



INTECH LINE



Close Control Systems

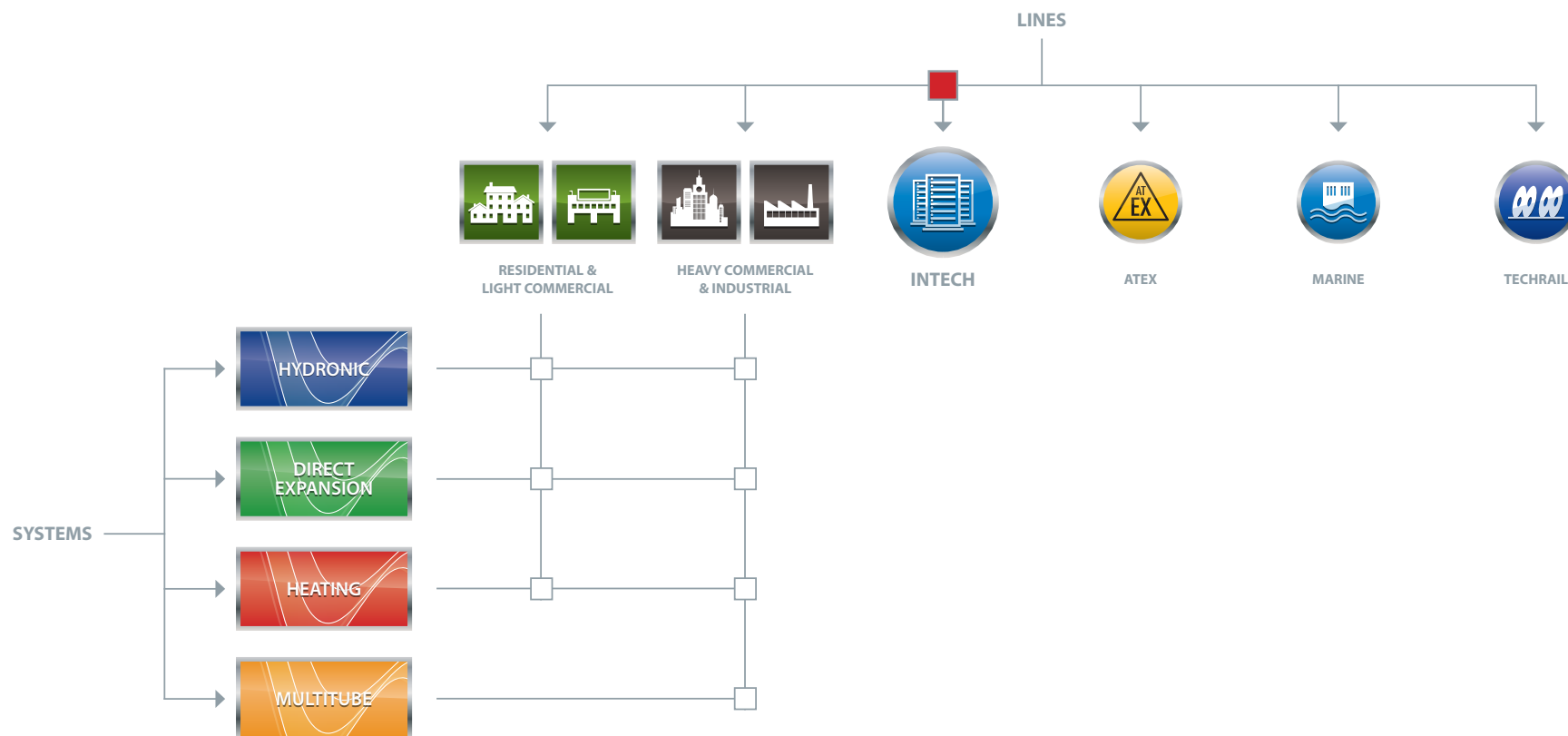
7 ÷ 154 kW



The thirty-year experience accrued in the field of the residential and industrial air-conditioning allowed the development of a product line entirely designed for those applications requiring high-precision air-conditioning. INTECH product line has been realized as an efficient answer to the various datacenter air-conditioning needs and come with a wide range of accessories and versions permitting a vast utilization flexibility.



LINES AND SYSTEMS THERMOCOLD



Direct expansion close control unit to combine with the remote condenser

Direct expansion close control unit with water cooled condenser

Direct expansion close control unit with remote condensing unit

Direct expansion close control unit with remote condenser and additional chilled water free cooling coil

Direct expansion close control unit with water cooled condensers and additional chilled water free cooling coil

Close control unit with chilled water coil

Remote condensers with axial fans for R410A

SERIES

2

Series AED Kc

Potenza frigorifera: da 6,7 a 138 kW

14

Series ACA Kc

Potenza frigorifera da 7 a 151 kW

26

Series ABED Kc

Potenza frigorifera: da 6,3 a 135 kW

38

Series AED FC Kc

Potenza frigorifera: da 20,8 a 93,3 kW

48

Series ACA FC Kc

Potenza frigorifera da 21,9 a 103 kW

60

Series AAR

Potenza frigorifera da 5 a 154 kW

70

Series ACR Kc



SYMBOLS



Air cooled



Water cooled



Scroll compressor



refrigerant R410a



Axial fan



Centrifugal fan



Condensing unit to be connected



FREE-COOLING unit

Series AED Kc

Cooling capacity: from 6,7 to 138 kW



AED 331 U Kc

The range of close control units with remote condenser, **series AED**, is particularly indicated for use in technological centres, data processing rooms, in telecom centres and in such applications where it is important to keep the thermo-hygrometric conditions constant all over the year, so to assure the correct operation of the equipments installed in these sites. Depending on the cooling capacity, they are available with 1 and 2 cooling circuits.

Thanks to their technologically advanced design, these close control units are able to control the ambient temperature with remarkably high precision and, when the humidity level is required, to adapt their cooling capacity to the room requirements, all automatically managed by the microprocessor on board.

The high technology employed during their design together with the use of the best components available on the markets, make these units extremely reliable and therefore able to work for long periods, without a break.

These units are particularly easy to install also in small spaces and easily accessible on the front side for ordinary and extraordinary service operations.

They are completely assembled and tested in the factory and supplied under dry air pressure and with oil charge.

For the remote condensers to be matched to these units, on request, it is possible to provide a voltage actuated pressure fan speed controller (option RG), installed inside the indoor unit, for condensing pressure control which provides speed variation with a reduced full load current and allows the operation of the condenser down to -20°C. For lower temperatures down to -40°C, it is necessary to select option BW on remote condensers.

The units are available in different configurations, related to the air return and discharge:

- U** front air return, upflow air discharge
- V** bottom air return, upflow air discharge
- B** back air return, upflow air discharge
- D** top air return, downflow air discharge

Operation limits: ambient temperature from 18 to 35°C.

Main components:

Structure realized with a framework and internal parts made of galvanized steel riveted profiles and supports, making the structure strong and suitable also for extreme transport and handling conditions. The external panels, fixed to frame with quick opening connections, are made of pre-painted steel sheet (RAL 9004), ensuring a long-term durability to the unit. They are internally insulated with self-extinguishing sound-proofing material (class HF1 – UL94) reducing the overall sound level of the unit. On request (option IS1), it is available the sound-proofing insulation with class 1 material in conformity to the main European regulations in force. All the front and side panels can be dismantled so to allow an easy access to the main components.

Moreover, the front of the unit is provided with double panels and in-

spection window (not available for version U), suitably arranged to let the unit work also with open panels during technical interventions, to allow more accurate regulations and more quick timing for ordinary and extraordinary service operations.

High-efficiency scroll compressor (EER > 3.2 at ARI conditions), with low sound level, internal heat protection, installed on rubber vibration dampers, supplied with crankcase heater.

In the case of 2 circuit units, in case of problem on one of the circuit, the 50% operation of the unit is anyway granted.

Single-inlet and backward curved centrifugal fans made of high-performance composite material, directly coupled to a three-phase electrical motor with IP54 Class F protection and provided with a thermal protection inside the motor winding. The fans are fixed on suitable supports reducing the transmission of vibration to the frame and the impeller is statically and dynamically balanced with long-life bearings. It is possible to regulate the fan speed by means of an autotransformer and to adjust their air flow to the head pressure requested on site. It is clear that a higher fans speed rotation involves an increase in the sound level of the unit. All the units are equipped with low airflow and clogged filter alarms which, by means of differential pressure switches, stop the unit operation in case of fans problems and give a signal on microprocessor for replacement respectively.

Direct expansion evaporating coil, realized with copper tube and aluminium fins, it is suitably sized with a wide exchange surface and a low air crossing speed so to allow a remarkable heat exchange and reduce the pressure drops on the air side. It is provided with a hydrophilic treatment to reduce the surface tension between water and metal surface, promoting film condensation and avoiding the risk of condensing drops outside the drain tray.

Condensing drain tray, made in corrosion proof peraluman, placed underneath the evaporating coil, it is provided with a flexible pipe for condensing water discharge.

Washable and self-extinguishing air filters Efficiency G4 – of pleated type, they are made of synthetic fibre and are contained in a suitable metal frame. Their pleated arrangement, with a wide surface area, ensures a higher filtering efficiency and low pressure drops.

Cooling circuit made of: electronic thermostatic valve, sight glass, dehydrating filter, safety device, high pressure switch, solenoid valve, liquid receiver, shut-off valve on compressor discharge and on liquid line. Thanks to the electronic thermostatic valve, there is a more accurate regulation of the evaporating pressure/temperature in all working conditions, with superheating at a constant value.

Electric board in compliance with CE norms, protected by a panel is separated by the air flow and is provided with main switch, automatic switches, remote control switches, motor protection switches, low-tension auxiliary circuits and terminal board for free contacts and remote general alarm, magnetothermic switches for humidifier and electric heaters (when installed).

Unit management microprocessor installed inside the electrical board, complete with hour counter and electronic card to program the switch-over and rotation between units, after a pre-set time. On this purpose, in case of order, the information necessary for programming must be clear-

ly defined. It allows 3 languages display reading, a detailed description of parameters, the possibility to manage up to 8 units, to manage non standard communication protocols, a quickest access to the program, the control of the electronic thermostatic valve and of the humidifier, the control of modulating valves.

Accessories

AA	Flooding detector: placed in the downflow units, it is already wired and detects water in the false floor.
AE	Electrical power supply different from standard: mainly, 230V three-phase, 460V three-phase. Frequency 50/60 Hz.
AL	Smoke alarm: it consists of a sensor detecting smoke inside the unit and activating an alarm signal which stops the fans.
B	Adjustable base-frame from 170mm to max 600mm for installation on raised floors. It is provided with adjustable feet.
BC	Hot water coil: one-row or 2-row water coil, placed after the cooling coil for the re-heating and/or the heating of treated air. Provided with modulating actuator and with three-way valve, it is controlled by the microprocessor on board. This option is priority when requested with the electric heaters RE option. (Alternative to BG and not available with REM).
BG	Hot gas coil: placed after the cooling coil, it makes the re-heating of the treated air and is provided with a 3-way valve (ON/OFF) controlled by the microprocessor on board. It is available only with the dehumidification control (options DH) (Alternative to BC and not available with HG).
BN	Base-frame with conveyor: it is provided with a suitable conveyor facilitating the air flow and remarkably reducing the pressure drop in case of horizontal air flow. It is adjustable in height from min 400mm to max 800mm. (Only for D version).
BS	Base-frame with ON/OFF damper: it is equipped with an ON/OFF motorized damper. This device prevents the air return from the unit when it is not working or in the case some units are working near to it. Available only for D version; for other versions, being a special execution, please contact our Sales Dept.
BSN	Base-frame with conveyor and ON/OFF damper: a single base-frame with both options BS and BN so to optimize efficiency and overall dimensions.
CI	Soundproofing jacket on compressors: made of soundproofing material, wrapped all around compressors so to further reduce the overall sound level of the unit.
CS	Compressors inrush counter: Electromechanical device positioned inside the electrical board, recording the total inrush starts of compressors.
DH	Dehumidification control system: managed by microprocessor, through the electronic thermostatic valves, it operates on two parameters, ensuring that the dehumidifica-

tion process is carried out with a constant air flow, without partializing the evaporating coil.

This will optimize the air distribution throughout the room. **Internal double panels:** for shutting off the compartments affected by the air flow, they are made from pre-painted and galvanized steel plate, ensuring reduction in the noise transmitted through the panels and a better air tightness even without the external panels so that the access is guaranteed with the doors open during service operation.

EC-LP&HP **Single-inlet EC (electronically commutated) centrifugal fans with backward curved blade (LP not available for D version):** made of high-performance composite material, directly coupled to a three-phase electrical rotor with IP54 protection grade, they have the possibility of a continuous regulation of the speed by means of 10V signal, sent and integrated to the control. The fans are fixed on suitable supports reducing the transmission of vibration to the frame and the impeller is statically and dynamically balanced with long-life bearings. Thanks to their technology, the EC fans ensures a lower electrical absorption and sound level, if compared to the traditional centrifugal fans. It is possible to adjust their air flow to the head pressure requested on site. In case of IT electrical supplies, this option is not available. Please contact our Sales Dept.

F5-F6-F7-F9 **Higher efficiency air filters:** pleated filters, supplied as an alternative to standard G4 filters.

FR **Spare filter kit** G4 as a replacement to the ones on board of the unit.

H **Humidifier** of immersed-electrode type for the modulating production of steam. It is made by a steam cylinder, by a steam distributor, by water inlet and outlet valves and by a maximum level probe. The microprocessor on board indicates when the steam cylinder needs to be replaced. It is electrically protected by a magnetothermic switch.

HG **Hot gas by-pass:** it is a mechanical device for modulating the cooling capacity, so to reduce the ON/OFF of compressors and therefore to wait for the re-starting timing, with influence on condensing temperature. It is not available for sizes 1, 2 and 3 and with options BG and DH.

IE **Fumigated wooden crate packing:** available on request for critical transports, so to assure a suitable protection to the unit.

IH **RS 485 serial interface:** electronic card to be connected to microprocessor, to allow communication between the units and a Carel supervision system. It is possible to fully control the unit from remote. For connection to other supervision systems, the protocol of the controlled parameters is available on request.

IM **Seawood packing:** fumigated seawood case and protection bag with hygroscopic salts, suitable for long sea transports.

IP **Magnetothermic switches for auxiliary circuits:** when

required, they replace the fuses, as a protection of the auxiliary circuits.

IS1 **Class 1 insulating material** in conformity to the main European regulations in force.

MF **Phase monitor:** electronic device controlling the correct sequence and/or the eventual lack of one of the 3 phases, switching off the unit if necessary.

MN **Lack of neutral wire for 400/3/50 power supply:** unit general power supply without neutral wire.

MP **Oversized microprocessor:** in addition to the standard microprocessor, it allows more languages display reading (maximum 5), it has an increased hardware so to allow the managing of more inputs and outputs for the control of on board installed components (Already included on two circuit units).

PB **Condensing water pump:** micro pump discharging the condensing water produced by the unit, it is factory installed.

PBH **Condensing water and humidifier discharge pump:** pump discharging the condensing water produced by the unit and the humidifier discharge water, it is factory installed.

PL **Distribution plenum** with front grid and a double row of adjustable fins for a better air distribution (for versions U,V,B and not available with options ST and STM).

PQ **Remote display:** remote terminal, allowing to display the temperature and humidity values detected by probes, the alarm digital inputs, the outputs and the remote ON/OFF of the unit, to change and program of the parameters, the sound signal and the display of the present alarms.

PR **Fresh air inlet:** external fresh air inlet with filter, placed on side (standard on the left side), with circular connection (Ø 100 mm).

RE **Electrical heaters:** made in aluminium and installed after the cooling coil, for re-heating and/or heating of the treated air. The heating capacity is split on 3 steps max, so to reduce the energy absorption. They are controlled by the microprocessor on board and electrically protected by a magnetothermic switch.

REM **Oversized Electrical heaters.**

RF **Rephasing condensers (available for compressors only):** electrical device for rephasing the compressors charge at power factor $\cos\Phi \geq 0,9$.

RV **Personalized frame painting in RAL colour.**

SL **Main switch** with external padlock.

ST **Manual calibration damper,** in galvanized steel plate with opposed-movement fins. Through the manual control, it is possible to accurately regulate the air flow. (Alternative to STM and not available with option PL).

STM **Motorized calibration damper,** in galvanized steel plate with opposed-movement fins. Through the modulating control (0-10V), it is possible to accurately regulate the air

DIRECT EXPANSION CLOSE CONTROL UNITS WITH REMOTE CONDENSERS

SV

flow. (Alternative to ST and not available with option PL).
Gravity overpressure damper for ducted units, to prevent the air return when the units are not operating, where several units are installed in the same room. Available for U,V,B versions; for D version, being a special execution, please contact our Sales Dept.

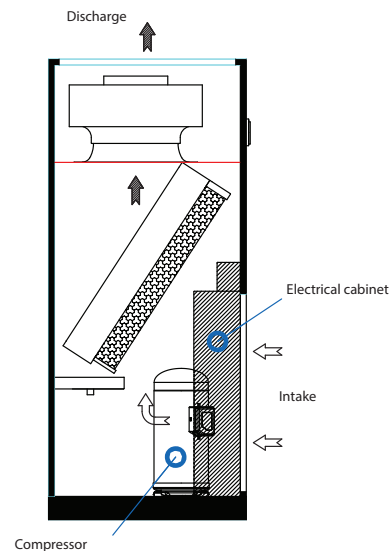
TS

Touch screen graphic terminal designed to simplify user interface with the unit controller. It allows the set-point fixing, the alarm reading, the graphic display of the main controlled parameters in real time (suitable for download on USB interface) and possibility of set-point scheduling. The 4.3", 65.000 colours and 480x422 resolution display, being a dedicated terminal for the end user, does not allow to change the basic configuration of the unit.

