

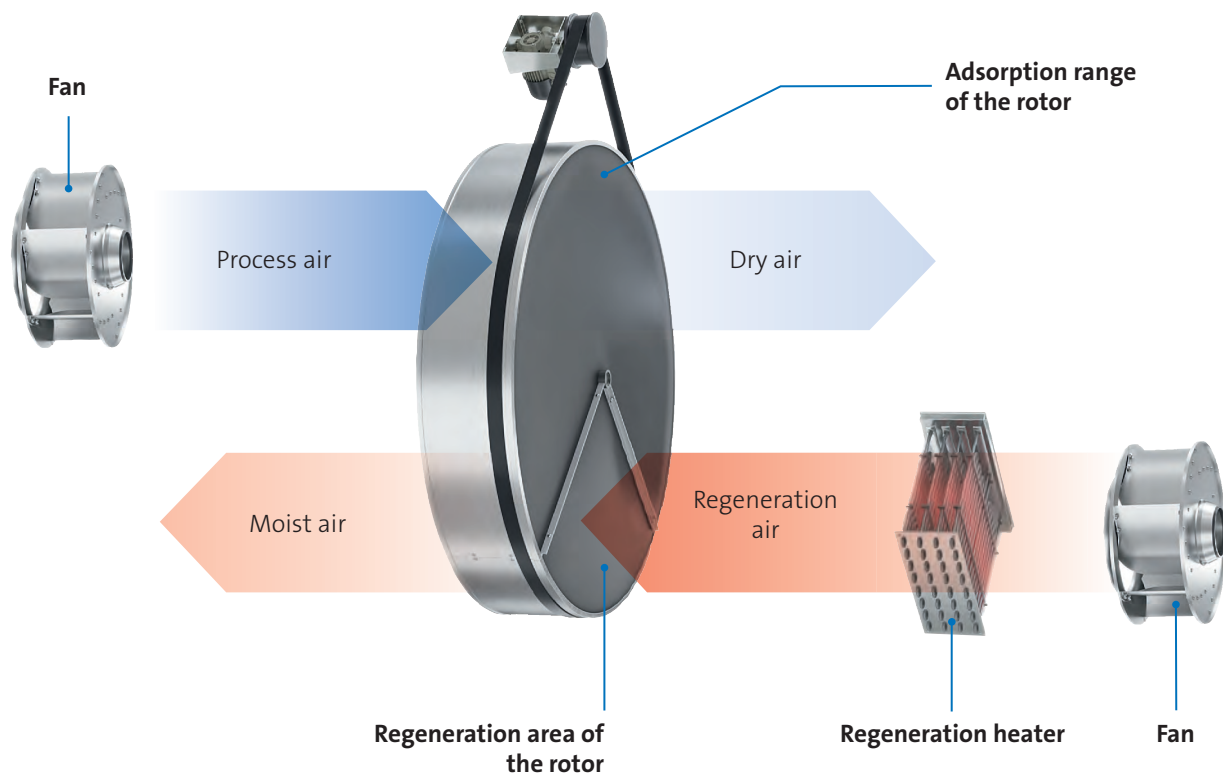


INDUSTRIAL DEHUMIDIFIERS

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 0.6 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.

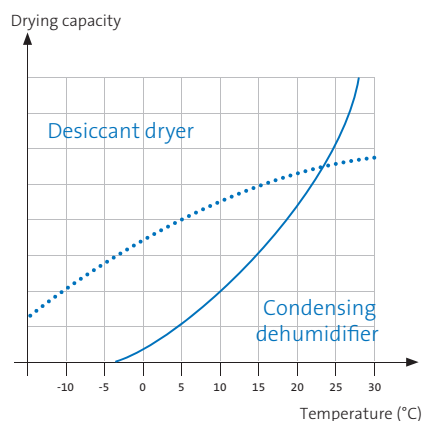
Condensation modules remove moisture from the regeneration air for applications where outside venting of regeneration air is not possible.

