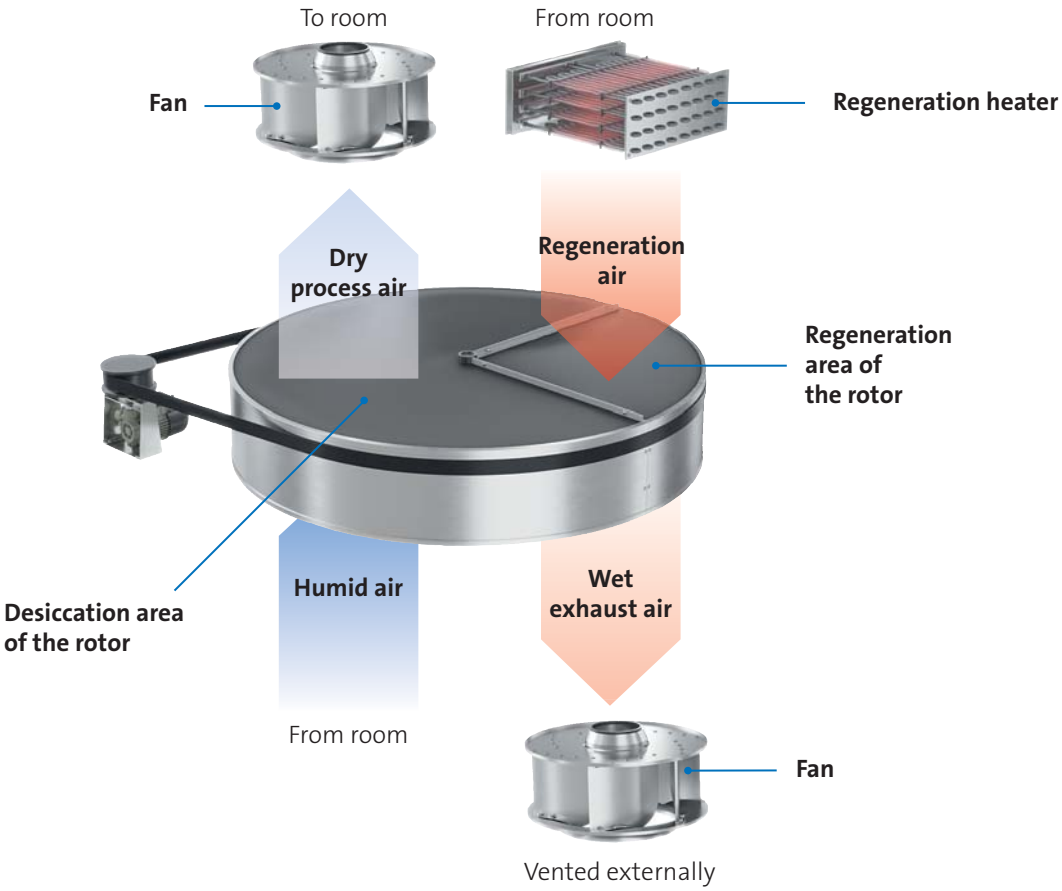
INDUSTRIAL DEHUMIDIFIERS

Advanced range of compressor
and desiccant dehumidifiers

Dehumidification and drying

condair



Desiccant drying - typical principle of operation

Condair DA desiccant dehumidifiers

Condair DA desiccant dehumidifiers are designed to operate in very cold conditions or wherever extremely low humidity is required.

The Condair DA's powerful sorption rotor allows it to bring humidity levels down to a minimum at temperatures as low as -30°C.

As well as standard models offering drying capacities of 0.45 to 182kg/h, a range of additional modules is available to meet any project requirement.

Standard models can be fitted with pre- or post-cooling batteries, heat exchangers or condensation modules prior to delivery.