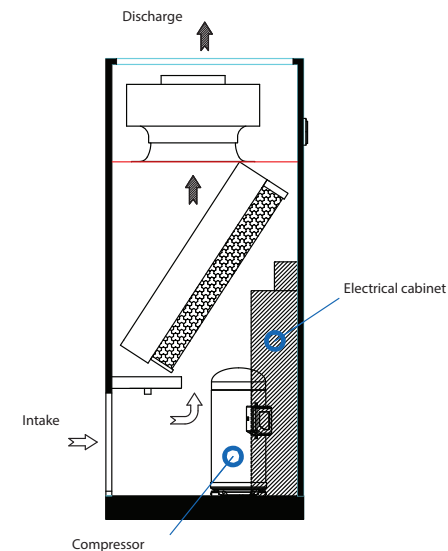
WG

Electronic card for interfacing to BMS with SNMP or TCP/IP protocols. Only available with option IH.

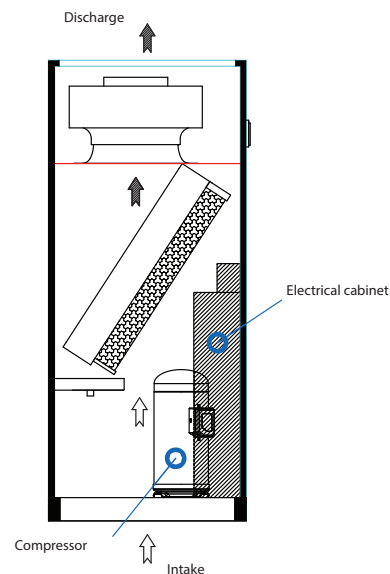
U - Frontal air intake - Upwards air discharge



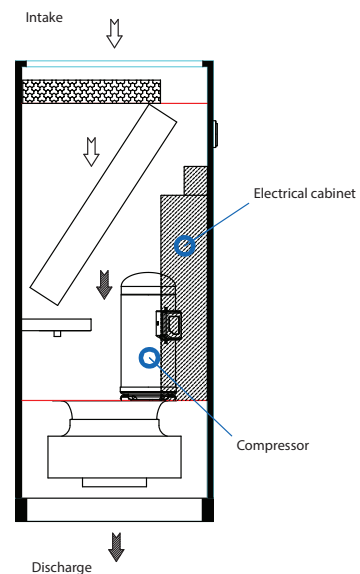
B - Back air intake - Upwards air discharge



V - Down air intake - Upwards air discharge



D - Up air intake - Downwards air discharge



AED Kc -Dimensions and weights - 1-circuit units - U-V-B Versions

Size		71 Kc	81 Kc	101 Kc	131 Kc	161 Kc	211 Kc	231 Kc	261 Kc	271 Kc	281 Kc	331 Kc	371 Kc	421 Kc	461 Kc	501 Kc	551 Kc	591 Kc	771 Kc	921 Kc	991 Kc
Dimensions																					
Length	mm	550	550	550	750	750	980	980	980	980	1'160	1'160	1'160	1'160	1'860	1'860	1'860	1'860	2'210	2'565	2'565
Width	mm	550	550	550	550	550	750	750	750	750	850	850	850	850	850	850	850	850	850	850	850
Height	mm	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980
Weights																					
Weight - U Version	kg	171	182	185	233	238	286	294	338	294	363	363	373	396	500	501	520	523	628	746	777
Weight - V Version	kg	171	182	185	233	238	291	299	343	299	358	358	368	391	510	512	530	534	639	756	787
Weight - B Version	kg	171	182	185	228	233	297	304	348	304	363	363	373	396	520	522	540	544	644	766	797

AED Kc -Dimensions and weights - 2-circuits units - U-V-B Versions

Size		282 Kc	332 Kc	372 Kc	422 Kc	462 Kc	502 Kc	552 Kc	592 Kc	642 Kc	772 Kc	852 Kc	922 Kc	952 Kc	992 Kc	1022 Kc	1112 Kc	1122 Kc	1442 Kc	1462 Kc
Dimensions																				
Length	mm	1'160	1'160	1'160	1'160	1'860	1'860	1'860	1'860	1'860	2'210	2'210	2'565	2'565	2'565	2'565	2'565	2'565	3'100	3'100
Width	mm	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850
Height	mm	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980
Weights																				
Weight - U Version	kg	399	399	409	409	513	514	532	550	650	615	660	745	761	776	793	830	784	978	1.017
Weight - V Version	kg	394	394	404	404	523	524	542	560	560	625	670	756	771	786	803	840	794	978	1.017
Weight - B Version	kg	399	399	409	409	533	534	552	571	571	630	675	766	781	796	813	850	804	988	1.027

AED Kc -Dimensions and weights - 1-circuit units - D Versions

Size		71 Kc	81 Kc	101 Kc	131 Kc	161 Kc	211 Kc	231 Kc	261 Kc	271 Kc	281 Kc	331 Kc	371 Kc	421 Kc	461 Kc	501 Kc	551 Kc	591 Kc	771 Kc	921 Kc	991 Kc
Dimensions																					
Length	mm	550	550	550	750	750	980	980	980	980	1'160	1'160	1'160	1'160	1'860	1'860	1'860	1'860	2'210	2'565	2'565
Width	mm	550	550	550	550	550	750	750	750	750	850	850	850	850	850	850	850	850	850	850	850
Height	mm	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980
Weights																					
Weight - D Version	kg	176	187	190	228	233	297	304	348	304	363	363	373	396	530	532	550	554	654	761	792

AED Kc -Dimensions and weights - 2-circuits units- D Versions

Size		282 Kc	332 Kc	372 Kc	422 Kc	462 Kc	502 Kc	552 Kc	592 Kc	642 Kc	772 Kc	852 Kc	922 Kc	952 Kc	992 Kc	1002 Kc	1112 Kc	1122 Kc	1442 Kc	1462 Kc
Dimensions																				
Length	mm	1'160	1'160	1'160	1'160	1'860	1'860	1'860	1'860	1'860	2'210	2'210	2'565	2'565	2'565	2'565	2'565	2'565	3'100	3'100
Width	mm	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850
Height	mm	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980
Weights																				
Weight - D Version	kg	399	399	409	409	544	544	562	581	581	640	685	761	776	791	808	845	799	1.009	1.047

DIRECT EXPANSION CLOSE CONTROL UNITS WITH REMOTE CONDENSERS

AED Kc - Technical data - 1-circuit units - U-V-B Versions

Size		71 Kc	81 Kc	101 Kc	131 Kc	161 Kc	211 Kc	231 Kc	261 Kc	271 Kc	281 Kc	331 Kc	371 Kc	421 Kc	461 Kc	501 Kc	551 Kc	591 Kc	771 Kc	921 Kc	991 Kc
Frame																					
Frame		1			2		3			4				5				6		7	
Cooling capacity																					
Total cooling capacity (27°C - 50% R.H.)	kW	7,3	9,0	10,2	12,8	17,2	22,6	24,0	26,1	27,0	28,9	32,7	38,4	43,2	46,4	51,2	54,0	60,4	79,2	94,3	102,5
Sensible cooling capacity (27°C - 50% R.H.)	kW	6,4	8,0	9,2	11,3	15,2	20,3	20,7	21,0	23,4	25,1	28,0	30,5	36,0	44,7	46,9	51,4	49,7	63,2	78,6	90,6
SHR @ 27°C - 50% R.H.	%	88%	89%	90%	88%	88%	90%	86%	80%	87%	87%	86%	79%	83%	96%	92%	95%	82%	80%	83%	88%
Nominal input power (27°C - 50% R.H.)	kW	1,7	2,0	2,2	2,9	3,8	4,8	4,8	5,8	5,5	6,3	7,3	8,6	9,6	9,6	10,7	10,7	12,3	16,2	21,3	21,4
Nominal input current (27°C - 50% R.H.)	A	3,1	4,1	4,5	4,6	6,5	10,0	9,7	9,1	11,3	11,3	15,0	17,2	17,6	17,7	18,6	18,7	22,8	29,9	37,3	37,3
Total cooling capacity (24°C - 50% R.H.)	kW	6,7	8,2	9,3	12,1	15,8	20,7	22,3	24,4	24,8	26,8	30,0	35,2	39,5	42,9	46,9	50,1	55,6	72,5	87,7	94,1
Sensible cooling capacity (24°C - 50% R.H.)	kW	6,1	7,6	8,8	10,8	14,6	19,3	19,6	20,4	22,5	24,0	27,0	29,4	34,4	42,9	45,1	50,1	48,0	60,9	76,6	87,0
SHR @ 24°C - 50% R.H.	%	91%	93%	94%	89%	92%	93%	88%	84%	91%	90%	90%	83%	87%	100%	96%	100%	86%	84%	87%	92%
Nominal input power (24°C - 50% R.H.)	kW	1,7	2,1	2,2	2,9	3,8	4,8	4,8	5,8	5,5	6,3	7,2	8,4	9,5	9,6	10,6	10,7	12,3	16,2	21,2	21,3
Nominal input current (24°C - 50% R.H.)	A	3,1	4,1	4,5	4,7	6,6	10,2	10,0	9,3	11,6	11,4	14,9	17,1	17,6	17,6	18,6	18,6	22,6	29,8	37,2	37,3
Total cooling capacity (22°C - 50% R.H.)	kW	6,4	7,9	8,8	11,6	15,1	19,7	21,2	23,3	23,7	25,5	28,7	33,3	37,8	40,8	44,7	47,7	52,9	68,5	82,7	89,7
Sensible cooling capacity (22°C - 50% R.H.)	kW	5,8	7,5	8,5	10,7	14,3	18,9	19,6	19,6	22,0	23,5	26,2	28,2	34,0	40,8	43,7	47,7	45,7	58,2	74,6	85,1
SHR @ 22°C - 50% R.H.	%	91%	95%	97%	92%	95%	96%	92%	84%	93%	92%	91%	85%	90%	100%	98%	100%	86%	85%	90%	95%
Nominal input power (22°C - 50% R.H.)	kW	1,7	2,1	2,3	2,9	3,8	4,9	4,8	5,9	5,5	6,3	7,2	8,4	9,5	9,5	10,6	10,6	12,2	16,2	21,1	21,2
Nominal input current (22°C - 50% R.H.)	A	3,2	4,1	4,5	4,7	6,7	10,3	10,1	9,4	11,8	11,5	14,8	17,0	17,5	17,6	18,6	18,6	22,6	29,8	37,2	37,2
Scroll compressors																					
Quantity	n.	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	2	2
Circuits	n.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Capacity steps	%	0 / 100					0/50/100					0 / 100					0 / 50 / 100				
Max input current	A	4,7	10,0	10,0	13,0	15,0	19,0	19,0	26,0	19,0	19,0	25,0	27,0	30,0	30,0	33,0	33,0	38,6	51,0	66,0	66,0
Inrush current	A	28,0	45,0	45,0	60,0	70,0	87,0	87,0	73,0	100,0	110,0	110,0	140,0	147,0	147,0	158,0	158,0	197,0	215,0	191,0	191,0
AC fans with autotransformer																					
Quantity	n.	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	3
Fan(s) supply voltage	V	270	300	340	300	340	290	320	320	320	260	260	280	280	230	230	250	250	300	270	300
Air flow	m³/h	2.330	2.330	2.330	3.500	3.500	5.610	5.610	5.610	5.610	5.610	7.880	7.880	7.880	13.820	13.820	13.820	13.820	16.550	21.600	21.600
Available pressure	Pa	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Rotation speed	rpm	1.192	1.250	1.307	1.266	1.325	1.090	1.090	1.143	1.143	1.150	1.150	1.189	1.189	1.075	1.075	1.122	1.122	1.227	1.166	1.222
Input power	kW	0,35	0,37	0,40	0,64	0,69	1,02	1,10	1,10	1,10	1,52	1,52	1,63	1,63	2,71	2,71	2,97	2,97	3,44	4,78	5,24
Input current	A	0,97	0,97	0,97	1,49	1,45	2,63	2,63	2,63	2,63	4,13	4,13	4,13	4,13	8,30	8,30	8,38	8,38	8,16	12,50	12,50
Max available pressure (max ESP)	Pa	106	74	43	89	45	136	88	90	88	243	245	198	196	308	308	260	263	157	235	170
Sound pressure level @ 2 m - U Version	dB(A)	52	51	52	55	55	58	59	59	59	61	61	61	61	61	62	62	63	68	65	65
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	53	52	52	56	56	61	61	60	61	63	63	63	63	65	65	65	66	69	67	67
Sound pressure level @ 2 m - B Version	dB(A)	48	48	48	51	52	55	55	55	55	57	57	58	58	58	58	59	60	65	61	62
Sound pressure level @ 2 m - B Version (max ESP)	dB(A)	49	49	49	52	52	57	57	57	57	59	60	60	59	61	61	61	62	66	64	64
Sound pressure level @ 2 m - V Version	dB(A)	47	47	47	50	51	54	54	54	54	56	56	57	57	57	57	58	59	64	60	61
Sound pressure level @ 2 m - V Version (max ESP)	dB(A)	48	48	48	51	51	56	56	56	56	58	59	59	58	60	60	60	61	65	63	63
EC Fans - LP (Low pressure)																					
Quantity	n.	-	-	-	-	-	1	1	1	1	1	1	1	1	2	2	2	2	2	3	3
Air flow	m³/h	-	-	-	-	-	5.610	5.610	5.610	5.610	5.610	7.880	7.880	7.880	13.820	13.820	13.820	13.820	16.550	21.600	21.600
Max available pressure (max ESP)	Pa	-	-	-	-	-	182	136	136	136	156	156	108	108	223	223	177	177	75	151	92
Rotation speed	rpm	-	-	-	-	-	1.237	1.286	1.285	1.282	1.115	1.117	1.160	1.156	1.041	1.042	1.084	1.090	1.189	1.020	1.165
Input power	kW	-	-	-	-	-	0,83	0,94	0,94	0,93	1,06	1,07	1,22	1,20	1,76	1,77	2,02	2,06	2,61	2,42	3,80
Sound pressure level @ 2 m - U Version	dB(A)	-	-	-	-	-	58	58	58	58	59	60	60	60	60	60	61	62	68	64	64
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	-	-	-	-	-	59	59	58	59	60	60	60	60	61	61	61	63	68	64	64
Sound pressure level @ 2 m - B Version	dB(A)	-	-	-	-	-	54	55	54	55	56	56	56	56	56	57	57	59	64	60	60
Sound pressure level @ 2 m - B Version (max ESP)	dB(A)	-	-	-	-	-	55	55	55	55	56	57	57	56	58	58	58	59	64	61	61
Sound pressure level @ 2 m - V Version	dB(A)	-	-	-	-	-	53	54	53	54	55	55	55	55	55	56	56	58	63	59	59
Sound pressure level @ 2 m - V Version (max ESP)	dB(A)	-	-	-	-	-	54	54	54	54	55	56	56	55	57	57	57	58	63	60	60

DIRECT EXPANSION CLOSE CONTROL UNITS WITH REMOTE CONDENSERS

Size		71 Kc	81 Kc	101 Kc	131 Kc	161 Kc	211 Kc	231 Kc	261 Kc	271 Kc	281 Kc	331 Kc	371 Kc	421 Kc	461 Kc	501 Kc	551 Kc	591 Kc	771 Kc	921 Kc	991 Kc
EC Fans - HP (High pressure)																					
Quantity	n.	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	3
Air flow	m³/h	2.330	2.330	2.330	3.500	3.500	5.610	5.610	5.610	5.610	5.610	7.880	7.880	7.880	13.820	13.820	13.820	13.820	16.550	21.600	21.600
Max available pressure (max ESP)	Pa	671	655	625	486	447	664	618	618	618	593	593	545	545	654	654	608	608	516	585	526
Rotation speed	rpm	1.215	1.241	1.291	1.263	1.313	1.238	1.283	1.283	1.280	1.117	1.118	1.160	1.156	1.040	1.041	1.083	1.089	1.190	1.028	1.163
Input power	kW	0,28	0,30	0,33	0,50	0,56	0,85	0,95	0,95	0,94	1,05	1,05	1,19	1,18	1,75	1,75	2,00	2,03	2,54	2,47	3,72
Sound pressure level @ 2 m - U Version	dB(A)	52	52	52	55	55	58	59	59	59	61	61	61	61	61	62	62	63	68	65	65
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	63	63	63	62	62	64	64	64	64	64	64	64	64	67	67	67	63	69	69	69
Sound pressure level @ 2 m - B Version	dB(A)	49	48	49	52	52	55	56	56	56	58	58	59	59	59	59	60	60	65	63	64
Sound pressure level @ 2 m - B Version (max ESP)	dB(A)	61	60	61	60	59	60	61	62	61	61	62	62	62	64	63	64	64	66	66	67
Sound pressure level @ 2 m - V Version	dB(A)	47	47	47	50	51	55	55	54	55	55	56	56	56	56	57	57	58	63	60	60
Sound pressure level @ 2 m - V Version (max ESP)	dB(A)	59	59	59	58	58	60	60	60	60	58	59	59	59	61	61	61	62	64	63	63
Humidifier																					
Steam production (nominal)	kg/h	1,5	1,5	1,5	3	3	5	5	5	5	8	8	8	8	8	8	8	8	8	8	8
Steam production (max)	kg/h	3	3	3	3	3	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Maximum input power	kW	1,12	1,12	1,12	2,25	2,25	2,25	3,75	3,75	3,75	3,75	3,75	3,75	3,75	3,75	6	6	6	6	6	6
Maximum input current	A	5	5	5	10	10	10	5,5	5,5	5,5	5,5	5,5	5,5	5,5	5,5	8,7	8,7	8,7	8,7	8,7	8,7
Specific conductivity at 20°C (min/max)	µS/cm	300 / 1'250																			
Total hardness (min/max)	mg/l CaCo3	100 / 400																			
Electrical heaters																					
Steps	n.	1	1	1	3	3	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3
Power	kW	3	3	3	4,5	4,5	6	6	6	6	9	9	9	9	9	9	15	15	18	18	24
Input current	A	4,3	4,3	4,3	6,5	6,5	8,7	8,7	8,7	8,7	13	13	13	13	13	13	21,7	21,7	26	26	34,6
Oversized electrical heaters																					
Steps	n.	3	3	3	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Power	kW	4,5	4,5	4,5	6	6	9	9	9	9	12	12	12	12	18	18	18	18	24	27	27
Input current	A	6,5	6,5	6,5	8,7	8,7	13	13	13	13	17,3	17,3	17,3	17,3	26	26	26	26	34,6	39	39
Hot water coil																					
Heating capacity	kW	4,5	4,5	4,5	6,90	6,90	10,2	10,2	10,2	10,2	19,8	19,8	19,8	19,8	35,7	35,7	35,7	35,7	43,70	54,3	54,3
Water flow rate	m³/h	0,8	0,8	0,8	1,20	1,20	1,8	1,8	1,8	1,8	3,4	3,4	3,4	3,4	6,2	6,2	6,2	6,2	7,60	9,5	9,5
Pressure drop (coil+3-way valve)	kPa	37	37	37	35	35	55	55	55	55	77	77	77	77	79	79	79	79	70	79	79
Internal volume of the coil	dm³	1	1	1	1,3	1,3	1,5	1,5	1,5	1,5	2,8	2,8	2,8	2,8	5,3	5,3	5,3	5,3	6,5	10,1	10,1
Hot gas coil																					
Heating capacity	kW	5,1	5,1	5,1	7,5	7,5	9,8	9,8	9,8	9,8	14,5	14,5	14,5	14,5	30	30	30	30	37,6	50,3	50,3
Condensing water pump																					
Nominal water flow	l/h	27,5	27,5	27,5	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390
Max water flow (pressure = 0 m)	l/h	34	34	34	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Max height (water flow = 0 m³/h)	l/h	15,0	15,0	15,0	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40
Condensing water pump + humidifier																					
Nominal water flow	l/h	-	-	-	-	-	-	-	-	-	600	600	600	600	600	600	600	600	600	600	600
Max water flow (pressure = 0 m)	l/h	-	-	-	-	-	-	-	-	-	900	900	900	900	900	900	900	900	900	900	900
Max height (water flow = 0 m³/h)	m	-	-	-	-	-	-	-	-	-	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0
Remote condenser																					
1-circuit Standard version	ACR	9	12	19	19	22	29	29	34	34	34	47	47	55	55	64	64	73	97	114	137
1-circuit Silenced version	ACR LN	8	14	14	18	23	30	30	34	34	34	46	46	55	55	73	73	73	97	114	137
1-circuit Ultrasilenced version	ACR SL	11	11	14	17	22	29	29	34	34	34	46	46	55	55	64	64	73	92	-	-
Power supply																					
Power supply	V/ph/Hz	400 / 3 / 50 + T + N																			

