



READ AND SAVE THESE INSTRUCTIONS

INSTALLATION AND OPERATION MANUAL

Desiccant dryer
Condair **DA 6000 - 27000**

Thank you for choosing Condair

Installation date (MM/DD/YYYY):

Commissioning date (MM/DD/YYYY):

Site:

Model:

Serial number:

Proprietary Notice

This document and the information disclosed herein are proprietary data of Condair Group AG. Neither this document, nor the information contained herein shall be reproduced, used, or disclosed to others without the written authorization of Condair Group AG, except to the extent required for installation or maintenance of recipient's equipment.

Liability Notice

Condair Group AG does not accept any liability due to incorrect installation or operation of the equipment or due to the use of parts/components/equipment that are not authorized by Condair Group AG.

Copyright Notice

© Condair Group AG, All rights reserved.

Technical modifications reserved

Contents

1	Introduction	5
1.1	To the very beginning	5
1.2	Notes on the installation and operation manual	5
2	For your safety	7
3	Important notes	10
3.1	Inspection of the delivery	10
3.2	Storing/Transportation/Packaging	10
4	Product overview	11
4.1	Product designation	11
4.2	Applications	11
4.3	Method of operation	12
4.4	Product description	13
4.4.1	Casing	13
4.4.2	Rotor	13
4.4.3	Filters	13
4.4.4	Fans for process- and reactivation air	13
4.4.5	Heater for reactivation air	14
4.4.6	Electrical panel	14
4.4.7	Operation Options	14
5	Installation	15
5.1	Installation and service access	15
5.2	Duct connection for permanent installation	15
5.2.1	Wet air duct from the desiccant dryer	15
5.2.2	Reactivation air into the desiccant dryer	15
5.2.3	Process- and dry air with the desiccant dryer installed in the dehumidified room	16
5.2.4	Process- and dry air with the desiccant dryer installed outside the dehumidified room	16
5.3	Electrical installation	16
6	Commissioning	17
7	Maintenance	18
7.1	Important notes on maintenance	18
7.2	Filters	19
7.3	Rotor	19
7.4	Electrical motors	19
7.5	Heater	20
7.6	Rotor drive belt	20
7.7	Rotor seals	20
7.8	General summary of maintenance intervals	20
8	Troubleshooting	21

9	Product specification	22
9.1	Technical data Condair DA 6000 - 27000	22
9.2	Dimensions Condair DA 6000	23
9.3	Performance charts DA 6000	24
9.4	Dimensions DA 8000	25
9.5	Performance charts DA 8000	26
9.6	Dimensions DA 13000	27
9.7	Performance charts DA 13000	28
9.8	Dimensions DA 19000	29
9.9	Performance charts DA 19000	30
9.10	Dimensions DA 27000	31
9.11	Performance chart DA 27000	32
10	Spare parts	33
10.1	Spare parts Condair DA 6000	33
10.2	Spare parts Condair DA 8000	33
10.3	Spare parts Condair DA 13000	34
10.4	Spare parts Condair DA 19000	34
10.5	Spare parts Condair DA 27000	35
11	Component data	36
11.1	Component data Condair DA 6000	36
11.2	Component data Condair DA 8000	37
11.3	Component data Condair DA 13000	38
11.4	Component data Condair DA 19000	39
11.5	Component data Condair DA 27000	40
12	EU declaration of conformity	41
13	Appendix 1 – electrical wiring diagram	42

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.

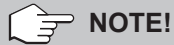
1.2 Notes on the installation and operation manual

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



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



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



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**.



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 atmospheric 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

	<p>General Warning</p> <p>Draws attention to a dangerous situation that can lead to injury or serious damage to health.</p>
	<p>Electric shock</p> <p>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.</p>
	<p>Hot surfaces</p> <p>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.</p>
	<p>Rotating fan blades</p> <p>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.</p> <p>Keep hands or other body parts away from moving parts.</p>

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 any 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: 10 to 95 %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.



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).

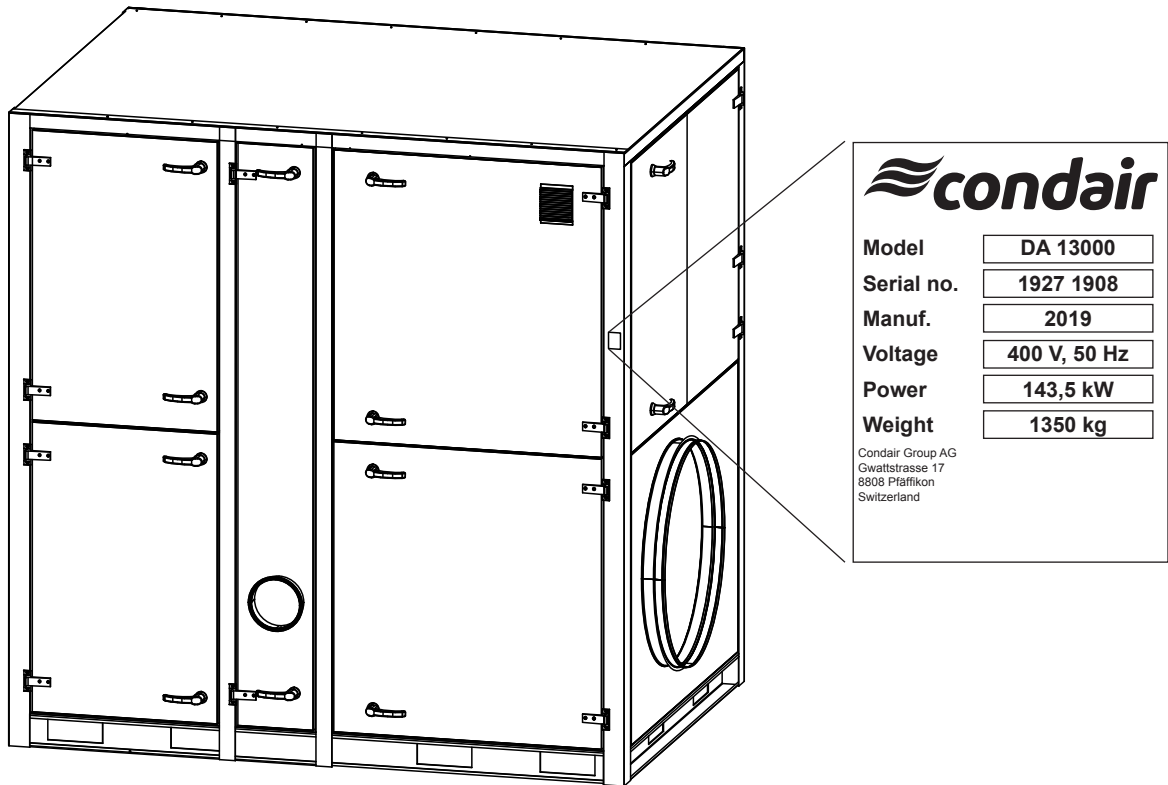


Fig. 1: Specification label

4.2 Applications

The Condair desiccant dryer is of the solid desiccant wheel type designed to dry air of atmospheric pressure. The desiccant dryer can be used without modification for drying air of up to 100 % relative humidity (RH) with air temperatures from 0°C to 40°C.