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

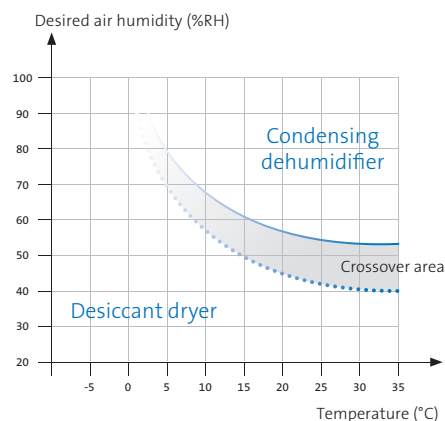
alongside the electric heater to reduce the overall energy consumption of the system and reduce operating costs.

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

Performance characteristics



Recommended usage by temperature/humidity



Double-wall housing

As of size DA 500, all units have 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 30 mm of mineral wool as an insulation material. This ensures safe and efficient operation even at very low temperatures as well as maximum hygiene. Optionally, the housing can also be manufactured in AISI 304 stainless steel.

Comprehensive control options

The Condair adsorption dryers can be equipped with different control variants depending on customer requirements. Depending on the application, the unit can be equipped with a PLC with touch screen, which allows the control of the humidity and optionally the temperature. 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 fiber optic 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 or AC 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.

Regenerative heat sources

All adsorption dryers up to and including size DA 4000 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. Alternatively, the adsorption dryer can also be equipped with a hot water or steam register or, for larger air volumes, with a gas burner.

Sophisticated 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.

DA desiccant dryer



DA 160



DA 400

Technical data		DA 160	DA 250	DA 440
Drying capacity at 20°C – 60% RH	kg/h	0.6	1.1	1.4
Nominal process air volume	m ³ /h	160	250	440
Nominal regeneration air volume	m ³ /h	40	50	100
Electrical connected load	kW	1	1.3	2.1
Current consumption	A	4.3	5.65	9.1
Temperature/humidity operating range	°C / % RH	-30 to +40 / 0 to 100		
Voltage supply	V/Ph/Hz	230/1/50		
Air intake area	mm	145 x 155	145 x 255	
Dry air connection diameter	mm	100	125	
Damp air connection diameter	mm	63	80	
Dimensions (H x W x D)	mm	273 x 322 x 329	351 x 335 x 357	
Sound pressure levels ¹⁾	dB(A)	53	52.9	69
Weight	kg	10.5	14	14

Technical data		DA 210	DA 400	DA 450
Drying capacity at 20°C – 60% RH	kg/h	0.6	1.5	2.2
Nominal process air volume	m ³ /h	210	400	450
Nominal regeneration air volume	m ³ /h	40	120	120
Electrical connected load	kW	1.1	2.3	3.5
Current consumption	A	4.8	10	15.2
Temperature/humidity operating range	°C / % RH	-30 to +40 / 0 to 100		
Voltage supply	V/Ph/Hz	230/1/50		
Process air connection diameter	mm	125	160	
Dry air connection diameter	mm	100	160	
Humid / regeneration air connection diameter	mm	63	80	
Dimensions (H x W x D)	mm	457 x 315 x 315	525.5 x 504 x 428	
Sound pressure levels ¹⁾	dB(A)	53.3	62.2	63
Weight	kg	16.5	28	31

1) Laboratory values measured with connected ventilation ducts at a distance of 1 m from the instrument surface. Actual values may vary.

