2596474-F EN 2508

DA SERIES

READ AND SAVE THESE INSTRUCTIONS

INSTALLATION AND OPERATION MANUAL

Desiccant dryer
Condair **DA 6000 - 27000**

Humidification, Dehumidification
and Evaporative Cooling

condair

Thank you for choosing Condair

Installation date (MM/DD/YYYY):
Commissioning date (MM/DD/YYYY):
Site:
Model:
Serial number:

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1 Introduction

1.1 To the very beginning

We thank you for having purchased the Condair DA 6000 - 27000 desiccant dryer (for short: Condair DA).

The Condair DA desiccant dryers incorporate the latest technical advances and meets all recognized safety standards. Nevertheless, improper use of the Condair DA desiccant dryer may result in danger to the user or third parties and/or damage to property.

To ensure a safe, proper, and economical operation of the Condair DA desiccant dryer, please observe and comply with all information and safety instructions contained in the present documentation as well as in the separate documentations of the components installed in the drying system.

If you have questions after reading this documentation, please contact your Condair representative. They will be glad to assist you.

1.2 Notes on the installation and operation manual

Limitation

The subject of this installation and operation manual is the Condair DA 6000 - 27000 desiccant dryer in its different versions. The various options and accessories are only described insofar as this is necessary for proper operation of the equipment. Further information on options and accessories can be obtained in the respective manuals.

This installation and operation manual is restricted to the **installation, commissioning, operation, maintenance and troubleshooting** of the Condair DA desiccant dryer and is meant for **well-trained personnel being sufficiently qualified for their respective work.**

Symbols used in this manual

NOTE!

The catchword “NOTE” used in conjunction with the hand symbol designates important notes in this manual that require special attention.

CAUTION!

The catchword "CAUTION" used in conjunction with the general caution symbol designates notes in this operation manual that, if neglected, may cause **damage and/or malfunction of the unit or other material assets**.

WARNING!

The catchword "WARNING" used in conjunction with the general caution symbol designates safety and danger notes in this operation manual that, if neglected, may cause to **injury to persons**.

DANGER!

The catchword "DANGER" used in conjunction with the general caution symbol designates safety and danger notes in this operation manual that, if neglected, may lead to **severe injury or even death of persons**.

Safekeeping

Please safeguard this installation and operation manual in a safe place, where it can be immediately accessed. If the desiccant dryer changes hands, the documentation must be passed on to the new operator.

If the documentation gets misplaced, please contact your Condair representative.

Language versions

This installation and operation manual is available in other languages. Please contact your Condair representative for information.

2 For your safety

General

Every person working with the Condair DA desiccant dryer must have read and understood this installation and operation manual before carrying out any work.
Knowing and understanding the contents of the installation and operation manual is a basic requirement for protecting the personnel against any kind of danger, to prevent faulty operation, and to operate the unit safely and correctly.

All ideograms, signs and markings applied to the Condair DA desiccant dryer must be observed and kept in readable state.

Qualification of personnel

All work described in this installation and operation manual **may only be carried out by specialist who are well trained and adequately qualified and are authorized by the customer**.
For safety and warranty reasons any action beyond the scope of this manual must be carried out only by qualified personnel authorised by the manufacturer.

It is assumed that all persons working with the Condair DA desiccant dryer are familiar and comply with the appropriate regulations on work safety and the prevention of accidents.

The Condair DA desiccant dryer may not be used by persons (including children) with reduced physical, sensory or mental abilities or persons with lacking experience and/or knowledge, unless they are supervised by a person responsible for their safety or they received instructions on how to operate the system. Children must be supervised to make sure that they do not play with the Condair DA desiccant dryer.

Intended use

The Condair DA 6000 - 27000 desiccant dryers are intended exclusively for **air dehumidification at atmospherqie pressure** within the specified operating conditions (see *chapter 9.1*). Any other type of application, without the written consent of Condair, is considered as not conforming with the intended purpose and may lead to the Condair DA desiccant dryer becoming dangerous.
Operation of the equipment in the intended manner requires **that all the information contained in this installation and operation manual are observed (in particular the safety instructions)**.

Danger that may arise from the Condair DA desiccant dryer

DANGER!
Danger of electric hazard!

The Condair DA desiccant dryer is mains powered. Live parts may be exposed when the unit is open. Touching live parts may cause severe injury or danger to life.

Prevention: Before carrying out any work set the Condair DA desiccant dryer out of operation (switch off the unit, disconnect it from the mains) and secure the unit against inadvertent power-up.

WARNING!
Risk of injury!

Inside the Condair DA desiccant dryer there are moving parts present, which can cause serious injury to hands and fingers.

Prevention: Before carrying out any work set the Condair DA desiccant dryer out of operation (switch off the unit, disconnect it from the mains) and secure the unit against inadvertent power-up.

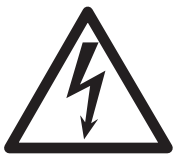
Keep hands away from moving parts.

WARNING!
Risk of burns!

Inside the Condair DA desiccant dryer are heating element present, which can cause burns if touched.

Prevention: Before carrying out any work set the Condair DA desiccant dryer out of operation (switch off the unit, disconnect it from the mains), secure the unit against inadvertent power-up, **and wait at least 15 minutes prior to opening any service panel, allowing the heater to cool down.**

Warning signs attached to the unit

	**General Warning** Draws attention to a dangerous situation that can lead to injury or serious damage to health.
	**Electric shock** Before carrying out any work set the Condair DA desiccant dryer out of operation (switch off the unit, disconnect it from the mains) and secure the unit against inadvertent power-up.
	**Hot surfaces** Hot surfaces inside the device. Before carrying out any work set the Condair DA desiccant dryer out of operation (switch off the unit, disconnect it from the mains), secure the unit against inadvertent power-up, and wait at least 15 minutes prior to opening any service panel, allowing the heater to cool down.
	**Rotating fan blades** Before carrying out any work set the Condair DA desiccant dryer out of operation (switch off the unit, disconnect it from the mains), secure the unit against inadvertent power-up. Keep hands or other body parts away from moving parts.

Correct lifting and handling

Lifting or handling of components always carries an element of risk, and therefore must only be carried out by trained and qualified personnel. Ensure that any lifting operations have been fully planned and risk assessed. All equipment should be checked by a skilled and competent health & safety representative. It is the customer's responsibility to ensure that operators are trained in handling heavy goods and to enforce the relevant lifting regulations.