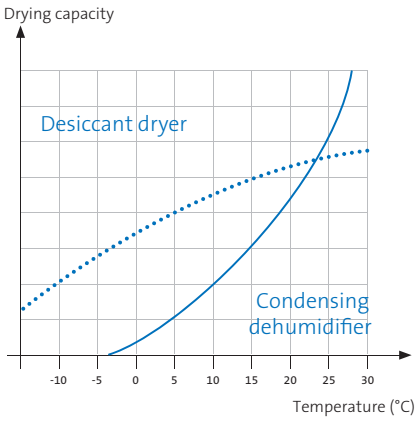
Post-cooling is often necessary to reduce the heat given off by the air drying process.

Condensation modules remove moisture from the regeneration air for applications where outside venting of regeneration air is not possible.

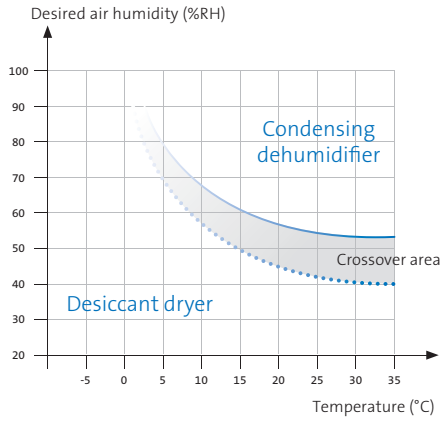
In addition to the standard electrically heated model, a range of regeneration heat exchangers is available for hot water, steam or gas. These can be used alongside the electric heater to reduce the overall energy consumption of the system and reduce operating costs.

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

Performance characteristics



Recommended usage by temperature/humidity



Stainless steel housing
Condair desiccant dehumidifiers have AISI 304 stainless steel housing as standard. This ensures a long operational lifetime and hygienic performance.

The housing is easy to remove and all internal components are designed to be simple to access and maintain.

Comprehensive control options
A variety of control options and sensors are available that allow the dehumidifier to perform and report as the application requires. These features include the ability to modulate fans to reduce energy consumption, control dew point to protect against condensation or limit sound for noise sensitive areas.

Either 3.5" or 5.7" touch screen interfaces are available with options for BMS connectivity and smartphone app control.

Regeneration heater
The regeneration heater is available in electric as standard but gas-fired, steam or hot water heat exchangers can be used instead of or alongside the electric heater to reduce operating costs.

Efficient fans
Condair DA dehumidifiers incorporate high-quality, directly driven EC fans. Process and regeneration fans are operated via the control panel with the airstream's characteristics being displayed on the screen (optional). This saves time during commissioning and maintenance activities.
The regeneration fan is insulated as standard.

Numerous options
Commercial dehumidification is required in a vast array of applications and the Condair DA's optional modules allow it to be customised to satisfy each project's requirements. Heat recovery units, pre and post-cooling batteries, post heaters and air-cooled condensation units can all be connected to deliver process air precisely as needed.

Highly efficient desiccant rotor
The desiccant rotor consists of a fibre optic honeycomb structure, coated with an extremely hygroscopic silica gel. This honeycomb structure creates an enormously effective surface for efficient moisture absorption. The rotor material is non-flammable and is virtually maintenance-free.

DA desiccant dryer

Technical data

DA 240

DA 30E

Technical data		DA 120	DA 240	DA 290	DA 300	DA 400
Drying capacity at 20°C – 60% RH	kg/h	0.45	0.8	1.1	1.1	1.4
Nominal dry air volume	m^3/h	120	240	290	300	400
Nominal regeneration air volume	m^3/h	35	40	65	65	90
Electrical connected load	kW	0.78	1.05	1.63	1.5	1.97
Voltage supply	V/ph/Hz	230/1/50				
Ext. pressure — process air	Pa	60	50	30	80	50
Ext. pressure — regeneration air	Pa	50	50	50	50	50
Process air inlet (H x W)	mm	240 x 205	160 x 290	160 x 290	210 x 350	210 x 350
Process air outlet diameter	mm	100	100	100	125	125
Regeneration air inlet/outlet diameter	mm	50	80	80	80	80
Dimensions (H x W x D)	mm	316 x 320 x 330	396 x 330 x 359	396 x 330 x 359	430 x 402 x 469	430 x 402 x 469
Weight	kg	13	18	19	27	28

