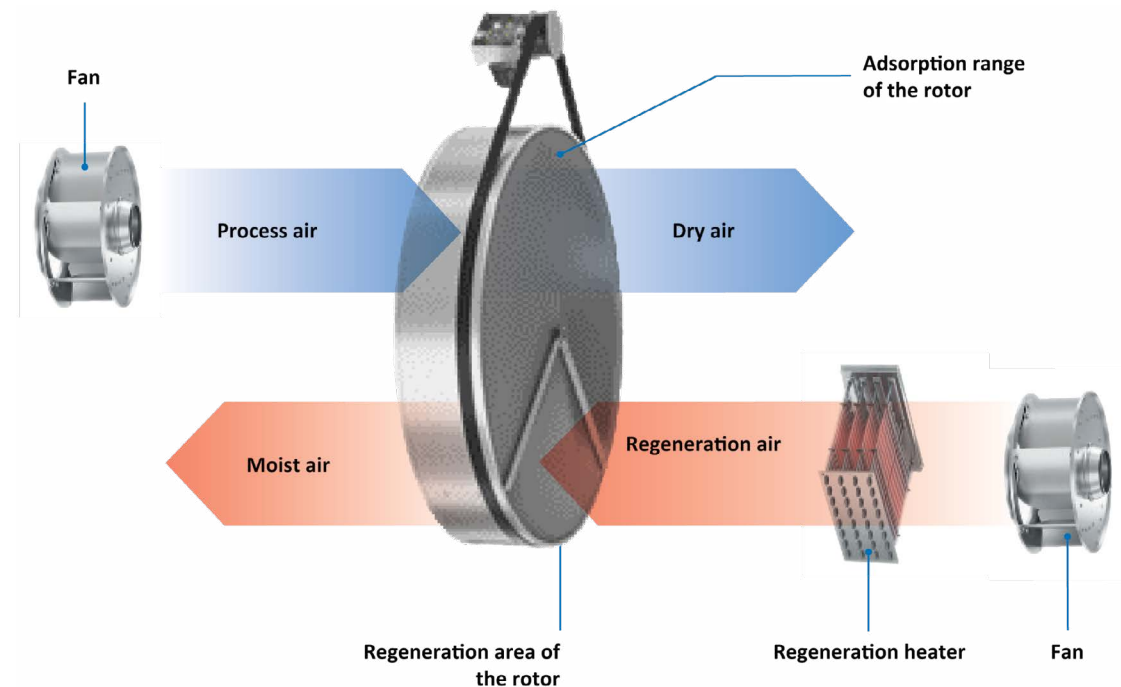




# INDUSTRIAL DEHUMIDIFIERS

Advanced range of  
desiccant dehumidifiers





Desiccant drying - typical principle of operation

## Condair DA desiccant dehumidifiers

Condair DA desiccant dehumidifiers are designed for environments where extremely low humidity is required.

Standard models offer drying capacities from 7 to 44 lbs/h of moisture removal and airflows between 300 and 2400 CFM.

The standard models come equipped with extremely safe electric PTC heaters. Depending on size of the unit, these heaters can be stage to provide staged modulation.

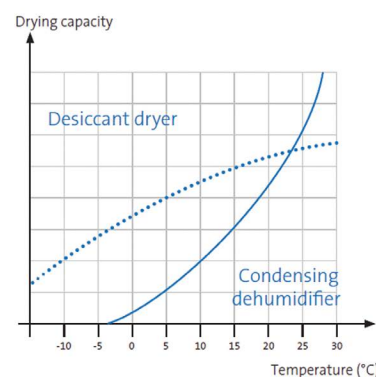
The desiccant rotor used in Condair desiccant dehumidifiers is non-flammable and silicone-free.

All our units are provided with insulated casing with double skin layout. The 1.25 in. mineral wool insulation helps reduce the risk of condensation, heat emission and radiated noise ensuring a more reliable and durable system. All standard units are UL approved.