Preventing unsafe operation

If it is suspected that **safe operation is no longer possible**, the Condair DA desiccant dryer should immediately **be shut down and secured against accidental power-up**. This can be the case under the following circumstances:

– if the Condair DA desiccant dryer is damaged
– if the electrical installations are damaged
– if the Condair DA desiccant dryer is no longer operating correctly

All persons working with the Condair DA desiccant dryer must report ~~a~~ny alterations to the unit that may affect safety to the owner without delay.

Prohibited modifications to the unit

No modifications must be undertaken on the Condair DA 6000 - 27000 desiccant dryers without the express written consent of Condair.

For the replacement of defective components use exclusively **original accessories and spare parts available** from your Condair representative.

CAUTION!

The desiccant dryer must only be used for dehumidification of air at atmospheric pressure.

Never use the desiccant dryer without the filters as the desiccant rotor can become contaminated and lose capacity.

The desiccant dryer must not be installed in areas where explosion proof equipment is required.

3 Important notes

3.1 Inspection of the delivery

After receiving:

– Inspect shipping boxes for damage. Any damages of the shipping boxes must be reported to the shipping company.

– Check packing slip to ensure all parts has been delivered. All material shortages are to be reported to your Condair supplier within 48 hours after receipt of the goods. Condair assumes no responsibility for any material shortages beyond this period

– Unpack the parts/components and check for any damage. If parts/components are damaged, notify the shipping company immediately

– Check whether the components are suitable for installation on your site according to the model key stated on the type plate

3.2 Storing/Transportation/Packaging

Storing

The Condair DA desiccant dryer must be stored in a weather-protected environment.

– Room temperature: -20 °C to +60 °C

– Room humidity: 0 to 90 %RH (non condensing)

Transportation

Observe the following for transport or handling of the Condair DA desiccant dryer:

– The desiccant dryer should always stand upright on its feet.

– Never put other goods on top of the desiccant dryer.

For optimum protection always transport the unit in the original packaging and use an appropriate lifting/transporting device.

WARNING!

It is the customer's responsibility to ensure that operators are trained in handling heavy goods and that the operators comply with the appropriate regulations on work safety and the prevention of accidents.

Packaging

Keep the original packaging of the components for later use. In case you wish to dispose of the packaging, observe the local regulations on waste disposal. Please recycle packaging where possible.

4 Product overview

4.1 Product designation

The product designation and the most important unit data are found on the label fixed on the frame on the service side of the Condair DA 6000 - 27000 desiccant dryers (see example below).

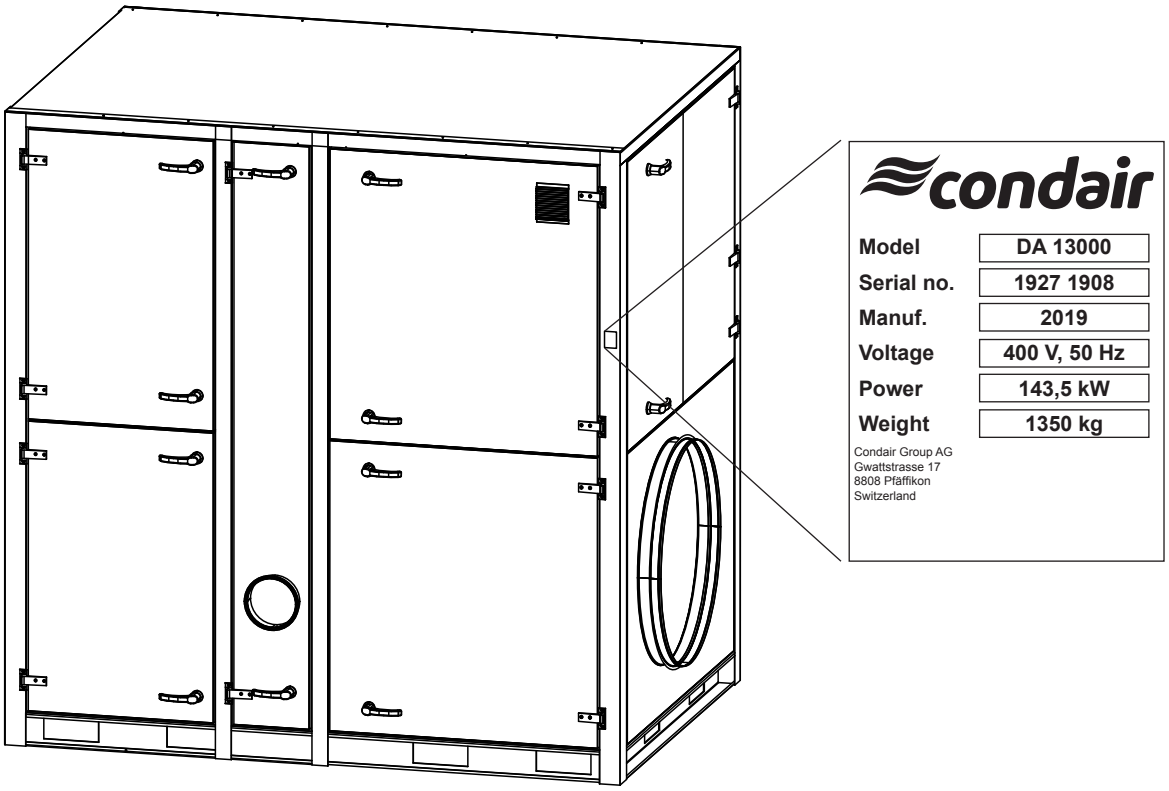


Fig. 1: Specification label

4.2 Applications

The Condair desiccant dryers is of the solid desiccant wheel type designed to dry air of atmospheric pressure.

The applications are numerous and widespread. Below are some examples:

– Controlling humidity levels in production processes.
– Drying of temperature sensitive products.
– Maintaining correct humidity in storage areas.
– Protection of equipment sensitive to corrosion.
– Controlling humidity levels in museums and archives.
– Drying after water damage and drying of buildings during construction.
– Climatic improvements in damp areas.
– Drying after water damage and building drying.

4.3 Method of operation

The desiccant dryer operates with two air streams. A larger air stream to be dehumidified, and a smaller air stream to exhaust the moisture out of the desiccant rotor. Two fans inside the desiccant dryer create air streams which travel through the desiccant rotor in opposite directions.