DA desiccant dryer



DA 500

Technical data		DA 500	DA 700	DA 1000	DA 1400	DA 2400	DA 3400	DA 4000
Drying capacity at 20°C – 60% RH	kg/h	3.3	5.1	7.1	10	13.5	14.5	20
Nominal process air volume	m ³ /h	500	700	1,000	1,400	2,400	3,400	4,000
Nominal regeneration air volume	m ³ /h	150	220	350	400	500	550	850
Ext. compression — process air	Pa	300	200	300	200	300	300	200
Ext. compression — regeneration air	Pa	300	250	200	300	250	200	200
Electrical connected load	kW	4.5	7.5	11.0	13.6	19.0	20.6	28.7
Electrical power of regeneration heating coil	kW	4.0	7.0	10.2	13.0	17.5	18.0	26.0
Temperature/humidity operating range	°C / % RH	-30 to +40 / 0 to 100						
Voltage supply	V/Ph/Hz	400/3/50						
Process air connection diameter	mm	400						
Dry air connection diameter	mm	315						
Humid/regeneration air connection diameter	mm	200						
Dimensions (H x W x D)	mm	910 x 1,199 x 992						
Sound pressure levels 1)	dB(A)	62	62	62	63	68	69	69
Weight	kg	185	190	190	195	200	200	205

Technical data		DA 4400	DA 6400	DA 7400	DA 9400
Drying capacity at 20°C – 60% RH	kg/h	28	36.5	45	54
Nominal process air volume	m ³ /h	4,400	6,400	7,400	9,400
Nominal regeneration air volume	m ³ /h	1,200	1,600	2,250	2,500
Ext. compression — process air	Pa	≥ 200			
Ext. compression — regeneration air	Pa	≥ 200			
Electrical connected load	kW	40.9	54.5	66.5	79.0
Electrical power of regeneration heating coil	kW	36.0	48.0	60.0	72.0
Temperature/humidity operating range	°C / % RH	-30 to +40 / 0 to 100			
Voltage supply	V/Ph/Hz	400/3/50			
Process air connection diameter	mm	630			
Dry air connection diameter	mm	500			
Regeneration air connection diameter	mm	315			
Damp air connection diameter	mm	315			
Dimensions (H x W x D)	mm	1,311 x 2,194 x 1,280			
Sound pressure levels 1)	dB(A)	72-73			
Weight	kg	550	600	650	700