REMARKS: Condensing temperature 48°C - Filters calculated for 20% dirt - Max pressure is referred to the nominal air flow and the max tension / regulation - Hot water coil calculated for: water 40/45°C, ambient temperature 20°C and available pressure of 20 Pa - Sound pressure level measured at 2 m in open field (ISO 3744) with ducted air inlet and discharge - The condensing / condensing+humidifier water pump is calculated for a 2 m vertical difference in height respect to the pump; total length of the discharge pipe of 5 m, internal diameter of flexible pipe of 12 mm (6 mm for AED 71-81-101 Kc) - Remote condensers suggested for external air temperature for 35°C

DIRECT EXPANSION CLOSE CONTROL UNITS WITH REMOTE CONDENSERS

AED Kc - Technical data - 2-circuits units - U-V-B Versions

Size		282 Kc	332 Kc	372 Kc	422 Kc	462 Kc	502 Kc	552 Kc	592 Kc	642 Kc	772 Kc	852 Kc	922 Kc	952 Kc	992 Kc	1022 Kc	1112 Kc	1122 Kc	1442 Kc	1462 Kc
Frame		4				5				6		7					8			
Cooling capacity																				
Total cooling capacity (27°C - 50% R.H.)	kW	26,0	33,4	38,3	44,0	47,0	53,0	56,3	60,4	66,9	77,8	87,7	94,3	97,4	102,5	106,1	114,1	114,3	149,3	151,7
Sensible cooling capacity (27°C - 50% R.H.)	kW	24,1	28,4	30,5	32,6	42,6	47,7	53,3	50,0	52,2	62,8	74,2	78,6	80,0	90,6	92,1	85,7	86,1	109,6	110,9
SHR @ 27°C - 50% R.H.	%	93%	85%	80%	74%	91%	90%	95%	83%	78%	81%	85%	83%	82%	88%	87%	75%	75%	73%	73%
Nominal input power (27°C - 50% R.H.)	kW	5,8	7,6	8,3	9,6	9,6	11,0	11,0	12,7	14,6	17,2	19,2	21,3	22,1	21,4	22,0	25,3	24,6	34,1	32,5
Nominal input current (27°C - 50% R.H.)	A	9,1	13,2	15,7	20	19,6	22,9	22,4	22,6	30,1	34,4	35,3	37,3	46,4	37,3	46,5	45,4	45,2	68,6	59,7
Total cooling capacity (24°C - 50% R.H.)	kW	24,6	30,5	35,1	40,2	43,6	48,5	51,6	55,4	61,1	71,4	80,1	87,7	90,6	94,1	97,4	104,2	104,6	136,4	138,4
Sensible cooling capacity (24°C - 50% R.H.)	kW	22,8	27,2	29,4	31,2	40,5	45,8	51,5	48,3	50,2	60,7	71,0	76,6	77,9	87,0	88,4	82,2	82,7	105,1	106,2
SHR @ 24°C - 50% R.H.	%	93%	89%	84%	78%	93%	94%	100%	87%	82%	85%	89%	87%	86%	92%	91%	79%	79%	77%	77%
Nominal input power (24°C - 50% R.H.)	kW	5,8	7,6	8,3	9,7	9,7	11,1	11,0	12,6	14,5	16,9	19,1	21,2	22,2	21,3	22,1	25,2	24,4	33,6	32,5
Nominal input current (24°C - 50% R.H.)	A	9,3	13,4	16,1	20,4	20,1	23,4	23	22,8	29,9	34,2	35,2	37,3	47,2	37,3	46,5	45,7	45,2	68,1	59,6
Total cooling capacity (22°C - 50% R.H.)	kW	23,6	29,4	33,2	38,6	41,6	46,6	48,9	52,7	58,2	67,6	76,6	82,7	85,7	89,7	93,0	99,7	100,1	130,6	132,5
Sensible cooling capacity (22°C - 50% R.H.)	kW	21,9	26,8	28,2	30,6	38,6	44,7	48,9	45,9	48,5	58,0	69,9	74,6	76,1	85,1	86,7	80,1	80,6	102,8	104,0
SHR @ 22°C - 50% R.H.	%	93%	91%	85%	79%	93%	96%	100%	87%	83%	86%	91%	90%	89%	95%	93%	80%	81%	79%	78%
Nominal input power (22°C - 50% R.H.)	kW	5,9	7,6	8,4	9,7	9,7	11,1	11,1	12,6	14,5	16,8	19,0	21,1	22,3	21,2	22,2	25,2	24,3	33,4	32,5
Nominal input current (22°C - 50% R.H.)	A	9,4	13,6	16,2	20,6	20,3	23,6	23,3	22,8	29,8	34,1	35,1	37,2	47,7	37,2	47,1	45,8	45	67,9	59,7
Scroll compressors																				
Quantity	n.	2	2	2	2	2	2	2	2	2	2	2	2	4	2	4	4	2	4	2
Circuits	n.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Capacity steps	%	0 / 50 / 100																		
Max input current	A	26	30	30	38	38	38	38	38	50	54	60	66	76	66	76	76	77,2	108	102
Inrush current	A	73	85	97	106	106	119	119	129	135	167	177	191	157	191	157	167	235,6	221	266
AC fans with autotransformer																				
Quantity	n.	1	1	1	1	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4
Fan(s) supply voltage	V	260	260	280	280	230	230	250	250	250	300	300	270	270	300	300	290	290	280	280
Air flow	m³/h	7'880	7'880	7'880	7'880	13'820	13'820	13'820	13'820	13'820	16'550	16'550	21'600	21'600	21'600	21'600	21'600	21'600	27'200	27'200
Available pressure	Pa	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Rotation speed	rpm	1.150	1.150	1.189	1.189	1.075	1.075	1.122	1.122	1.122	1.227	1.227	1.166	1.166	1.222	1.222	1.204	1.204	1.185	1.185
Input power	kW	1,52	1,52	1,63	1,63	2,71	2,71	2,97	2,97	2,97	3,44	3,44	4,78	4,78	5,24	5,24	5,09	5,09	6,6	6,6
Input current	A	4,13	4,13	4,13	4,13	8,3	8,3	8,38	8,38	8,38	8,16	8,16	12,54	12,54	12,42	12,42	12,48	12,48	16,72	16,72
Max available pressure (max ESP)	Pa	243	240	198	198	311	309	263	263	263	157	155	235	235	170	170	173	173	192	192
Sound pressure level @ 2 m - U Version	dB(A)	60	60	61	62	62	62	62	63	63	65	65	65	65	66	66	66	67	67	71
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	62	62	63	63	65	65	65	65	66	67	66	67	68	68	68	68	68	69	72
Sound pressure level @ 2 m - B Version	dB(A)	58	58	59	59	59	59	60	60	60	63	63	63	63	64	64	64	64	65	67
Sound pressure level @ 2 m - B Version (max ESP)	dB(A)	61	61	61	61	63	63	63	63	63	64	65	66	65	66	66	65	66	66	68
Sound pressure level @ 2 m - V Version	dB(A)	55	55	57	57	58	58	58	58	59	61	60	60	61	61	61	62	62	62	66
Sound pressure level @ 2 m - V Version (max ESP)	dB(A)	58	58	59	59	62	62	61	61	61	62	62	63	63	63	63	63	64	64	67
EC Fans - LP (Low pressure)																				
Quantity	n.	1	1	1	1	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4
Air flow	m³/h	7'880	7'880	7'880	7'880	13'820	13'820	13'820	13'820	13'820	16'550	16'550	21'600	21'600	21'600	21'600	21'600	21'600	27'200	27'200
Max available pressure (max ESP)	Pa	156	156	108	108	223	223	177	177	177	75	75	151	151	92	92	92	92	101	101
Rotation speed	rpm	1.116	1.114	1.160	1.160	1.045	1.043	1.085	1.090	1.091	1.190	1.185	1.020	1.019	1.165	1.165	1.174	1.173	1.165	1.165
Input power	kW	1,06	1,06	1,22	1,22	1,79	1,77	2,02	2,06	2,06	2,61	2,57	2,42	2,41	3,8	3,8	3,9	3,89	5,11	5,11
Sound pressure level @ 2 m - U Version	dB(A)	58	58	60	60	61	61	61	61	62	63	63	64	64	64	64	65	65	66	70
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	59	59	60	61	62	62	62	62	63	64	63	64	64	64	64	65	66	66	70
Sound pressure level @ 2 m - B Version	dB(A)	55	55	56	57	57	57	57	58	59	60	60	60	60	60	61	61	62	62	67
Sound pressure level @ 2 m - B Version (max ESP)	dB(A)	55	55	57	57	58	58	58	59	59	60	60	61	61	61	61	61	62	63	67
Sound pressure level @ 2 m - V Version	dB(A)	54	54	55	56	56	56	56	57	58	59	59	59	59	59	60	60	61	61	66
Sound pressure level @ 2 m - V Version (max ESP)	dB(A)	54	54	56	56	57	57	57	58	58	59	59	60	60	60	60	60	61	62	66

DIRECT EXPANSION CLOSE CONTROL UNITS WITH REMOTE CONDENSERS

Size		282 Kc	332 Kc	372 Kc	422 Kc	462 Kc	502 Kc	552 Kc	592 Kc	642 Kc	772 Kc	852 Kc	922 Kc	952 Kc	992 Kc	1022 Kc	1112 Kc	1122 Kc	1442 Kc	1462 Kc
EC Fans - HP (High pressure)																				
Quantity	n.	1	1	1	1	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4
Air flow	m³/h	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Max available pressure (max ESP)	Pa	593	593	545	545	654	654	608	608	608	516	516	585	585	526	526	526	526	532	532
Rotation speed	rpm	1.117	1.115	1.160	1.160	1.044	1.042	1.084	1.089	1.090	1.190	1.186	1.028	1.027	1.163	1.163	1.171	1.171	1.162	1.162
Input power	kW	1,05	1,04	1,19	1,19	1,77	1,76	2,00	2,03	2,04	2,54	2,51	2,47	2,46	3,72	3,72	3,80	3,80	4,99	4,99
Sound pressure level @ 2 m - U Version	dB(A)	59	59	60	61	61	61	61	62	63	64	64	64	64	64	65	65	66	66	70
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	63	63	63	64	66	66	66	66	66	67	66	68	68	68	68	68	69	70	72
Sound pressure level @ 2 m - B Version	dB(A)	55	55	57	57	59	58	58	58	59	60	60	61	61	61	61	62	62	63	67
Sound pressure level @ 2 m - B Version (max ESP)	dB(A)	59	59	60	60	62	62	62	63	63	63	63	64	65	64	65	65	65	66	69
Sound pressure level @ 2 m - V Version	dB(A)	54	54	56	56	57	57	57	57	58	59	59	60	60	60	60	61	61	62	66
Sound pressure level @ 2 m - V Version (max ESP)	dB(A)	58	58	59	59	61	61	61	62	62	62	62	63	64	63	64	64	64	65	68
Humidifier																				
Steam production (nominal)	kg/h	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Steam production (max)	kg/h	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Maximum input power	kW	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Maximum input current	A	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7
Specific conductivity at 20°C (min/max)	µS/cm	300 / 1' 250																		
Total hardness (min/max)	mg/l CaCo3	100 / 400																		
Electrical heaters																				
Steps	n.	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Power	kW	9	9	9	9	15	15	15	15	15	18	18	24	24	24	24	24	24	27	27
Input current	A	13	13	13	13	21,7	21,7	21,7	21,7	21,7	26	26	34,6	34,6	34,6	34,6	34,6	34,6	39	39
Oversized electrical heaters																				
Steps	n.	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Power	kW	12	12	12	12	18	18	18	18	18	24	24	27	27	27	27	27	27	36	36
Input current	A	17,3	17,3	17,3	17,3	26	26	26	26	26	34,6	34,6	39	39	39	39	39	39	52	52
Hot water coil																				
Heating capacity	kW	19,8	19,8	19,8	19,8	35,7	35,7	35,7	35,7	35,7	43,7	43,7	54,3	54,3	54,3	54,3	54,3	54,3	73,5	73,5
Water flow rate	m³/h	3,4	3,4	3,4	3,4	6,2	6,2	6,2	6,2	6,2	7,6	7,6	9,5	9,5	9,5	9,5	9,5	9,5	12,8	12,8
Pressure drop (coil+3-way valve)	kPa	77	77	77	77	79	79	79	79	79	70	70	79	79	79	79	79	79	82	82
Internal volume of the coil	dm³	2,8	2,8	2,8	2,8	5,3	5,3	5,3	5,3	5,3	6,6	6,6	10,1	10,1	10,1	10,1	10,1	10,1	12,4	12,4
Hot gas coil																				
Heating capacity	kW	15,4	15,4	15,4	15,4	29	29	29	29	29	37,1	37,1	44,2	44,2	44,2	44,2	44,2	44,2	58,4	58,4
Condensing water pump																				
Nominal water flow	l/h	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390
Max water flow (pressure = 0 m)	l/h	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Max height (water flow = 0 m³/h)	l/h	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40
Condensing water pump + humidifier																				
Nominal water flow	l/h	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600
Max water flow (pressure = 0 m)	l/h	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900
Max height (water flow = 0 m³/h)	m	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0
Remote condenser																				
1-circuit Standard version	ACR	2x19	2x22	2x22	2x29	2x29	2x34	2x34	2x34	2x47	2x55	2x55	2x64	2x64	2x64	2x64	2x73	2x73	2x97	2x97
1-circuit Silenced version	ACR LN	2x18	2x23	2x30	2x30	2x30	2x34	2x34	2x34	2x46	2x55	2x55	2x73	2x73	2x73	2x73	2x73	2x73	2x97	2x97
1-circuit Ultrasilenced version	ACR SL	2x17	2x22	2x29	2x29	2x29	2x34	2x34	2x34	2x46	2x55	2x55	2x64	2x64	2x64	2x64	2x73	2x73	2x92	2x92
2-circuits Standard version	ACR/2	40	40	50	50	70	70	70	70	80	101	101	120	120	120	120	143	143	183	183
2-circuits Silenced version	ACR LN/2	40	40	60	60	60	70	70	70	80	101	101	120	120	120	143	143	143	183	183
2-circuits Ultrasilenced version	ACR SL/2	40	40	46	60	60	70	70	70	80	100	-	-	-	-	-	-	-	-	-
Power supply																				
Power supply	V/ph/Hz	400 / 3 / 50 + T + N																		

REMARKS: Condensing temperature 48°C - Filters calculated for 20% dirt - Max pressure is referred to the nominal air flow and the max tension / regulation - Hot water coil calculated for: water 40/45°C, ambient temperature 20°C and available pressure of 20 Pa - Sound pressure level measured at 2 m in open field (ISO 3744) with ducted air inlet and discharge - The condensing / condensing+humidifier water pump is calculated for a 2 m vertical difference in height respect to the pump; total length of the discharge pipe of 5 m, internal diameter of flexible pipe of 12 mm - Remote condensers suggested for external air temperature for 35°C