Technical data		DA 30E 0.9	DA 30E 1.2	DA 30E 1.9
Drying capacity at 20°C – 60% RH	kg/h	0.9	1.2	1.9
Nominal dry air volume	m^3/h	300	300	300
Nominal regeneration air volume	m^3/h	50	65	85
Electrical connected load	kW	1.4	1.8	2.9
Voltage supply	V/ph/Hz	230/1/50		400/3/50
Ext. pressure — process air	Pa	200	200	200
Ext. pressure — regeneration air	Pa	140	180	150
Process air inlet diameter	mm	200	200	200
Process air outlet diameter	mm	100	100	100
Regeneration air inlet/outlet diameter	mm	100	100	100
Dimensions (H x W x D)	mm	771 x 554 x 398		
Weight	kg	52	53	53

e = energy saving (for optimum efficiency)
d = deep drying (for extreme set points)
Details of low temperature models, operational down to -30°C, available on request

DA desiccant dryer

Technical data

DA 35E

DA 65E

Technical data		DA 35E 3.3	DA 35E 3.8	DA 35E 4.5	DA 35E 5.1	DA 35E 5.6	DA 35D 3.2	DA 35D 4.5
Drying capacity at 20°C – 60% RH	kg/h	3.3	3.8	4.5	5.1	5.6	3.2	4.5
Nominal dry air volume	m^3/h	750	1000	1000	1000	1000	405	617
Nominal regeneration air volume	m^3/h	135	135	168	202	233	135	202
Electrical connected load	kW	4.9	5.1	6.3	7.4	8.5	4.9	7.3
Voltage supply	V/ph/Hz	400/3/50						
Ext. pressure — process air	Pa	210	210	210	210	210	210	300
Ext. pressure — regeneration air	Pa	300	300	300	300	250	300	250
Process air inlet diameter	mm	250	250	250	250	250	250	250
Process air outlet diameter	mm	250	250	250	250	250	250	250
Regeneration air inlet/outlet diameter	mm	200	200	200	200	200	200	200
Dimensions (H x W x D)	mm	1090 x 756 x 532					1090 x 756 x 532	
Weight	kg	102	110	110	110	110	110	110

Technical data		DA 65E 7.8	DA 65E 11.1	DA 65E 15.4	DA 65E 19.1	DA 65D 7.1	DA 65D 10.1	DA 65D 14.0
Drying capacity at 20°C – 60% RH	kg/h	7.8	11.1	15.4	19.1	7.1	10.1	14
Nominal dry air volume	m^3/h	1900	2600	3700	3700	1100	1500	2200
Nominal regeneration air volume	m^3/h	340	460	670	940	340	460	670
Electrical connected load	kW	11.4	16.2	23.6	32.4	11.1	15.7	22.5
Voltage supply	V/ph/Hz	400/3/50						
Ext. pressure — process air	Pa	400	400	500	500	400	400	400
Ext. pressure — regeneration air	Pa	300	400	400	400	300	400	400
Process air inlet diameter	mm	315	400	400	400	315	315	400
Process air outlet diameter	mm	315	400	400	400	315	315	400
Regeneration air inlet/outlet diameter	mm	200	200	200	200	200	200	200
Dimensions (H x W x D)	mm	1615 x 1165 x 820				1615 x 1165 x 820		
Weight	kg	200	250	250	200	250	250	250

e = energy saving (for optimum efficiency)
d = deep drying (for extreme set points)
Details of low temperature models, operational down to -30°C, available on request