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.

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 larger air volume, the process air, passes through the slowly rotating silica gel rotor. Silica gel is a hygroscopic material adsorbing water vapour direct from the air. When passing through the rotor the humidity of the air is reduced, whilst the moisture content of the rotor material increases. On exiting the rotor the dried air is introduced into the area, or the process to be dehumidified. The adsorption process also functions at negative temperatures.

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.

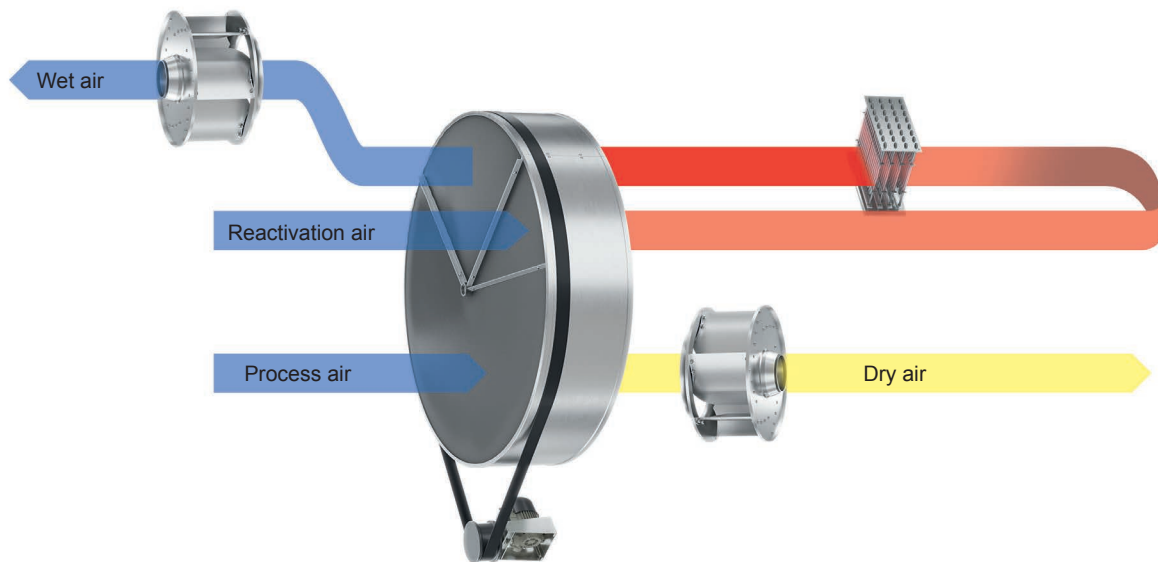


Fig. 2: Operation principle

4.4 Product description

The desiccant dryer is designed to meet the requirements of IEC protective class IP 44.

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 they are also available in an outdoor version upon request.

4.4.2 Rotor

The desiccant dryer has a drying rotor fabricated from 82% desiccant material, 16% fibreglass and 2% acryl. 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 rotor is according to ASTM E84 fire proof and achieved a flame-spread and smoke index of 0.

Rotor sealings

The rotor has two peripheral sealings and eight radial sealings.

Rotor drive system

An electrical gear motor and a belt drive achieve the slow rotation of the rotor. The belt sits on the outer rim of the rotor and is driven by a pulley on the drive motor. A belt tension device keeps the belt in place and maintains tension to prevent belt slip. Correct operation of the drive system, and direction of rotation can be checked by opening the front panel.

The centre hub of the rotor is equipped with ball bearings. The rotor shaft is made from stainless steel.

4.4.3 Filters

The desiccant dryer has two separate panel filters with filter class G4. One in the process air inlet and one in the reactivation air inlet.

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 Conair representative.

4.4.5 Heater for reactivation air

The electrical reactivation heater is divided in three steps. The heater is equipped with over temperature protection.

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

Using the operation switch on the desiccant dryer, different running options can be selected:

- 0 Desiccant dryer not in operation.
- MAN Desiccant dryer in continuous operation
- AUTO Automatic operation by remote humidistat, or other external start/stop signal.

In the electrical compartment, there is a switch marked S3, which allows continuous operation of the dry air fan. When the machine is turned off using the operation switch, the reactivation air fan is in operation for as long as it takes to cool off the heater element. Never use the main power switch to stop the machine, as it could overheat!

For desiccant dryers with PLC, the operation is described in the PLC controller 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.

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 diffusers.

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 $>2^\circ$, 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 $+80^\circ\text{C}$, 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 volumes 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.

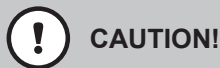
7.2 Filters

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 will 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.



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

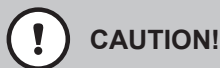
7.3 Rotor

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.



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

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 reactivation electric heater does not need maintenance, but should be checked twice a year for any mechanical damage to the heating elements.

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 volumes.	Measure and check air volumes.
	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 volume.	Check air volumes 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 volume	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	120	182
Nominal dry air volume	m³/h	6000	8000	13000	19000	27900
Nominal reactivation air volume	m³/h	1700	2500	4200	6000	6980
Nominal ext. pressure process air	Pa	440	280	590	440	400
Nominal ext. pressure reactivation air	Pa	325	150	200	450	250
Electrical connected load	kW	54,2	79,5	143,5	207,5	309
Electrical load - reactivation heat register	kW	48	72	132	192	288
Operation range - temperature	°C	0 to +40				
Operation range - humidity	%rH	0 to 100				
Voltage supply	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 ¹⁾		≥ISO Coarse 65%				
Filter class reactivation air ¹⁾		≥ISO Coarse 65%				
Dimensions (H x B x T)	mm	910 x 1199 x 992		2300 x 2250 x 1600	2500 x 2400 x 1900	2500 x 2900 x 2400
Max noise level ²⁾	dB(A)	73	73	73	72	-
Weight	kg	900	950	1350	1700	2400

