. Interconnect the output (3) from a suppressor with the original output hose from the aspirator. Lace the hoses via clips (4).

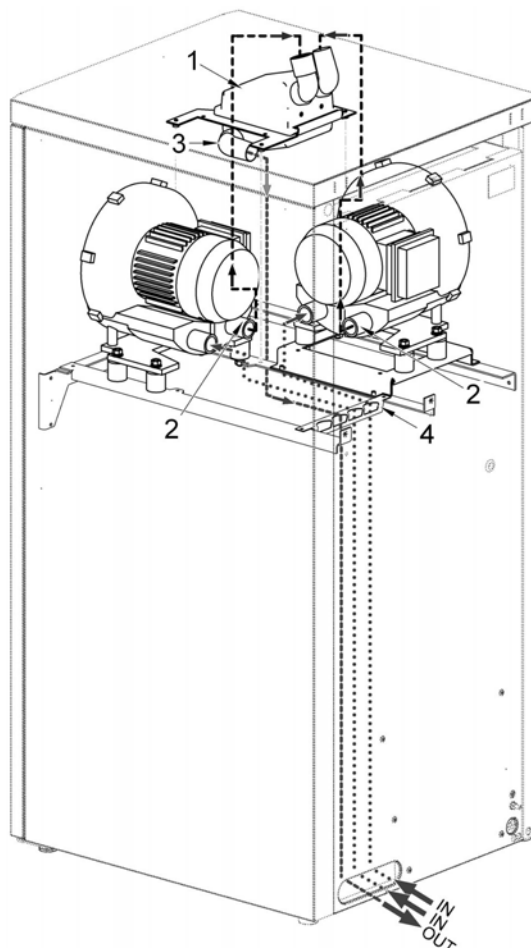


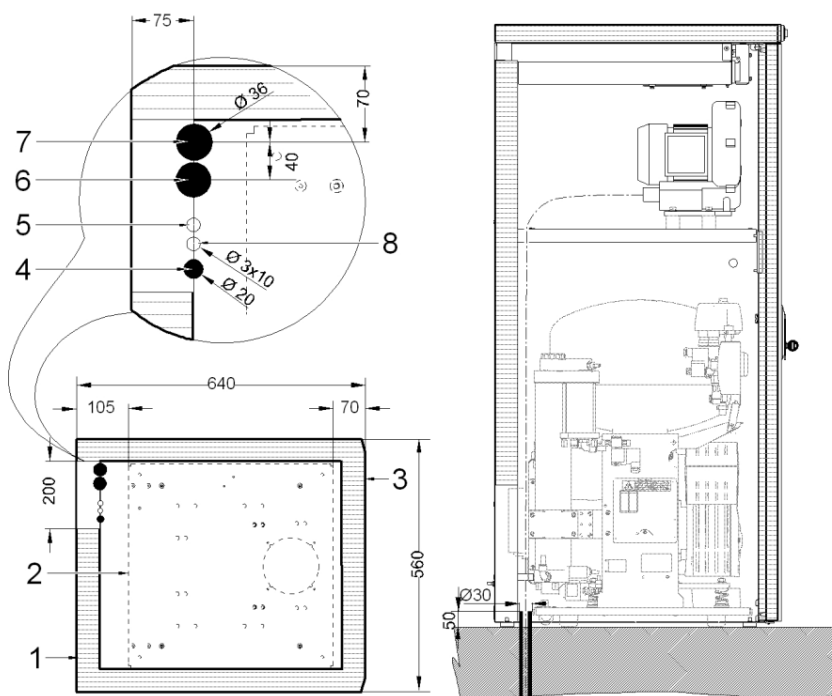
Fig.6

9.1. Underpressure connection

(Fig.7, Fig.8)

The suction aggregate is equipped with hoses for sucking and discharge. The hoses connected to input/output of suction aggregate are lead at the rear wall of the housing into its bottom part. The hoses of sucking aggregate may be connected to piping in a floor or to lead out via the rear hole of the housing (9). Connect the sucking hose to piping leading to an appliance and connect the discharge hose to piping lead out beyond the working space of operators. If it is necessary to reduce the noise level of air passing through the hose, it is possible to connect noise suppressor to exhauster output (see Chapter 6 Auxiliary Equipment). If it is necessary to lead the output of air from exhauster into interior, it is necessary to connect noise suppressor with bacteriological filter onto the exhauster.

Fig.7 - Installation DUO, DUO 2V (distributions in a floor)



- 1 – Outline of the case
- 2 – Outline of the base
- 3 – Front part of the case - door
- 4 – Pressurised air connector G3/8"
- 5 – Suction pump control voltage 2Ax0.75
- 6 – Suction pump – in
- 7 – Suction pump - out
- 8 – Supply voltage 230V/50(60)Hz, 3Gx1.5

- all dimensions in millimeters
- wall distance min. 100mm

Connection via the hole in the rear part of the casing.