The process air, which is the larger air flow, passes through the slowly rotating silica gel sorption rotor. Silica gel is hygroscopic and binds the moisture in the air to its surface. When passing through the rotor, the humidity of the air is reduced while the moisture content of the rotor material increases. This process is called adsorption. During adsorption, the process air is additionally heated. The dried air is then discharged from the unit through the process air fan. The adsorption process is effective at temperatures from -30 °C to +40 °C and can be used at air humidities of up to 100 % RH.

The smaller air volume, the reactivation air, desorbs the moisture from the silica gel rotor. This reactivation air is heated by an internal heater to a temperature of approximately +120°C. As the reactivation air passes through the rotor, in an opposite direction to the dry air, it will decrease the moisture content of the rotor material. The reactivation air will leave the desiccant dryer as warm, moist air, which is then exhausted out from the building.

An additional heat recovery purge zone is installed in the appliance as standard to preheat the regeneration air. A portion of the cool reactivation air flows through the purge zone before the heater, absorbing residual heat stored in the rotor. This pre-cools the rotor and preheats the reactivation air, saving regeneration energy.

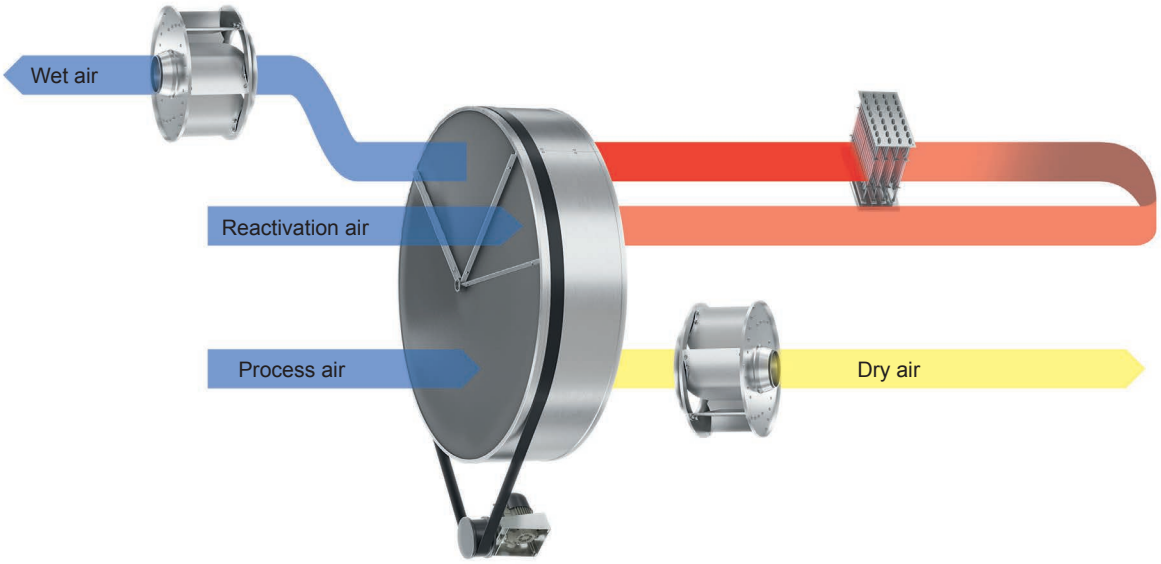


Fig. 2: Operation principle

4.4 Product description

The Condair DA desiccant dryers with applied ducting and without special modifications meet the requirements of IEC protective class IP23.

4.4.1 Casing

The casing is fabricated from Aluzinc® steel and is insulated with 50 mm mineral wool, including inner panels.
The sound- and heat-insulated construction with seals on the panel avoids thermal bridges and achieves a high level of tightness. The service side of the desiccant dryer has panels that can be opened for service access. All duct connections to the desiccant dryer are designed for connections to standard size spiral ducts.
The standard units are prepared for indoor use, but the they are also available in an outdoor version upon request.

4.4.2 Rotor

The desiccant dryer has a desiccant rotor fabricated from 82% desiccant material, 16% fibreglass and 2% bonding sealant. The rotor has a matrix of corrugated and flat heat resistant sheets, which houses the silica gel desiccant agent. This matrix creates a large number of axial flutes through the rotor, which together builds up an immense surface area for moisture adsorption in a small volume. The rotor is manufactured and processed to be able to withstand moisture-saturated air without being damaged. Furthermore, the rotor will not be damaged even if the fan or the heater for reactivation should fail during operation. The desiccant rotor is tested according to ASTM E84-18b, and the results are Flame Spread Index (FSI) 0 and Smoke Developed Index (SDI) 0.

Rotor sealings

The rotor has two peripheral seals (Silicone/PTFE) on the rotor casing and radial seals (PTFE).

Rotor drive system

The constant, slow rotation of the rotor is ensured by a geared motor with toothed belt and self-tensioning belt tensioner. The correct operation of the drive system can be checked via a sight glass in the maintenance panel.

The stainless steel rotor shaft is mounted on ball bearings for smooth running.

4.4.3 Filters

For both air flows, the desiccant dryer is equipped with two separate air filters as standard. These are located at the respective air inlets and primarily serve to protect the components installed in the unit.

4.4.4 Fans for process- and reactivation air

The fans are direct driven radial fans with three phase standard motors, both IP 54, ISO F. The fans are accessible for service behind the panels.

Speed modulated fans are available upon request, please contact your Condair representative.

4.4.5 Heater for reactivation air

The electric reactivation heater is divided into three groups and is equipped with an overtemperature protection.
For stepless modulation of the dehumidification capacity, the unit can optionally be equipped with a solid-state relay (SSR).
Optionally, the desiccant dryer can also be equipped with alternative thermal sources, e.g. steam coil, hot water coil or a combination of two different sources (e.g. hot water coil and electric heating coil). Please contact your Condair representative if necessary.

4.4.6 Electrical panel

The electrical panel is located in a separate compartment on the service side of the desiccant dryer. Switches and indications and/or for operation and/or the PLC are mounted at the front of the desiccant dryer.

4.4.7 Operation Options

The operation of the desiccant dryer via the integrated PLC is described in the spearate PLC operation manual.

5 Installation

5.1 Installation and service access

The Condair DA 6000 - 27000 desiccant dryers are designed for indoor installation, and must be installed in an upright position, preferably bolted to the floor.