¹⁾ Classification according to ISO 16890

²⁾ Maximum value at 2 m distance, with applied ducting

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 Condair DA 6000

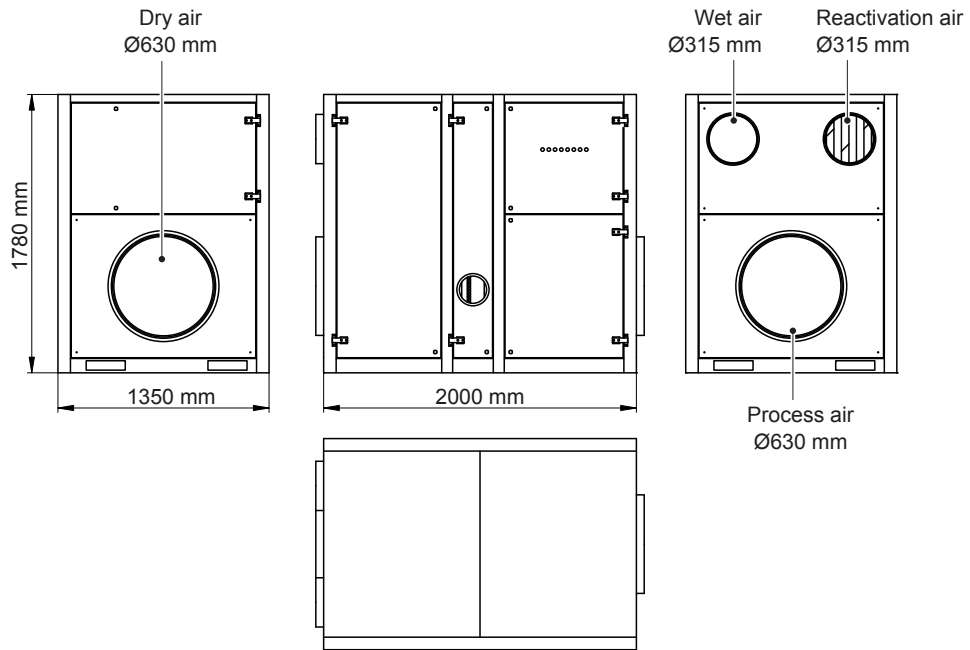
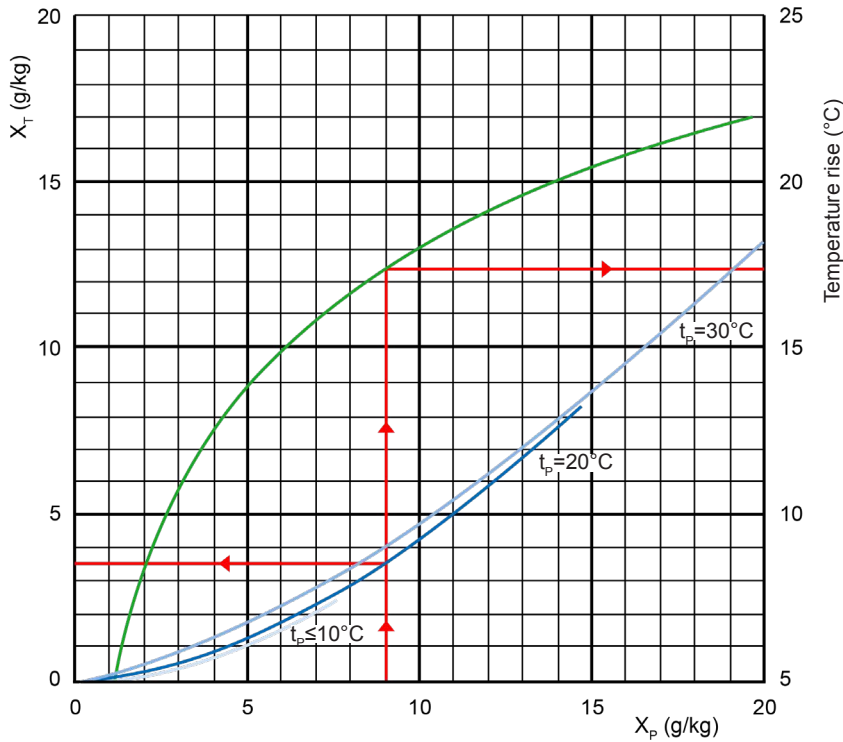


Fig. 3: Dimensions Condair DA 6000

9.3 Performance charts DA 6000



Example:
 Given process air: $X_p = 9.0$ g/kg, $t_p = +20^\circ\text{C}$
 Dry air: 3.5 g/kg, $t_r = 20 + 17.4 = 37.4^\circ\text{C}$

X_p = Absolute humidity process air
 X_T = Absolute humidity dry air
 t_p = Temperature process air
 t_r = Temperature dry air