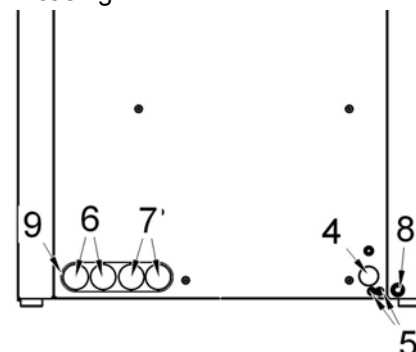
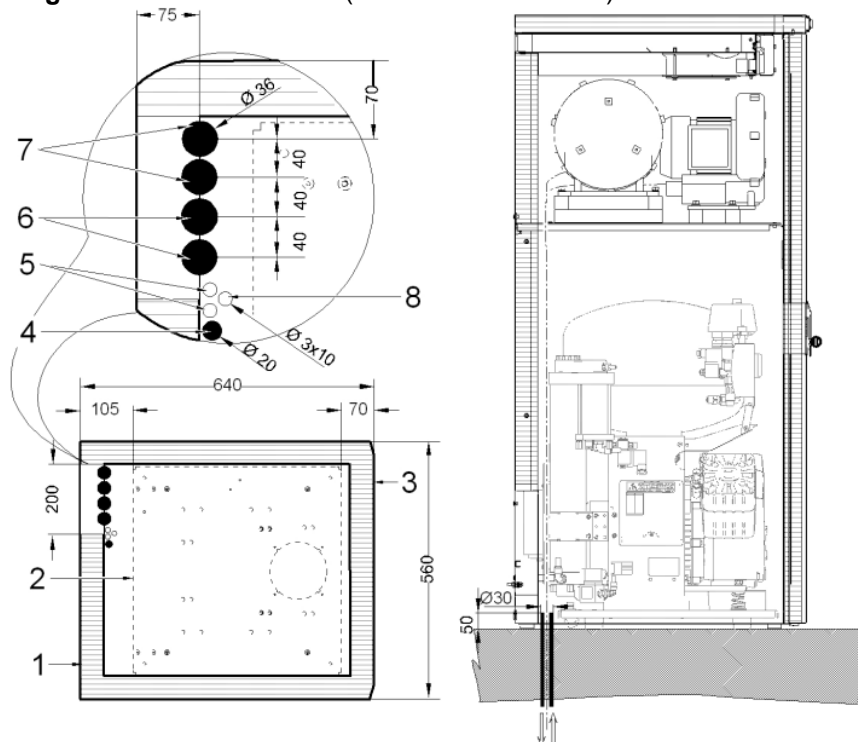


Fig.8 - Installation DUO 2 (distributions in a floor)



- 1 - Outline of the case
- 2 - Outline of the base
- 3 - Front part of the case - door
- 4 - Pressurised air connector G3/8"
- 5 - Suction pump control voltage 2Ax0.75
- 6 - Suction pump 1 – in and out
- 7 - Suction pump 2 – in and out (DUO 2)
- 8 - Supply voltage 230V/50(60)Hz 3Gx1.5

- all dimensions in millimeters
- wall distance min. 100mm

9.2. Suction pump control connection

(Fig.9)

Lace the cord (12) of aspirator control (24V AC/DC) through the hole in the rear part of the casing (1) (Fig.9-C2) or via the piping in a floor (11)(Fig.9-C3), fix with clips (2) located on the left panel of the casing in its bottom part and lead it via a hollow (3) in the front part of the casing (Fig.9-A). Prior to putting the cord into clips it is necessary to move the sound insulation material (4) in the corners of the casing. Remove the cover of an electric distribution channel (5) and cover of electric panel (6). Connect the cord for aspiration control to the terminal of printed circuit board according to the wiring diagram, insert it to the hollow (3) in the front part of the casing, behind the sound insulation material at the side of the casing (4) and to the electric distribution channel (7) (Fig.9-B).



Electrical cable may not contact the hot parts of a compressor. Insulation could be damaged!