The ambient conditions at the place of installation should be within the following ranges:
– Room temperature: 0 to 40 °C for standard units
– Room humidity: 0 to 90 %RH for standard units

For maintenance purposes, the following minimum distances should be available on the service side of the desiccant dryer:
– DA 6000 1.000 mm
– DA 8000 1.000 mm
– DA 13000 1.400 mm
– DA 19000 1.400 mm
– DA 27000 1.600 mm

5.2 Duct connection for permanent installation

The DA 6000 - 27000 desiccant dryer can be installed in the room that should to be dehumidified or in a separate room.

To obtain the best performance the outlets from the fans should be equipped with diffusors.

5.2.1 Wet air duct from the desiccant dryer

The wet air from the desiccant dryer should be exhausted to the outside. The duct should be as short as possible to minimize the chance of condensation of the wet air. This duct should slope down in angle of at least >2°, to stop any condensed water from flowing back into the desiccant dryer. If the wet air duct is extremely long, or must be installed sloping upwards from the desiccant dryer, it should have a drainage point (4-6 mm) drilled at its lowest position.

Since there is a risk that the wet air temperature could exceed +80°C, it is recommended to insulate the wet air duct system and appropriate warning signs should be placed at the wet air outlet duct.

The exhaust opening should have a coarse wire net.

To set the correct air flow during commissioning, the air flow must be trimmed manually using an on-site damper element in the wet air duct. This damper can be omitted if an air flow control-feature has been installed in the desiccant dryer. For an air flow control-feature, please contact your Condair representative.

5.2.2 Reactivation air into the desiccant dryer

The reactivation air duct into the desiccant dryer should be as short as possible. The intake opening of the duct should have a coarse wire net, to stop foreign objects from entering the desiccant dryer. Insulation is normally not needed and the duct can slope up- or downwards. In some installations, as an alternative, the reactivation air can be taken from the installation room. For this alternative no duct connection is needed.

5.2.3 Process- and dry air with the desiccant dryer installed in the dehumidified room

When the desiccant dryer is installed in the dehumidified room space it would normally take the process air direct from the room without any duct system, with only a protection net for the inlet required. The dry air outlet would normally have a duct system designed for distribution of the dry air in the building.

To set the correct air flow during commissioning, the air flow must be trimmed manually using an on-site damper element in the dry air duct. This damper can be omitted if a speed-controlled fan has been installed in the desiccant dryer. For a solution with a speed-controlled fan, please contact your Condair representative.

5.2.4 Process- and dry air with the desiccant dryer installed outside the dehumidified room

When the desiccant dryer is installed in a separate plant room all inlet and outlet openings are usually ducted.

The desiccant dryer takes the process air as ambient air, or as pre-treated air from an HVAC, or alternatively as return air from the dehumidified room. The dry air from the desiccant dryer can be connected for post-treatment or ducted back to the dehumidified room, e.g. post cooler or filter.

To set the correct air flow during commissioning, the air flow must be trimmed manually using an on-site damper element in the dry air duct. This damper can be omitted if a speed-controlled fan has been installed in the desiccant dryer. For a solution with a speed-controlled fan, please contact your Condair representative.

5.3 Electrical installation

See *Appendix 1 – electrical wiring diagram*.

CAUTION!

It is very important that the phase are correctly connected (phase sequence), otherwise fans might turn in wrong direction which can lead to unit malfunction!

6 Commissioning

On initial start-up, the following steps should be taken in this order:

1. Ensure that the external isolation switch is isolating the unit from the mains, and that the main switch on the desiccant dryer is set in the OFF position.
2. Open the service panels of the desiccant dryer and ensure that no foreign objects are left inside the unit or in the electrical compartment.
3. Ensure that the process and reactivation air dampers are open, and that ducts are clean and free of blockages.
4. Check that air filters are installed and clean.
5. Rotate the fan impellers by hand and make sure they can move freely.
6. Ensure that the mains supply fuse is suitably rated.
7. Compare set values for motor circuit breakers with correct values in electrical wiring diagram in *Appendix 1 – electrical wiring diagram*.
8. Connect the desiccant dryer to the main electrical supply by turning the isolation switch to ON, check that all three phases are live with the right phase sequence. Terminal L1, L2, L3 in the desiccant dryer.
9. Check to see that the PLC or the stand by lamp is lighting up, but that the machine doesn't start.
10. Start the desiccant dryer for a short moment (3-4 seconds) by turning the main switch to the MAN position or by pressing "unit on" and "Manual/Auto" on the PLC.
11. While in operation, check that the rotor is slowly turning in the right direction, and the green operation lamp lights up. Stop the desiccant dryer by turning the main switch to 0 or by pressing "Unit off" on the PLC, and check the direction of rotation for the fans.
12. Close the service panels and ensure they seal properly to the casing.
13. The desiccant dryer is now ready for operation. Read the PLC manual for further information.
14. Start the desiccant dryer and check that the unit is operating at the correct air flow by taking measurements in the ducts. Check the airflows on the overpressure side of the desiccant dryer (dry air duct and wet air duct).
15. If requested check the dehumidification performance by measuring humidity in the dry air outlet from the desiccant dryer. Compare the result with the performance charts in the paragraph technical data.

7 Maintenance

7.1 Important notes on maintenance

Qualification of personnel

All maintenance work must be carried out only by well qualified and trained personnel authorised by the owner. It is the owner's responsibility to verify proper qualification of the personnel.

General note

The instructions and details for maintenance work must be followed and upheld.

Only the maintenance work described in this documentation may be carried out.

Only use original Condair spare parts to replace faulty parts.

Safety

Some maintenance work requires removal of the unit covers. Please note the following:

DANGER!
Danger of electric hazard!

The Condair DA desiccant dryer is mains powered. Live parts may be exposed when the unit is open. Touching live parts may cause severe injury or danger to life.

Prevention: Before carrying out any work set the Condair DA desiccant dryer out of operation (switch off the unit, disconnect it from the mains) and secure the unit against inadvertent power-up.

WARNING!
Risk of injury!

Inside the Condair DA desiccant dryer there are moving parts present, which can cause serious injury to hands and fingers.

Prevention: Before carrying out any work set the Condair DA desiccant dryer out of operation (switch off the unit, disconnect it from the mains) and secure the unit against inadvertent power-up.

Keep hands or other body parts away from moving parts.

WARNING!
Risk of burns!

Inside the Condair DA desiccant dryer are heating element present, which can cause burns if touched.

