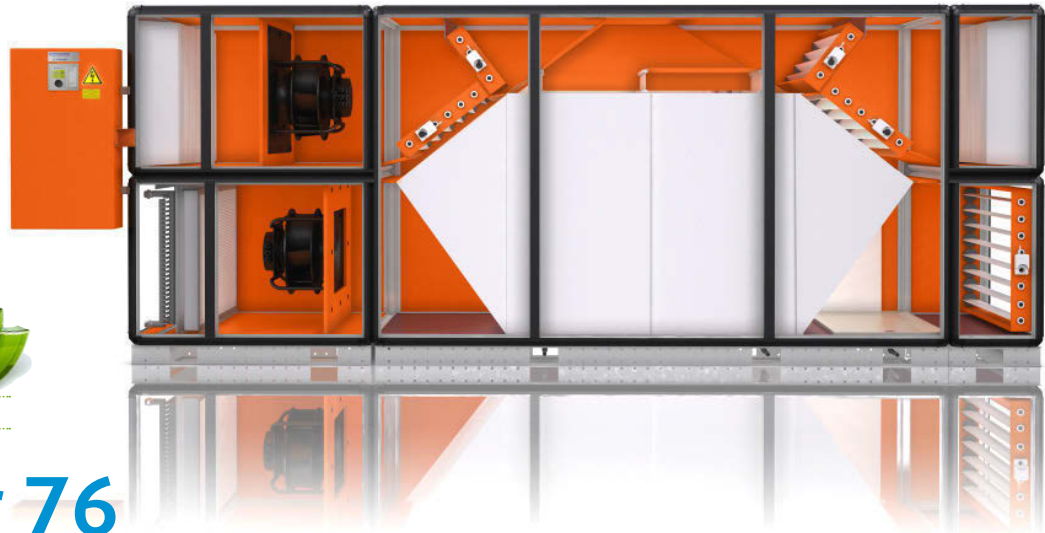


Comfort air conditioning unit with counterflow plate heat exchanger



Adconair 76 13 01 - simplified illustration

Automatically selects the most economical operating mode!

Adconair 76

AIR VOLUME FLOW: 2,600 – 30,000 m³/h

At a glance:

- Suitable for all building types
- Designed for the requirements of the highest energy efficiency classes
- Heat recovery rate of more than 90% with just 150 Pa pressure loss
- HRC class H1, even at high air velocities
- Integrated defrosting function
- Thermal bridge factor $k_p = 0.8$ - class TB1
- Two-stage supply air filtration
- Fulfils the requirements of the German Energy Saving Ordinance (EnEV) and the German Renewable Energies Heat Act (EEWärmeG)
- Summer bypass of the heat recovery system for both air flow paths

With its counterflow plate heat exchanger, the Adconair 76 series is setting new standards in the ventilation industry. The new heat exchanger works with a real counterflow proportion of over 80%, and in its standard design achieves air volume flows of up to 30,000 m³/h. The internal pressure losses of the heat recovery system measure just 150 Pa.

Adconair units are optimally adapted for use in comfort air conditioning. The unit series is designed to comply with the requirements of the highest energy efficiency classes. Ideal areas of application include all residential and non-residential buildings. Thanks to its high capacity and intelligent regulation system, the units always create an excellent indoor climate.

Further performance parameters and options:

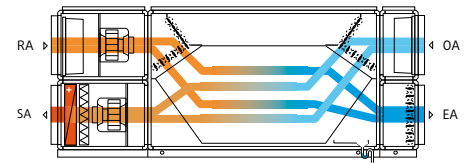
- Corrosion-free counterflow plate heat exchanger made from polypropylene
 - EC fans/EffiVent
 - Pumped hot water air heater
 - Air filtration in all operating conditions, with filters in return air, outside air supply air
 - Integrated heat recovery bypass for "free cooling"
 - Integrated freely programmable control and regulation unit
 - Complete unit – the unit is delivered ready to install
 - Intensive quality inspection with factory test run
 - Complete cleaning of the heat exchanger possible without dismantling
- Options:
- „adiabatic“ evaporative cooling incl. integrated compact reverse osmosis system
 - Constantly regulated recirculation air heating damper
 - Outdoor installation
 - Remote maintenance
 - And many more