INTECH LINE

Thermocold
THE AIRVOLUTION

DIRECT EXPANSION CLOSE CONTROL UNITS WITH REMOTE CONDENSERS

Size		71 Kc	81 Kc	101 Kc	131 Kc	161 Kc	211 Kc	231 Kc	261 Kc	271 Kc	281 Kc	331 Kc	371 Kc	421 Kc	461 Kc	501 Kc	551 Kc	591 Kc	771 Kc	921 Kc	991 Kc
Over sized electrical heaters																					
Steps	n.	3	3	3	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Power	kW	4,5	4,5	4,5	6	6	9	9	9	9	12	12	12	12	18	18	18	18	24	27	27
Input current	A	6,5	6,5	6,5	8,7	8,7	13	13	13	13	17,3	17,3	17,3	17,3	26	26	26	26	34,6	39	39
Hot water coil																					
Heating capacity	kW	4,5	4,5	4,5	6,90	6,90	10,2	10,2	10,2	10,2	19,8	19,8	19,8	19,8	35,7	35,7	35,7	35,7	43,70	54,3	54,3
Water flow rate	m ³ /h	0,8	0,8	0,8	1,20	1,20	1,8	1,8	1,8	1,8	3,4	3,4	3,4	3,4	6,2	6,2	6,2	6,2	7,60	9,5	9,5
Pressure drop (coil+3-way valve)	kPa	37	37	37	35	35	55	55	55	55	77	77	77	77	79	79	79	79	70	79	79
Internal volume of the coil	dm ³	1	1	1	1,3	1,3	1,5	1,5	1,5	1,5	2,8	2,8	2,8	2,8	5,3	5,3	5,3	5,3	6,5	10,1	10,1
Hot gas coil																					
Heating capacity	kW	5,1	5,1	5,1	7,5	7,5	9,8	9,8	9,8	9,8	14,5	14,5	14,5	14,5	30	30	30	30	37,6	50,3	50,3
Condensing water pump																					
Nominal water flow	l/h	27,5	27,5	27,5	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390
Max water flow (pressure = 0 m)	l/h	34	34	34	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Max height (water flow = 0 m ³ /h)	l/h	15,0	15,0	15,0	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40
Condensing water pump + humidifier																					
Nominal water flow	l/h	-	-	-	-	-	-	-	-	-	600	600	600	600	600	600	600	600	600	600	600
Max water flow (pressure = 0 m)	l/h	-	-	-	-	-	-	-	-	-	900	900	900	900	900	900	900	900	900	900	900
Max height (water flow = 0 m ³ /h)	m	-	-	-	-	-	-	-	-	-	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0
Remote condenser																					
1-circuit Standard version	ACR	9	12	19	19	22	29	29	34	34	34	47	47	55	55	64	64	73	97	114	137
1-circuit Silenced version	ACR LN	8	14	14	18	23	30	30	34	34	34	46	46	55	55	73	73	73	97	114	137
1-circuit Ultrasilenced version	ACR SL	11	11	14	17	22	29	29	34	34	34	46	46	55	55	64	64	73	92	-	-
Power supply																					
Power supply	V/ph/Hz	400 / 3 / 50 + T + N																			

REMARKS: Condensing temperature 48°C - Filters calculated for 20% dirt - Max pressure is referred to the nominal air flow and the max tension / regulation - Hot water coil calculated for: water 40/45°C, ambient temperature 20°C and available pressure of 20 Pa - Sound pressure level measured at 2 m in open field (ISO 3744) with ducted air inlet and discharge - The condensing / condensing+humidifier water pump is calculated for a 2 m vertical difference in height respect to the pump; total length of the discharge pipe of 5 m, internal diameter of flexible pipe of 12 mm (6 mm for AED 71-81-101) - Remote condensers suggested for external air temperature for 35°C

DIRECT EXPANSION CLOSE CONTROL UNITS WITH REMOTE CONDENSERS

AED Kc - Technical data - 2-circuits units - D Version

Size		282 Kc	332 Kc	372 Kc	422 Kc	462 Kc	502 Kc	552 Kc	592 Kc	642 Kc	772 Kc	852 Kc	922 Kc	952 Kc	992 Kc	1002 Kc	1112 Kc	1122 Kc	1442 Kc	1462 Kc
Frame		4				5				6			7					8		
Cooling capacity																				
Total cooling capacity (27°C - 50% R.H.)	kW	26,0	33,4	38,3	44,0	46,9	53,0	56,3	60,3	66,9	77,8	87,7	94,3	97,4	102,5	106,1	114,1	114,3	149,3	151,7
Sensible cooling capacity (27°C - 50% R.H.)	kW	24,1	28,4	30,5	32,6	42,3	47,7	53,3	49,5	52,2	62,8	74,2	78,6	80,0	90,6	92,1	85,7	86,1	109,6	110,9
SHR @ 27°C - 50% R.H.	%	93%	85%	80%	74%	90%	90%	95%	82%	78%	81%	85%	83%	82%	88%	87%	75%	75%	73%	73%
Nominal input power (27°C - 50% R.H.)	kW	5,8	7,6	8,3	9,6	9,6	11,0	11,0	12,7	14,6	17,2	19,2	21,3	22,1	21,4	22,0	25,3	24,6	34,1	32,5
Nominal input current (27°C - 50% R.H.)	A	9,1	13,2	15,7	20	19,6	22,9	22,4	22,6	30,1	34,4	35,3	37,3	46,4	37,3	46,5	45,4	45,2	68,6	59,7
Total cooling capacity (24°C - 50% R.H.)	kW	24,6	30,5	35,1	40,2	43,6	48,5	51,6	55,4	61,1	71,4	80,1	87,7	90,6	94,1	97,4	104,2	104,6	136,4	138,4
Sensible cooling capacity (24°C - 50% R.H.)	kW	22,8	27,2	29,4	31,2	40,5	45,8	51,5	47,7	50,2	60,7	71,0	76,6	77,9	87,0	88,4	82,2	82,7	105,1	106,2
SHR @ 24°C - 50% R.H.	%	93%	89%	84%	78%	93%	94%	100%	86%	82%	85%	89%	87%	86%	92%	91%	79%	79%	77%	77%
Nominal input power (24°C - 50% R.H.)	kW	5,8	7,6	8,3	9,7	9,7	11,1	11,0	12,6	14,5	16,9	19,1	21,2	22,2	21,3	22,1	25,2	24,4	33,6	32,5
Nominal input current (24°C - 50% R.H.)	A	9,3	13,4	16,1	20,4	20,1	23,4	23	22,8	29,9	34,2	35,2	37,3	47,2	37,3	46,5	45,7	45,2	68,1	59,6
Total cooling capacity (22°C - 50% R.H.)	kW	23,6	29,4	33,2	38,6	41,6	46,6	48,9	52,7	58,2	67,6	76,6	82,7	85,7	89,7	93,0	99,7	100,1	130,6	132,5
Sensible cooling capacity (22°C - 50% R.H.)	kW	21,9	26,8	28,2	30,6	38,7	44,7	48,9	45,4	48,5	58,0	69,9	74,6	76,1	85,1	86,7	80,1	80,6	102,8	104,0
SHR @ 22°C - 50% R.H.	%	93%	91%	85%	79%	93%	96%	100%	86%	83%	86%	91%	90%	89%	95%	93%	80%	81%	79%	78%
Nominal input power (22°C - 50% R.H.)	kW	5,9	7,6	8,4	9,7	9,7	11,1	11,1	12,6	14,5	16,8	19,0	21,1	22,3	21,2	22,2	25,2	24,3	33,4	32,5
Nominal input current (22°C - 50% R.H.)	A	9,4	13,6	16,2	20,6	20,3	23,6	23,3	22,8	29,8	34,1	35,1	37,2	47,7	37,2	47,1	45,8	45	67,9	59,7
Scroll compressors																				
Quantity	n.	2	2	2	2	2	2	2	2	2	2	2	2	4	2	4	4	2	4	2
Circuits	n.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Capacity steps	%	0 / 50 / 100																		
Max input current	A	26	30	30	38	38	38	38	38	50	54	60	66	76	66	76	76	77,2	108	102
Inrush current	A	73	85	97	106	106	119	119	129	135	167	177	191	157	191	157	167	235,6	221	266
AC fans with autotransformer																				
Quantity	n.	1	1	1	1	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4
Fan(s) supply voltage	V	290	290	320	320	260	260	280	280	280	340	340	320	320	360	360	340	340	340	340
Air flow	m³/h	7'880	7'880	7'880	7'880	13'820	13'820	13'820	13'820	13'820	16'550	16'550	21'600	21'600	21'600	21'600	21'600	21'600	27'200	27'200
Available pressure	Pa	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Rotation speed	rpm	1.207	1.207	1.256	1.256	1.144	1.144	1.185	1.185	1.185	1.287	1.287	1.255	1.255	1.307	1.307	1.283	1.283	1.283	1.283
Input power	kW	1,68	1,68	1,82	1,82	3,08	3,08	3,30	3,30	3,30	3,79	3,79	5,50	5,50	5,92	5,92	5,73	5,73	7,62	7,62
Input current	A	4,12	4,12	4,09	4,09	8,38	8,38	8,36	8,36	8,36	8,08	8,08	12,33	12,33	12,21	12,21	12,24	12,24	16,32	16,32
Max available pressure (max ESP)	Pa	177	174	118	118	239	236	195	195	195	85	83	129	130	80	80	83	83	83	83
Sound pressure level @ 2 m - D Version	dB(A)	58	58	59	59	59	59	60	60	60	63	63	63	63	64	64	64	64	65	67
Sound pressure level @ 2 m - D Version (max ESP)	dB(A)	60	60	60	60	62	62	62	62	63	64	64	64	65	64	65	65	65	66	68
EC Fans - HP (High pressure)																				
Quantity	n.	1	1	1	1	2	2	2	2	2	2	2	3	3	3	3	3	3	4	4
Air flow	m³/h	7'880	7'880	7'880	7'880	13'820	13'820	13'820	13'820	13'820	16'550	16'550	21'600	21'600	21'600	21'600	21'600	21'600	27'200	27'200
Max available pressure (max ESP)	Pa	521	521	473	473	582	582	536	536	536	444	444	490	490	431	431	431	431	438	438
Rotation speed	rpm	1.178	1.177	1.221	1.221	1.112	1.110	1.150	1.155	1.156	1.249	1.245	1.102	1.101	1.244	1.244	1.252	1.252	1.244	1.244
Input power	kW	1,26	1,25	1,41	1,41	2,17	2,16	2,41	2,45	2,45	3,00	2,96	3,13	3,12	4,59	4,59	4,68	4,68	6,14	6,14
Sound pressure level @ 2 m - D Version	dB(A)	56	56	57	58	58	58	58	59	59	61	61	61	61	62	62	62	63	63	67
Sound pressure level @ 2 m - D Version (max ESP)	dB(A)	60	60	60	60	63	63	63	63	63	64	64	65	65	65	65	65	66	67	69
Humidifier																				
Steam production (nominal)	kg/h	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Steam production (max)	kg/h	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Maximum input power	kW	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Maximum input current	A	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7
Specific conductivity at 20°C (min/max)	µS/cm	300 / 1'250																		
Total hardness (min/max)	mg/l CaCo3	100 / 400																		
Electrical heaters																				
Steps	n.	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Power	kW	9	9	9	9	15	15	15	15	15	18	18	24	24	24	24	24	24	27	27
Input current	A	13	13	13	13	21,7	21,7	21,7	21,7	21,7	26	26	34,6	34,6	34,6	34,6	34,6	34,6	39	39

DIRECT EXPANSION CLOSE CONTROL UNITS WITH REMOTE CONDENSERS

Size		282 Kc	332 Kc	372 Kc	422 Kc	462 Kc	502 Kc	552 Kc	592 Kc	642 Kc	772 Kc	852 Kc	922 Kc	952 Kc	992 Kc	1002 Kc	1112 Kc	1122 Kc	1442 Kc	1462 Kc
Over sized electrical heaters																				
Steps	n.	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Power	kW	12	12	12	12	18	18	18	18	18	24	24	27	27	27	27	27	27	36	36
Input current	A	17,3	17,3	17,3	17,3	26	26	26	26	26	34,6	34,6	39	39	39	39	39	39	52	52
Hot water coil																				
Heating capacity	kW	19,8	19,8	19,8	19,8	35,7	35,7	35,7	35,7	35,7	43,7	43,7	54,3	54,3	54,3	54,3	54,3	54,3	73,5	73,5
Water flow rate	m ³ /h	3,4	3,4	3,4	3,4	6,2	6,2	6,2	6,2	6,2	7,6	7,6	9,5	9,5	9,5	9,5	9,5	9,5	12,8	12,8
Pressure drop (coil+3-way valve)	kPa	77	77	77	77	79	79	79	79	79	70	70	79	79	79	79	79	79	82	82
Internal volume of the coil	dm ³	2,8	2,8	2,8	2,8	5,3	5,3	5,3	5,3	5,3	6,6	6,6	10,1	10,1	10,1	10,1	10,1	10,1	12,4	12,4
Hot gas coil																				
Heating capacity	kW	15,4	15,4	15,4	15,4	29	29	29	29	29	37,1	37,1	44,2	44,2	44,2	44,2	44,2	44,2	58,4	58,4
Condensing water pump																				
Nominal water flow	l/h	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390
Max water flow (pressure = 0 m)	l/h	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Max height (water flow = 0 m ³ /h)	l/h	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40
Condensing water pump + humidifier																				
Nominal water flow	l/h	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600
Max water flow (pressure = 0 m)	l/h	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900
Max height (water flow = 0 m ³ /h)	m	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0
Remote condenser																				
1-circuit Standard version	ACR	2x19	2x22	2x22	2x29	2x29	2x34	2x34	2x34	2x47	2x55	2x55	2x64	2x64	2x64	2x64	2x73	2x73	2x97	2x97
1-circuit Silenced version	ACR LN	2x18	2x23	2x30	2x30	2x30	2x34	2x34	2x34	2x46	2x55	2x55	2x73	2x73	2x73	2x73	2x73	2x73	2x97	2x97
1-circuit Ultrasilenced version	ACR SL	2x17	2x22	2x29	2x29	2x29	2x34	2x34	2x34	2x46	2x55	2x55	2x64	2x64	2x64	2x64	2x73	2x73	2x92	2x92
2-circuit Standard version	ACR/2	40	40	50	50	70	70	70	70	80	101	101	120	120	120	120	143	143	183	183
2-circuit Silenced version	ACR/2 LN	40	40	60	60	60	70	70	70	80	101	101	120	120	120	143	143	143	183	183
2-circuit Ultrasilenced version	ACR/2 SL	40	40	46	60	60	70	70	70	80	100	-	-	-	-	-	-	-	-	-
Power supply																				
Power supply	V/ph/Hz	400 / 3 / 50 + T + N																		

REMARKS: Condensing temperature 48°C - Filters calculated for 20% dirt - Max pressure is referred to the nominal air flow and the max tension / regulation - Hot water coil calculated for: water 40/45°C, ambient temperature 20°C and available pressure of 20 Pa - Sound pressure level measured at 2 m in open field (ISO 3744) with ducted air inlet and discharge - The condensing / condensing+humidifier water pump is calculated for a 2 m vertical difference in height respect to the pump; total length of the discharge pipe of 5 m, internal diameter of flexible pipe of 12 mm - Remote condensers suggested for external air temperature for 35°C

Series ACA Kc

Cooling capacity: from 7 to 151 kW



ACA 771 D Kc

The range of close control units with water cooled condenser, **series ACA**, is particularly indicated for use in technological centres, data processing rooms, in telecom centres and in such applications where it is important to keep the thermo-hygrometric conditions constant all over the year, so to assure the correct operation of the equipments installed in these sites. Depending on the cooling capacity, they are available with 1 and 2 cooling circuits.

Thanks to their technologically advanced design, these close control units are able to control the ambient temperature with remarkably high precision and, when the humidity level is required, to adapt their cooling capacity to the room requirements, all automatically managed by the microprocessor on board.

The high technology employed during their design together with the use of the best components available on the markets, make these units extremely reliable and therefore able to work for long periods, without a break. These units are particularly easy to install also in small spaces and easily accessible on the front side for ordinary and extraordinary service operations.

They are completely assembled and tested in the factory and supplied with refrigerant and oil charge.

The units are available in different configurations, related to the air return and discharge:

- U** front air return, upflow air discharge
- V** bottom air return, upflow air discharge
- B** back air return, upflow air discharge
- D** top air return, downflow air discharge

Operation limits: ambient temperature from 19 to 35°C - water at condenser inlet min. 20°C - outlet max 50 °C - (for water at inlet < 20°C it is necessary to install option VP).

Main components:

Structure realized with a framework and internal parts made of galvanized steel riveted profiles and supports, making the structure strong and suitable also for extreme transport and handling conditions. The external panels, fixed to frame with quick opening connections, are made of pre-painted steel sheet (RAL 9004), ensuring a long-term durability to the unit. They are internally insulated with self-extinguishing sound-proofing material (class HF1 – UL94) reducing the overall sound level of the unit. On request (option IS1), it is available the sound-proofing insulation with class 1 material in conformity to the main European regulations in force. All the front and side panels can be dismantled so to allow an easy access to the main components. Moreover, the front of the unit is provided with double panels and inspection window (not available for version U), suitably arranged to let the unit work also with open panels during technical interventions, to allow more accurate regulations and more quick timing for ordinary and extraordinary service operations.

High-efficiency scroll compressor (EER > 3.2 at ARI conditions), with low sound level, internal heat protection, installed on rubber vibration dampers, supplied with crankcase heater.

In the case of 2 circuit units, in case of problem on one of the circuit, the 50% operation of the unit is anyway granted.

Single-inlet and backward curved centrifugal fans, made of high-performance composite material, directly coupled to a three-phase electrical motor with IP54 Class F protection and provided with a thermal protection inside the motor winding. The fans are fixed on suitable supports reducing the transmission of vibration to the frame and the impeller is statically and dynamically balanced with long-life bearings. It is possible to regulate the fan speed by means of an autotransformer and to adjust their air flow to the head pressure requested on site. It is clear that a higher fans speed rotation involves an increase in the sound level of the unit.

All the units are equipped with low airflow and clogged filter alarms which, by means of differential pressure switches, stop the unit operation in case of fans problems and give a signal on microprocessor for replacement respectively.

Direct expansion evaporating coil, realized with copper tube and aluminium fins, it is suitably sized with a wide exchange surface and a low air crossing speed so to allow a remarkable heat exchange and reduce the pressure drops on the air side. It is provided with a hydrophilic treatment to reduce the surface tension between water and metal surface, promoting film condensation and avoiding the risk of condensing drops outside the drain tray.

Weld-brazed plate condenser in AISI 316 stainless steel, with pipes and patented manifold so to reach a high heat exchange coefficient. Its design allows a uniform water distribution, compatibly with pressure drops.

Condensing drain tray, made in corrosion proof peraluman, placed underneath the evaporating coil, it is provided with a flexible pipe for condensing water discharge.

Washable and self-extinguishing air filters Efficiency G4 of pleated type, they are made of synthetic fibre and are contained in a suitable metal frame. Their pleated arrangement, with a wide surface area, ensures a higher filtering efficiency and low pressure drops.