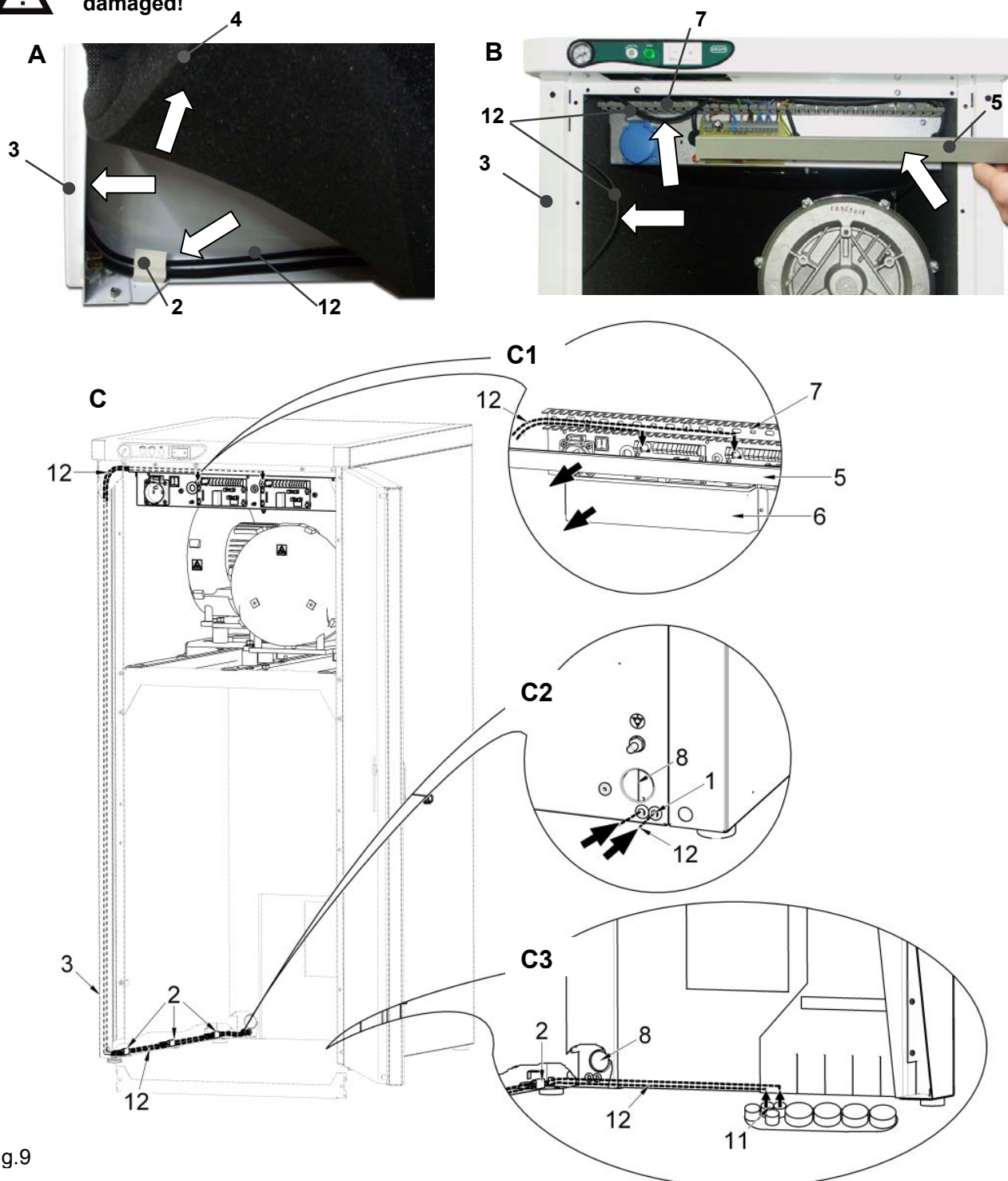


Fig.9

9.3. Compressed air outlet

(Fig.10)

Lead the pressure hose from compressor output via rear hole of the housing (8) to the appliance (Fig. 9C) or connect it to the output from a floor. Connect the pressure hose onto the output of compressed air (9) of a compressor with a nut (10) (cone) using a locked cone clutch.

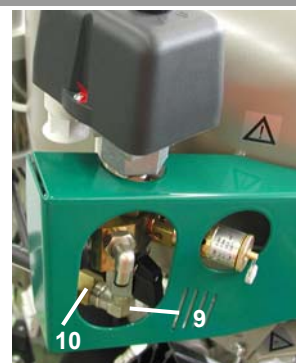


Fig.10

9.4. Electrical connection

Plug the electrical cord into the mains.



The appliance is equipped with a grounded plug. Make sure this connection complies with local electrical codes. The mains voltage and frequency must comply with the data stated on the appliance label.



Electrical cable may not contact the hot parts of a compressor. Insulation could be damaged!

If any electrical cord or air hose is damaged it must be replaced immediately.

- Keep the socket easily accessible to ensure that in an emergency the appliance can be safely disconnected from the mains.
- Connection to the power distribution box must be max.16A.
- Electricity for the compressor is via a socket located in the box.

The connection of the earth ground pin \varnothing 6mm (1) (Fig.11) with other appliances must be completed in accordance to local valid electrical regulations. The female socket (2) which is not included in the standard set, is an optional accessory.



Fig.11

9.5. Compressor connection

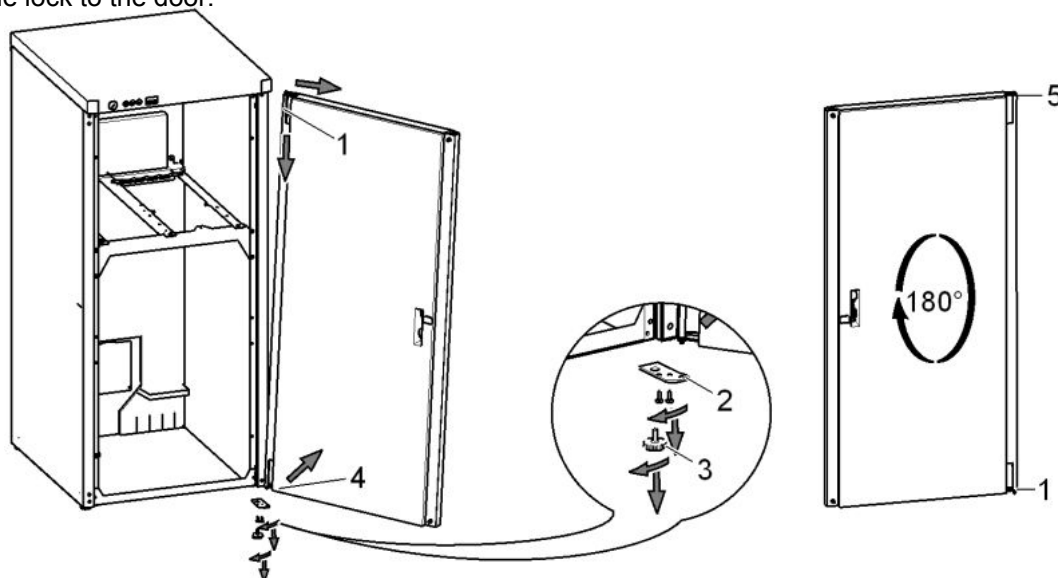
(Fig.4)

Connect mains cord to housing socket (34). Place the cord under clamp (38).