Fig. 4: Capacity diagram Condair DA 6000

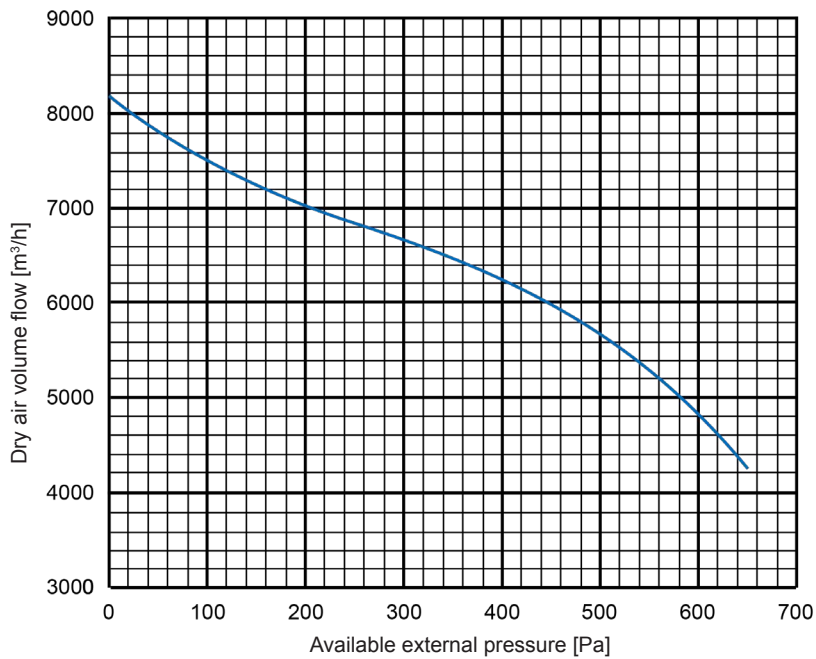


Fig. 5: Dry air volume flow Condair DA 6000

9.4 Dimensions DA 8000

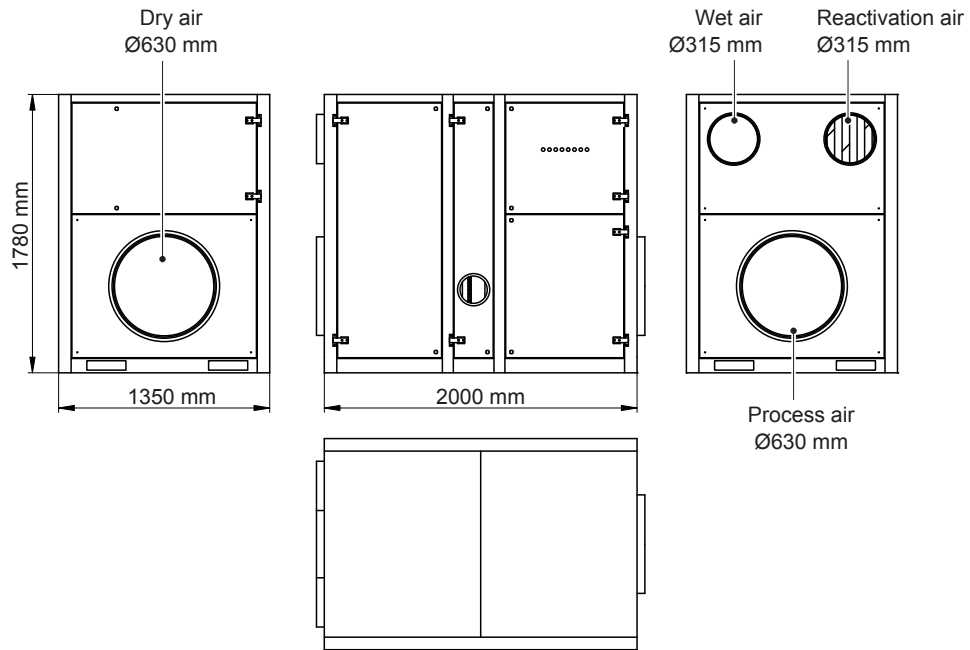
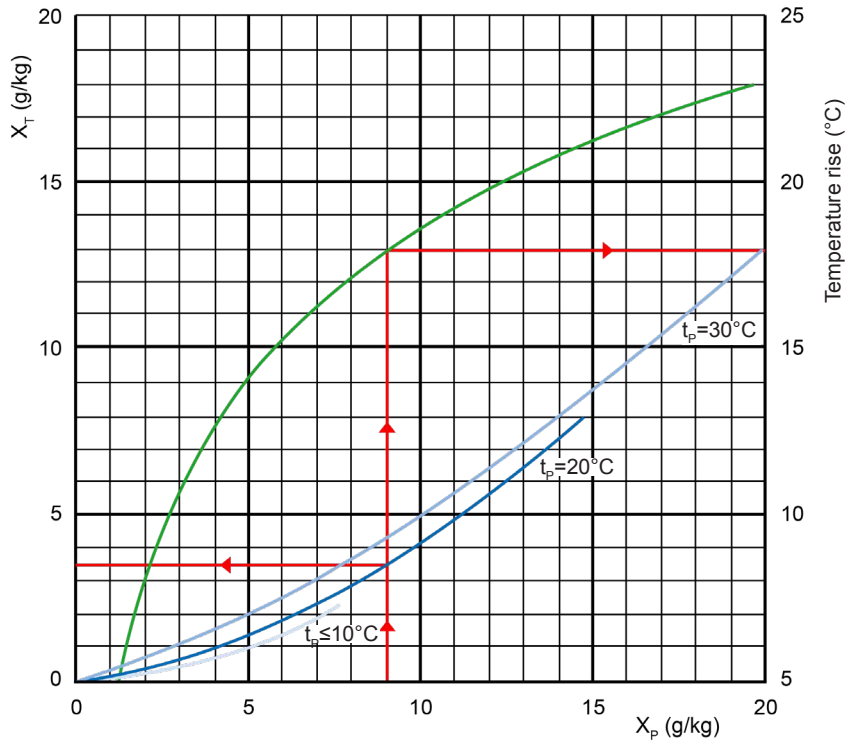


Fig. 6: Dimensions Condair DA 8000

9.5 Performance charts DA 8000



Example:
 Given process air: $X_p = 9.0$ g/kg, $t_p = +20^\circ\text{C}$
 Dry air: 3.5 g/kg, $t_r = 20 + 18 = 38^\circ\text{C}$

X_p = Absolute humidity process air
 X_T = Absolute humidity dry air
 t_p = Temperature process air
 t_r = Temperature dry air