Prevention: Before carrying out any work set the Condair DA desiccant dryer out of operation (switch off the unit, disconnect it from the mains), secure the unit against inadvertent power-up, **and wait at least 15 minutes prior to opening any service panel, allowing the heater to cool down.**

The maintenance intervals for the desiccant dryer depend on the surrounding environment and installation site. Recommended maintenance intervals could therefore differ from one installation to another. Incorrect maintenance and service may result in reduced dehumidification capacity.

7.2 Filters

The desiccant dryer is equipped with two separate filter banks, one for the process air and the other for the reactivation air. The filters are positioned at the respective inlets and will clean the air prior to entering the desiccant dryer.

Intervals for cleaning or replacement of the filters will be determined by the amount of dust and particles in the air at the installation site.

We recommend that the filters are checked at least once a month. There is a service alarm in the PLC that till be activated after a certain period of time in order to ensure that filters are checked regularly.

The unit can be equipped with differential pressure measurement for checking the pressure drop over the filters.

CAUTION!

Never operate the desiccant dryer without the filters, as the rotor can be damaged by dust.

7.3 Rotor

The rotor is maintenance free. However should it be necessary to clean the rotor the first choice should be careful use of compressed air. With severe contamination, the rotor can be washed with water. Cleaning with water is no routine matter; please contact your Condair representative.

Check the rotor bearing and the rotor surface once a year.
Note: Due to the effects of heat during the reactivation process, the white color of the desiccant rotor changes to beige or brownish over time. This is normal and does not affect rotor performance.

DA desiccant dryers with built-in PLC have inductive rotor guard as standard. This feature is not available for units without PLC.

CAUTION!

Airborne chemical compounds, e.g. oily vapors or solvents can also be adsorbed by the rotor and permanently reduces its capacity.

NOTE!

Due to the heat generated during the reactivation process, the white color of the desiccant rotor changes to beige or brownish over time. This is normal and does not affect rotor performance.

7.4 Electrical motors

The electrical motors are equipped with ball bearings. The bearings are designed to last the life of the motor and therefore no maintenance is required.

Check the motors once a year for any abnormal sound.

7.5 Heater

The electric reactivation heating elements require no maintenance, but should be checked every six months for mechanical damage.
The thermostat OH1 can be turned down during operation to check that all heating stages are switched off.

7.6 Rotor drive belt

Check the belt tensioning at regular intervals. The tensioning is maintained constantly by the belt tension device, and should not need to be adjusted during normal operation. Please note that the belt tensioning should not be too tight as this can damage the drive motor.

7.7 Rotor seals

Check that the seals are in the correct position and not damaged.

The PLC is equipped with a service alarm for the rotor seals to ensure that the seals are checked regularly.

7.8 General summary of maintenance intervals

	Filter	Rotor bearing	Motors	Rotor drive	Heater	Seals
As required	x					
Every 6th month				x	x	x
Every 12th month		x	x			

8 Troubleshooting

Malfunction	Possible cause of trouble	Corrective action
None, or reduced dehumidification capacity	Filter dirty.	Clean or replace filters.
	Electrical heater faulty.	Check fuses.
	Airflow reduced.	Check openings and dampers.
	No rotation of rotor.	Check belt tensioning or PLC alarms.
	Internal leakage in unit.	Check seals and springs.
	Altered air flows.	Measure and check air flows.
	Altered reactivation temperature.	Check reactivation heater.
	Air leakage.	Check panels and check seals.
Circuit breaker or fuse faulty	Fan faulty.	Check fans and motors.
	Too large air flow.	Check air flows and dampers.
	Rotor does not rotate.	Check drive motor and drive belt.
	Reactivation heater faulty.	Check reactivation heater.
Desiccant dryer does not start	No control circuit.	Check control fuses.
	Faulty control signal.	Check external start/stop signal.
	Phase fault.	Check main fuses.
	Fuse for controls faulty.	Check electrical components.
Rotor does not rotate	Drive belt is slipping.	Check belt tensioning.
	Drive belt broken or worn.	Replace drive belt.
	Rotor jammed.	Check centre shaft, rim of rotor.
	Drive motor faulty.	Replace complete gear motor.
No dry- or wet air flow	Filter dirty.	Clean or replace filters.
	Fan faulty.	Check fan, motor and impeller.
	Phase fault.	Check main fuses and phase sequence.
	Ducts blocked.	Check dampers and ducts.

9 Product specification

9.1 Technical data Condair DA 6000 - 27000

		DA 6000	DA 8000	DA 13000	DA 19000	DA 27000
Drying capacity at 20°C - 60% rH	kg/h	39	53	86	111	182
Nominal dry air volume	m^3/h	6000	8000	13000	19000	27900
Nominal reactivation air flow	m^3/h	1700	2500	4200	5400	6980
Nominal ext. pressure process flow	Pa	440	280	300	300	400
Nominal ext. pressure reactivation air	Pa	325	150	300	300	250
Electrical connected load	kW	54.2	79.5	143.6	183.3	309
Electrical load - reactivation heat register	kW	48	72	132	168	288
Permissible temperature [1]	°C	0 to +40				
Permissible humidity	%rH	0 to 100				
Voltage supply [2]	V/Ph/Hz	400/3/50				
Connection diameter process air	mm	630		800		1000
Connection diameter dry air	mm	630		800		1000
Connection diameter reactivation air	mm	315		500		630
Connection diameter wet air	mm	315		500		630
Filter class process air [3]		ISO coarse 70%				
Filter class reactivation air [3]		ISO coarse 70%				
Dimensions (H x W x D)	mm	1780 x 2000 x 1350		2300 x 2365 x 2000		2500 x 2900 x 2400
Sound pressure level [4]	dB(A)	73	73	73	73	-
Weight	kg	900	950	1350	1700	2400

[1] At temperatures below 0 °C, modifications may be required depending on the installation conditions. Please contact your Condair representative

[2] Special voltages and frequencies available on request

[3] Classification according to ISO 16890

[4] Sound pressure level measured at 2 m distance from the unit surface, with 3 m of connected air ducts

NOTE!

All performance and dimensional data refer to a standard configured unit with electrical reactivation, nominal flow rates and without cooling coils or other special modifications.