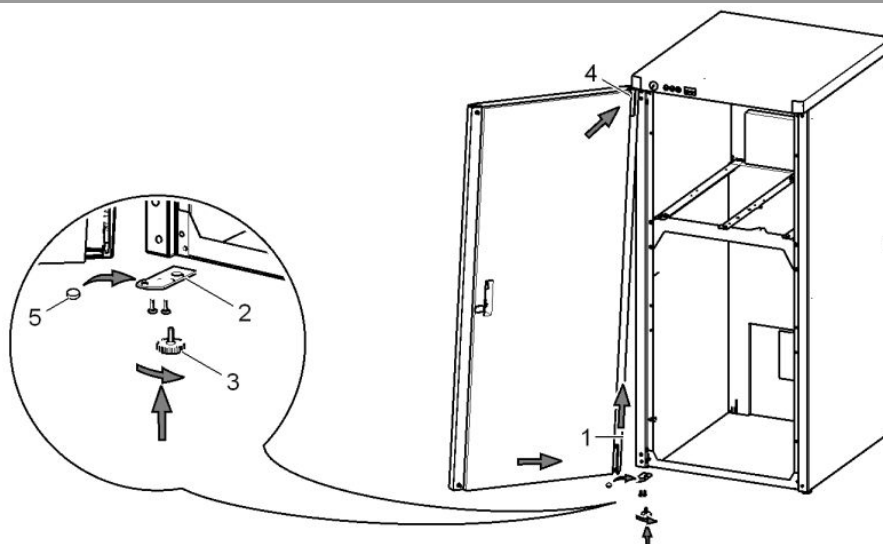
9.6. Change in the door opening

- Disassemble the door, rectification screw (3) and the holder (2) of the hinge D (4).
- Mount holder of the hinge D to the left side of the casing.
- Rotate the door by 180°.
- Insert a spacer (5) between the hinge H(1) and the bottom side of the door
- Mount the door.
- Disassemble the lock (6) on the door, rotate it by 180°.
- Disassemble the latch (7) on the lock, rotate it by 180°.
- Mount the lock to the door.