DA desiccant dryer

Technical data

DA 12000 T/P

Technical data		DA 2000P / 3000T	DA 4000P / 6000T	DA 6000P / 9000T	DA 8000P	DA 12000T
Drying capacity at 20°C – 60% RH	kg/h	14.6/16.6	28.8/32.4	40.3/44.3	56.6	62.6
Nominal dry air volume	m^3/h	2000/3000	4000/6000	6000/9000	8000	12000
Nominal regeneration air volume	m^3/h	720	1400	1900	2600	2600
Electrical connected load	kW	25	50	65	92	92
Voltage supply	V/ph/Hz	400/3/50				
Process air inlet (H x W)	mm	950 x 450	1000 x 600		1500 x 800	
Process air outlet diameter	mm	500	560		560	
Regeneration air inlet (H x W)	mm	500 x 500	600 x 600			
Regeneration air outlet diameter	mm	250		315		400
Dimensions (H x W x D)	mm	1480 x 2438 x 1110			1780 x 2438 x 1410	
Weight	kg	750	800	1000	1500	1500

Technical data		DA 12000P	DA 18000T	DA 18000P	DA 25000T	DA 25000P
Drying capacity at 20°C – 60% RH	kg/h	92.2	98.3	128.7	132.5	181.5
Nominal dry air volume	m^3/h	12000	18000	18000	25000	25000
Nominal regeneration air volume	m^3/h	4000	4000	5700	5700	8000
Electrical connected load	kW	146	149	197	195	278
Voltage supply	V/ph/Hz	400/3/50				
Process air inlet (H x W)	mm	1500 x 800	1500 x 900		2000 x 1000	
Process air outlet diameter	mm	560	800		1000	
Regeneration air inlet/ (H x W)	mm	600 x 600	800 x 800			
Regeneration air outlet diameter	mm	400			500	
Dimensions (H x W x D)	mm	2030 x 3660 x 1710	2230 x 3046 x 1910	2230 x 3657 x 1910	2530 x 3657 x 2410	
Weight	kg	1700	1950	2500	3000	3500

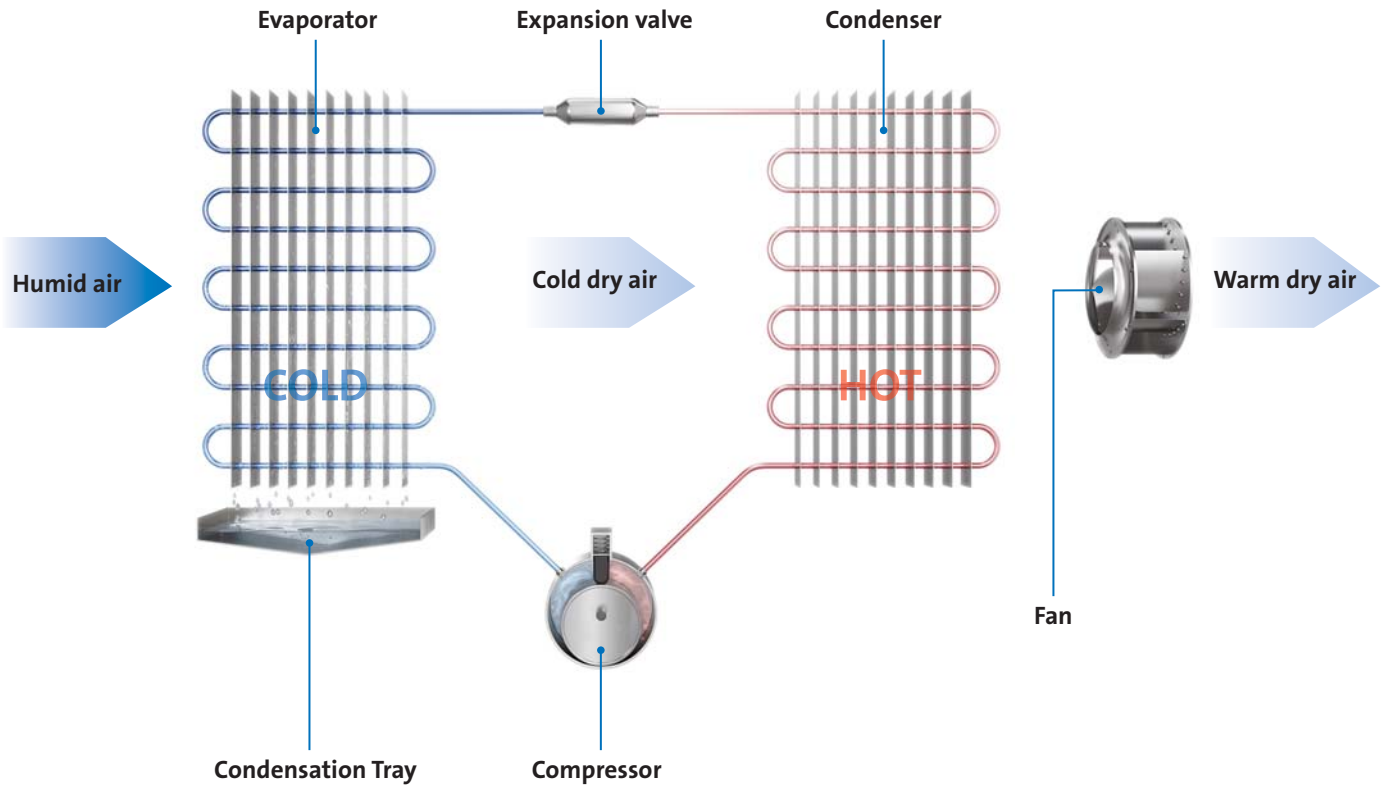
t = energy saving (for optimum efficiency)
p = deep drying (for extreme set points)
Details of low temperature models, operational down to -30°C, available on request