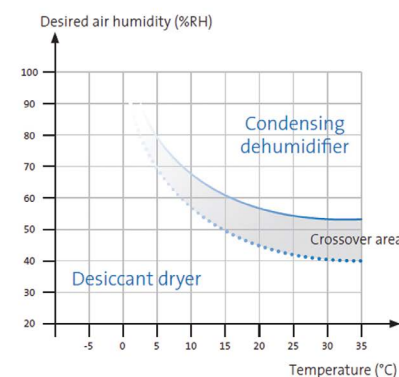
*Standard models come ready to be fitted to pre and/or post cooling additions by others without obstructions.*

*Post-cooling is often necessary to reduce the heat given off by the air drying process.*

Performance characteristics



Recommended usage by temperature/humidity



### Double-wall housing

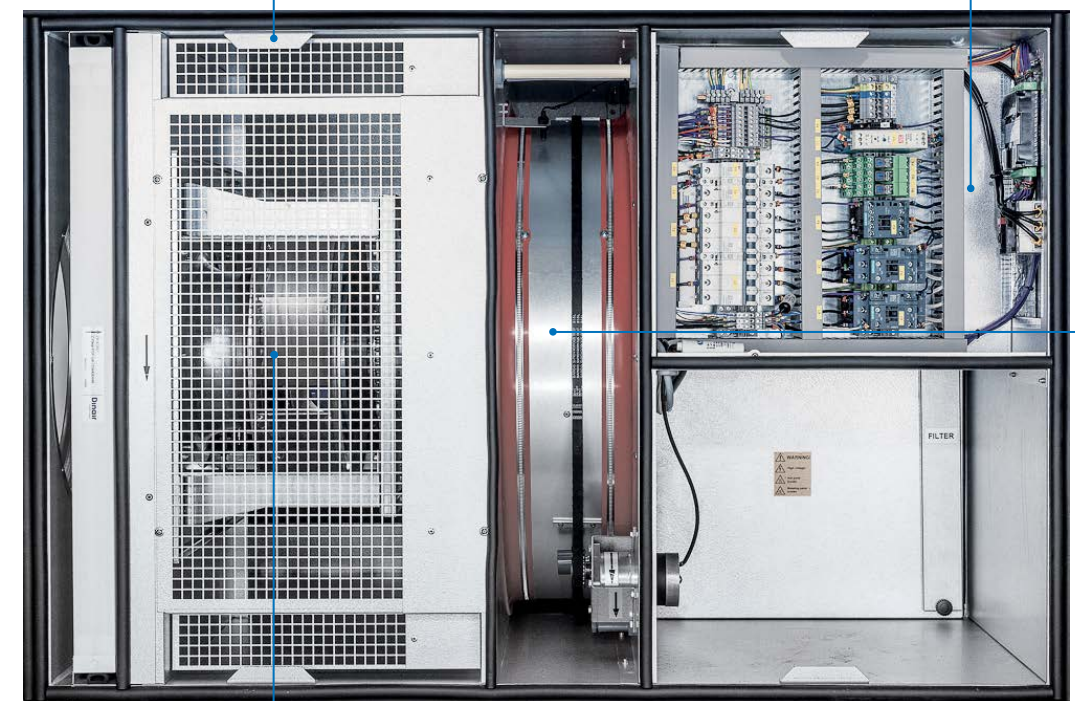
Unlike our competitors, Condair units are provided with a fully insulated double-wall housing made of corrosion-resistant Aluzinc® with powder coating as standard. The spaces between the housings are filled with at least 1.25in. of mineral wool as an insulation material. This ensures safe and efficient operation even at very low temperatures as well as maximum hygiene.

### Comprehensive controller

The Condair adsorption dryers are equipped with a PLC with touch screen, which allows the control of humidity. In addition, the PLC increases operational reliability because it monitors the internal components and issues a service note or alarm depending on the situation.

### Highly efficient desiccant rotor

The desiccant rotor consists of a honeycomb structure which is coated with an extremely hygroscopic silica gel. This honeycomb structure creates an enormous internal surface for efficient moisture transmission. The rotor material is hygienic, non-flammable and non-respirable, and the rotors are largely maintenance-free.



### Efficient fans

High quality EC fans are used in an efficient push configuration. This ensures the air for the regeneration process is directed over the desiccant rotor with positive pressure. This enables problem-free use even at very low humidity levels, because the regeneration fan does not come into contact with hot moist air from the desiccant rotor. The EC fans allows for fan speed adjustment and flexibility between process and reactivation air.