DA desiccant dryer

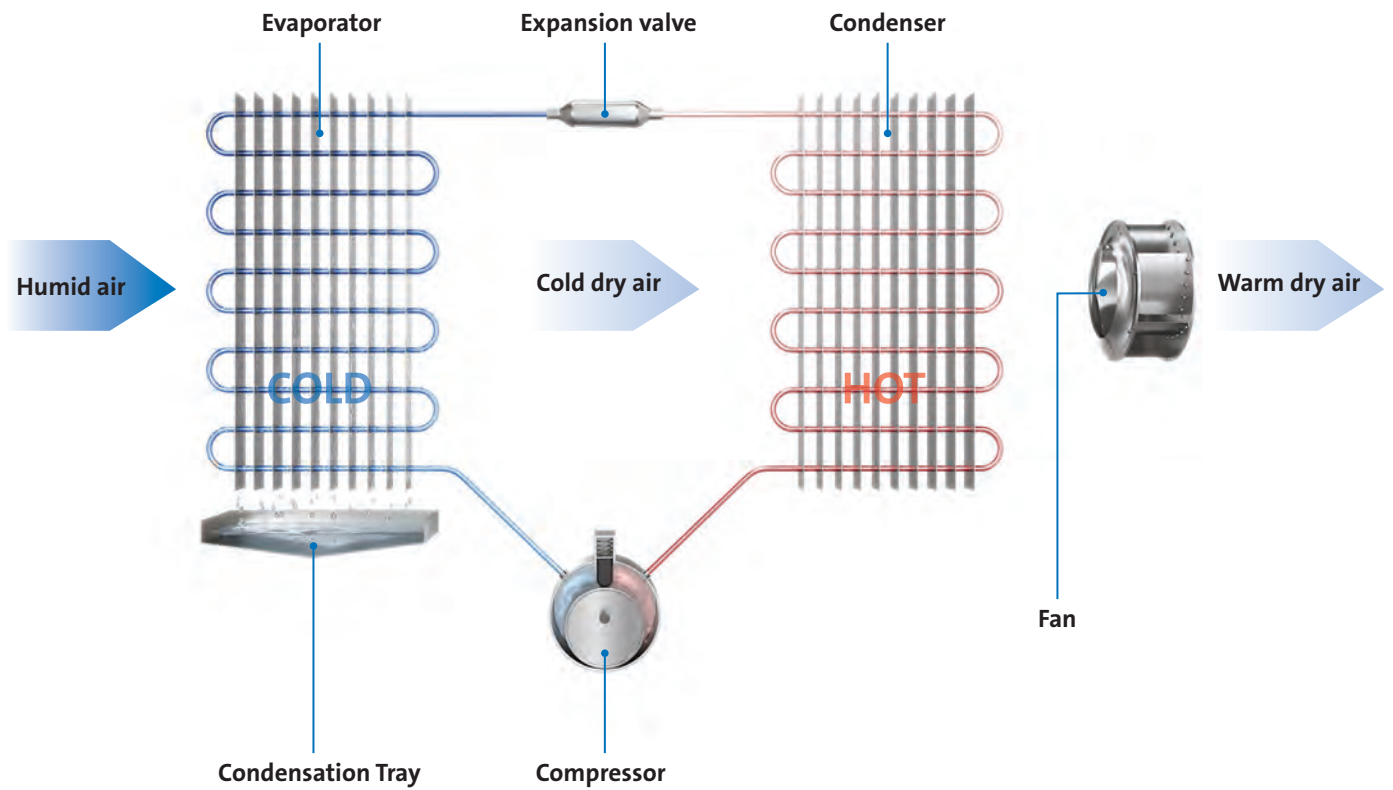


DA 27000 SP

Technical data		DA 13000SP ¹⁾	DA 19000SP ¹⁾	DA 27000SP ¹⁾
Drying capacity at 20°C – 60% RH	kg/h	86	120	182
Nominal process air volume	m3/h	13,000	19,000	27,900
Nominal regeneration air volume	m3/h	4,200	6,000	6,980
Ext. compression — process air	Pa	590	440	400
Ext. compression — regeneration air	Pa	200	450	250
Total electrical connected load	kW	143.5	207.5	309
Electrical power of regeneration heating coil	kW	132	192	288
Temperature/humidity operating range	°C / % RH	-30 to +40 / 0 to 100		
Voltage supply	V/Ph/Hz	400/3/50		
Process air connection diameter	mm	800	1,000	
Dry air connection diameter	mm	800	1,000	
Regeneration air connection diameter	mm	500	630	
Damp air connection diameter	mm	500	630	
Process air / regeneration air filter class	-	G4		
Dimensions (height)	mm	2,300	2,500	2,500
Dimensions (width)	mm	2,250	2,400	2,900
Dimensions (depth)	mm	1,600	1,900	2,400
Weight	kg	1,350	1,700	2,400

1) All data refers to a standard unit with electrical regeneration.





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 8,500m³/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