9.2 Dimensions DA 6000 and DA 8000

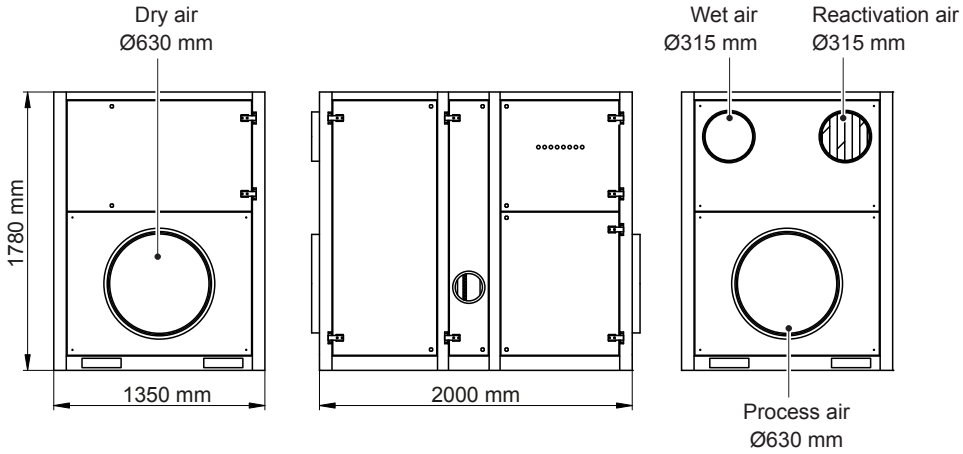


Fig. 3: Dimensions Condair DA 6000 and DA 8000

9.3 Dimensions DA 13000 and DA 19000

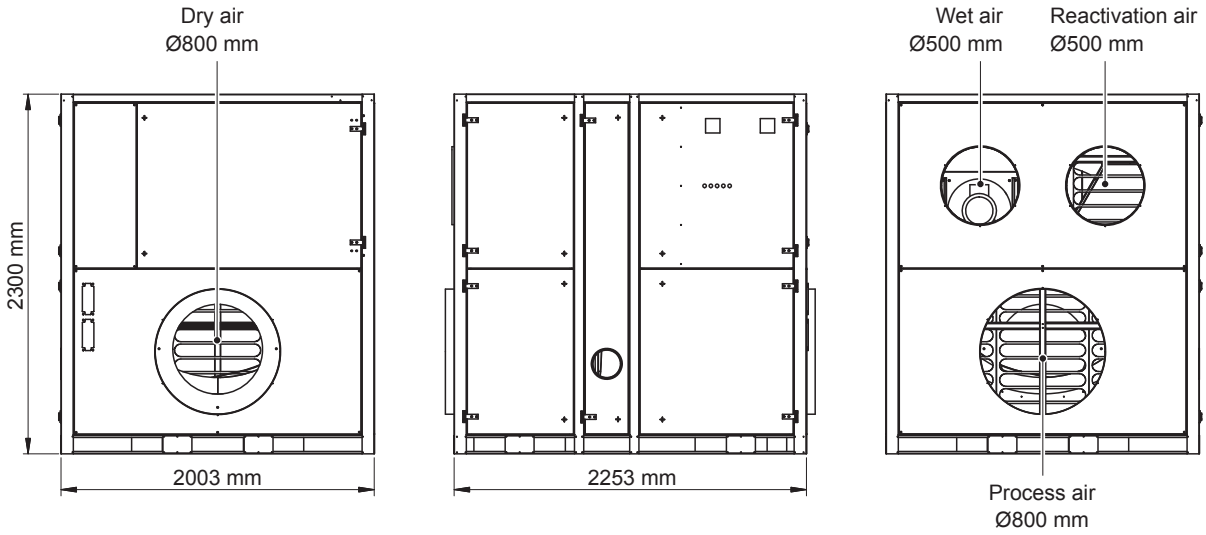


Fig. 4: Dimensions Condair DA 13000 and DA 19000

9.4 Dimensions DA 27000

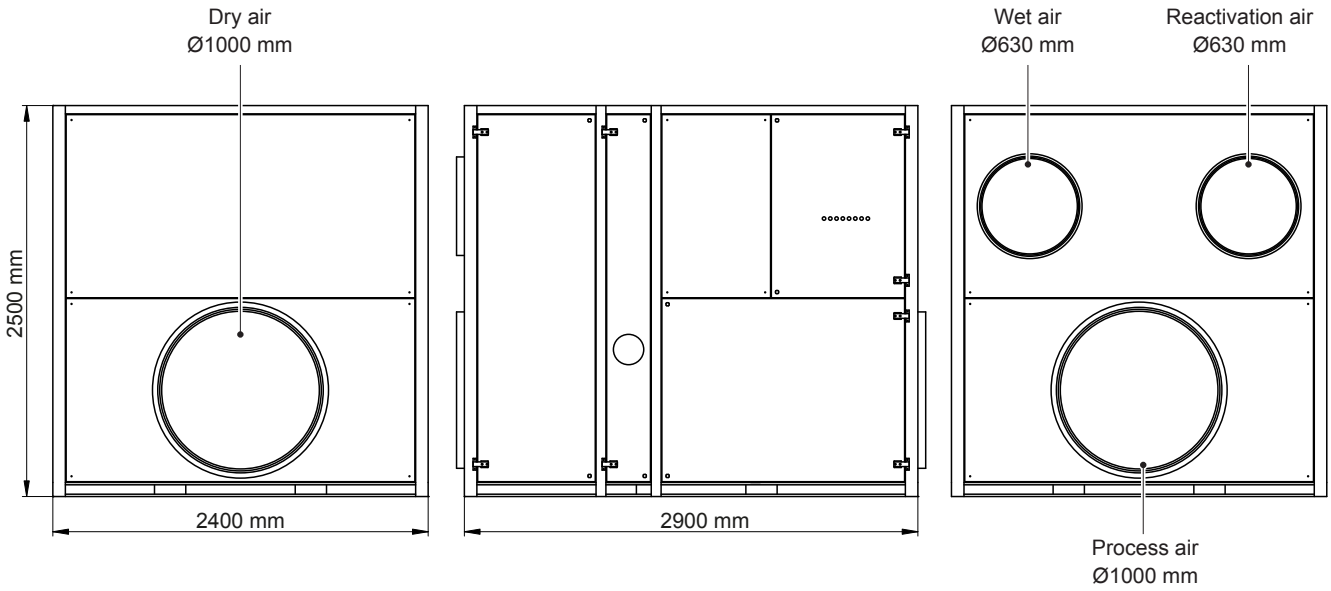


Fig. 5: Dimensions Condair DA 27000

10 Spare parts

NOTE!