Functional description

Wintertime conditions

In case of low outside temperatures the system operates completely in heat recovery mode. The counterflow-plate heat exchanger enables the recovery of more than 90% of the heat contained in

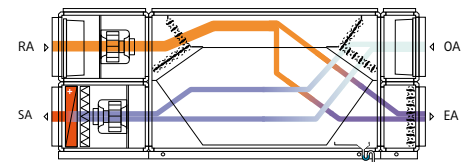
the return air. The standard heating coil compensates for ventilation and transmission heat losses of the building as required.



Defrosting Circuit

All recuperative heat exchangers tend to ice over in the exhaust air section in the case of low outside temperatures. The integrated defrosting circuit melts any ice build-up by opening the RA-EA

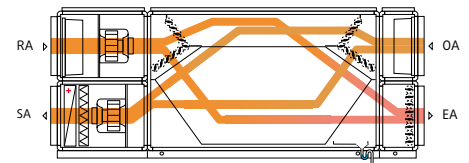
bypass, which directs the return air straight to the area of any possible ice. The intake of fresh air is not interrupted during defrost mode.



Transitional Period

As the outside air temperatures rise, the heat recovery requirement is reduced. The bypass dampers, which run along the

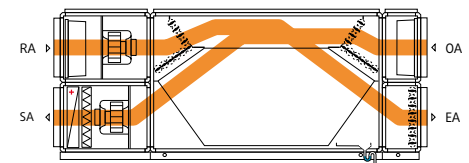
entire depth of the unit, are continuously regulated in order to achieve the desired supply air temperature.



Free cooling

If the outside temperatures continue to rise, the heat recovery is completely bypassed. The structural design of the bypasses over both airflow paths ensures

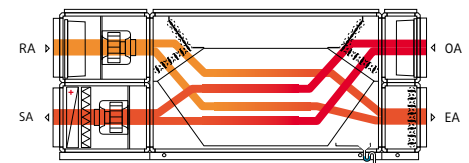
that the pressure losses within the device are low and that the power consumption of both fans in bypass mode is also reduced to a minimum.



Summertime conditions

If the outside temperature rises above the return air temperature, the highly efficient heat exchanger is used as a

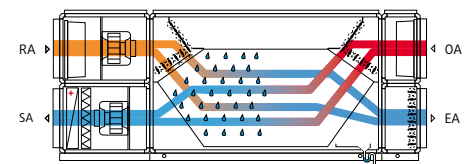
"cooling recovery system". The warm outside air is cooled by the return air.



Indirect "adiabatic" evaporative cooling

(optional) Menerga units use the advantages of indirect "adiabatic" evaporative cooling without the disadvantages of supply air humidification. A major component of the principle is the counterflow plate heat exchanger in which the return air is "adiabatically" cooled. In turn, the outside air is cooled by the humid, cold exhaust air, without itself being humidified. The high efficiency rate is due to the fact that both processes ("adiabatic" evaporative cooling of the return air + cooling of

the outside air) take place simultaneously in the heat exchanger. The high degree of temperature efficiency of the counterflow plate heat exchanger allows significant cooling of the OA-SA, by over 14 K. If required, the compressor refrigeration system will switch on and cool the supply air further. The integrated compact reverse osmosis system reduces the maintenance effort to a minimum and guarantees a consistently high performance of the evaporative cooling.

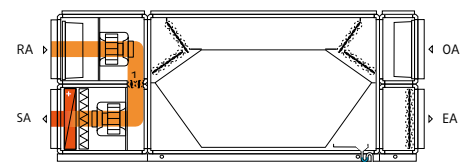


Recirculation Air Operation (heating)*

In recirculation air mode, the outdoor and exhaust air dampers are closed. The air is heated as required via the heating coil. Rooms which are not used all of the time, such as lecture halls or sports halls, can

therefore be quickly heated before being used.