Fig. 7: Capacity diagram Condair DA 8000

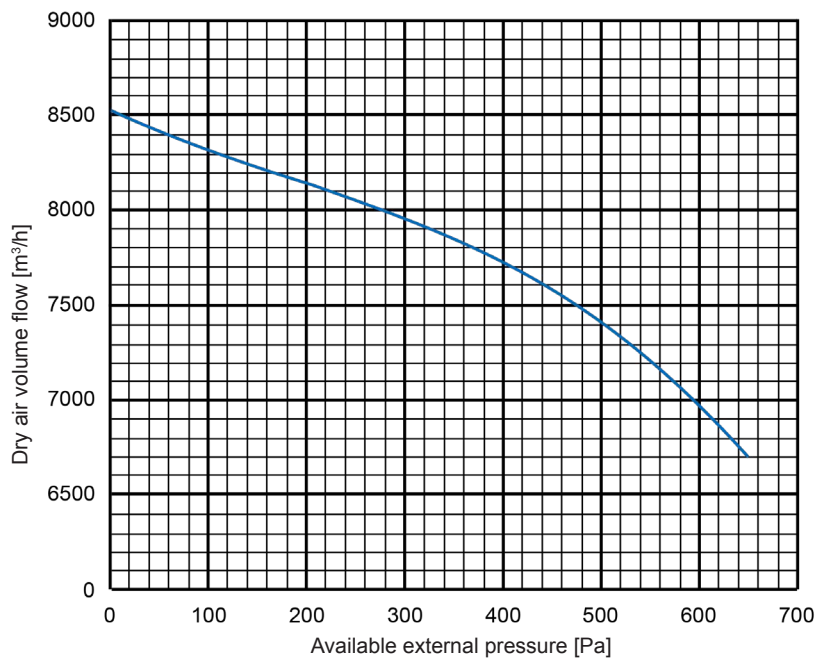


Fig. 8: Dry air volume flow Condair DA 8000

9.6 Dimensions DA 13000

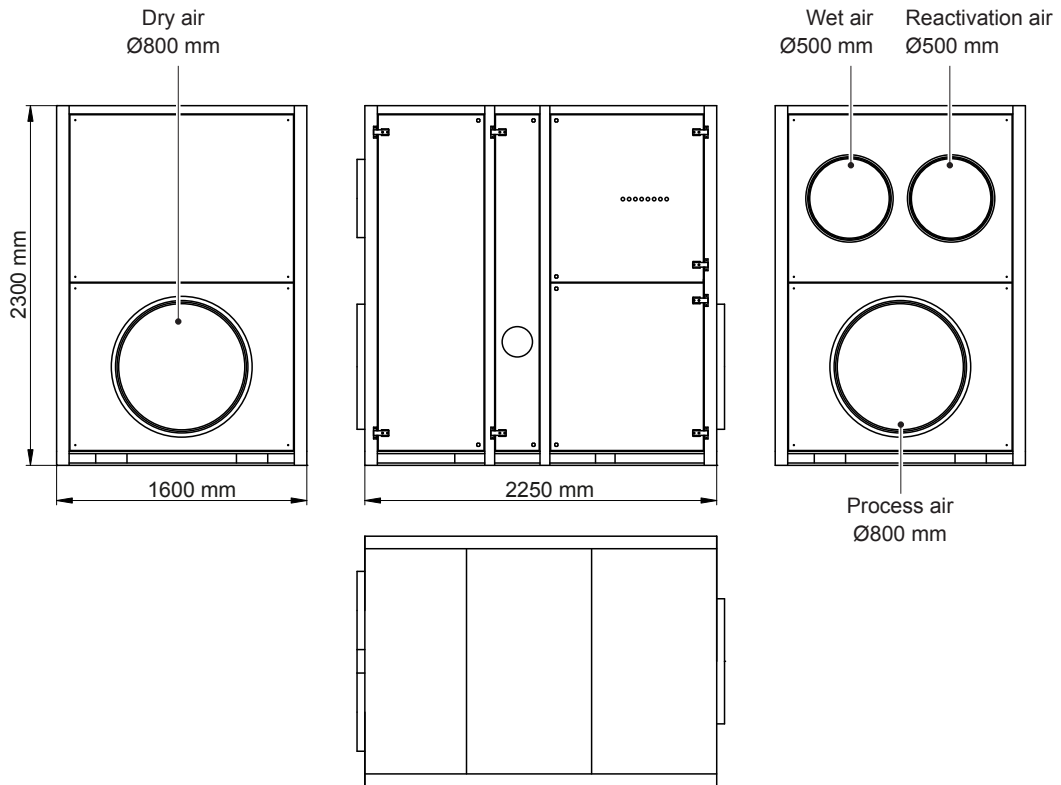
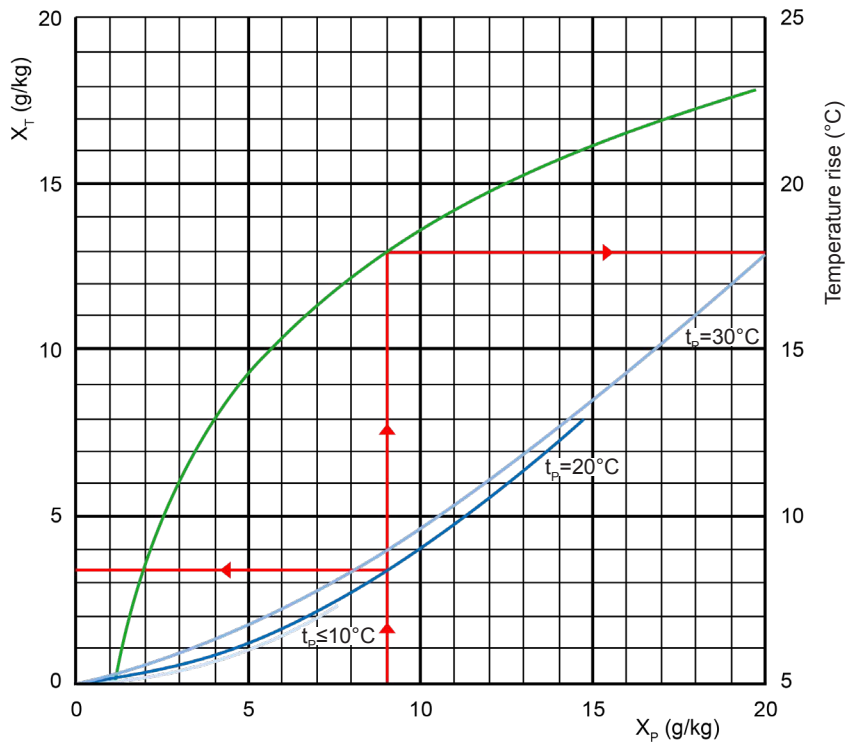


Fig. 9: Dimensions Condair DA 13000

9.7 Performance charts DA 13000



Example:

Given process air: $X_p = 9.0$ g/kg, $t_p = +20^\circ\text{C}$

Dry air: $X_T = 3.5$ g/kg, $t_T = 20 + 18 = 38^\circ\text{C}$

X_p = Absolute humidity process air

X_T = Absolute humidity dry air

t_p = Temperature process air

t_T = Temperature dry air

Fig. 10: Capacity diagram Condair DA 13000

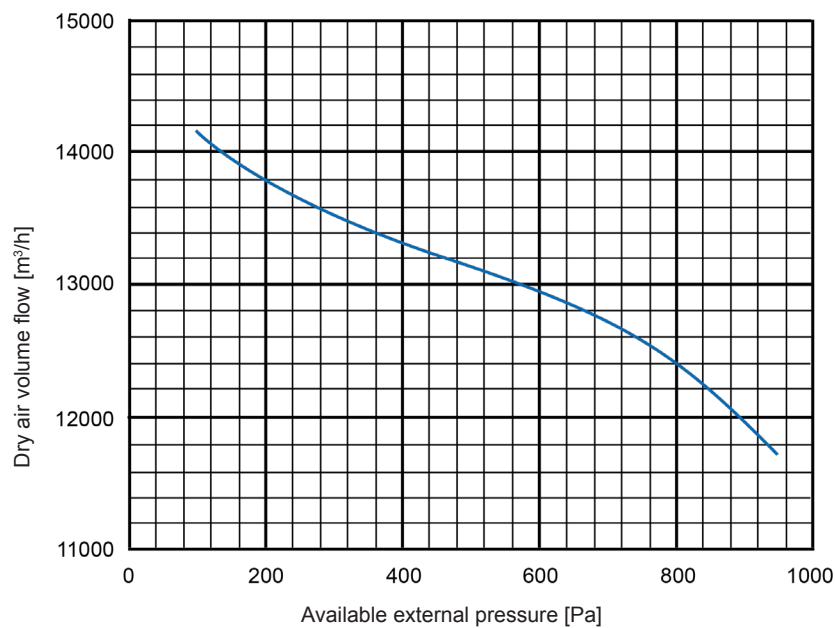


Fig. 11: Dry air volume flow Condair DA 13000

9.8 Dimensions DA 19000

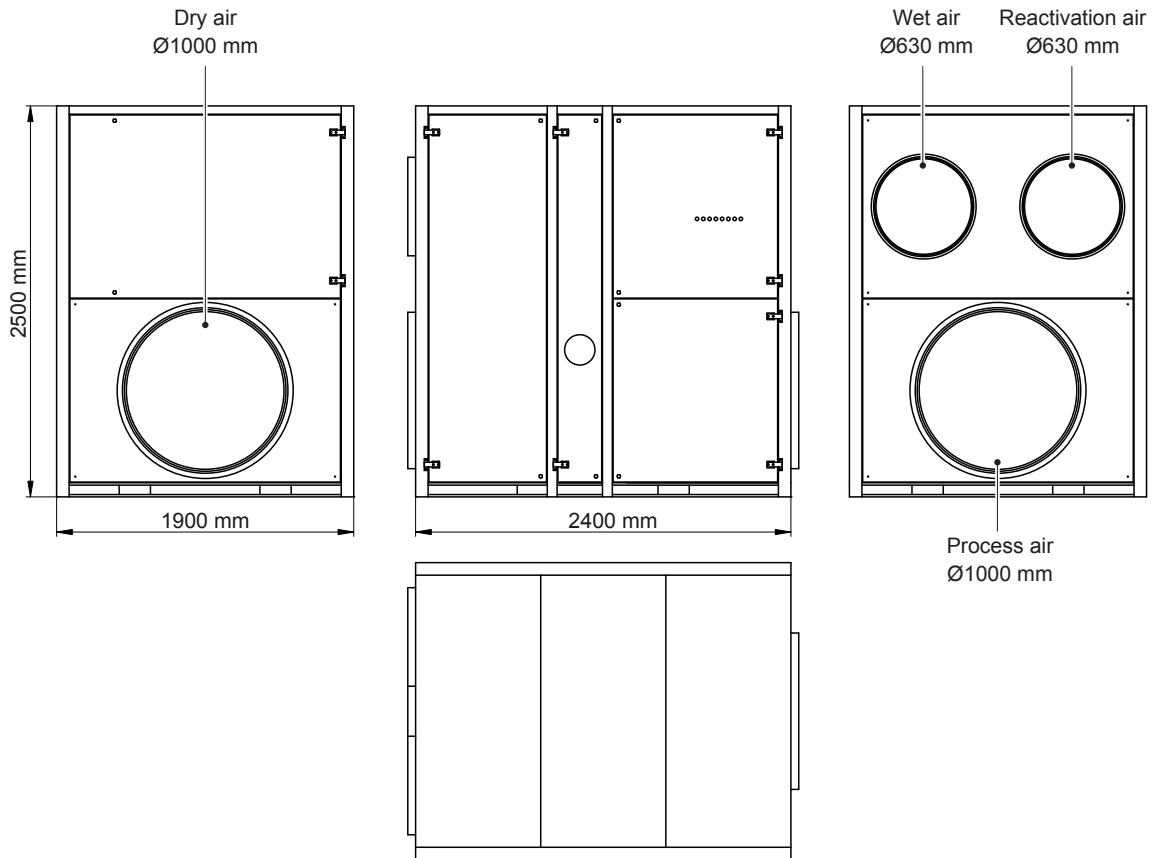
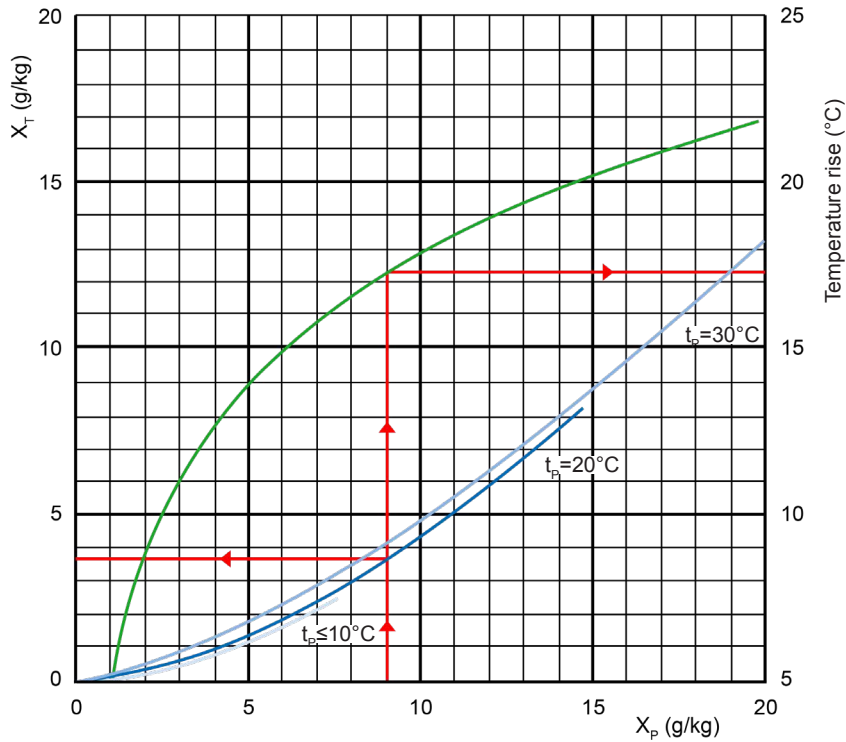


Fig. 12: Dimensions Condair DA 19000

9.9 Performance charts DA 19000



Example:
 Given process air: $X_p = 9.0$ g/kg, $t_p = +20^\circ\text{C}$
 Dry air: 3.5 g/kg, $t_T = 20 + 17.3 = 37.3^\circ\text{C}$

X_p = Absolute humidity process air
 X_T = Absolute humidity dry air
 t_p = Temperature process air
 t_T = Temperature dry air