Cooling circuit made of: electronic thermostatic valve, sight glass, dehydrating filter, safety device, high pressure switch, solenoid valve (when necessary), liquid receiver, shut-off valve on compressor discharge and on liquid line. Thanks to the electronic thermostatic valve, there is a more accurate regulation of the evaporating pressure/temperature in all working conditions, with superheating at a constant value.

Electric board in compliance with CE norms, protected by a panel is separated by the air flow and is provided with main switch, automatic switches, remote control switches, motor protection switches, low-tension auxiliary circuits and terminal board for free contacts and remote general alarm, magnetothermic switches for humidifier and electric heaters (when installed).

Unit management microprocessor installed inside the electrical board, complete with hour counter and electronic card to program the switch-over and rotation between to units, after a pre-set time. On this purpose, in case of order, the information necessary for programming must be clearly defined. It allows 3 languages display reading, a detailed description of parameters, the possibility to manage up to 8 units, to manage non standard communication protocols, a quickest access to the program,

the control of the electronic thermostatic valve and of the humidifier, the control of modulating valves.

Accessories

AA	Flooding detector: placed in the downflow units, it is already wired and detects water in the false floor.
AE	Electrical power supply different from standard: mainly, 230V three-phase, 460V three-phase. Frequency 50/60 Hz.
AL	Smoke alarm: it consists of a sensor detecting smoke inside the unit and activating an alarm signal which stops the fans.
B	Adjustable base-frame from 170mm to max 600mm for installation on raised floors. It is provided with adjustable feet.
BC	Hot water coil: one-row or 2-row water coil, placed after the cooling coil for the re-heating and/or the heating of treated air. Provided with modulating actuator and with three-way valve, it is controlled by the microprocessor on board. This option is priority when requested with the electric heaters RE option. (Alternative to BG and not available with REM).
BG	Hot gas coil: placed after the cooling coil, it makes the re-heating of the treated air and is provided with a 3-way valve (ON/OFF) controlled by the microprocessor on board. It is available only with the dehumidification control (options DH) (Alternative to BC and not available with HG).
BN	Base-frame with conveyor: it is provided with a suitable conveyor facilitating the air flow and remarkably reducing the pressure drop in case of horizontal air flow. It is adjustable in height from min 400mm to max 800mm. (Only for D version).
BS	Base-frame with ON/OFF damper: it is equipped with an ON/OFF motorized damper. This device prevents the air return from the unit when it is not working or in the case some units are working near to it. Available only for D version; for other versions, being a special execution, please contact our Sales Dept.
BSN	Base-frame with conveyor and ON/OFF damper: a single base-frame with both options BS and BN so to optimize efficiency and overall dimensions.
CI	Soundproofing jacket on compressors: made of soundproofing material, wrapped all around compressors so to further reduce the overall sound level of the unit.
CS	Compressors inrush counter: Electromechanical device positioned inside the electrical board, recording the total inrush starts of compressors.
DH	Dehumidification control system: managed by microprocessor, through the electronic thermostatic valves, it operates on two parameters, ensuring that the dehumidification process is carried out with a constant air flow, without partializing the evaporating coil. This will optimize the air distribution throughout the room.

DP	Internal double panels: for shutting off the compartments affected by the air flow, they are made from pre-painted and galvanized steel plate, ensuring reduction in the noise transmitted through the panels and a better air tightness even without the external panels so that the access is guaranteed with the doors open during service operation.
EC-LP&HP	Single-inlet EC (electronically commutated) centrifugal fans with backward curved blade (LP not available for D version): made of high-performance composite material, directly coupled to a three-phase electrical rotor with IP54 protection grade, they have the possibility of a continuous regulation of the speed by means of 10V signal, sent and integrated to the control. The fans are fixed on suitable supports reducing the transmission of vibration to the frame and the impeller is statically and dynamically balanced with long-life bearings. Thanks to their technology, the EC fans ensure a lower electrical absorption and sound level, if compared to the traditional centrifugal fans. It is possible to adjust their air flow to the head pressure requested on site. In case of IT electrical supplies, this option is not available. Please contact our Sales Dept.
F5-F6-F7-F9	Higher efficiency air filters: pleated filters, supplied as an alternative to standard G4 filters.
FR	Spare filter kit G4 as a replacement to the ones on board of the unit.
H	Humidifier of immersed-electrode type for the modulating production of steam. It is made by a steam cylinder, by a steam distributor, by water inlet and outlet valves and by a maximum level probe. The microprocessor on board indicates when the steam cylinder needs to be replaced. It is electrically protected by a magnetothermic switch.
HG	Hot gas by-pass: it is a mechanical device for modulating the cooling capacity, so to reduce the ON/OFF of compressors and therefore to wait for the re-starting timing, with influence on condensing temperature. It is not available for sizes 1, 2 and 3 and with options BG and DH.
IE	Fumigated wooden crate packing: available on request for critical transports, so to assure a suitable protection to the unit.
IH	RS 485 serial interface: electronic card to be connected to microprocessor, to allow communication between the units and a Carel supervision system. It is possible to fully control the unit from remote. For connection to other supervision systems, the protocol of the controlled parameters is available on request.
IM	Seawood packing: fumigated seawood case and protection bag with hygroscopic salts, suitable for long sea transports.
IP	Magnetothermic switches for auxiliary circuits: when required, they replace the fuses, as a protection of the auxiliary circuits.
IS1	Class 1 insulating material in conformity to the main Eu-

MF	Phase monitor: electronic device controlling the correct sequence and/or the eventual lack of one of the 3 phases, switching off the unit if necessary.
MN	Lack of neutral wire for 400/3/50 power supply: unit general power supply without neutral wire.
MP	Oversized microprocessor: in addition to the standard microprocessor, it allows more languages display reading (maximum 5), it has an increased hardware so to allow the managing of more inputs and outputs for the control of on board installed components (Already included on two circuit units).
PB	Condensing water pump: micro pump discharging the condensing water produced by the unit, it is factory installed.
PBH	Condensing water and humidifier discharge pump: pump discharging the condensing water produced by the unit and the humidifier discharge water, it is factory installed.
PL	Distribution plenum with front grid and a double row of adjustable fins for a better air distribution (for versions U,V,B and not available with options ST and STM).
PQ	Remote display: remote terminal, allowing to display the temperature and humidity values detected by probes, the alarm digital inputs, the outputs and the remote ON/OFF of the unit, to change and program of the parameters, the sound signal and the display of the present alarms.
PR	Fresh air inlet: external fresh air inlet with filter, placed on side (standard on the left side), with circular connection (Ø 100 mm).
RE	Electrical heaters: made in aluminium and installed after the cooling coil, for re-heating and/or heating of the treated air. The heating capacity is split on 3 steps max, so to reduce the energy absorption. They are controlled by the microprocessor on board and electrically protected by a magnetothermic switch.
REM	Oversized Electrical heaters.
RF	Rephasing condensers (available for compressors only): electrical device for rephasing the compressors charge at power factor $\cos\Phi \geq 0,9$.
RV	Personalized frame painting in RAL colour.
SL	Main switch with external padlock.
ST	Manual calibration damper, in galvanized steel plate with opposed-movement fins. Through the manual control, it is possible to accurately regulate the air flow. (Alternative to STM and not available with option PL)
STM	Motorized calibration damper, in galvanized steel plate with opposed-movement fins. Through the modulating control (0-10V), it is possible to accurately regulate the air flow. (Alternative to ST and not available with option PL)
SV	Gravity overpressure damper for ducted units, to prevent the air return when the units are not operating, where seve-

DIRECT EXPANSION CLOSE CONTROL UNITS WITH WATER COOLED CONDENSER

TS

ral units are installed in the same room. Available for U,V,B versions; for D version, being a special execution, please contact our Sales Dept.

Touch screen graphic terminal designed to simplify user interface with the unit controller. It allows the set-point fixing, the alarm reading, the graphic display of the main controlled parameters in real time (suitable for download on USB interface) and possibility of set-point scheduling. The 4.3", 65.000 colours and 480x422 resolution display, being a dedicated terminal for the end user, does not allow to change the basic configuration of the unit.

VCP

3-way valve for regulation of the condensing pressure. (Alternative to VP)

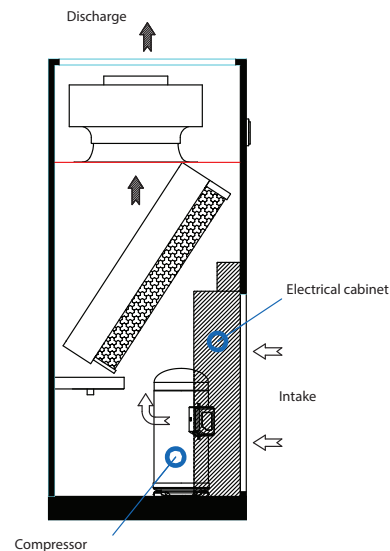
VP

2-way Pressostatic valve: it is placed on condenser water side and controls the water flow rate according to the unit condensing pressure. (Alternative to VCP).

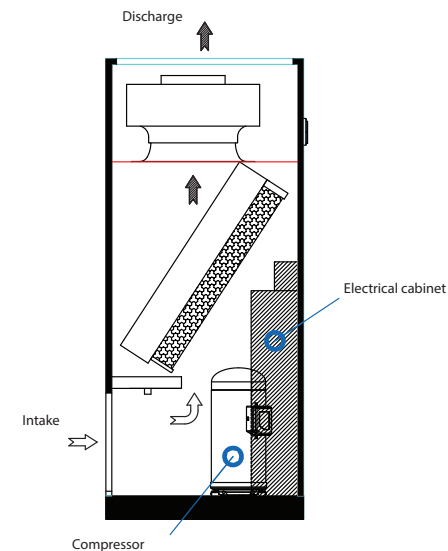
WG

Electronic card for interfacing to BMS with SNMP or TCP/IP protocols. Only available with option IH.

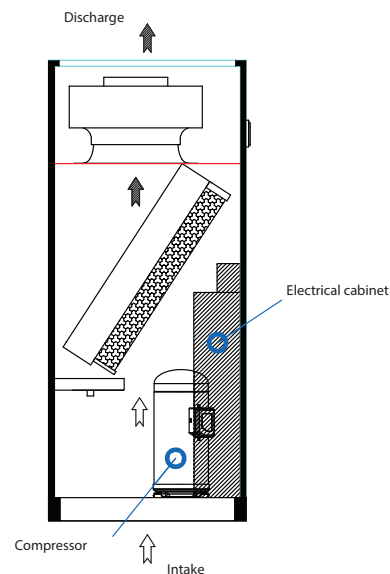
U - Frontal air intake - Upwards air discharge



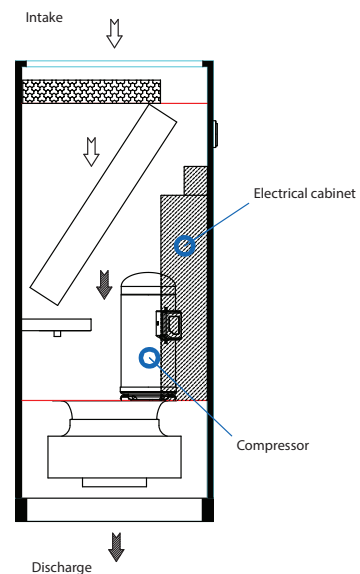
B - Back air intake - Upwards air discharge



V - Down air intake - Upwards air discharge



D - Up air intake - Downwards air discharge



ACA Kc - Dimensions and weights - 1-circuit units - U-V-B Versions

Size		71 Kc	81 Kc	101 Kc	131 Kc	161 Kc	211 Kc	231 Kc	261 Kc	271 Kc	281 Kc	331 Kc	371 Kc	421 Kc	461 Kc	501 Kc	551 Kc	591 Kc	771 Kc	921 Kc	991 Kc
Dimensions																					
Length	mm	550	550	550	750	750	980	980	980	980	1'160	1'160	1'160	1'160	1'860	1'860	1'860	1'860	2'210	2'565	2'565
Width	mm	550	550	550	550	550	750	750	750	750	850	850	850	850	850	850	850	850	850	850	850
Height	mm	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980
Weights																					
Weight - U Version	kg	176	187	191	239	245	293	302	346	302	375	375	388	413	518	520	541	544	650	768	803
Weight - V Version	kg	176	187	191	239	245	298	307	351	307	369	369	382	408	528	530	551	554	660	778	813
Weight - B Version	kg	176	187	191	234	240	303	312	356	312	375	375	388	413	538	540	561	564	665	789	823

ACA Kc - Dimensions and weights - 2-circuits units - U-V-B Versions

Size		282 Kc	332 Kc	372 Kc	422 Kc	462 Kc	502 Kc	552 Kc	592 Kc	642 Kc	772 Kc	852 Kc	922 Kc	992 Kc	1022 Kc	1112 Kc	1122 Kc	1442 Kc	1462 Kc
Dimensions																			
Length	mm	1'160	1'160	1'160	1'160	1'860	1'860	1'860	1'860	1'860	2'210	2'210	2'565	2'565	2'565	2'565	2'565	3'100	3'100
Width	mm	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850
Height	mm	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980
Weights																			
Weight - U Version	kg	411	410	423	423	529	530	549	569	573	650	695	782	817	834	874	829	1.051	1.090
Weight - V Version	kg	405	405	418	418	539	540	559	579	584	660	705	792	827	845	884	839	1.051	1.090
Weight - B Version	kg	411	410	423	423	549	550	569	589	594	665	711	802	838	855	894	849	1.062	1.100

ACA Kc - Dimensions and weights - 1-circuit units - D Versions

Size		71 Kc	81 Kc	101 Kc	131 Kc	161 Kc	211 Kc	231 Kc	261 Kc	271 Kc	281 Kc	331 Kc	371 Kc	421 Kc	461 Kc	501 Kc	551 Kc	591 Kc	771 Kc	921 Kc	991 Kc
Dimensions																					
Length	mm	550	550	550	750	750	980	980	980	980	1'160	1'160	1'160	1'160	1'860	1'860	1'860	1'860	2'210	2'565	2'565
Width	mm	550	550	550	550	550	750	750	750	750	850	850	850	850	850	850	850	850	850	850	850
Height	mm	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980
Weights																					
Weight - D Version	kg	181	192	196	234	240	303	312	356	312	375	375	388	413	548	550	571	574	675	783	818

ACA Kc - Dimensions and weights - 2-circuits units- D Versions

Size		282 Kc	332 Kc	372 Kc	422 Kc	462 Kc	502 Kc	552 Kc	592 Kc	642 Kc	772 Kc	852 Kc	922 Kc	992 Kc	1022 Kc	1112 Kc	1122 Kc	1442 Kc	1462 Kc
Dimensions																			
Length	mm	1'160	1'160	1'160	1'160	1'860	1'860	1'860	1'860	1'860	2'210	2'210	2'565	2'565	2'565	2'565	2'565	3'100	3'100
Width	mm	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850	850
Height	mm	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980
Weights																			
Weight - D Version	kg	411	410	423	423	559	560	579	599	604	675	721	797	833	850	889	844	1.082	1.120