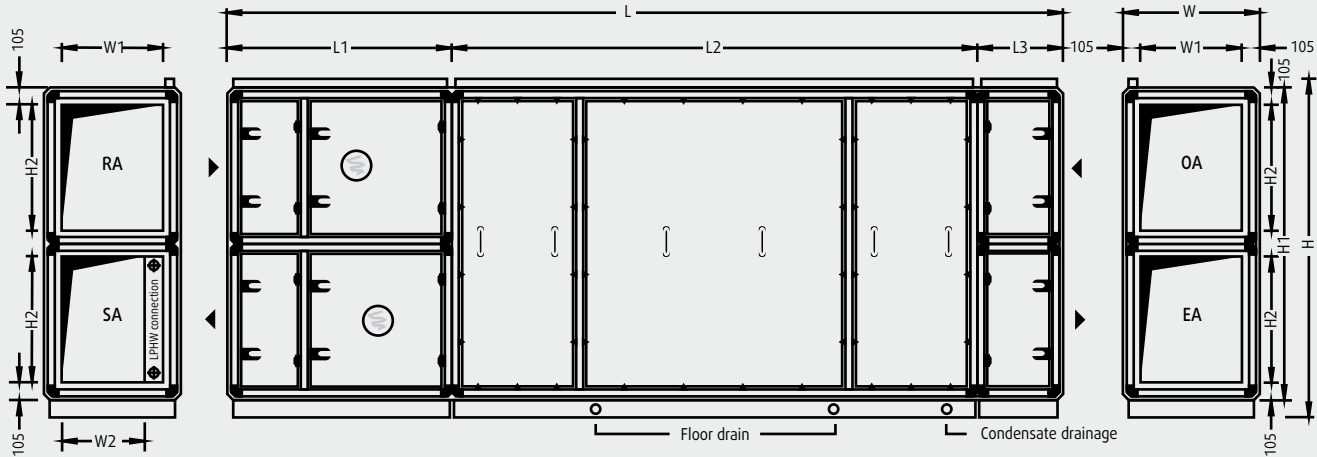
* only possible with optional recirculation air heating damper



1 Recirculation air heating damper (additional equipment)

Adconair Type 76

System dimensions and weights



Important! Where a system is operated in parallel, the supply air and return air ducts of the two units have to be brought together.

Where units are run in parallel, each unit has a controls cabinet.

Mirror-image design possible.

Adconair

Unit type	L	W ¹	H ²	L1	L2	L3	W1	W2	H1	H2	Weight
76 03 01	4,810	790	1,700	1,240	2,970	600	580	510	1,520	580	1,220
76 05 01	4,970	1,110	1,700	1,400	2,970	600	900	830	1,520	580	1,500
76 06 01	5,610	790	2,340	1,400	3,610	600	580	420	2,160	900	1,650
76 10 01	5,610	1,110	2,340	1,400	3,610	600	900	740	2,160	900	1,900
76 13 01	5,770	1,430	2,340	1,560	3,610	600	1,220	1,060	2,160	900	2,350
76 16 01	5,770	1,750	2,340	1,560	3,610	600	1,540	1,380	2,160	900	2,650
76 19 01	5,770	2,070	2,340	1,560	3,610	600	1,860	1,700	2,160	900	3,000
76 25 01	6,250	2,070	2,980	1,560	4,090	600	1,860	1,700	2,800	1,220	3,900
76 29 01	6,250	2,390	2,980	1,560	4,090	600	2,180	2,020	2,800	1,220	4,300
76 37 01	6,250	3,030	2,980	1,560	4,090	600	2,820	2,660	2,800	1,220	5,700

For service work, a clearance corresponding to dimension W is required on the operating side of the unit. If dimension W is smaller than one metre, please leave a clearance of one metre. For service work above the unit, please allow 50 mm working height clearance above the cable duct. For service work at unit type 76 37 01 a clearance at the rear of at least 1.500 mm is required.

Please comply with the dimensions for body size, air duct connections and electrical switch cabinet.

All lengths are given in mm, weights in kg, weight incl. Controls cabinet.