Fig. 13: Capacity diagram Condair DA 19000

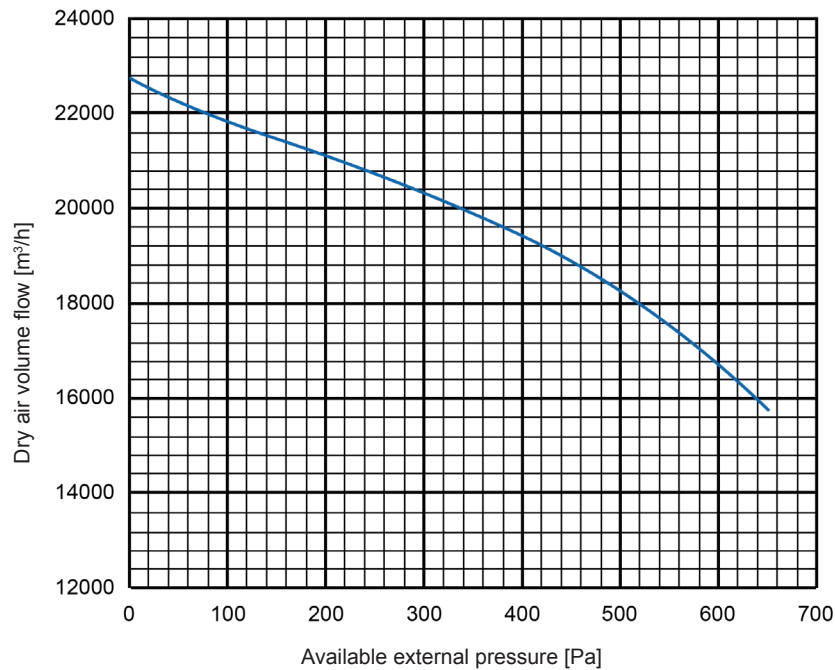


Fig. 14: Dry air volume flow Condair DA 19000

9.10 Dimensions DA 27000

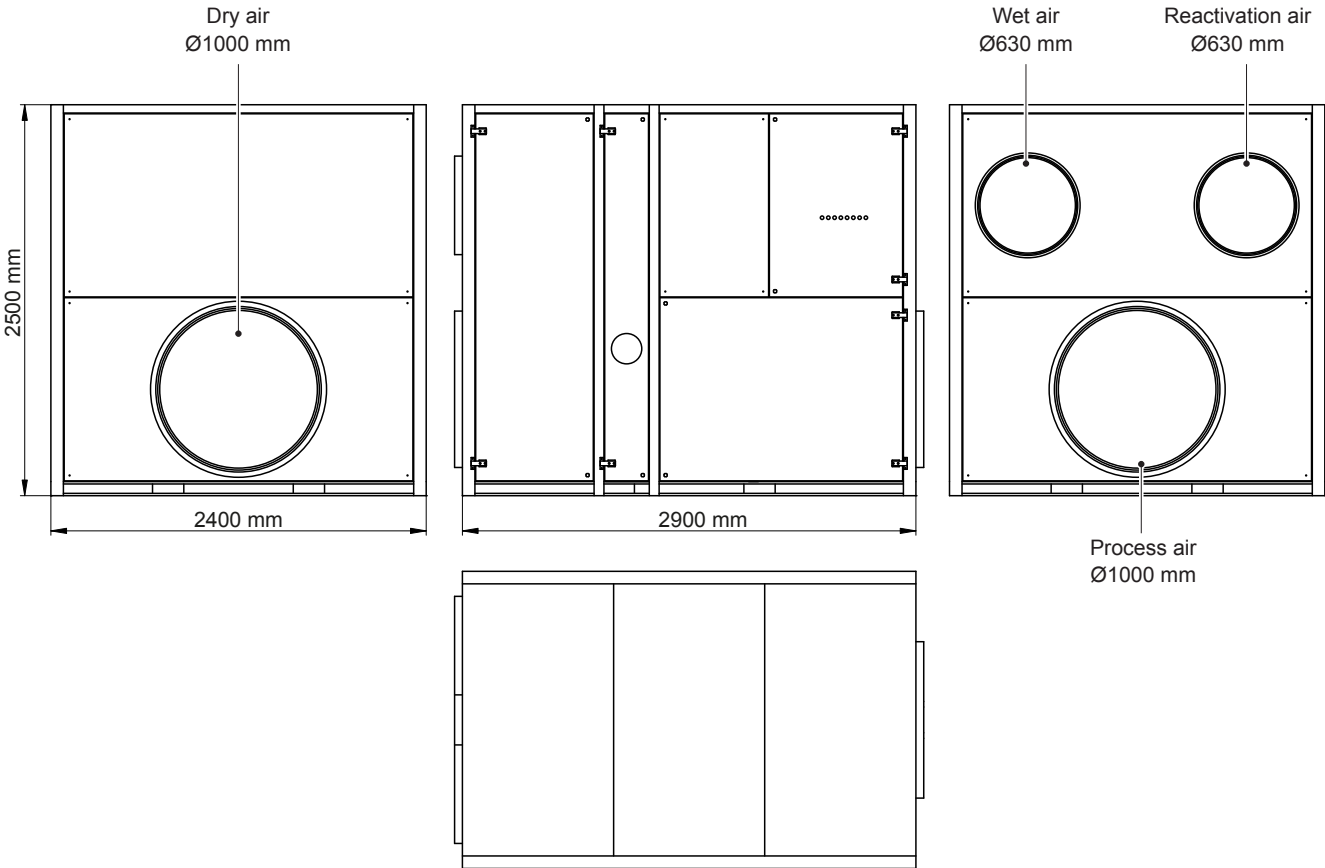
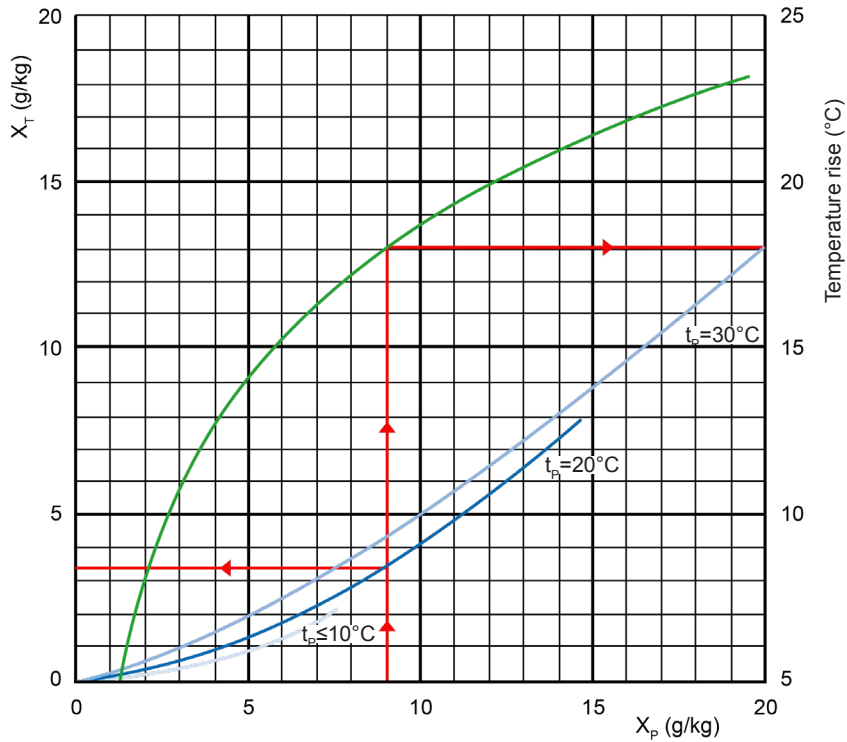