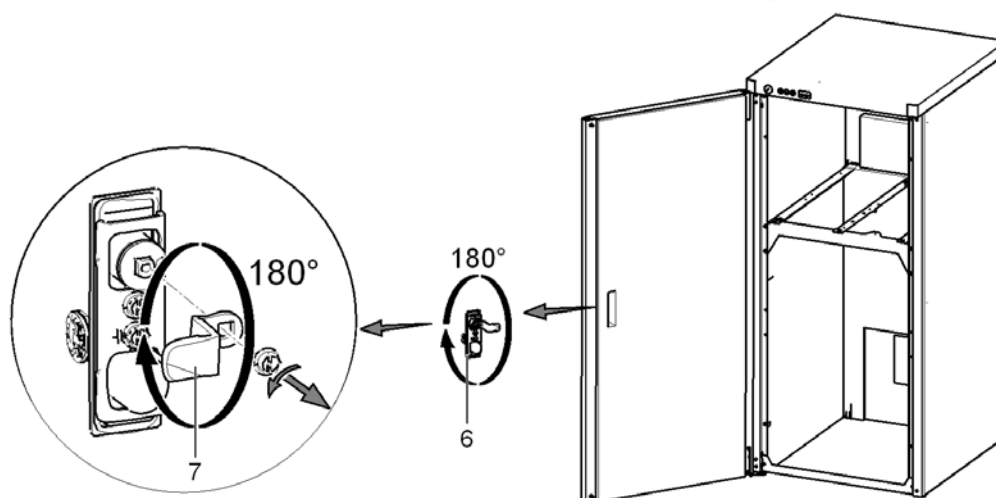
A



B

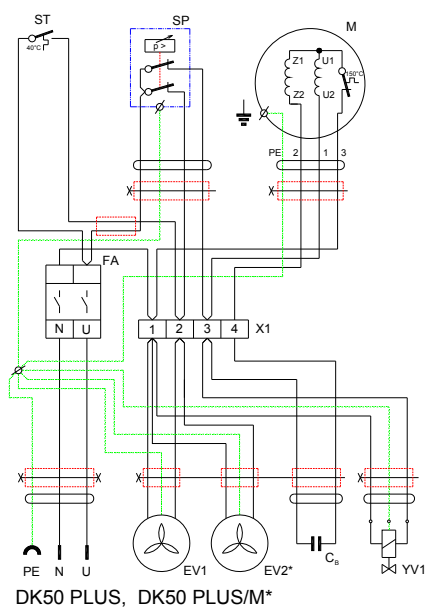


C



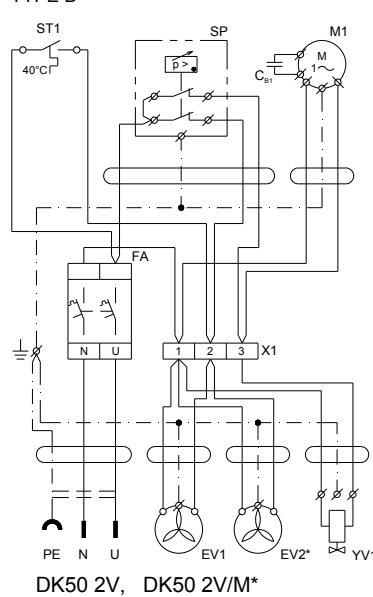
10. WIRING DIAGRAMS

1/N/PE ~ 230 V / 50..60 Hz
ELECTRIC OBJECT OF 1st.CAT
TYPE B



DK50 PLUS, DK50 PLUS/M*

1/N/PE ~ 230 V / 50..60 Hz
ELECTRIC OBJECT OF 1st.CAT
TYPE B



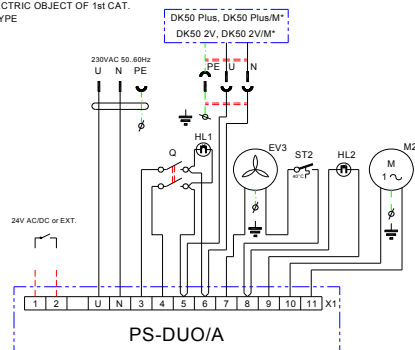
DK50 2V, DK50 2V/M*

M1 Electric motor of compressor
ST1 Thermo switch
EV1 Compressor fan
EV2 Dryer fan
X1 Terminal

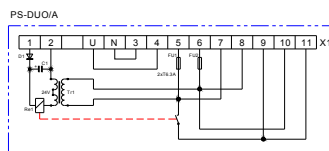
SP Pressure switch
Q Switch
YV1 Solenoid valve of compressor
FA Circuit breaker
YV2 Solenoid valve of dryer

Cb Capacitor
SRH Sensor of humidity

1/N/PE ~ 230 V 50..60 Hz
ELECTRIC OBJECT OF 1st CAT.
B TYPE

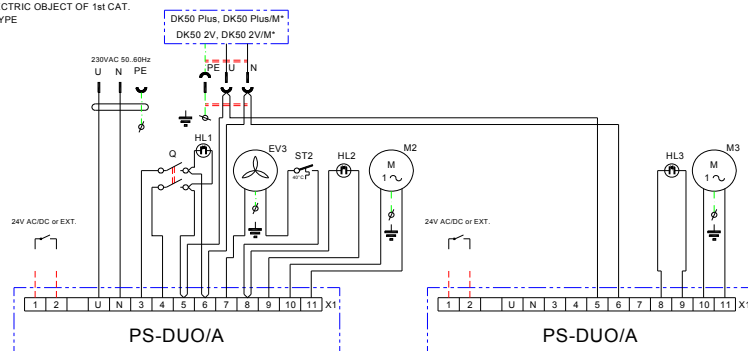


DUO, DUO 2V



M2,M3 Electric motor of suction pump
ST2 Thermo switch
EV3 Suction pump fan
HL1,HL2,HL3 Glow lamp
X1 Terminal
Q Switch
XC Socket
FU1,FU2 Fuses

1/N/PE ~ 230 V 50..60 Hz
ELECTRIC OBJECT OF 1st CAT.
B TYPE



DUO 2

11. FIRST OPERATION

- Make sure that all stabilizers used during transport were removed.
- Check the connection of pressurised and vacuum air lines.
- Connect to the mains.
- Start compressor at pressure switch (2) by turning switch (3) to position "I." (Fig.12).
- Turn the switch on the front of the sound proof box to position "I" – green light indicates that the appliance is on.

Compressor with suction unit - At first operation the air tank is pressurized until it reaches a preset level when the compressor automatically switches off. As the air is used, the compressor works in automatic mode, switched on or off by the pressure switch. The suction unit is switched on from the dentist's suction apparatus. The operation of an exhauster is indicated by white indicator lamp in the front side of the housing.

Compressors with air dryer - during operation the accessory dryer removes moisture from the compressed air passing through it.

Compressor with condensation and filtration unit - Model KJF-1 filters and dehumidifies the air and automatically releases condensed liquid through the filter's discharge valve.



The compressor is not equipped with an emergency power supply.

OPERATION



In case of emergency, disconnect the compressor from the mains (pull out the mains plug).



The compressor has hot surfaces.
Burns or fire may result if contact is made.



In the case of a prolonged operation of a compressor temperature in housing raises above 40°C and then cooling ventilator of a housing shall be automatically switched on. After cooling the space to under 32°C, the ventilator switches off.



Automatic start: when pressure in the tank drops to the pressure switch's lower limit level, the compressor automatically switches on. The compressor automatically switches off after reaching the pressure switch's upper limit level.