All spare parts data refer to a standard configured unit with electrical reactivation and nominal flow rates.

10.1 Spare parts Condair DA 6000

Part	Technical specification	Numbers installed	Numbers of recommended spare parts
Drive Motor	SGM65/30-4, 230-240V 50Hz, 3 rpm	1	1
Capacitor	0,5 µF 700 V	1	
Belt pulley	26 8M-20	1	
Drive belt	HTD 3600 8M-20	1	
Belt tensioner	Rosta SE11 + R11	1	
Process air fan	ER40C-2DN.F7.1R (400V)	1	
Reactivation air fan	ER35C-2DN.D7.1R (400V)	1	
Heater	Electrical resistance, 71381	1	
Rotor	Rotor 6000	1	
Process air filter	Bag filter, ISO Coarse 70 % 592 x 592 x 360 mm	2	4
Reactivation air filter	Bag filter, ISO Coarse 70 % 592 x 592 x 360 mm	1	2

10.2 Spare parts Condair DA 8000

Part	Technical specification	Numbers installed	Numbers of recommended spare parts
Drive Motor	SGM65/30-4, 230-240V 50Hz, 3 rpm	1	1
Capacitor	0,5 µF 700 V	1	
Belt pulley	28 8M-20	1	
Drive belt	HTD 3600 8M-20	1	
Belt tensioner	Rosta SE11 + R11	1	
Process air fan	ER40C-2DN.F7.1R (400V)	1	
Reactivation air fan	ER35C-2DN.E7.1R (400V)	1	
Heater	Electrical resistance, 71381	1	
Rotor	Rotor 8000	1	
Process air filter	Bag filter, ISO Coarse 70 % 592 x 592 x 360 mm /6 287 x 592 x 360 mm /3	 2 2	 4 4
Reactivation air filter	Pocket filter, ISO Coarse 70 % 592 x 592 x 360 mm	 1	 2

10.3 Spare parts Condair DA 13000

Part	Technical specification	Numbers installed	Numbers of recommended spare parts
Drive Motor	BUSCK, MS63A-4 0,12 kW	1	1
Belt pulley	2SpA118-1610 + (1610-25)	1	
Drive belt	Green A-belt	1	
Process air fan	2 x GR40C-ZID.GG.CR (EC 3,9 kW) or ER71C-4DN.H7.1R (400 VAC 7,5 kW)	1	
Reactivation air fan	GR40C-ZID.GG.CR (EC 3,9 kW) or ER35C-2DN. F7.1R (400 VAC 4 kW)	1	
Heater	Electrical, 71381	1	
Rotor	Rotor 13000	1	
Process air filter	Bag filter, ISO Coarse 70 % 592 x 592 x 360 mm /6 287 x 592 x 360 mm /3	 3 3	 6 6
Reactivation air filter	Bag filter, ISO Coarse 70 % 592 x 592 x 360 mm /6 287 x 592 x 360 mm /3	 1 1	 2 2

10.4 Spare parts Condair DA 19000

Part	Technical specification	Numbers installed	Numbers of recommended spare parts
Drive Motor	BUSCK, MS63A-4 0,12 kW	1	1
Belt pulley	2SpA-132-1610 + (1610-25)	1	
Drive belt	Green A-belt	1	
Process air fan	ER71C-4DN.I7.1R, 11 kW (400V)	1	
Reactivation air fan	ER340-2DN.F7.1R, 4,0 kW (400V)	1	
Heater	Electrical resistance, 71381	1	
Rotor	Rotor 19000	1	
Process air filter	Bag filter, ISO Coarse 70 % 592 x 592 x 360 mm /6 287 x 592 x 360 mm /3	 3 3	 6 6
Reactivation air filter	Bag filter, ISO Coarse 70 % 592 x 592 x 360 mm /6 287 x 592 x 360 mm /3	 1 1	 2 2

10.5 Spare parts Condair DA 27000

Part	Technical specification	Numbers installed	Numbers of recommended spare parts
Drive Motor	BUSCK, MS63A-4 0,12kW	1	1
Belt pulley	SPA Ø125mm	1	
Drive belt	SPA green	1	
Process air fan	ER80C-4DN.K7.1R 15 kW	1	
Reactivation air fan	ER40C-2DN.G7.1R 5,5 kW	1	
Heater	QLSK-085-147-02-18-50-25	1	
Rotor	Rotor 27000	1	
Process air filter	Bag filter 550 x 500 x 635 mm	 8	 8
Reactivation air filter	Bag filters 592 x 592 x 360 mm 592 x 285 x 360 mm	 1 2	 2 2

11 Component data

NOTE!

All performance and dimensional data refer to a standard configured unit with electrical reactivation, nominal flow rates and without cooling coils or other special modifications.

11.1 Component data Condair DA 6000

Unit part / Components	Units	Process air (dry air side)	Reactivation air (wet air side)	Rotor
Fans				
Manufacturer		Ziehl-Abegg	Ziehl-Abegg	
Fan type		ER40C-2DN.F7.1R	ER35C-2DN.D7.1R	
Speed	rpm	2 875	2 840	
Model		-	-	
Air flow	m^3/h	6 000	1 700	
Head pressure	Pa	-	-	
Available ext. pressure	Pa	440	325	
Motors				
Manufacturer		Ziehl-Abegg	Ziehl-Abegg	Rotek
Model		ACA 112m-2/HE	ACA 90L-2/HE	SGM65/30-4
Speed	rpm	2 875	2 840	3.0
Power	kW	4.0	2.2	7.8 W
Voltage	V	3x400	3x400	230
Frequency	Hz	50	50	50/60
Amps	A	7.5	4.4	60 mA
Power factor	cos ϕ		0,86	
Protection class	IP	55	55	
Insulation class	ISO	F	F	
Rotor				
Type				Rotor 6000
Speed	rph			12
Filters				
Type		Bag filter	Bag filter	
Filter class		ISO coarse 70%	ISO coarse 70%	
Filter media		Synthetic fibers	Synthetic fibers	
Dimensons	mm	2x 592 x 592 x 360	1x 592 x 592 x 360	
Pressure drop, clean filter	Pa	50	50	
Pressure drop, dirty filter	Pa	250	250	
Heating, reactivation air				
Power	kW		48	
Type			Resistance	
Voltage	V		400	
Number of heating elements			12	