DIRECT EXPANSION CLOSE CONTROL UNITS WITH WATER COOLED CONDENSER

ACA Kc - Technical data - 1-circuit units - U-V-B Versions

Size		71 Kc	81 Kc	101 Kc	131 Kc	161 Kc	211 Kc	231 Kc	261 Kc	271 Kc	281 Kc	331 Kc	371 Kc	421 Kc	461 Kc	501 Kc	551 Kc	591 Kc	771 Kc	921 Kc	991 Kc		
Frame																							
Frame		1			2			3				4				5				6		7	
Cooling capacity																							
Total cooling capacity (27°C - 50% R.H.)	kW	7,6	9,3	10,6	13,8	18,1	23,5	25,5	27,9	28,3	30,8	34,4	40,4	45,3	48,9	53,6	56,8	64,0	84,6	101,0	108,7		
Sensible cooling capacity (27°C - 50% R.H.)	kW	6,3	8,1	9,3	12,3	15,5	20,2	22,7	23,7	23,9	27,3	28,9	34,8	33,4	43,7	45,4	48,5	56,5	66,5	81,8	85,4		
SHR @ 27°C-50% U.R.	%	83%	87%	88%	89%	86%	86%	89%	85%	84%	89%	84%	86%	74%	89%	85%	85%	88%	79%	81%	79%		
Nominal input power (27°C - 50% R.H.)	kW	1,5	1,9	2,0	2,6	3,4	4,4	4,3	5,2	5,1	5,8	6,7	7,8	8,6	8,5	9,6	9,5	11,1	14,1	18,9	19,1		
Nominal input current (27°C - 50% R.H.)	A	3,1	4,1	4,5	4,6	6,5	10,0	9,7	9,1	11,3	11,3	15,0	17,2	17,6	17,7	18,6	18,7	22,8	29,9	37,3	37,3		
Total cooling capacity (24°C - 50% R.H.)	kW	7,0	8,5	9,7	12,7	16,6	21,5	23,5	25,6	26,0	28,2	31,4	37,1	41,7	45,6	49,8	53,2	58,9	77,5	92,9	99,8		
Sensible cooling capacity (24°C - 50% R.H.)	kW	6,1	7,7	8,9	11,8	14,9	19,4	21,9	22,8	22,9	26,3	27,6	33,3	32,1	42,3	43,9	47,2	54,0	64,0	79,0	82,2		
SHR @ 24°C-50% U.R.	%	87%	91%	92%	93%	90%	90%	93%	89%	88%	93%	88%	90%	77%	93%	88%	89%	92%	83%	85%	82%		
Nominal input power (24°C - 50% R.H.)	kW	1,5	1,9	2,1	2,6	3,4	4,4	4,3	5,2	5,1	5,7	6,6	7,7	8,5	8,4	9,4	9,4	11,0	14,0	18,7	18,9		
Nominal input current (24°C - 50% R.H.)	A	3,1	4,1	4,5	4,7	6,6	10,2	10,0	9,3	11,6	11,4	14,9	17,1	17,6	17,6	18,6	18,6	22,6	29,8	37,2	37,3		
Total cooling capacity (22°C - 50% R.H.)	kW	6,7	8,2	9,2	12,1	15,9	20,7	22,2	24,5	24,9	27,0	30,3	35,5	40,2	43,6	47,6	50,7	56,2	74,3	88,7	95,5		
Sensible cooling capacity (22°C - 50% R.H.)	kW	5,8	7,6	8,7	11,5	14,6	19,0	21,0	22,3	22,5	25,6	27,4	32,8	31,6	40,5	42,3	45,2	52,9	62,3	76,3	79,9		
SHR @ 22°C-50% U.R.	%	87%	93%	95%	95%	92%	92%	95%	91%	90%	95%	90%	92%	79%	93%	89%	89%	94%	84%	86%	84%		
Nominal input power (22°C - 50% R.H.)	kW	1,5	1,9	2,1	2,6	3,4	4,4	4,3	5,2	5,1	5,7	6,6	7,6	8,4	8,3	9,3	9,3	10,9	14,0	18,7	18,8		
Nominal input current (22°C - 50% R.H.)	A	3,2	4,1	4,5	4,7	6,7	10,3	10,1	9,4	11,8	11,5	14,8	17,0	17,5	17,6	18,6	18,6	22,6	29,8	37,2	37,2		
Scroll compressors																							
Quantity	n.	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	2	2		
Circuits	n.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Capacity steps	%	0 / 100				0/50/100				0 / 100				0 / 50 / 100									
Max input current	A	4,7	10,0	10,0	13,0	15,0	19,0	19,0	26,0	19,0	19,0	25,0	27,0	30,0	30,0	33,0	33,0	38,6	51,0	66,0	66,0		
Inrush current	A	28,0	45,0	45,0	60,0	70,0	87,0	87,0	73,0	100,0	110,0	110,0	140,0	147,0	147,0	158,0	158,0	197,0	215,0	191,0	191,0		
Water cooled condenser (27°C - 50% R.H.)																							
Quantity	n.	1																					
Water flow	m³/h	1,6	1,9	2,2	2,8	3,7	4,8	5,2	5,7	5,8	6,3	7,1	8,4	9,4	10,0	11,0	11,5	13,0	17,1	20,8	22,1		
Water flow	l/s	0,44	0,53	0,61	0,78	1,03	1,33	1,44	1,58	1,61	1,75	1,97	2,33	2,61	2,78	3,06	3,19	3,61	4,75	5,78	6,14		
Pressure drop	kPa	33	50	62	53	44	72	50	61	62	53	66	71	55	50	60	56	71	39	56	64		
Water cooled condenser (24°C - 50% R.H.)																							
Quantity	n.	1																					
Water flow	m³/h	1,5	1,8	2,0	2,7	3,5	4,5	4,8	5,3	5,4	5,9	6,6	7,7	8,7	9,3	10,3	10,8	12,1	15,9	19,3	20,6		
Water flow	l/s	0,42	0,50	0,56	0,75	0,97	1,25	1,33	1,47	1,50	1,64	1,83	2,14	2,42	2,58	2,86	3,00	3,36	4,42	5,36	5,72		
Pressure drop	kPa	30	43	55	47	38	63	44	54	55	46	57	62	48	45	54	51	63	34	50	56		
Water cooled condenser (22°C - 50% R.H.)																							
Quantity	n.	1																					
Water flow	m³/h	1,4	1,7	2,0	2,6	3,3	4,4	4,6	5,2	5,2	5,7	6,4	7,5	8,4	9,0	9,8	10,4	11,6	15,3	18,6	19,8		
Water flow	l/s	0,39	0,47	0,56	0,72	0,92	1,22	1,28	1,44	1,44	1,58	1,78	2,08	2,33	2,50	2,72	2,89	3,22	4,25	5,17	5,50		
Pressure drop	kPa	28	41	51	44	36	59	41	51	52	43	54	58	45	42	50	47	58	32	46	52		
Refrigerant charge																							
Charge per circuit	kg	3,2	3,3	3,6	3,6	4,0	3,9	4,4	4,4	4,6	6,8	6,8	7,4	7,7	7,9	7,9	8,8	8,8	14,5	15,2	19,5		
AC fans with autotransformer																							
Quantity	n.	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	3		
Fan(s) supply voltage	V	270	300	340	300	340	290	320	320	320	260	260	280	280	230	230	250	250	300	260	290		
Air flow	m³/h	2.330	2.330	2.330	3.500	3.500	5.610	5.610	5.610	5.610	5.610	7.880	7.880	7.880	13.820	13.820	13.820	13.820	16.550	21.600	21.600		
Available pressure	Pa	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20		
Rotation speed	rpm	1.192	1.250	1.307	1.266	1.325	1.090	1.143	1.143	1.143	1.150	1.150	1.189	1.189	1.075	1.075	1.122	1.122	1.227	1.145	1.204		
Input power	kW	0,35	0,37	0,4	0,64	0,69	1,02	1,1	1,1	1,1	1,52	1,52	1,63	1,63	2,71	2,71	2,97	2,97	3,44	4,61	5,09		
Input current	A	0,97	0,97	0,97	1,49	1,45	2,63	2,63	2,63	2,63	4,13	4,13	4,13	4,13	8,3	8,3	8,38	8,38	8,16	12,54	12,48		
Max available pressure (max ESP)	Pa	108	74	43	88	46	132	89	88	89	241	241	196	198	311	311	264	261	157	240	171		
Sound pressure level @ 2 m - U Version	dB(A)	52	52	52	55	55	58	59	59	59	61	61	61	61	61	62	62	63	68	65	66		
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	53	51	52	56	56	61	61	60	61	63	63	63	63	65	65	65	66	69	67	68		
Sound pressure level @ 2 m - B Version	dB(A)	48	48	48	51	52	55	55	55	56	57	58	58	58	58	58	59	60	65	62	62		
Sound pressure level @ 2 m - B Version (max ESP)	dB(A)	49	49	49	52	52	57	57	57	58	59	60	60	59	61	61	62	66	65	64	64		
Sound pressure level @ 2 m - V Version	dB(A)	48	47	47	50	51	54	54	54	54	56	56	57	57	57	57	58	59	64	60	61		
Sound pressure level @ 2 m - V Version (max ESP)	dB(A)	49	48	48	51	51	56	56	56	56	58	59	59	58	60	60	61	65	63	63	63		

DIRECT EXPANSION CLOSE CONTROL UNITS WITH WATER COOLED CONDENSER

Size		71 Kc	81 Kc	101 Kc	131 Kc	161 Kc	211 Kc	231 Kc	261 Kc	271 Kc	281 Kc	331 Kc	371 Kc	421 Kc	461 Kc	501 Kc	551 Kc	591 Kc	771 Kc	921 Kc	991 Kc
EC Fans - LP (low pressure)																					
Quantity	n.	-	-	-	-	-	1	1	1	1	1	1	1	1	2	2	2	2	2	3	3
Air flow	m³/h	-	-	-	-	-	5.610	5.610	5.610	5.610	5.610	7.880	7.880	7.880	13.820	13.820	13.820	13.820	16.550	21.600	21.600
Max available pressure (max ESP)	Pa	-	-	-	-	-	182	136	136	136	156	156	108	108	223	223	177	177	75	151	92
Rotation speed	rpm	-	-	-	-	-	1.234	1.285	1.284	1.285	1.115	1.114	1.156	1.160	1.045	1.046	1.091	1.087	1.189	1.117	1.173
Input power	kW	-	-	-	-	-	0,82	0,94	0,93	0,94	1,06	1,06	1,2	1,22	1,79	1,79	2,06	2,04	2,61	3,31	3,89
Sound pressure level @ 2 m - U Version	dB(A)	-	-	-	-	-	58	58	58	58	59	60	60	60	60	60	61	62	68	64	64
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	-	-	-	-	-	59	59	58	59	60	60	60	60	61	61	61	63	68	64	64
Sound pressure level @ 2 m - B Version	dB(A)	-	-	-	-	-	54	55	54	55	56	56	56	56	57	57	59	59	64	60	60
Sound pressure level @ 2 m - B Version (max ESP)	dB(A)	-	-	-	-	-	55	55	55	55	56	57	57	56	58	58	58	59	64	61	61
Sound pressure level @ 2 m - V Version	dB(A)	-	-	-	-	-	53	54	53	54	55	55	55	55	56	56	56	58	63	59	59
Sound pressure level @ 2 m - V Version (max ESP)	dB(A)	-	-	-	-	-	54	54	54	54	55	56	56	55	57	57	57	58	63	60	60
EC Fans - HP (High pressure)																					
Quantity	n.	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	3
Air flow	m³/h	2.330	2.330	2.330	3.500	3.500	5.610	5.610	5.610	5.610	5.610	7.880	7.880	7.880	13.820	13.820	13.820	13.820	16.550	21.600	21.600
Max available pressure (max ESP)	Pa	671	655	625	486	447	664	618	618	618	593	593	545	545	654	654	608	608	516	585	526
Rotation speed	rpm	1.216	1.242	1.294	1.262	1.315	1.235	1.283	1.282	1.283	1.116	1.115	1.156	1.160	1.044	1.045	1.090	1.086	1.190	1.116	1.171
Input power	kW	0,28	0,3	0,33	0,5	0,56	0,84	0,95	0,95	0,95	1,04	1,04	1,18	1,19	1,77	1,78	2,04	2,01	2,54	3,26	3,8
Sound pressure level @ 2 m - U Version	dB(A)	52	52	52	55	55	58	59	59	59	61	61	61	61	61	62	62	63	68	65	65
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	63	63	63	62	62	64	64	64	64	64	64	64	64	67	67	67	63	69	69	69
Sound pressure level @ 2 m - B Version	dB(A)	49	48	49	52	52	55	56	56	56	58	58	59	59	59	59	60	60	65	63	64
Sound pressure level @ 2 m - B Version (max ESP)	dB(A)	61	60	61	60	59	60	61	62	61	61	62	62	62	64	63	64	64	66	66	67
Sound pressure level @ 2 m - V Version	dB(A)	47	47	47	50	51	55	55	54	55	55	56	56	56	56	57	57	58	63	60	60
Sound pressure level @ 2 m - V Version (max ESP)	dB(A)	59	59	59	58	58	60	60	60	60	58	59	59	59	61	61	61	62	64	63	63
Humidifier																					
Steam production (nominal)	kg/h	1,5	1,5	1,5	3	3	5	5	5	5	8	8	8	8	8	8	8	8	8	8	8
Steam production (max)	kg/h	3	3	3	3	3	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Maximum input power	kW	1,12	1,12	1,12	2,25	2,25	2,25	3,75	3,75	3,75	3,75	3,75	3,75	3,75	3,75	6	6	6	6	6	6
Maximum input current	A	5	5	5	10	10	10	5,5	5,5	5,5	5,5	5,5	5,5	5,5	5,5	8,7	8,7	8,7	8,7	8,7	8,7
Specific conductivity at 20°C (min/max)	µS/cm	300 / 1'250																			
Total hardness (min/max)	mg/l CaCo3	100 / 400																			
Electrical heaters																					
Steps	n.	1	1	1	3	3	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3
Power	kW	3	3	3	4,5	4,5	6	6	6	6	9	9	9	9	9	9	15	15	18	18	24
Input current	A	4,3	4,3	4,3	6,5	6,5	8,7	8,7	8,7	8,7	13	13	13	13	13	13	21,7	21,7	26	26	34,6
Oversized electrical heaters																					
Steps	n.	3	3	3	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Power	kW	4,5	4,5	4,5	6	6	9	9	9	9	12	12	12	12	18	18	18	18	24	27	27
Input current	A	6,5	6,5	6,5	8,7	8,7	13	13	13	13	17,3	17,3	17,3	17,3	26	26	26	26	34,6	39	39
Hot water coil																					
Heating capacity	kW	4,5	4,5	4,5	6,90	6,90	10,2	10,2	10,2	10,2	19,8	19,8	19,8	19,8	35,7	35,7	35,7	35,7	43,70	54,3	54,3
Water flow rate	m³/h	0,8	0,8	0,8	1,20	1,20	1,8	1,8	1,8	1,8	3,4	3,4	3,4	3,4	6,2	6,2	6,2	6,2	7,60	9,5	9,5
Pressure drop (coil+3-way valve)	kPa	37	37	37	35	35	55	55	55	55	77	77	77	77	79	79	79	79	79	79	79
Internal volume of the coil	dm³	1	1	1	1,3	1,3	1,5	1,5	1,5	1,5	2,8	2,8	2,8	2,8	5,3	5,3	5,3	5,3	6,5	10,1	10,1
Hot gas coil																					
Heating capacity	kW	5,1	5,1	5,1	7,5	7,5	9,8	9,8	9,8	9,8	14,5	14,5	14,5	14,5	30	30	30	30	37,6	50,3	50,3
Condensing water pump																					
Nominal water flow	l/h	27,5	27,5	27,5	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390
Max water flow (pressure = 0 m)	l/h	34	34	34	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Max height (water flow = 0 m³/h)	l/h	15,0	15,0	15,0	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40
Condensing water pump + humidifier																					
Nominal water flow	l/h	-	-	-	-	-	-	-	-	-	600	600	600	600	600	600	600	600	600	600	600
Max water flow (pressure = 0 m)	l/h	-	-	-	-	-	-	-	-	-	900	900	900	900	900	900	900	900	900	900	900
Max height (water flow = 0 m³/h)	m	-	-	-	-	-	-	-	-	-	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0
Power supply																					
Power supply	V/ph/Hz	400 / 3 / 50 + T + N																			

REMARKS: Condenser IN/OUT water temperature 30-35°C - Filters calculated for 20% dirt - Max pressure is referred to the nominal air flow and the max tension/regulation - Hot water coil calculated for: water 40/45°C, ambient temperature 20°C and available pressure of 20 Pa - The condensing water pump is calculated for a 2 m vertical difference in height respect to the pump; total length of the discharge pipe of 5 m, internal diameter of the flexible pipe of 12 mm (6 mm for ACA 71-81-101). - The condenser pressure drop does not include the pressostatic valve. -The refrigerant charge does not include the gas re-heating coil.

DIRECT EXPANSION CLOSE CONTROL UNITS WITH WATER COOLED CONDENSER

ACA Kc - Technical data - 2-circuit units - U-V-B Versions

Size		282 Kc	332 Kc	372 Kc	422 Kc	462 Kc	502 Kc	552 Kc	592 Kc	642 Kc	772 Kc	852 Kc	922 Kc	992 Kc	1022 Kc	1112 Kc	1122 Kc	1442 Kc	1462 Kc
Frame		4				5				6			7				8		
Cooling capacity																			
Total cooling capacity (27°C - 50% R.H.)	kW	27,4	34,7	40,0	45,6	49,3	55,4	58,3	63,6	70,9	83,0	92,6	100,3	108,6	112,6	121,3	120,9	160,2	163,0
Sensible cooling capacity (27°C - 50% R.H.)	kW	23,0	28,9	31,9	33,8	44,0	48,6	54,0	51,8	56,2	66,4	71,6	81,5	88,9	94,8	93,6	93,8	122,3	114,8
SHR @ 27°C-50% U.R.	%	84%	83%	80%	74%	89%	88%	93%	81%	79%	80%	77%	81%	82%	84%	77%	78%	76%	70%
Nominal input power (27°C - 50% R.H.)	kW	5,3	6,9	7,6	8,9	8,7	10,2	10,2	11,5	13,0	15,2	17,1	19,1	19,1	19,8	22,6	22,1	28,1	26,5
Nominal input current (27°C - 50% R.H.)	A	9,1	13,2	15,7	20	19,6	22,9	22,4	22,6	30,1	34,4	35,3	37,3	37,3	46,5	45,4	45,2	68,6	59,7
Total cooling capacity (24°C - 50% R.H.)	kW	25,7	31,8	36,7	41,7	46,0	50,8	54,1	58,4	64,9	76,2	84,7	92,5	99,8	103,3	110,7	110,7	148,8	151,0
Sensible cooling capacity (24°C - 50% R.H.)	kW	22,3	27,8	30,7	32,4	42,4	46,8	52,5	50,0	54,0	64,0	68,6	78,8	85,6	91,0	89,6	90,0	118,7	110,9
SHR @ 24°C-50% U.R.	%	87%	87%	84%	78%	92%	92%	97%	86%	83%	84%	81%	85%	86%	88%	81%	81%	80%	73%
Nominal input power (24°C - 50% R.H.)	kW	5,3	6,9	7,6	8,9	8,7	10,2	10,2	11,4	12,9	14,9	16,9	18,9	18,9	19,9	22,4	21,8	27,7	26,4
Nominal input current (24°C - 50% R.H.)	A	9,3	13,4	16,1	20,4	20,1	23,4	23	22,8	29,9	34,2	35,2	37,3	37,3	46,5	45,7	45,2	68,1	59,6
Total cooling capacity (22°C - 50% R.H.)	kW	24,5	30,7	35,3	40,2	43,7	48,8	51,4	55,3	62,3	72,9	81,3	88,4	95,4	98,8	106,1	106,2	140,9	143,2
Sensible cooling capacity (22°C - 50% R.H.)	kW	21,4	27,2	30,0	32,0	41,0	45,4	50,1	47,8	52,8	62,1	67,6	76,3	83,5	89,4	88,1	88,6	116,1	108,6
SHR @ 22°C-50% U.R.	%	87%	89%	85%	80%	94%	93%	97%	86%	85%	85%	83%	86%	88%	90%	83%	83%	82%	76%
Nominal input power (22°C - 50% R.H.)	kW	5,3	6,5	7,6	8,9	8,7	10,1	10,2	11,4	12,9	14,7	16,8	18,8	18,8	19,9	22,3	21,7	27,5	26,3
Nominal input current (22°C - 50% R.H.)	A	9,4	13,6	16,2	20,6	20,3	23,6	23,3	22,8	29,8	34,1	35,1	37,2	37,2	47,1	45,8	45	67,9	59,7
Scroll compressors																			
Quantity	n.	2	2	2	2	2	2	2	2	2	2	2	2	2	4	4	2	4	2
Circuits	n.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Capacity steps	%	0 / 50 / 100																	
Max input current	A	26	30	30	38	38	38	38	38	50	54	60	66	66	76	76	77,2	108	102
Inrush current	A	73	85	97	106	106	119	119	129	135	167	177	191	191	157	167	235,6	221	266
Water cooled condenser (27°C - 50% R.H.)																			
Quantity	n.	2																	
Water flow	m³/h	5,7	7,2	8,2	9,4	10	11,4	11,9	13	14,5	17	19	20,7	22,1	22,9	24,9	24,8	32,6	32,8
Water flow	l/s	1,58	2,00	2,28	2,61	2,78	3,17	3,31	3,61	4,03	4,72	5,28	5,75	6,14	6,36	6,92	6,89	9,06	9,11
Pressure drop	kPa	53	84	53	68	48	60	65	55	55	46	56	67	61	66	65	65	64	65
Water cooled condenser (24°C - 50% R.H.)																			
Quantity	n.	2																	
Water flow	m³/h	5,4	6,7	7,7	8,8	9,5	10,6	11,1	12,1	13,5	15,8	17,6	19,3	20,6	21,3	23	23	30,6	30,7
Water flow	l/s	1,50	1,86	2,14	2,44	2,64	2,94	3,08	3,36	3,75	4,39	4,89	5,36	5,72	5,92	6,39	6,39	8,50	8,53
Pressure drop	kPa	48	74	46	60	43	53	58	49	48	40	49	59	54	58	57	56	57	58
Water cooled condenser (22°C - 50% R.H.)																			
Quantity	n.	2																	
Water flow	m³/h	5,2	6,5	7,4	8,5	9,1	10,2	10,7	11,5	13	15,2	17	18,6	19,8	20,6	22,2	22,2	29,2	29,4
Water flow	l/s	1,44	1,81	2,06	2,36	2,53	2,83	2,97	3,19	3,61	4,22	4,72	5,17	5,50	5,72	6,17	6,17	8,11	8,17
Pressure drop	kPa	45	70	44	57	40	50	54	45	45	37	46	55	50	54	53	53	52	53
Refrigerant charge																			
Charge per circuit	kg	3,9	3,8	4,2	4,2	4,3	4,8	5,1	5,2	5,4	8,0	8,0	8,7	9,8	9,7	10,0	10,0	15,3	15,4
AC fans with autotransformer																			
Quantity	n.	1	1	1	1	2	2	2	2	2	2	2	3	3	3	3	3	4	4
Fan(s) supply voltage	V	260	260	280	280	230	230	250	250	250	300	300	260	290	300	290	290	280	280
Air flow	m³/h	7'880	7'880	7'880	7'880	13'820	13'820	13'820	13'820	13'820	16'550	16'550	21'600	21'600	21'600	21'600	21'600	27'200	27'200
Available pressure	Pa	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Rotation speed	rpm	1.150	1.150	1.189	1.189	1.075	1.075	1.122	1.122	1.122	1.227	1.227	1.145	1.204	1.222	1.204	1.204	1.185	1.185
Input power	kW	1,52	1,52	1,63	1,63	2,71	2,71	2,97	2,97	2,97	3,44	3,44	4,61	5,09	5,24	5,09	5,09	6,6	6,6
Input current	A	4,13	4,13	4,13	4,13	8,3	8,3	8,38	8,38	8,38	8,16	8,16	12,54	12,48	12,42	12,48	12,48	16,72	16,72
Max available pressure (max ESP)	Pa	242	242	197	198	311	310	262	263	263	157	156	240	171	170	171	171	191	193
Sound pressure level @ 2 m - U Version	dB(A)	60	60	61	62	62	62	62	63	63	65	65	65	66	66	66	67	67	71
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	62	62	63	63	65	65	65	65	66	67	66	67	68	68	68	68	69	72
Sound pressure level @ 2 m - B Version	dB(A)	56	56	58	58	58	58	59	59	60	62	62	62	62	62	63	63	64	67
Sound pressure level @ 2 m - B Version (max ESP)	dB(A)	59	59	60	60	62	62	62	62	63	63	64	65	64	64	64	64	65	68
Sound pressure level @ 2 m - V Version	dB(A)	55	55	57	57	58	58	58	58	59	61	60	60	61	61	62	62	62	66
Sound pressure level @ 2 m -V Version (max ESP)	dB(A)	58	58	59	59	62	62	61	61	61	62	62	63	63	63	63	64	64	67