DA desiccant dryer

Control options

Four different control options are available for models in the range from the DA35 series and above.

Monitoring and control features	A basic	B	C	D
Hour counter to monitor running time	X	X	X	X
Overheating alarm	X	X	X	X
Humidity controller including sensor (%RH, dew point)	Opt	X	X	X
Constant process flow	X	X	X	X
Service indicator to monitor maintenance requirements		X	X	X
Datalogging for tracking conditions		X	X	X
Service alarm monitoring		X	X	X
3.5 inch/5.7inch touch display		X	X	X
Filter and rotor service alarm		X	X	X
Control of regeneration air fan		X	X	X
Measurement and control after dew point		X	X	X
Timer, day/night and cycle timer		X	X	X
Network connectivity (optional)		X	X	X
Monitoring and control via smartphone app (optional)		X	X	X
Capacity control / modulating heat control		X	X	X
Possibility for extra humidity sensor			X	X
Monitoring and control of regeneration and process flows			X	X
Quiet program			X	X
Custom program			X	X
Energy saving program			X	X
Energy+ saving program (for process applications)				X
Continuous measurement of moisture removal				X
Capacity alarm				X
Specific humidity (g/kg) program				X



Condensing dehumidification — typical principle of operation

Condair DC condensing dehumidifiers

Condair condensing dehumidifiers have many different applications across the industrial, commercial and warehousing sectors. They incorporate a refrigerant circuit system to remove moisture from the atmosphere and are typically used in areas that require a relative humidity of >50%.

The DC system can be configured in a variety of ways to meet individual project requirements.

The dehumidification capacity of the standard models in the Condair DC series range from 75 to 930 litres per day. Ventilation capacities are up to 8,000m^3/h, enabling a single unit to maintain humidity levels for an entire building.

Units can be free-standing or positioned on a trolley for mobile use across different locations. Duct connections also enable the conditioned air to be distributed via a building's air handling system.