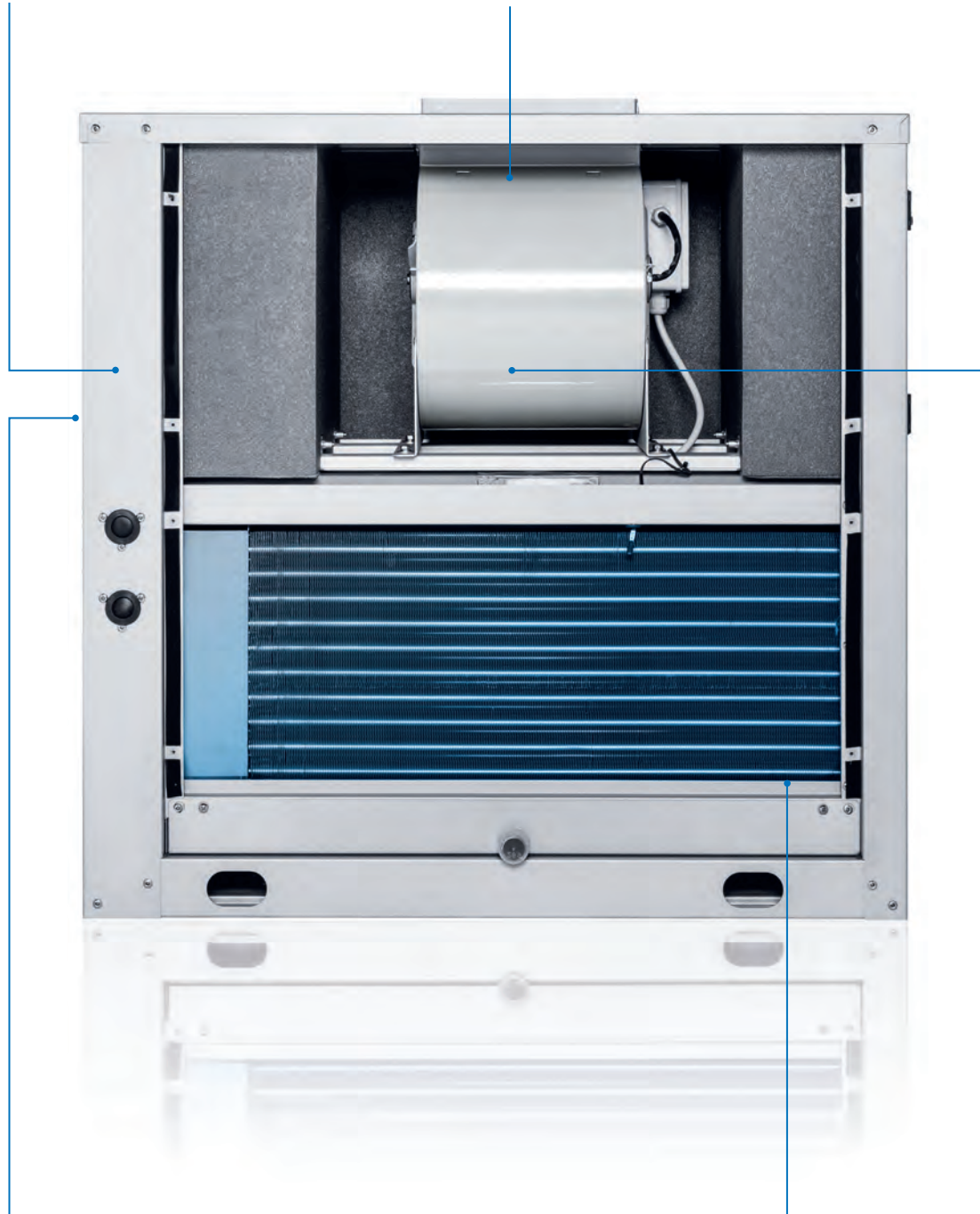
The standard galvanized metal casing has a powder-coated enamel surface and provides robust performance in tough industrial applications. Optional stainless steel housing is also available. The external casing is easy to disassemble and provides fast access to all internal components for servicing.

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.

Fan

High-quality, directly controlled AC or EC fan. The fan is very energy-efficient and quiet to run. A variety of external compressors can be installed on the unit. The fan housing is soundproof and completely separate from the cooling circuit.



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



DC 200

Technical data		DC 75	DC 100	DC 150	DC 200
Dehumidification capacity at 30°C – 80% RH	l/24h	73.0	95.2	157.1	194.3
Dehumidification capacity at 20°C – 60% RH	l/24h	34.5	50.2	66.0	90.6
Dehumidification capacity at 10°C – 70% RH	l/24h	26.6	33.7	43.9	60.7
Air circulation	m ³ /h	800	1,000	1,500	1,800
Nominal power consumption ¹⁾	kW	1.59	1.83	2.22	2.84
Maximum current consumption ²⁾	A	7.1	8.1	12.6	15.5
Compression available (higher compression optional)	Pa	50–150			
Operating range — humidity	% RH	40–99			
Operating range — temperature	°C	5–36			
Voltage supply	V/Ph/Hz	230/1/50			
Sound pressure levels ³⁾	dB(A)	52	54	60	62
Refrigerant / fill volume	Type/g	R410A / 550		R410A / 1100	
Total of CO ₂ equivalent ⁴⁾	t-CO ₂ e	1.15	1.15	2.30	2.30
Dimensions (H x W x D)	mm	800 x 819 x 400		981 x 1,055 x 554	
Weight	kg	85	90	130	135