11.2 Component data Condair DA 8000

Unit part / Components	Units	Process air (dry air side)	Reactivation air (wet air side)	Rotor
Fans				
Manufacturer		Ziehl-Abegg	Ziehl-Abegg	
Fan type		ER40C-2DN.F7.1R	ER35C-2DN.E7.1R	
Speed	rpm	2 875	2 835	
Model		-	-	
Air flow	m^3/h	8 000	2 500	
Head pressure	Pa	1 770	2 000	
Available ext. pressure	Pa	280	150	
Motors				
Manufacturer		Standard motor IEC	Standard motor IEC	Rotek
Model				SGM65/30-4
Speed	rpm	2 875	2 835	3.0
Power	kW	4.0	3.0	7.8 W
Voltage	V	3x400	3x400	230
Frequency	Hz	50	50	50/60
Amps	A	7.5	6.1	60 mA
Power factor	cos ϕ			
Protection class	IP	55	55	
Insulation class	ISO	F	F	
Rotor				
Type				Rotor 8000
Speed	rph			12
Filters				
Type		Bag filter	Bag filter	
Filter class		ISO coarse 70%	ISO coarse 70%	
Filter media		Synthetic fibers	Synthetic fibers	
Dimensons	mm	2x 592 x 592 x 360 2x 592 x 287 x 360	1x 592 x 592 x 360	
Pressure drop, clean filter	Pa	50	50	
Pressure drop, dirty filter	Pa	250	250	
Heating, reactivation air				
Power	kW		72	
Type			Resistance	
Voltage	V		400	
Number of heating elements			18	

11.3 Component data Condair DA 13000

Unit part / Components	Units	Process air (dry air side)	Reactivation air (wet air side)	Rotor
Fans				
Manufacturer		ebmpapst/Ziehl-Abegg	ebmpapst/Ziehl-Abegg	
Fan type		2x GR40C-ZID.GG.CR or ER71C-4DN.H7.1R	ER35C-2DN.F7.1R or GR40C-ZID.GG.CR	
Speed	rpm	2 875	2 835	
Model		-	-	
Air flow	m^3/h	13 000	4 200	
Head pressure	Pa			
Available ext. pressure	Pa	300	300	
Motors				
Manufacturer		ebmpapst/Ziehl-Abegg	ebmpapst/Ziehl-Abegg	Busck
Model				MS63A-4
Speed	rpm	2900	2865	-
Power	kW	2x 3.9	4.0	0.12
Voltage	V	400	400	400
Frequency	Hz	50/60	50	50
Amps	A	2x 6.2	8.1	-
Protection class	IP	54	54	-
Insulation class	ISO	F	F	F
Rotor				
Type				Rotor 13000
Speed	rph			12
Filters				
Type		3+3 Bag filter	1+1 Bag filter	
Filter class		ISO coarse 70%	ISO coarse 70%	
Filter media		Synthetic fibers	Synthetic fibers	
Dimensons	mm	3x 592 x 592 x 360 3x 287 x 592 x 360	1x 592 x 592 x 360 1x 287 x 592 x 360	
Pressure drop, clean filter	Pa	50	50	
Pressure drop, dirty filter	Pa	250	250	
Heating, reactivation air				
Power	kW		132	
Type			Resistance	
Voltage	V		400	
Number of heating elements			33	

11.4 Component data Condair DA 19000

Unit part / Components	Units	Process air (dry air side)	Reactivation air (wet air side)	Rotor
Fans				
Manufacturer		ebmpapst/Ziehl-Abegg	Ziehl-Abegg	
Fan type		2x GR50C-ZID.GQ.CR or 2x EBM VBH0450	ER40C-2DN.F7.1R	
Speed	rpm	-	-	
Model		-	-	
Air flow	m^3/h	19 000	5 400	
Head pressure	Pa			
Available ext. pressure	Pa	300	300	
Motors				
Manufacturer		ebmpapst/Ziehl-Abegg	Ziehl-Abegg	Busck
Model		2x GR50C-ZID.GQ.CR or 2x EBM VBH0450	ER40C-2DN.F7.1R	MS63A-4
Speed	rpm	-	-	-
Power	kW	2x 5.6 or 2x 6.3	4,0	0.12
Voltage	V	3x400	3x400	3x400
Frequency	Hz	50	50	50
Amps	A	-	8.1	-
Power factor	cos ϕ	54	54	-
Protection class	IP	F	F	F
Insulation class	ISO	F	F	F
Rotor				
Typ				Rotor 19000
Speed	rph			12
Filters				
Type		Bag filter	Bag filter	
Filter class		ISO coarse 70%	ISO coarse 70%	
Filter media		Synthetic fibers	Synthetic fibers	
Dimensons	mm	3x 592 x 592 x 360 3x 287 x 592 x 360	1x 592 x 592 x 360 1x 287 x 592 x 360	
Pressure drop, clean filter	Pa	50	50	
Pressure drop, dirty filter	Pa	250	250	
Heating, reactivation air				
Power	kW		188	
Type			Resistance	
Voltage	V		400	
Number of heating elements			42	

11.5 Component data Condair DA 27000

On request!

12 EU declaration of conformity

EU declaration of conformity

Condair Group AG
Gwattstrasse 17
8808 Pfäffikon SZ
Switzerland

declare under own responsibility that the product:

Condair Dehumidifier DA 500, DA 700, DA 800, DA 1000, DA 1100, DA 1400, DA 2400, DA 3400, DA 4000, DA 4400, DA 6000, DA 6400, DA 7400, DA 8000, DA 9400, DA 13000, DA 19000 and DA 27000 from unit no 128 1512

which is detailed in this declaration complies to the following harmonized European standards and technical specifications:

EN ISO 12100:2010	Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)
EN 60204-1:2018	Safety of machinery - Electrical equipment of machines - Part 1: General requirements
EN 61000-6-3:2007/A1:2011/AC:2012	Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments
EN 61000-6-2:2005/C1:2005	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments

according to conditions in directive:

2006/42/EC	Machinery Directive
2009/125/EC	Ecodesign requirements for fans driven by motors with an electric input power between 125 W and 500 kW
2014/30/EU	Electromagnetic Compatibility (EMC) Directive

Pfäffikon 2018-12-12

CE

The manufacturer:

Condair Group AG
Robert Merki

13 Appendix 1 – electrical wiring diagram

CONSULTING, SALES AND SERVICE:

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