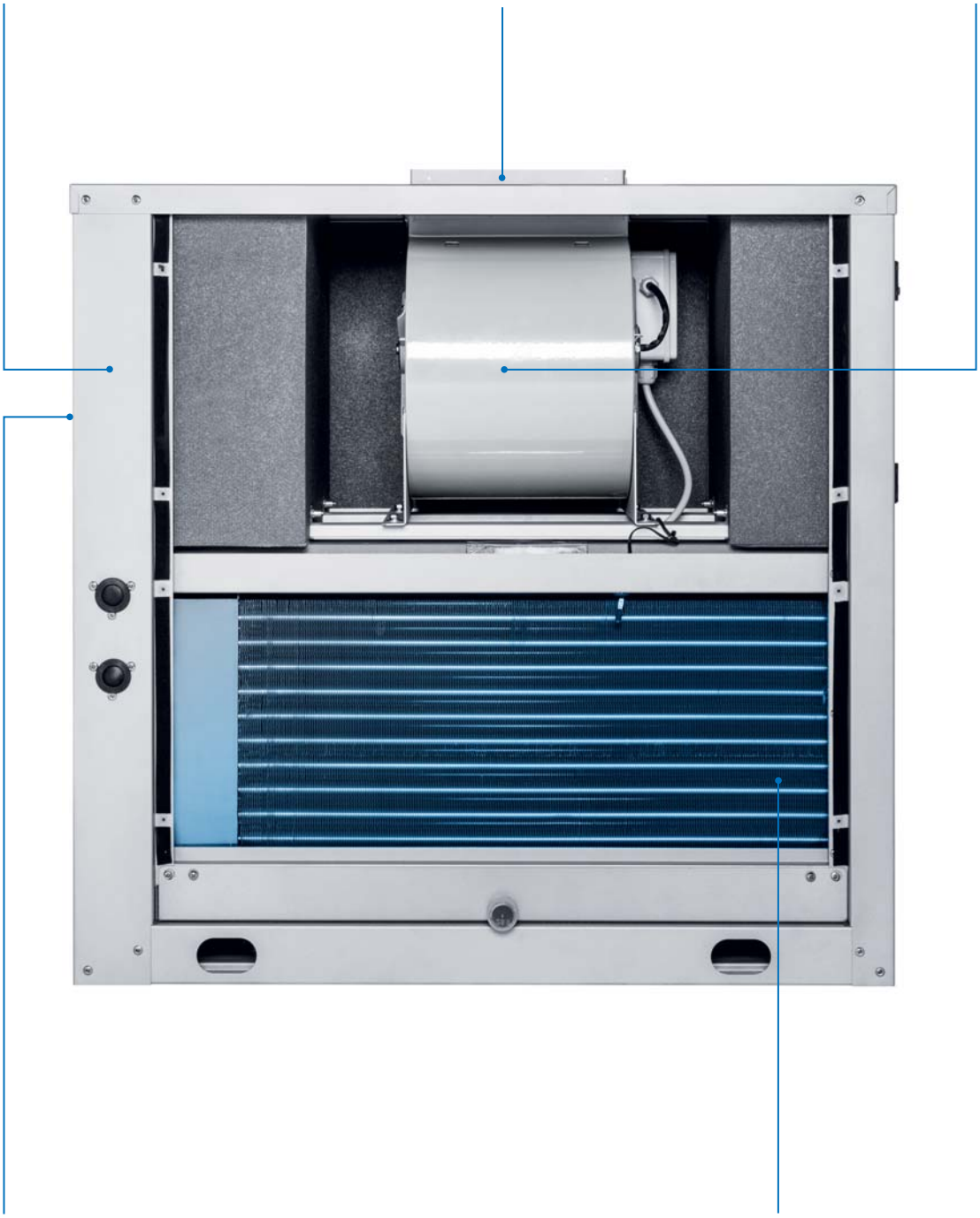
Temperature neutral models are available with a secondary, externally located condenser. This draws some of the heat away from the dehumidifier's refrigerant circuit, allowing the dry process air to be delivered at the same temperature as the incoming humid air.

Condair condensing dehumidifiers come with a hot-gas defrosting system as standard to ensure safe, economical operation even at low room temperatures.

Durable housing
The standard galvanized metal casing has a powder-coated enamel surface and provides robust performance in tough industrial applications. Optional stainless steel housing is also available. The external casing is easy to disassemble and provides fast access to all internal components for servicing.