INTECH LINE

REMARKS: Condenser IN/OUT water temperature 30-35°C - Filters calculated for 20% dirt - Max pressure is referred to the nominal air flow and the max tension/regulation - Hot water coil calculated for: water 40/45°C, ambient temperature 20°C and available pressure of 20 Pa - The condensing water pump is calculated for a 2 m vertical difference in height respect to the pump; total length of the discharge pipe of 5 m, internal diameter of the flexible pipe of 12 mm - The condenser pressure drop does not include the pressostatic valve. -The refrigerant charge does not include the gas re-heating coil.

INTECH LINE

Thermocold
THE AIRVOLUTION

DIRECT EXPANSION CLOSE CONTROL UNITS WITH WATER COOLED CONDENSER

Size		71 Kc	81 Kc	101 Kc	131 Kc	161 Kc	211 Kc	231 Kc	261 Kc	271 Kc	281 Kc	331 Kc	371 Kc	421 Kc	461 Kc	501 Kc	551 Kc	591 Kc	771 Kc	921 Kc	991 Kc
EC Fans - HP (High pressure)																					
Quantity	n.	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	3
Air flow	m³/h	2.330	2.330	2.330	3.500	3.500	5.610	5.610	5.610	5.610	5.610	7.880	7.880	7.880	13.820	13.820	13.820	13.820	16.550	21.600	21.600
Max available pressure (max ESP)	Pa	640	623	594	454	415	648	603	603	603	521	521	473	473	582	582	536	536	444	490	431
Rotation speed	rpm	1.270	1.296	1.346	1.305	1.357	1.251	1.299	1.298	1.299	1.178	1.177	1.217	1.220	1.112	1.113	1.155	1.152	1.249	1.200	1.251
Input power	kW	0,32	0,34	0,37	0,55	0,62	0,88	0,99	0,99	0,99	1,26	1,25	1,4	1,41	2,17	2,18	2,45	2,43	3	4,1	4,67
Sound pressure level @ 2 m - D Version	dB(A)	48	48	48	52	52	56	56	56	56	57	57	57	57	58	58	58	59	64	61	62
Sound pressure level @ 2 m - D Version (max ESP)	dB(A)	61	61	61	60	60	62	62	61	62	60	60	60	60	63	63	63	63	65	65	65
Humidifier																					
Steam production (nominal)	kg/h	1,5	1,5	1,5	3	3	5	5	5	5	8	8	8	8	8	8	8	8	8	8	8
Steam production (max)	kg/h	3	3	3	3	3	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Maximum input power	kW	1,12	1,12	1,12	2,25	2,25	2,25	3,75	3,75	3,75	3,75	3,75	3,75	3,75	3,75	6	6	6	6	6	6
Maximum input current	A	5	5	5	10	10	10	5,5	5,5	5,5	5,5	5,5	5,5	5,5	5,5	8,7	8,7	8,7	8,7	8,7	8,7
Specific conductivity at 20°C (min/max)	µS/cm	300 / 1'250																			
Total hardness (min/max)	mg/l CaCo3	100 / 400																			
Electrical heaters																					
Steps	n.	1	1	1	3	3	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3
Power	kW	3	3	3	4,5	4,5	6	6	6	6	9	9	9	9	9	9	15	15	18	18	24
Input current	A	4,3	4,3	4,3	6,5	6,5	8,7	8,7	8,7	8,7	13	13	13	13	13	13	21,7	21,7	26	26	34,6
Oversized electrical heaters																					
Steps	n.	3	3	3	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Power	kW	4,5	4,5	4,5	6	6	9	9	9	9	12	12	12	12	18	18	18	18	24	27	27
Input current	A	6,5	6,5	6,5	8,7	8,7	13	13	13	13	17,3	17,3	17,3	17,3	26	26	26	26	34,6	39	39
Hot water coil																					
Heating capacity	kW	4,5	4,5	4,5	6,90	6,90	10,2	10,2	10,2	10,2	19,8	19,8	19,8	19,8	35,7	35,7	35,7	35,7	43,70	54,3	54,3
Water flow rate	m³/h	0,8	0,8	0,8	1,20	1,20	1,8	1,8	1,8	1,8	3,4	3,4	3,4	3,4	6,2	6,2	6,2	6,2	7,60	9,5	9,5
Pressure drop (coil+3-way valve)	kPa	37	37	37	35	35	55	55	55	55	77	77	77	77	79	79	79	79	70	79	79
Internal volume of the coil	dm³	1	1	1	1,3	1,3	1,5	1,5	1,5	1,5	2,8	2,8	2,8	2,8	5,3	5,3	5,3	5,3	6,5	10,1	10,1
Hot gas coil																					
Heating capacity	kW	5,1	5,1	5,1	7,5	7,5	9,8	9,8	9,8	9,8	14,5	14,5	14,5	14,5	30	30	30	30	37,6	50,3	50,3
Condensing water pump																					
Nominal water flow	l/h	27,5	27,5	27,5	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390
Max water flow (pressure = 0 m)	l/h	34	34	34	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Max height (water flow = 0 m³/h)	l/h	15,0	15,0	15,0	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40
Condensing water pump + humidifier																					
Nominal water flow	l/h	-	-	-	-	-	-	-	-	-	600	600	600	600	600	600	600	600	600	600	600
Max water flow (pressure = 0 m)	l/h	-	-	-	-	-	-	-	-	-	900	900	900	900	900	900	900	900	900	900	900
Max height (water flow = 0 m³/h)	m	-	-	-	-	-	-	-	-	-	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0
Power supply																					
Power supply	V/ph/Hz	400 / 3 / 50 + T + N																			

REMARKS: Condenser IN/OUT water temperature 30-35°C - Filters calculated for 20% dirt - Max pressure is referred to the nominal air flow and the max tension/regulation - Hot water coil calculated for: water 40/45°C, ambient temperature 20°C and available pressure of 20 Pa - The condensing water pump is calculated for a 2 m vertical difference in height respect to the pump; total length of the discharge pipe of 5 m, internal diameter of the flexible pipe of 12 mm (6 mm for ACA 71-81-101). - The condenser pressure drop does not include the pressostatic valve. -The refrigerant charge does not include the gas re-heating coil.

DIRECT EXPANSION CLOSE CONTROL UNITS WITH WATER COOLED CONDENSER

ACA Kc - Technical data - 2-circuit units - D Version

Size		282 Kc	332 Kc	372 Kc	422 Kc	462 Kc	502 Kc	552 Kc	592 Kc	642 Kc	772 Kc	852 Kc	922 Kc	992 Kc	1022 Kc	1112 Kc	1122 Kc	1442 Kc	1462 Kc
Frame																			
Frame		4				5				6			7				8		
Potenza frigorifera																			
Total cooling capacity (27°C - 50% R.H.)	kW	27,4	34,7	40,0	45,6	49,3	55,4	58,3	63,6	70,9	83,0	92,6	100,3	108,6	112,6	121,3	120,9	160,2	163,0
Sensible cooling capacity (27°C - 50% R.H.)	kW	23,0	28,9	31,9	33,8	44,0	48,6	54,0	51,8	56,2	66,4	71,6	81,5	88,9	94,8	93,6	93,8	122,3	114,8
SHR @ 27°C-50% U.R.	%	84%	83%	80%	74%	89%	88%	93%	81%	79%	80%	77%	81%	82%	84%	77%	78%	76%	70%
Nominal input power (27°C - 50% R.H.)	kW	5,3	6,9	7,6	8,9	8,7	10,2	10,2	11,5	13,0	15,2	17,1	19,1	19,1	19,8	22,6	22,1	28,1	26,5
Nominal input current (27°C - 50% R.H.)	A	9,1	13,2	15,7	20	19,6	22,9	22,4	22,6	30,1	34,4	35,3	37,3	37,3	46,5	45,4	45,2	68,6	59,7
Total cooling capacity (24°C - 50% R.H.)	kW	25,7	31,8	36,7	41,7	46,0	50,8	54,1	58,4	64,9	76,2	84,7	92,5	99,8	103,3	110,7	110,7	148,8	151,0
Sensible cooling capacity (24°C - 50% R.H.)	kW	22,3	27,8	30,7	32,4	42,4	46,8	52,5	50,0	54,0	64,0	68,6	78,8	85,6	91,0	89,6	90,0	118,7	110,9
SHR @ 24°C-50% U.R.	%	87%	87%	84%	78%	92%	92%	97%	86%	83%	84%	81%	85%	86%	88%	81%	81%	80%	73%
Nominal input power (24°C - 50% R.H.)	kW	5,3	6,9	7,6	8,9	8,7	10,2	10,2	11,4	12,9	14,9	16,9	18,9	18,9	19,9	22,4	21,8	27,7	26,4
Nominal input current (24°C - 50% R.H.)	A	9,3	13,4	16,1	20,4	20,1	23,4	23	22,8	29,9	34,2	35,2	37,3	37,3	46,5	45,7	45,2	68,1	59,6
Total cooling capacity (22°C - 50% R.H.)	kW	24,5	30,7	35,3	40,2	43,7	48,8	51,4	55,3	62,3	72,9	81,3	88,4	95,4	98,8	106,1	106,2	140,9	143,2
Sensible cooling capacity (22°C - 50% R.H.)	kW	21,4	27,2	30,0	32,0	41,0	45,4	50,1	47,8	52,8	62,1	67,6	76,3	83,5	89,4	88,1	88,6	116,1	108,6
SHR @ 22°C-50% U.R.	%	87%	89%	85%	80%	94%	93%	97%	86%	85%	85%	83%	86%	88%	90%	83%	83%	82%	76%
Nominal input power (22°C - 50% R.H.)	kW	5,3	6,5	7,6	8,9	8,7	10,1	10,2	11,4	12,9	14,7	16,8	18,8	18,8	19,9	22,3	21,7	27,5	26,3
Nominal input current (22°C - 50% R.H.)	A	9,4	13,6	16,2	20,6	20,3	23,6	23,3	22,8	29,8	34,1	35,1	37,2	37,2	47,1	45,8	45	67,9	59,7
Scroll compressors																			
Quantity	n.	2	2	2	2	2	2	2	2	2	2	2	2	2	4	4	2	4	2
Circuits	n.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Capacity steps	%	0/50/100																	
Max input current	A	26	30	30	38	38	38	38	38	50	54	60	66	66	76	76	77,2	108	102
Inrush current	A	73	85	97	106	106	119	119	129	135	167	177	191	191	157	167	235,6	221	266
Water cooled condenser (27°C - 50% R.H.)																			
Quantity	n.	2																	
Water flow	m³/h	5,7	7,2	8,2	9,4	10	11,4	11,9	13	14,5	17	19	20,7	22,1	22,9	24,9	24,8	32,6	32,8
Water flow	l/s	1,58	2,00	2,28	2,61	2,78	3,17	3,31	3,61	4,03	4,72	5,28	5,75	6,14	6,36	6,92	6,89	9,06	9,11
Pressure drop	kPa	53	84	53	68	48	60	65	55	55	46	56	67	61	66	65	65	64	65
Water cooled condenser (24°C - 50% R.H.)																			
Quantity	n.	2																	
Water flow	m³/h	5,4	6,7	7,7	8,8	9,5	10,6	11,1	12,1	13,5	15,8	17,6	19,3	20,6	21,3	23	23	30,6	30,7
Water flow	l/s	1,50	1,86	2,14	2,44	2,64	2,94	3,08	3,36	3,75	4,39	4,89	5,36	5,72	5,92	6,39	6,39	8,50	8,53
Pressure drop	kPa	48	74	46	60	43	53	58	49	48	40	49	59	54	58	57	56	57	58
Water cooled condenser (22°C - 50% R.H.)																			
Quantity	n.	2																	
Water flow	m³/h	5,2	6,5	7,4	8,5	9,1	10,2	10,7	11,5	13	15,2	17	18,6	19,8	20,6	22,2	22,2	29,2	29,4
Water flow	l/s	1,44	1,81	2,06	2,36	2,53	2,83	2,97	3,19	3,61	4,22	4,72	5,17	5,50	5,72	6,17	6,17	8,11	8,17
Pressure drop	kPa	45	70	44	57	40	50	54	45	45	37	46	55	50	54	53	53	52	53
Refrigerant charge																			
Charge per circuit	kg	3,9	3,8	4,2	4,2	4,3	4,8	5,1	5,2	5,4	8,0	8,0	8,7	9,8	9,7	10,0	10,0	15,3	15,4
AC fans with autotransformer																			
Quantity	n.	1	1	1	1	2	2	2	2	2	2	2	3	3	3	3	3	4	4
Fan(s) supply voltage	V	290	290	320	320	260	260	280	280	280	340	340	310	340	360	340	340	340	340
Air flow	m³/h	7'880	7'880	7'880	7'880	13'820	13'820	13'820	13'820	13'820	16'550	16'550	21'600	21'600	21'600	21'600	21'600	27'200	27'200
Available pressure	Pa	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Rotation speed	rpm	1.207	1.207	1.256	1.256	1.144	1.144	1.185	1.185	1.185	1.287	1.287	1.239	1.283	1.307	1.283	1.283	1.283	1.283
Input power	kW	1,68	1,68	1,82	1,82	3,08	3,08	3,3	3,3	3,3	3,79	3,79	5,37	5,73	5,92	5,73	5,73	7,62	7,62
Input current	A	4,12	4,12	4,09	4,09	8,38	8,38	8,36	8,36	8,36	8,08	8,08	12,39	12,24	12,21	12,24	12,24	16,32	16,32
Max available pressure (max ESP)	Pa	176	176	118	118	239	238	194	195	194	85	85	135	81	80	81	81	82	83
Sound pressure level @ 2 m - D Version	dB(A)	58	58	59	59	59	59	60	60	60	63	63	63	64	64	64	64	65	67
Sound pressure level @ 2 m - D Version (max ESP)	dB(A)	59	59	60	60	62	62	62	62	63	64	64	64	64	65	65	65	66	68