Technical data		DC 270	DC 350	DC 450	DC 550	DC 750	DC 950
Dehumidification capacity at 30°C – 80% RH	l/24h	263.1	340.2	418.8	566.8	751.1	939.3
Dehumidification capacity at 20°C – 60% RH	l/24h	111.4	168.5	223.9	267.1	391.0	501.0
Dehumidification capacity at 10°C – 70% RH	l/24h	75.7	118.3	160.9	180.2	269.8	349.6
Air circulation	m ³ /h	3,500	4,200		5,500	7,000	8,500
Nominal power consumption ¹⁾	kW	4.09	5.40	8.33	9.38	13.90	18.39
Maximum current consumption ²⁾	A	10.4	12.8	17.0	19.4	28.2	34.8
Compression available (higher compression optional)	Pa	50–150					
Operating range — humidity	% RH	40–99					
Operational range — temperature	°C	5–36					
Voltage supply	V/Ph/Hz	400/3/50					
Sound pressure levels ³⁾	dB(A)	63	64	64	66	66	66
Refrigerant / fill volume	Type/g	R410A/3,000	R410A/2,500		R410A/6,300	R410A/6,600	R410A/7,000
Total of CO ₂ equivalent ⁴⁾	t-CO ₂ e	6.26	5.22	5.22	13.16	13.78	14.62
Internal unit dimensions (H x W x D)	mm	1,378 x 1,154 x 704			1,750 x 1,504 x 854		
Weight	kg	207	211	215	415	423	430

1) at t_R = 30°C; humidity = 80% RH

2) full load current; FLA = full load amperage

3) laboratory values in 1 m free field according to ISO 9614, actual values may differ

4) R410A global warming potential (GWP) = 2,088 CO₂e



Condair DC-W wall-mounted condensing dehumidifiers



Technical data		DC 50W	DC 75W	DC 100W	DC 150W	DC 200W
Dehumidification capacity at 30°C – 80%	l/24h	49.0	73.0	95.0	155.0	190.0
Dehumidification capacity at 20°C – 60%	l/24h	25.6	39.2	50.3	68.2	90.9
Dehumidification capacity at 10°C – 70%	l/24h	17.3	26.6	33.7	44.3	60.9
Air circulation	m ³ /h	500	800	1,000	1,400	1,650
Compression available	Pa	40				
Nominal power consumption ¹⁾	kW	0.9	1.2	1.6	1.9	2.5
Maximum current consumption ²⁾	A	3.9	8.3	11.5	13.4	17.0
Temperature/humidity operating range	C° / % RH	5–36°C / 40–99% RH				
Voltage supply	V/Ph/Hz	230/1/50				
Sound pressure levels ³⁾	dB(A)	47	50	50	52	54
Refrigerant / fill volume	Type/g	R410A / 470	R410A / 600	R410A / 700	R410A / 1,200	
Total of CO ₂ equivalent ⁴⁾	t-CO ₂ e	0.98	1.25	1.46	2.51	
Dimensions (H x W x D)	mm	750 x 835 x 260	751 x 1,134 x 260		840 x 1,384 x 310	
Weight	kg	50	71	75	99	102