Flexible connection options
Condair DC dehumidifiers can deliver dry air directly to a room's atmosphere or can be connected to a building's ducted ventilation system with additional connection frames. For longer duct networks and specialist applications, more powerful fans are available.

EC fan
EC centrifugal fans provide high quality performance with low energy operation and minimal noise. The fan housing itself is also soundproof and completely separate from the cooling circuit. The fan has 3-speed operation, has integrated therma-protection and is IP54 rated.



Controller
The dehumidifier can be fully controlled via its on-board digital display, an optional remotely located controller up to 50m away or via BMS (Modbus). Operation and error notifications are shown on-screen along with defrosting, compressor function and operating hours. A volt-free contact is provided for issuing the operation/error notifications.

Cooling circuit
The refrigerant system incorporates highly efficient R410A gas. Only well-known branded components are used in the cooling circuit. The pressure is balanced via electronic expansion valves. Once the corresponding parts of the housing are disassembled, all components are easily accessible. Specialized versions, e.g. for operation at higher temperatures, are available on request.

Heat exchangers
All evaporators are coated with epoxy powders as standard to prevent corrosion. Special varnishes and coatings are also available if the dehumidifier is to be operated under particularly aggressive conditions, such as in an atmosphere containing chlorine.

DC condensing dehumidifiers

Technical data

DC 200

Technical data		DC 75	DC 100	DC 150	DC 200	DC 270
Dehumidification capacity at 30°C – 80% RH	l/24h	73.0	95.2	157.1	194.3	263.1
Dehumidification capacity at 20°C – 60% RH	l/24h	34.5	50.2	66.0	90.6	111.4
Dehumidification capacity at 10°C – 70% RH	l/24h	26.6	33.7	43.9	60.7	75.7
Air flow	m^3/h	800	1000	1500	1800	3800
Maximum power consumption [1]	kW	1.59	2.05	2.68	3.44	7.5
Maximum current consumption [2]	A	7.8	9.1	12.4	15.7	17.9
Availiable ext. pressure (extended pressure optional)	Pa	50–150				
Operation range — humidity	% RH	1–99				
Operation range — temperature [3]	°C	5–36				
Voltage supply	V/ph/Hz	230/1/50				400/3/50
Sound pressure level [4]	dB(A)	52	54	60	62	63
Refrigerant	-	R410A				
Dimensions (H x W x D)	mm	826 x 857 x 404		1007 x 1092 x 554		1378 x 1154 x 704
Weight	kg	85	90	130	135	140

Technical data		DC 350	DC 450	DC 550	DC 750	DC 950
Dehumidification capacity at 30°C – 80% RH	l/24h	340.2	418.8	566.8	751.1	939.3
Dehumidification capacity at 20°C – 60% RH	l/24h	168.5	223.9	267.1	391.0	501.0
Dehumidification capacity at 10°C – 70% RH	l/24h	118.3	160.9	180.2	269.8	349.6
Air flow	m^3/h	4200		5500	7000	8500
Nominal power consumption [1]	kW	6.26	8.59	8.00	11.60	15.50
Maximum current consumption [2]	A	14.2	17.9	18.9	28.3	38.3
Availiable ext. pressure (extended pressure optional)	Pa	50–150				
Operation range — humidity	% RH	1–99				
Operation range — temperature [3]	°C	5–36				
Voltage supply	V/ph/Hz	400/3/50				
Sound pressure level [4]	dB(A)	64	64	66	66	66
Refrigerant	-	R410A				
Dimensions (H x W x D)	mm	1378 x 1154 x 704		1750 x 1504 x 854		
Weight	kg	211	215	415	423	430

1) At room temp=30°C and humidity=80%RH.
2) At room temp=35°C and humidity=80%RH.
3) Low temperature version for permanent operation below 10°C available on request.
4) Laboratory values at 1m in open air as per ISO 9614. Actual values may vary.


condair

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