Compressor with drier

A correct function of the drier depends on the compressor's operation and no attendance is required. The pressure vessel need not be slugged, because the pressure air entering the air chamber is already dried.

- It is forbidden to alter the working pressures of pressure switch set by manufacturer. The operation of the compressor at working pressure lower than the switching pressure demonstrates the overload of the compressor (high air consumption) by the appliance, leakages in pneumatic distributions, failure of aggregate or drier.
- Prior connecting drier to air chamber, that was used with compressor without drier, it is necessary to clean interior surface of air chamber and perfectly remove condensed liquid. Then interconnect electric part of drier with compressor according to wiring diagram in accord with valid regional regulations.



Required drying performance can only be achieved when following the defined operating conditions!



Drying performance will decline and the achieved dew point will drop if the dryer is operated at any pressure below the minimum working pressure!

Dryer operation at a pressure of 0.5 Bar below the minimum working pressure can lower the dew point at the outlet by more than 10°C!



The dryer will be irrevocably damaged and need replacement if operated at any temperature above the maximum working temperature!

12. SWITCHING THE COMPRESSOR ON

(Fig.12)

Switch on the compressor using mains switch on the front side of the equipment housing, the compressor shall start running and lead air into air chamber under a pressure. As the compressed air is used, the pressure in the air nozzle drops to a preset level, the compressor switches on and the air nozzle fills with compressed air. After reaching the cutoff pressure the compressor turns off automatically and the cycle is repeated. Check the value of switching-on and switching-off pressure on pressure gauge (Fig.1 - pos.30). The values may be within a tolerance of $\pm 10\%$. The suction unit is switched on from the dentist's suction apparatus. The operation of an exhauster is indicated by white indicator lamp.

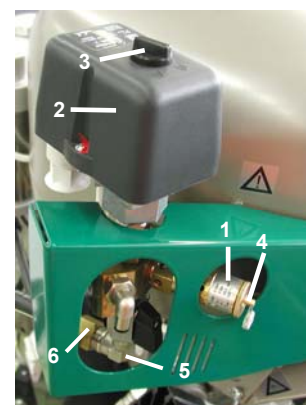


Fig.12



Never tamper with the pressure switch (2). Adjustments are not allowed. The pressure switch (2) has been set by the manufacturer and further setting of switching on and off pressure may be carried out only by a qualified expert trained by the manufacturer.

MAINTENANCE

13. MAINTENANCE SCHEDULE

Notice!

The operating entity is obliged to ensure that all tests of the equipment are carried out repeatedly at least once within every 24 months (EN 62353) or in intervals as specified by the applicable national legal regulations. A report must be prepared on the results of the tests (e.g.: according to EN 62353, Annex G), including the measurement methods used.

Time interval	Maintenance that must be performed	Chapter	Performed by
1 x day	• Release condensate At high air humidity	14.1	operating staff
1 x week, check function	Compressors with air drier Compressors with condensation unit : - from filter		
1 x week	- from pressure vessel Compressor without air drier		
1 x every 3 months	• Replacement of a prefilter in a noise suppressor	14.6	operating staff
1 x year	• Check safety valve	14.2	qualified technician
	• Replacement of filter element in filter and micro-filter	14.4 14.5	operating staff
	• Replacement of filter in condensation unit	14.6	qualified technician
	• Replacement of a filter in a noise suppressor	14.7	operating staff
	• Check tightness of joints Overall examination of device	Service documentation	qualified technician
	Clean the cooler ribs and the fan	14.8	qualified technician
1 x 2 years	• Perform "Repeated Test" according to EN 62353	13	qualified technician
1 x 4 years or after 8000 hours 1 x 2 years or after 5000 hours	• Replacement of the input filter and prefilter DUO – (Compressor DK50 PLUS) DUO 2V, DUO2 – (Compressor DK50 2V)	14.3	qualified technician

14. MAINTENANCE



Repair work beyond normal maintenance can be performed only by qualified personnel or the manufacturer's representative.

Use only spare parts and accessories approved by the manufacturer.



Prior to any maintenance or repair work, switch off the compressor and disconnect it from the mains (pull out the mains plug).

TO ENSURE THAT THE COMPRESSOR WORKS CORRECTLY, PERFORM THE FOLLOWING MAINTENANCE TASKS AT REGULAR INTERVALS (CHAPTER 13):.



Prior to the following checks it is necessary to open the equipment housing (Fig. 4)

14.1. Condensation drain valve

Compressors (Fig.13)

During regular use, release condensation from the pressure tank.

- Switch off the compressor at the mains. Reduce air pressure in the appliance to max. 1 bar by releasing air via a connected device.
- Place the vessel under release valve (1) and drain the condensate by opening the valve.
- Wait until condensation is fully drained from the pressure tank.
- Close drain valve (1).



Fig.13

Compressors with condensation and filtration unit (Fig.17)

During regular use, condensation is automatically released via the release valve of the condensation unit filter. To check that the automatic drain is working properly, open the valve (4) of the drain vessel (2) by turning to the left. Release a small amount of condensate from the vessel. Close the valve (4) by turning to the right.

Compressors with air dryer

In the case of a regular operation condensate is automatically excreted via air dryer and it is entrapped in a bottle located at the housing side. Take out the bottle from a holder, release stopper and pour out the condensate.