- 1 Door fitting assembly increase unit width by 65 mm each operating side
- 2 incl. 120 mm base frame, incl. 60 mm cable duct

3 transportation units are supplied, including controls cabinet until unit type 38 29 01. Unit type 38 37 01 is delivered in 4 transportation units including controls cabinet. Further partitioning for smaller apertures possible (at extra cost).

Largest transport unit

Unit Type	L	W	H ²	Weight
76 03 01	2,970	790	1,700	660
76 05 01	2,970	1,110	1,700	810
76 06 01	3,610	790	2,340	930
76 10 01	3,610	1,110	2,340	1,110
76 13 01	3,610	1,430	2,340	1,300
76 16 01	3,610	1,750	2,340	1,500
76 19 01	3,610	2,070	2,340	1,720
76 25 01	4,090	2,070	2,980	2,330
76 29 01	4,090	2,390	2,980	2,600
76 37 01	4,090	1,515	2,980	1,750

Controls cabinet

Unit Type	H x W x D	Position at unit
76 03 01	1,120 x 640 x 210	SA/RA side
76 05 01	1,120 x 640 x 210	SA/RA side
76 06 01	1,120 x 640 x 210	SA/RA side
76 10 01	1,120 x 640 x 210	SA/RA side
76 13 01	1,120 x 640 x 210	SA/RA side
76 16 01	1,120 x 640 x 210	SA/RA side
76 19 01	1,120 x 640 x 210	SA/RA side
76 25 01	1,280 x 640 x 210	SA/RA side
76 29 01	1,280 x 640 x 210	SA/RA side
76 37 01	1,280 x 640 x 210	SA/RA side