### Regenerative heat sources

All adsorption dryers up to and including size DA 2400N have electrical PTC heating elements for the regeneration process. The self-regulating properties of the PTC heating elements provide protection against fusing and thermostat interruptions.

### Service-friendly construction

All of the components are designed to be easy to remove and maintain. The filter inserts can be replaced easily. Construction with a vertically arranged rotor enables a low overall height. The optimum load distribution of the installed components ensures a long service life and high operational reliability.



# Common DA Application

## Food Processing

The manufacturing, packaging, and storage of food products require a broad range of temperature and humidity levels, which can vary depending on the specific type of food product. The required conditions can range from high room temperatures with high humidity levels to low room temperatures with low humidity levels. Maintaining low humidity levels is of utmost importance to prevent product spoilage, clumping and production downtimes.

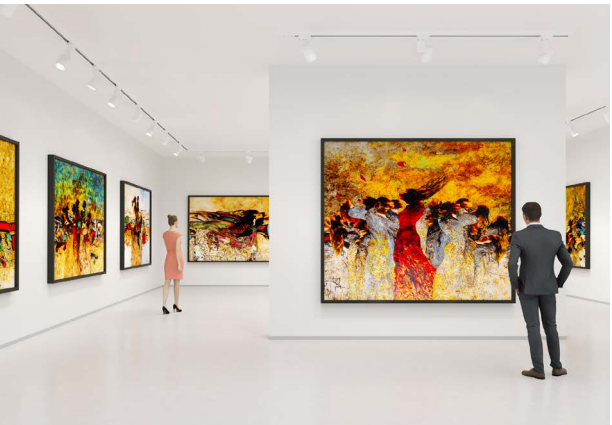
Our desiccant dehumidifiers are designed to maintain the optimal humidity levels in food production facilities, removing moisture through adsorption rather than condensation to prevent the growth of mold and bacteria. This, coupled with a control accuracy of +/-5% RH, ensures consistent high-quality products and efficient production processes.



## Museums and Archival Storage

Museums and archive storage facilities store historical materials such as documents, manuscripts, photographs, and metal artifacts. Maintaining the appropriate humidity levels is critical to preserving these materials. High humidity can cause mold growth, damage to equipment, and degradation of materials. The ideal humidity will depend on two factors, the objects being stored and the temperature range of the store. For organic items such as paper, wood and textiles, the ideal will be between 35 and 60%RH with a temperature range of 55 to 68F.

For inorganic items, like metals, the lower range of 35 to 50% RH would typically be ideal. However, some metal artefacts may require humidity levels below 20% to prevent corrosion. Desiccant dehumidifier systems provide a versatile solution with a broad range of operational conditions. They can dehumidify air at low temperatures, together with ambient humidity from 0-100%RH, so are ideal for unheated storage facilities. Operationally they can take humidity levels below 10%RH if required with a control accuracy of +/-5%RH.



## Clean Rooms

Clean Rooms are specialized environments designed to maintain a high level of cleanliness and sterility. They are commonly used in industries such as pharmaceuticals, biotechnology, healthcare, and electronics manufacturing, where a controlled environment is essential to prevent contamination or damage to sensitive equipment or products.

In most clean rooms, air is not recirculated; instead, 100% fresh air is brought in and filtered to maintain sterility. Desiccant dehumidifiers are essential for maintaining accuracy and stability within the clean room. The accuracy and stability of humidity levels are critical, which is why desiccant dehumidifiers are preferred due to their ability to control humidity levels with a high accuracy of +/-5% RH. Clean rooms typically maintain a relative humidity of 30-50% and at temperatures below 70°F, which is necessary to ensure product quality.



## Military Equipment Storage

Military equipment used by army, navy and air force are required to be in a constant state of readiness. However, if the equipment is not stored appropriately, it may not be battle-ready. While temperature is not a major concern for storage, humidity levels are. If the humidity level exceeds 50% RH, the corrosion rate of the equipment is very high. As a result, it is necessary to maintain the facilities storing the equipment at a humidity level of 30-50% RH.