Condair DC-R rear wall-mounted condensing dehumidifiers



Technical data		DC 50R	DC 75R	DC 100R	DC 150R	DC 200R
Dehumidification capacity at 30°C – 80%	l/24h	49.0	73.0	95.0	155.0	190.0
Dehumidification capacity at 20°C – 60%	l/24h	25.6	39.2	50.3	68.2	90.9
Dehumidification capacity at 10°C – 70%	l/24h	17.3	26.6	33.7	44.3	60.9
Air circulation	m ³ /h	500	800	1,000	1,400	1,650
Compression available	Pa	40				
Nominal power consumption ¹⁾	kW	0.9	1.2	1.6	1.9	2.5
Maximum current consumption ²⁾	A	3.9	8.3	11.5	13.4	17.0
Temperature/humidity operating range	C° / % RH	5–36°C / 40–99% RH				
Voltage supply	V/Ph/Hz	230/1/50				
Sound pressure levels ³⁾	dB(A)	47	50	50	52	54
Refrigerant / fill volume	Type/g	R410A / 470	R410A / 600	R410A / 700	R410A / 1,200	
Total of CO ₂ equivalent ⁴⁾	t-CO ₂ e	0.98	1.25	1.46	2.51	
Dimensions (H x W x D)	mm	680 x 695 x 252	681 x 1,006 x 253		770 x 1,255 x 300	
Weight	kg	41	57	61	82	87

Condair DC-C ceiling-mounted condensing dehumidifiers



Technical data		DC 50C	DC 75C	DC 100C	DC 150C	DC 200C
Dehumidification capacity at 30°C – 80%	l/24h	49.0	73.0	95.0	155.0	190.0
Dehumidification capacity at 20°C – 60%	l/24h	25.6	39.2	50.2	62.8	87.1
Dehumidification capacity at 10°C – 70%	l/24h	17.3	26.6	33.7	44.3	60.9
Air circulation	m ³ /h	500	800	1,000	1,400	1,650
Compression available (higher compression optional)	Pa	150				
Nominal power consumption ¹⁾	kW	0.97	1.29	1.76	2.07	2.74
Maximum current consumption ²⁾	A	3.9	6.1	9.3	12.0	15.7
Temperature/humidity operating range	C° / % RH	5–36°C / 40–99% RH				
Voltage supply	V/Ph/Hz	230/1/50				
Sound pressure levels ³⁾	dB(A)	50	52	54	59.5	61.5
Refrigerant / fill volume	Type/g	R410A / 360	R410A / 600	R410A / 900	R410A / 1,200	
Total of CO ₂ equivalent ⁴⁾	t-CO ₂ e	0.75	1.25	1.88	2.51	
Dimensions (H x W x D)	mm	360 x 710 x 700	460 x 900 x 980		530 x 1,050 x 1,160	
Weight	kg	63	95	122	131	140

1) at t_R = 30°C; humidity = 80% RH

2) full load current; FLA = full load amperage

3) laboratory values in 1 m free field according to ISO 9614, actual values may differ

4) R410A global warming potential (GWP) = 2,088 CO₂e

Condair DC-N condensing dehumidifiers with remote heat dissipation



Technical data / Dehumidifier		DC 270N	DC 350N	DC 450N	DC 550N	DC 750N	DC 950N
Dehumidification capacity at 30°C – 80%	l/24h	263.1	340.2	418.8	566.8	751.1	939.3
Dehumidification capacity at 20°C – 60%	l/24h	111.4	168.5	223.9	267.1	391.0	501.0
Dehumidification capacity at 10°C – 70%	l/24h	75.7	118.3	160.9	180.2	269.8	349.6
Air circulation	m ³ /h	3,500	4,200	4,200	5,500	7,000	8,500
Compression available (higher compression optional)	Pa	50–150					
Sensitive cooling capacity ¹⁾ (35°C outdoor air)	kW	4.48	5.91	7.2	8.8	12.45	15.5
Nominal power consumption ^{1) 5)}	kW	4.38	5.69	9.04	10.09	15.52	20.01
Maximum current consumption	A	11.0	14.0	18.2	25.6	34.4	44.1
Temperature/humidity operating range	C° / % RH	5–36°C / 40–99% RH					
Voltage supply	V/Ph/Hz	400/3/50					
Sound pressure levels ³⁾	dB(A)	63	64	64	66	66	66
Coolant	Type	R410A	R410A		R410A	R410A	R410A
Fill volume	g	3,000	2,500		9,000	8,000	8,000
Total of CO ₂ equivalent ⁴⁾	t-CO ₂ e	6.3	5.2	5.2	18.8	16.7	16.7
Dimensions (H x W x D)	mm	1,378 x 1,154 x 704			1,750 x 1,504 x 854		
Weight	kg	207	211	215	415	423	430