If necessary, it is possible to connect the set for condensate discharge onto the condensate outlet (see Chapter. PARTS LIST - Auxiliary Equipment).

14.2. Safety valve check

(Fig.12)

When the compressor is operated for the first time, make sure that the safety valve is working properly. Turn screw (4) of safety valve (1) several rotations to the left until the safety valve releases air. Let the safety valve blow out for only a few seconds. Turn screw (4) to the right until it seats, closing the valve.



The safety valve must never be used for depressurizing the air tank. It could damage the safety valve. The valve is set to the maximum permitted pressure by the manufacturer. Adjustments are not permitted.

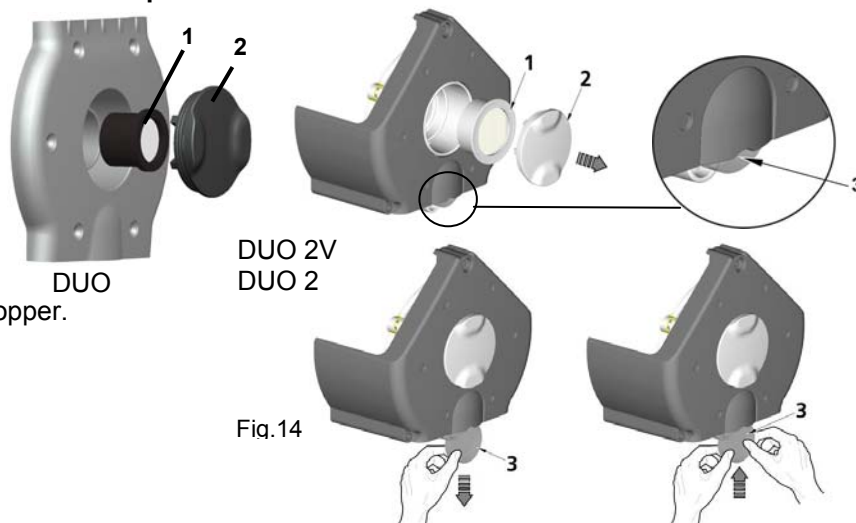


Warning! Compressed air can be dangerous. Wear eye protection when blowing air out.

14.3. Replacement of the input filter and prefilter

(Fig.14)

At the lid of the compressors crankcase is an input filter (1) and prefilter (3).



Replacing of the input filter:

- Hand pull the rubber stopper (2).
- Remove used and dirty filter.
- Input new filter and set rubber stopper.

Replacing of the prefilter:

- Hand pull prefilter (3).
- Replace old prefilter with new

14.4. Replacing the filter element

(Fig.15)

Loosen a safety-catch (1) on a filter regulator by pulling it down.

Turn the container slightly (2) and pull out.

Unbolt the filter holder (3).

Change the filter bed (4), bolt the filter holder.

Put the filter container on and secure it by turning it until the safety-catch is fixed.



Fig.15

Filter	Order number	Filter insert	Order number
AF30 F02C 6 A PU	025200276-000	AF 30P-060S 5 µm	025200061-000

14.5. Replacing the micro-filter element

(Fig.16)

Loosen a safety-catch (1) on a micro filter by pulling it down.

Turn the container slightly (2) and pull out.

Unbolt the filter (3).

Change and bolt the filter bed.

Put the filter container on and secure it by turning it until the safety-catch is fixed.



Fig.16

Micro-filter	Order number	Filter insert	Order number
AFM30-F02C-6-A-PU	025200277-000	AFM 30P-060AS 0,3 µm	025200076-000

14.6. Replacement of filter in condensation and filtration unit



Before beginning, reduce the air pressure in the tank to zero and disconnect the appliance from the mains.

(Fig.17)

In the case of a regular operation of a condensation unit it is necessary to replace the filter inside the filter with automatic desludging.

- Release a safety lock (1) on the filter vessel by its pulling downwards, slightly rotate the filter cover (2) to the left and take it out.
- Unscrew the filter holder (3) by its rotation to the left.
- Replace the filter and fix the new one by rotation of the holder to the right back on the filter body.
- Replace the filter cover and secure it by turning to the right until the safety pin locks.

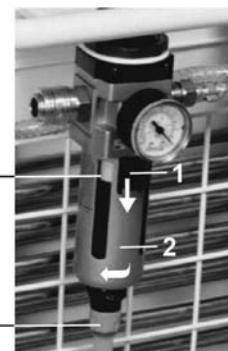


Fig.17

14.7. Replacement of a Filter and Prefilter in a Noise Suppressor



Prior to the intervention in the device, it is necessary to disconnect it from electric mains.

(Fig.18)

When disassembling, it is necessary to release a clamp (9) and remove the filter cover. Take out the filter (10) and a prefilter (11) and replace them with the new ones (the output prefilter should be oriented with the cloth bonded under it towards the filter). Place the filter cover back and fix it with a clamp.