Technical specifications and services

Unit Type		76 03 01	76 05 01	76 06 01	76 10 01	76 13 01	76 16 01	76 19 01	76 25 01	76 29 01	76 37 01
Optimum flow rate	m ³ /h	2,600	3,900	4,000	6,000	7,900	9,800	11,800	15,800	18,400	23,600
Max. volume flow rate ¹	m ³ /h	3,500	5,300	6,000	9,500	10,500	14,000	18,000	21,000	22,000	30,000
Heat recovery efficiency ²	%	over 90									
Coefficient of power efficiency ^{acc. to EN 13053:2012}	%	77	77	77	76	76	77	76	78	78	78
Total electrical power rating ³	kW	2.37	3.16	2.80	4.15	5.07	6.11	8.76	11.98	15.28	20.01
Current consumption ³	A	5.2	7.2	7.2	9.2	14.6	14.6	16.5	29.2	31.4	47.1
Operating voltage		3 / N / PE 400 V 50 Hz									
Ext. pressure losses											
Supply and fresh air channel	Pa	300	300	300	300	300	300	400	400	500	500
Return and exhaust air channel	Pa	300	300	300	300	300	300	400	400	500	500
Sound power level⁴											
Supply air vent	dB(A)	79	80	80	72	78	72	76	84	78	86
RA connection	dB(A)	74	67	66	72	69	70	73	76	75	80
Outside air vent	dB(A)	78	76	76	73	74	72	76	79	78	86
EA connection	dB(A)	82	73	71	76	77	75	77	84	82	89
Acoustic pressure in 1 m distance from device ⁴	dB(A)	65	64	64	59	63	58	61	69	65	72
Fan units											
Rated motor input for supply air ⁵	kW	1.13	1.64	1.47	2.12	2.64	3.12	4.60	6.12	7.96	10.29
Rated motor input for return air ⁵	kW	0.98	1.34	1.16	1.86	2.21	2.70	3.80	5.38	6.88	9.18
SFP category supply air return air		2 3	2 3	1 2	1 2	1 2	1 2	2 3	2 3	3 3	2 3
Nominal rating supply air return air	kW	1.7 1.7	3.0 1.7	3.0 1.7	3.0 3.0	4.7 4.7	4.7 4.7	6.0 4.7	9.4 9.4	11.0 9.4	16.5 14.1
Evaporative cooling (optional)⁶											
Cooling capacity evaporative cooling ⁷	kW	9,5	14,2	14,6	21,8	28,8	35,7	42,9	57,5	67,0	85,9
Rated pump input	kW	0,37	0,37	0,37	0,45	0,45	0,45	0,45	0,45	0,45	0,9
Rated input reverse osmosis system ⁸	kW	0,25	0,25	0,25	0,25	0,25	0,39	0,39	0,39	0,39	0,78
Efficiency classes according to EN 13053:2012											
Heat recovery class		H1	H1	H1	H1	H1	H1	H1	H1	H1	H1
Power consumption of fan motors SA RA		P1 P1	P1 P1	P1 P1	P1 P1	P1 P1	P1 P1	P1 P1	P1 P1	P1 P1	P1 P1
Air velocity class		V2	V2	V2	V2	V2	V2	V2	V2	V2	V2
Filtration according to DIN EN 779											
Supply air Outside air		F7 M5									
Return Air		M5									
LPHW											
Heating capacity SA=22°C ⁹	kW	2.6	4.2	5.4	8.2	11.1	13.9	16.3	17.6	20.1	26.4
Heating capacity SA=30°C ⁹	kW	9.5	14.6	16.1	24.2	32.2	40.0	47.3	59.6	69.0	89.0
Heating capacity Defrost ^{10,11}	kW	6.8	10.3	10.6	16.2	21.1	26.6	31.6	42.0	50.5	62.0
Water flow rate and pressure losses											
LPHW	m ³ /h kPa	0.51 5.4	0.88 4.4	0.88 4.9	1.38 4.4	2.14 3.6	2.16 4.3	2.16 5.0	2.85 4.0	3.84 4.4	3.86 5.2
LPHW (pump warm water) valve	m ³ /h kPa	0.51 4.1	0.88 4.9	0.88 4.8	1.38 4.8	2.14 4.6	2.16 4.7	2.16 4.6	3.85 5.8	3.84 5.8	3.86 5.8
Connections											
LPHW connection	DN	32	32	32	32	40	40	40	50	65	65
LPHW control valve connection	DN	15	15	15	20	25	25	25	32	32	32
Condensate drainage	DN	40	40	40	40	40	40	40	40	40	40
Floor drain	DN	20	20	20	20	20	20	20	20	20	20
LPCW (optional)¹²											
Cooling capacity SA ≈ 17°C ¹¹	kW	12.1	21.1	20.1	32.2	42.2	52.8	67.4	90.5	96.9	135.6
Additional power consumption supply air ⁵	W	260	180	170	170	220	290	360	480	440	540
Water flow rate and pressure losses											
LPCW	m ³ /h kPa	1.74 4.6	3.02 14.9	2.93 8.2	4.62 10.1	6.04 8.1	7.55 7.0	9.64 10.0	12.95 9.7	13.85 5.5	19.40 11.9
LPCW valve	m ³ /h kPa	1.74 7.6	3.02 22.9	2.93 8.6	4.62 21.4	6.04 14.2	7.55 9.1	9.64 14.9	12.95 10.5	13.85 12.0	19.40 23.5
Connections											
LPCW connection	DN	30	40	40	50	50	65	80	80	80	80
LPCW control valve-connection	DN	20	20	25	25	32	32	40	50	50	50

Specifications of technical data relate to the optimum flow rate and return air condition 22°C / 40% r.h., outside air condition -12°C / 90% r.h. and an altitude height of zero metres above sea level, unless otherwise specified

- 1 may require alteration of the technical equipment
- 2 depends on operating condition
- 3 dependent on configuration of measurement and control system/unit

- 4 at 250 Hz mid-band frequency
- 5 with average filter contamination
- 6 water quality of make-up water corresponds to VDI 3803 table B3 with a bacteria count < 100 CFU/ml, water hardness range "middle".
- 7 for RA=26°C; 55 % r.h., OA=32°C; 40 % r.h. and optimum air volume flow
- 8 discontinuous operation, dependend on water consumption

- 9 FL = 70°C
- 10 at OA=-15°C, SA=18°C, 66% of optimum flow rate and active defrost function
- 11 supplementary equipment, device length extends. Note higher power consumption of SA fan units
- 12 FL = 6°C at OA = 32°C / 40% r.h., RA = 26°C / 55% r.h.

Please seek approval of technical data and specifications prior to start of the planning process.