Desiccant dehumidifier systems provide a versatile solution with a broad range of operational conditions. They can dehumidify air at low temperatures, together with ambient humidity from 0-100%RH, so are ideal for unheated defense storage facilities. Operationally they can take humidity levels below 10%RH if required with a control accuracy of +/-5%RH. They do not require water drainage connection but will need air ducting to exhaust the hot, wet air from the drying process.



## Pharmaceutical Industry

Maintaining precise humidity levels is crucial for many aspects of the manufacturing, processing, drying, and storage of pharmaceutical products, particularly in Oral Solid Dosage (OSD) facilities. Pharmaceutical products are generally hygroscopic and absorb moisture from the air easily.

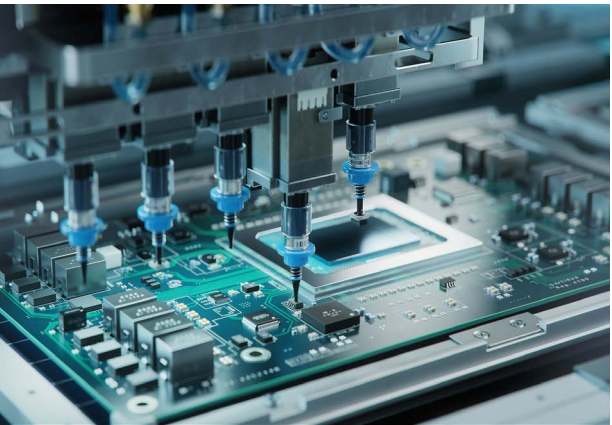
Incorrect moisture control can lead to manufacturing issues and, more importantly, can affect the efficacy of the final product. To ensure optimal production processes, good indoor air quality and specific temperature and humidity levels are mandated by FDA regulations. Our desiccant dehumidifiers are designed to provide conditioned air within precise limits, typically within +/-5%, in combination with post-cooling coils to ensure accurate temperature control.



## Electronic Industry

The storage of electronic components and finished products presents many challenges due to the high sensitivity of the various operating processes. The risk of damage and oxidation of stored materials increases when the relative humidity (RH) exceeds 50%: at this value, the probability that oxygen and moisture in the air react with the materials increases, and with it the risk that the quality of the components and their functionality is affected. The increased relative humidity in the storage room can lead to an increased risk of water absorption by the hygroscopic material of the electronic components attracts condensation and combines with it. This can also lead to significant damage to the components in terms to material and functionality.

Our desiccant dehumidifiers are ideal for electronic industry as low humidity levels are typically required for the manufacturing and storage of electronic components. The components are stored between 2-10% RH and 55-66°F. The ability to dehumidify the air at low humidity levels coupled with a control accuracy of +/- 5% RH are critical to the success of electronic component storage.



# DA Desiccant Dryer



DA 500N

Technical data		DA 300N	DA 400N	DA 600N	DA 800N	DA 1400N	DA 2000N	DA 2400N
Drying capacity at 68°F – 60% RH	lbs/h	7.3	11.2	15.6	22	29.7	31.9	44.1
Nominal process air volume	CFM	294	412	589	824	1413	2001	2354
Nominal regeneration air volume	CFM	88	129	206	235	294	323	500
Ext. compression — process air	in. H2O	1.2	0.8	1.2	0.8	1.2	1.2	0.8
Ext. compression — regeneration air	in. H2O	1.2	1.0	0.8	1.2	1	0.8	0.8
Regeneration heater power	kW	4	7	10.2	13	17	18	23
Electrical connected load	208V	5.8	8.8	11.9	14.8	21.6	22.1	n/a
	480V	7.9	9.6	12.9	15.6	20	23.4	31.4
Voltage supply	V/Ph/Hz	208/3/60 or 480/3/60						480/3/60
Process air connection diameter	in (mm)	15.7 (400)						
Dry air connection diameter	in (mm)	12.4 (315)						
Humid/regeneration air connection diameter	in (mm)	7.9 (200)						
Dimensions (H x W x D)	in (mm)	36 x 48 x 39 (910 x 1199 x 991)						
Sound pressure levels 1)	dB	62	62	62	63	68	69	69
Weight	lbs	408	419	419	430	441	441	452

1) Maximum sound pressure level at 3.3ft, distance, with 10 ft. applied ducting

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