Fig. 15: Dimensions Condair DA 27000

9.11 Performance chart DA 27000



Example:

Given process air: $X_p = 9.0$ g/kg, $t_p = +20^\circ\text{C}$

Dry air: 3.5 g/kg, $t_r = 20 + 17.3 = 37.3^\circ\text{C}$

X_p = Absolute humidity process air

X_T = Absolute humidity dry air

t_p = Temperature process air

t_r = Temperature dry air

Fig. 16: Capacity diagram 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	Part No.	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 G4 592 x 592 x 360 mm	2	4
Reactivation air filter		Bag filter G4 592 x 592 x 360 mm	1	2

10.2 Spare parts Condair DA 8000

Part	Part No.	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 G4 592 x 592 x 360 mm 592 x 287 x 360 mm	2 2	4 4
Reactivation air filter		Bag filter G4 592 x 592 x 360 mm	1	2

10.3 Spare parts Condair DA 13000

Part	Part No.	Technical specification	Numbers installed	Numbers of recommended spare parts
Drive Motor		MotoVario NMRV030/050-TS56B4, 0.09 kW 2.33 rpm	1	1
Capacitor		0,5 µF 700 V	1	
Belt pulley		2SpA118-1610 + (1610-25)	1	
Drive belt		Green A-belt	1	
Belt tensioner		Rosta SE11 + R11	1	
Process air fan		ER71C-4DN.H7.1R 7.5 kW	1	
Reactivation air fan		ER35C-2DN.F7.1R 4,0 kW	1	
Heater		Electrical, 71381	1	
Rotor		PPS 13000	1	
Process air filter		Bag filter EU4 592 x 592 x 360 mm 592 x 285 x 360 mm	2 2	4 4
Reactivation air filter		Bag filter EU4 592 x 592 x 360 mm 592 x 285 x 360 mm	1 1	2 2

10.4 Spare parts Condair DA 19000

Part	Part No.	Technical specification	Numbers installed	Numbers of recommended spare parts
Drive Motor		MotoVario NMRV030/050-TS56B4 0.09 kW 2.33 rpm	1	1
Capacitor		0,5 µF 700 V	1	
Belt pulley		2SpA-132-1610 + (1610-25)	1	
Drive belt		Green A-belt	1	
Belt tensioner		Rosta SE11 + R11	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 EU4 592 x 592 x 360 mm 592 x 285 x 360 mm	3 3	6 6
Reactivation air filter		Bag filter EU4 592 x 592 x 360 mm 592 x 285 x 360 mm	1 1	2 2

10.5 Spare parts Condair DA 27000

Part	Part No.	Technical specification	Numbers installed	Numbers of recommended spare parts
Drive Motor		Motovario, NMRV 30/50 1-500	1	1
Capacitor		0,5 µF 700 V	1	
Belt pulley		SPA Ø125mm	1	
Drive belt		SPA green	1	
Belt tensioner		Rosta SE11 + R11	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 filters 550 x 500 x 635 mm	8	8
Reactivation air filter		Bag filters EU4 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		G4	G4	
Filter media		Synthetic fiber	Synthetic fiber	
Dimensions	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	1770	2000	
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		G4	G4	
Filter media		Synthetic fiber	Synthetic fiber	
Dimensions	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		Ziehl-Abegg	Ziehl-Abegg	
Fan type		ER71C-4DN.H7.1R	ER35C-2DN.F7.1R	
Speed	rpm	2 875	2 835	
Model		-	-	
Air flow	m ³ /h	13000	4200	
Head pressure	Pa			
Available ext. pressure	Pa	520	350	
Motors				
Manufacturer		Siemens	Siemens	MotoVario
Model				NMRV030/050-TS56B4
Speed	rpm	1470	2865	2,33
Power	kW	7,5	4,0	90 W
Voltage	V	400	400	400
Frequency	Hz	50	50	50
Amps	A	14.3	8,1	0,15
Power factor	cos ϕ	0,82		0,89
Protection class	IP	54	54	55
Insulation class	ISO	F	F	F
Rotor				
Type				Rotor 13000
Speed	rph			12
Filters				
Type		2+2 Bag filter	1+1 Bag filter	
Filter class		G4	G4	
Filter media		Glasfaser	Glasfaser	
Dimensons	mm	2 x 592 x 592 x 360 2 x 592 x 285 x 360	1 x 592 x 592 x 360 1 x 592 x 285 x 360	
Pressure drop, clean filter	Pa			
Pressure drop, dirty filter	Pa	70	50	
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		ZIEHL-ABEGG	ZIEHL-ABEGG	
Fan type		ER71C-4DN.I7.1R	ER40C-2DN.F7.1R	
Speed	rpm	1460	2 875	
Model		-	-	
Air flow	m ³ /h	19 000	6 000	
Head pressure	Pa			
Available ext. pressure	Pa	440	450	
Motors				
Manufacturer		ZIEHL-ABEGG	ZIEHL-ABEGG	MotoVario
Model		160M IM B3 4-p	112M IM B3 2-p	NMRV030/050-TS56B4
Speed	rpm	1460	2 875	2,33
Power	kW	11,0	4,0	90 W
Voltage	V	3x400	3x400	3x400
Frequency	Hz	50	50	50
Amps	A	20,7	7,5	0,15
Power factor	cos ϕ	0,86	0,86	0,89
Protection class	IP	55	55	55
Insulation class	ISO	F	F	F
Rotor				
Typ				Rotor 19000
Speed	rph			12
Filters				
Type		Bag filter	Bag filter	
Filter class		G4	G4	
Filter media		Synthetic fiber	Synthetic fiber	
Dimensions	mm	3x 592 x 592 x 360 3 x 592 x 285 x 360	1x 592 x 592 x 360 1x 592 x 285 x 360	
Pressure drop, clean filter	Pa	50	50	
Pressure drop, dirty filter	Pa	250	250	
Heating, reactivation air				
Power	kW		192	
Type			Resistance	
Voltage	V		400	
Number of heating elements			48	

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

The manufacturer:



Condair Group AG
Robert Merki



13 Appendix 1 – electrical wiring diagram

CONSULTING, SALES AND SERVICE:



CH94/0002.00

Condair Group AG
Gwattstrasse 17, 8808 Pfäffikon SZ, Switzerland
Phone +41 55 416 61 11, Fax +41 55 588 00 07
info@condair.com, www.condairgroup.com

The Condair logo, consisting of a stylized wave symbol followed by the word 'condair' in a bold, lowercase, sans-serif font.