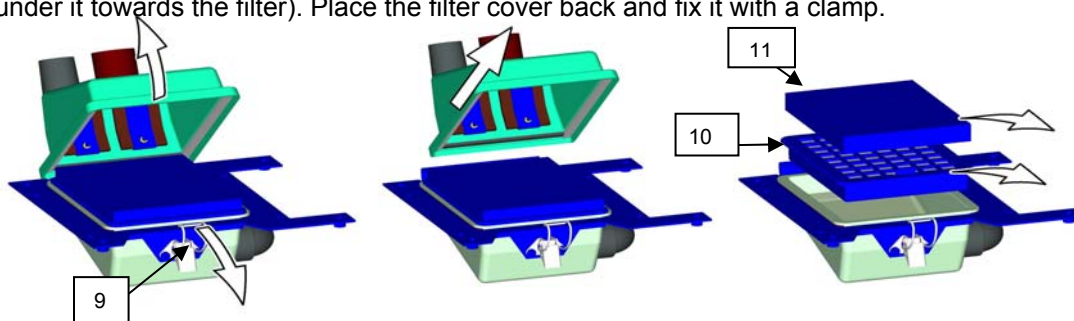


Fig.18

14.8. Clean the cooler ribs and the fan

For permanently high efficiency, it is necessary to maintain the whole equipment and especially the cooler's fan and the cooler itself clean – 1x year suck or blow settled dust out with compressed air from the surface of the cooling ribs and the fan.

15. STORAGE

If the compressor will not be used for a prolonged time period, drain any condensate from the air tank. Then turn on the compressor for 10 minutes, keeping the drain valve open (1) (Fig.13). Switch off the compressor by switch (3) at pressure switch (2) (Fig.12), close the drain valve and disconnect the appliance from the mains.

16. DISPOSING OF THE APPLIANCE

Disconnect the appliance from the mains.

Release air pressure in the pressure tank by opening the drain valve (1)(Fig.13).

- To follow the rules of personal hygiene for works with contaminated material.
- To separate, label, packing and providing for decontamination of contaminated parts by course of national regulations.

The components of the product are non-toxic.

Dispose of the appliance following all environmental regulations.



Inside parts of unit can be contaminated with biological material by reason incorrect using. Before clearing and waste disposal pass on special institution for decontamination.

17. REPAIR SERVICE

Guaranteed and post-guarantee repairs must be done by the manufacturer, its authorized representative, or service personnel approved by the supplier.

The manufacturer reserves the right to make changes to the appliance without notice. Any changes made will not affect the functional properties of the appliance.

18. SOLVING PROBLEMS



Caution! Before proceeding, depressurize the air tank to zero and disconnect the appliance from the mains.

Troubleshooting can be performed only by qualified personnel.

In case of repair of parts of device which might be contaminated please follow bellow mentioned instruction:



To follow the rules of personal hygiene for works with contaminated material. To separate, label, packing and providing for decontamination of contaminated parts by course of national regulations.

For permanently high efficiency of drying, it is necessary to maintain the whole appliance, and mainly ventilator clean – regularly clean the surface of ventilator and cooling fins of cooler.

To perform the repair of damaged parts.

FAILURE	POSSIBLE CAUSE	REMEDY
Compressor does not start	No voltage in pressure switch Disconnected winding of motor, damaged thermal protection Faulty capacitor Seizure of piston or another rotary part Pressure switch does not switch on	Check voltage in socket Check fuse – replace faulty one Loosen terminal – tighten it Check power cord – replace faulty one Replace motor or re-wind it Replace capacitor Replace damaged parts Check the function of pressure switch
Compressor often switches on	Air leak in pneumatic distribution system Leaking check valve Greater volume of condensed liquid in pressure vessel	Check pneumatic distribution system – seal loose joint Clean valve, replace seals, replace valve Drain condensed liquid
Prolonged running of compressor	Air leak in pneumatic distribution system Worn piston ring Contaminated input filter and prefilter Contaminated filter in dryer Defective solenoid valve	Check pneumatic distribution system – seal loose joint Replace worn piston ring Replace contaminated filters with the new ones Replace the output filter in a chamber or also its refill if it gets decomposed or if it is very dusty Repair or change the valve
Compressor is noisy (knocking, metal noises)	Damaged bearing of piston, piston rod, motor bearing Loose or cracked spring	Replace damaged bearing Replace damaged spring
Suction unit does not work, or works intermittently	No voltage in suction unit clamp Exhauster overheating (thermal protection switched off)	Check voltage in the socket Check fuse Loose clamp – tighten Check the power cord Methodically test the wiring circuit The check of functionality of housing ventilator – replace the non-functioning one Check of the clearness of sucking and exhausting tract - (remedy hose cranks and remove foreign objects)
Suction unit is not sucking, or is sucking insufficiently, motor works	Suction line leaking, foreign object trapped in suction piping, blocked exhaust line	Check/replace damaged suction line, check/clear suction line of foreign objects, unblock exhaust line
Dryer doesn't dry (condensed water in the tank)	inoperative cooler ventilator	replace ventilator check supply of electric energy
	Damaged dryer	Replace dryer
	Dirty automatic condensate drain on filters	clean / replace
	Dirty filter and micro-filter elements	Replace old elements with new elements

The internal surfaces of the air tank must be cleaned and all condensed liquid must be removed after a dryer failure.

Check the dew point of the air leaving the air tank (see Chapter 5 - Technical Data) in order to protect connected equipment from damage!



DUO

DUO 2V DUO 2



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