Technical data / Outdoor condenser		DC 270N	DC 350N	DC 450N	DC 550N	DC 750N	DC 950N
Voltage supply	V/Ph/Hz	230/1/50					
Number of fans		1			2		3
Air circulation	m3/h	7,519	7,095	6,714	15,040	14,190	21,280
Total power consumption of fan (nom.)	kW	0.71			1.42		2.13
Total current consumption of fan (nom.)	A	3.10			6.2		9.3
Inlet/outlet connection diameter	mm	22/20		35/28			42/35
Operating range — temperature	°C	10–40					
Protection class		IP 54					
Sound pressure levels ³⁾	dB(A)	49			52		54
Dimensions (H x W x D)	mm	828 x 1,115 x 520			828 x 2,015 x 520		828 x 2,915 x 520
Weight	kg	46	51	57	87	96	141

1) at t_R = 30°C; humidity = 80% RH

2) full load current; FLA = full load amperage

3) laboratory values in 1 m free field according to ISO 9614, actual values may differ

4) R410A global warming potential (GWP) = 2,088 CO₂e

5) incl. outdoor condenser

Condair DC-LT condensing dehumidifiers for low temperatures



Technical data		DC 270LT	DC 350LT	DC 450LT
Dehumidification capacity at 30°C – 80% RH	l/24h	263.1	340.2	418.8
Dehumidification capacity at 20°C – 60% RH	l/24h	111.4	168.5	223.9
Dehumidification capacity at 10°C – 70% RH	l/24h	75.6	11.3	160.9
Dehumidification capacity at 5°C – 70% RH	l/24h	46.7	80.2	112.2
Air circulation	m ³ /h	3,500	4,200	4,200
Nominal power consumption ¹⁾	kW	4.09	5.4	8.33
Maximum current consumption ²⁾	A	10.4	12.8	17.0
Compression available (higher compression optional)	Pa	50–150		
Temperature/humidity operating range	°C / % RH	1–36°C / 40–99%		
Voltage supply	V/PH/Hz	400/3/50		
Sound pressure levels ³⁾	dB(A)	63	64	64
Refrigerant / fill volume	Type/g	6,000	5,000	5,000
Total of CO ₂ equivalent ⁴⁾	t-CO ₂ e	12.52	10.44	10.44
Dimensions (H x W x D)	mm	1,378 x 1,154 x 704		
Weight	kg	227	231	235

Technical data		DC 550LT	DC 750LT	DC 950LT
Dehumidification capacity at 30°C – 80% RH	l/24h	566.8	751.1	939.3
Dehumidification capacity at 20°C – 60% RH	l/24h	267.1	391	501
Dehumidification capacity at 10°C – 70% RH	l/24h	180.2	269.8	349.6
Dehumidification capacity at 5°C – 70% RH	l/24h	121.9	87.3	246.1
Air circulation	m ³ /h	5,500	7,000	8,500
Nominal power consumption ¹⁾	kW	9.38	13.90	18.39
Maximum current consumption ²⁾	A	19.4	28.2	34.8
Compression available (higher compression optional)	Pa	50–150		
Temperature/humidity operating range	°C / % RH	1–36°C / 40–99%		
Voltage supply	V/PH/Hz	400/3/50		
Sound pressure levels ³⁾	dB(A)	66	66	66
Refrigerant / fill volume	Type/g	13,500	14,000	15,500
Total of CO ₂ equivalent ⁴⁾	t-CO ₂ e	28.18	29.23	32.36
Dimensions (H x W x D)	mm	1,750 x 1,504 x 854		
Weight	kg	435	443	450

Technical details correct at time of publishing.
Specification may vary from those shown.

Condair plc
Artex Avenue, Rustington, Littlehampton, West Sussex, BN16 3LN, UK
Tel: +44 (0)1903 850200 - uk.sales@condair.com - www.condair.co.uk

07/2019