DIRECT EXPANSION CLOSE CONTROL UNITS WITH WATER COOLED CONDENSER

Size		282 Kc	332 Kc	372 Kc	422 Kc	462 Kc	502 Kc	552 Kc	592 Kc	642 Kc	772 Kc	852 Kc	922 Kc	992 Kc	1022 Kc	1112 Kc	1122 Kc	1442 Kc	1462 Kc
EC Fans - HP (High pressure)																			
Quantity	n.	1	1	1	1	2	2	2	2	2	2	2	3	3	3	3	3	4	4
Air flow	m³/h	7'880	7'880	7'880	7'880	13'820	13'820	13'820	13'820	13'820	16'550	16'550	21'600	21'600	21'600	21'600	21'600	27'200	27'200
Max available pressure (max ESP)	Pa	521	521	473	473	582	582	536	536	536	444	444	490	431	431	431	431	438	438
Rotation speed	rpm	1.179	1.179	1.220	1.220	1.112	1.112	1.155	1.156	1.155	1.249	1.249	1.200	1.251	1.247	1.251	1.251	1.240	1.244
Input power	kW	1,26	1,26	1,41	1,41	2,17	2,17	2,45	2,45	2,45	3	3	4,1	4,67	4,62	4,67	4,67	6,08	6,14
Sound pressure level @ 2 m - D Version	dB(A)	56	56	57	58	58	58	60	60	60	63	63	63	62	62	62	63	63	67
Sound pressure level @ 2 m - D Version (max ESP)	dB(A)	60	60	60	60	63	63	62	62	63	64	64	64	65	65	65	66	67	69
Humidifier																			
Steam production (nominal)	kg/h	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Steam production (max)	kg/h	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Maximum input power	kW	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Maximum input current	A	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7
Specific conductivity at 20°C (min/max)	µS/cm	300 / 1'250																	
Total hardness (min/max)	mg/l CaCo3	100 / 400																	
Electrical heaters																			
Steps	n.	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Power	kW	9	9	9	9	15	15	15	15	15	18	18	24	24	24	24	24	27	27
Input current	A	13	13	13	13	21,7	21,7	21,7	21,7	21,7	26	26	34,6	34,6	34,6	34,6	34,6	39	39
Oversized electrical heaters																			
Steps	n.	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Power	kW	12	12	12	12	18	18	18	18	18	24	24	27	27	27	27	27	36	36
Input current	A	17,3	17,3	17,3	17,3	26	26	26	26	26	34,6	34,6	39	39	39	39	39	52	52
Hot water coil																			
Heating capacity	kW	19,8	19,8	19,8	19,8	35,7	35,7	35,7	35,7	35,7	43,7	43,7	54,3	54,3	54,3	54,3	54,3	73,5	73,5
Water flow rate	m³/h	3,4	3,4	3,4	3,4	6,2	6,2	6,2	6,2	6,2	7,6	7,6	9,5	9,5	9,5	9,5	9,5	12,8	12,8
Pressure drop (coil+3-way valve)	kPa	77	77	77	77	79	79	79	79	79	70	70	79	79	79	79	79	82	82
Internal volume of the coil	dm³	2,8	2,8	2,8	2,8	5,3	5,3	5,3	5,3	5,3	6,6	6,6	10,1	10,1	10,1	10,1	10,1	12,4	12,4
Hot gas coil																			
Heating capacity	kW	15,4	15,4	15,4	15,4	29	29	29	29	29	37,1	37,1	44,2	44,2	44,2	44,2	44,2	58,4	58,4
Condensing water pump																			
Nominal water flow	l/h	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390	390
Max water flow (pressure = 0 m)	l/h	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Max height (water flow = 0 m³/h)	l/h	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40
Condensing water pump + humidifier																			
Nominal water flow	l/h	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600
Max water flow (pressure = 0 m)	l/h	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900	900
Max height (water flow = 0 m³/h)	m	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0
Power supply																			
Power supply	V/ph/Hz	400 / 3 / 50 + T + N																	

REMARKS: Condenser IN/OUT water temperature 30-35°C - Filters calculated for 20% dirt - Max pressure is referred to the nominal air flow and the max tension/regulation - Hot water coil calculated for: water 40/45°C, ambient temperature 20°C and available pressure of 20 Pa - The condensing water pump is calculated for a 2 m vertical difference in height respect to the pump; total length of the discharge pipe of 5 m, internal diameter of the flexible pipe of 12 mm - The condenser pressure drop does not include the pressostatic valve. -The refrigerant charge does not include the gas re-heating coil.

Series ABED Kc

Cooling capacity: from 6,3 to 135 kW



The range of close control units with remote condensing units, **series ABED**, is particularly indicated for use in technological centres, data processing rooms, in telecom centres and in such applications where it is important to keep the thermo-hygrometric conditions constant all over the year, so to assure the correct operation of the equipments installed in these sites.

Depending on the cooling capacity, they are available with 1 and 2 cooling circuits.

Thanks to their technologically advanced design, these close control units are able to control the ambient temperature with remarkably high precision and, when the humidity level is required, to adapt their cooling capacity to the room requirements, all automatically managed by the microprocessor on board.

The high technology employed during their design together with the use of the best components available on the markets, make these units extremely reliable and therefore able to work for long periods, without a break.

These units are particularly easy to install also in small spaces and easily accessible on the front side for ordinary and extraordinary service operations.

They are completely assembled and tested in the factory and supplied under dry air pressure and with oil charge.

The units are available in different configurations, related to the air return and discharge:

- U** front air return, upflow air discharge
- V** bottom air return, upflow air discharge
- B** back air return, upflow air discharge
- D** top air return, downflow air discharge

Operation limits: ambient temperature from 18 to 35°C.

Main components:

Structure realized with a framework and internal parts made of galvanized steel riveted profiles and supports, making the structure strong and suitable also for extreme transport and handling conditions. The external panels, fixed to frame with quick opening connections, are made of pre-painted steel sheet (RAL 9004), ensuring a long-term durability to the unit. They are internally insulated with self-extinguishing sound-proofing material (class HF1 – UL94) reducing the overall sound level of the unit. On request (option IS1), it is available the sound-proofing insulation with class 1 material in conformity to the main European regulations in force. All the front and side panels can be dismantled so to allow an easy access to the main components. Moreover, the front of the unit is provided with double panels and inspection windows (not available for version U), suitably arranged to let the unit work also with open panels during technical interventions, to allow more accurate regulations and more quick timing for ordinary and extraordinary service operations.

Single-inlet and backward curved centrifugal fans made of high-performance composite material, directly coupled to a three-phase electrical motor with IP54 Class F protection and provided with a thermal protec-

tion inside the motor winding. The fans are fixed on suitable supports reducing the transmission of vibration to the frame and the impeller is statically and dynamically balanced with long-life bearings. It is possible to regulate the fan speed by means of an autotransformer and to adjust their air flow to the head pressure requested on site. It is clear that a higher fans speed rotation involves an increase in the sound level of the unit. All the units are equipped with low airflow and clogged filter alarms which, by means of differential pressure switches, stop the unit operation in case of fans problems and give a signal on microprocessor for replacement respectively.

Direct expansion evaporating coil, realized with copper tube and aluminium fins, it is suitably sized with a wide exchange surface and a low air crossing speed so to allow a remarkable heat exchange and reduce the pressure drops on the air side. It is provided with a hydrophilic treatment to reduce the surface tension between water and metal surface, promoting film condensation and avoiding the risk of condensing drops outside the drain tray.

Condensing drain tray, made in corrosion proof peraluman, placed underneath the evaporating coil, it is provided with a flexible pipe for condensing water discharge.

Washable and self-extinguishing air filters Efficiency G4 – of pleated type, they are made of synthetic fibre and are contained in a suitable metal frame. Their pleated arrangement, with a wide surface area, ensures a higher filtering efficiency and low pressure drops.

Cooling circuit made of: electronic thermostatic valve, solenoid valve and sight glass on the liquid line, shut-off valve on compressor's discharge. Thanks to the electronic thermostatic valve, there is a more accurate regulation of the evaporating pressure/temperature in all working conditions, with superheating at a constant value.

Electric board in compliance with CE norms, protected by a panel is separated by the air flow and is provided with main switch, automatic switches, remote control switches, motor protection switches, low-tension auxiliary circuits and terminal board for free contacts and remote general alarm, magnetothermic switches for humidifier and electric heaters (when installed).

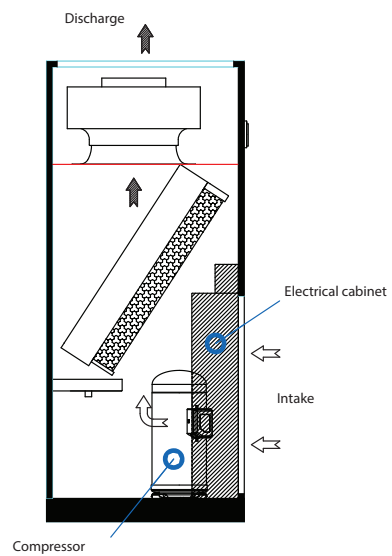
Unit management microprocessor installed inside the electrical board, complete with hour counter and electronic card to program the switch-over and rotation between to units, after a pre-set time. On this purpose, in case of order, the information necessary for programming must be clearly defined. It allows 3 languages display reading, a detailed description of parameters, the possibility to manage up to 8 units, to manage non standard communication protocols, a quickest access to the program, the control of the electronic thermostatic valve and of the humidifier, the control of modulating valves.



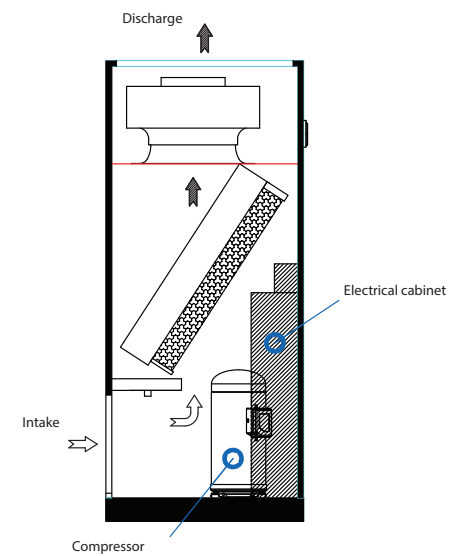
ABED 852 D Kc

Accessories			
AA	Flooding detector: placed in the downflow units, it is already wired and detects water in the false floor.		
AE	Electrical power supply different from standard: mainly, 230V three-phase, 460V three-phase. Frequency 50/60 Hz.		
AL	Smoke alarm: it consists of a sensor detecting smoke inside the unit and activating an alarm signal which stops the fans.		
B	Adjustable base-frame from 170mm to max 600mm for installation on raised floors. It is provided with adjustable feet.		
BC	Hot water coil: one-row or 2-row water coil, placed after the cooling coil for the re-heating and/or the heating of treated air. Provided with modulating actuator and with three-way valve, it is controlled by the microprocessor on board. This option is priority when requested with the electric heaters RE option. (Alternative to BG and not available with REM).	F5-F6-F7-F9	Higher efficiency air filters: pleated filters, supplied as an alternative to standard G4 filters.
BG	Hot gas coil: placed after the cooling coil, it makes the re-heating of the treated air and is provided with a 3-way valve (ON/OFF) controlled by the microprocessor on board. It is available only with the dehumidification control. (options DH) (Alternative to BC and not available with HG)	FR	Spare filter kit G4 as a replacement to the ones on board of the unit.
BN	Base-frame with conveyor: it is provided with a suitable conveyor facilitating the air flow and remarkably reducing the pressure drop in case of horizontal air flow. It is adjustable in height from min 400mm to max 800mm. (Only for D version).	H	Humidifier of immersed-electrode type for the modulating production of steam. It is made by a steam cylinder, by a steam distributor, by water inlet and outlet valves and by a maximum level probe. The microprocessor on board indicates when the steam cylinder needs to be replaced. It is electrically protected by a magnetothermic switch.
BS	Base-frame with ON/OFF damper: it is equipped with an ON/OFF motorized damper. This device prevents the air return from the unit when it is not working or in the case some units are working near to it. Available only for D version; for other versions, being a special execution, please contact our Sales Dept.	IE	Fumigated wooden crate packing: available on request for critical transports, so to assure a suitable protection to the unit.
BSN	Base-frame with conveyor and ON/OFF damper: a single base-frame with both options BS and BN so to optimize efficiency and overall dimensions.	IH	RS 485 serial interface: electronic card to be connected to microprocessor, to allow communication between the units and a Carel supervision system. It is possible to fully control the unit from remote. For connection to other supervision systems, the protocol of the controlled parameters is available on request.
DH	Dehumidification control system: managed by microprocessor, through the electronic thermostatic valves, it operates on two parameters, ensuring that the dehumidification process is carried out with a constant air flow, without partializing the evaporating coil.	IM	Seawood packing: fumigated seawood case and protection bag with hygroscopic salts, suitable for long sea transports.
DP	Internal double panels: for shutting off the compartments affected by the air flow, they are made from pre-painted and galvanized steel plate, ensuring reduction in the noise transmitted through the panels and a better air tightness even without the external panels so that the access is guaranteed with the doors open during service operation.	IP	Magnetothermic switches for auxiliary circuits: when required, they replace the fuses, as a protection of the auxiliary circuits.
EC-LP&HP	Single-inlet EC (electronically commutated) centrifugal fans wit backward curved blade (LP not available for D version): made of high-performance composite material,	IS1	Class 1 insulating material in conformity to the main European regulations in force.
		MF	Phase monitor: electronic device controlling the correct sequence and/or the eventual lack of one of the 3 phases, switching off the unit if necessary.
		MN	Lack of neutral wire for 400/3/50 power supply: unit general power supply without neutral wire.
		MP	Oversized microprocessor: in addition to the standard microprocessor, it allows more languages display reading (maximum 5), it has an increased hardware so to allow the managing of more inputs and outputs for the control of on board installed components. (Already included on two circuit units)
		PB	Condensing water pump: micro pump discharging the condensing water produced by the unit, it is factory installed.
		PBH	Condensing water and humidifier discharge pump: pump discharging the condensing water produced by the unit and the humidifier discharge water, it is factory installed.
		PL	Distribution plenum with front grid and a double row of adjustable fins for a better air distribution (for versions U,V,B and not available with options ST and STM).
		PQ	Remote display: remote terminal, allowing to display the temperature and humidity values detected by probes, the alarm digital inputs, the outputs and the remote ON/OFF of the unit, to change and program of the parameters, the sound signal and the display of the present alarms.
		PR	Fresh air inlet: external fresh air inlet with filter, placed on side (standard on the left side), with circular connection (Ø 100 mm).
		RE	Electrical heaters: made in aluminium and installed after the cooling coil, for re-heating and/or heating of the treated air. The heating capacity is split on 3 steps max, so to reduce the energy absorption. They are controlled by the microprocessor on board and electrically protected by a magnetothermic switch.
		REM	Oversized Electrical heaters.
		RV	Personalized frame painting in RAL colour.
		SL	Main switch with external padlock.
		ST	Manual calibration damper, in galvanized steel plate with opposed-movement fins. Through the manual control, it is possible to accurately regulate the air flow. (Alternative to STM and not available with option PL)
		STM	Motorized calibration damper, in galvanized steel plate with opposed-movement fins. Through the modulating control (0-10V), it is possible to accurately regulate the air flow. (Alternative to ST and not available with option PL)
		SV	Gravity overpressure damper for ducted units, to prevent the air return when the units are not operating, where several units are installed in the same room. Available for U,V,B versions; for D version, being a special execution, please contact our Sales Dept.
		TS	Touch screen graphic terminal designed to simplify user interface with the unit controller. It allows the set-point fixing, the alarm reading, the graphic display of the main controlled parameters in real time (suitable for download on USB interface) and possibility of set-point scheduling. The 4.3", 65.000 colours and 480x422 resolution display, being a dedicated terminal for the end user, does not allow to change the basic configuration of the unit
		WG	Electronic card for interfacing to BMS with SNMP or TCP/IP protocols. Only available with option IH.

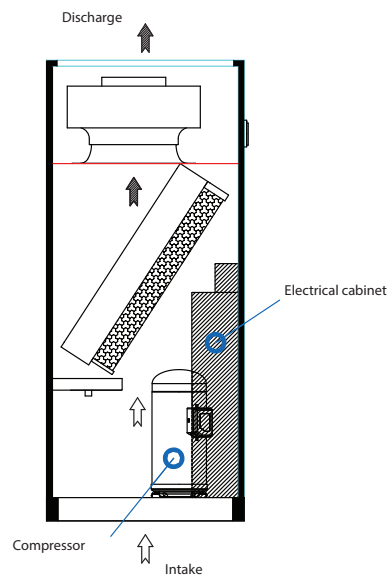
U - Frontal air intake - Upwards air discharge



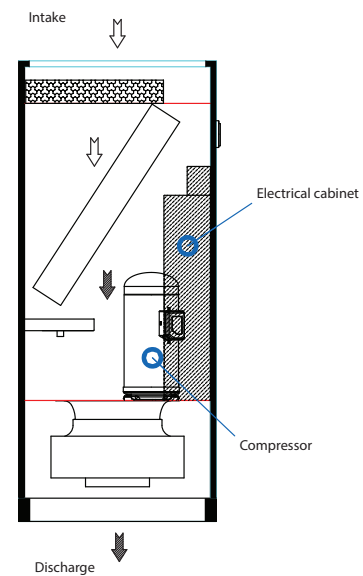
B - Back air intake - Upwards air discharge



V - Down air intake - Upwards air discharge



D - Up air intake - Downwards air discharge



ABED Kc - Dimensions and weights - 1-circuit units - U-V-B Versions

Size		71 Kc	81 Kc	101 Kc	131 Kc	161 Kc	211 Kc	271 Kc	331 Kc	421 Kc	501 Kc	591 Kc	771 Kc	921 Kc	991 Kc
Dimensions															
Length	mm	550	550	550	750	750	980	980	1'160	1'160	1'860	1'860	2.210	2.565	2.565
Width	mm	550	550	550	550	550	750	750	850	850	850	850	850	850	850
Height	mm	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980
Weights															
Weight - U Version	kg	148	150	153	194	199	247	255	315	325	429	448	513	600	631
Weight - V Version	kg	148	150	153	194	199	252	260	310	320	440	458	523	610	641
Weight - B Version	kg	148	150	153	189	194	257	266	315	325	450	468	529	620	652

ABED Kc - Dimensions and weights - 2-circuits units - U-V-B Versions

Size		332 Kc	422 Kc	502 Kc	642 Kc	852 Kc	922 Kc	1122 Kc	1462 Kc
Dimensions									
Length	mm	1'160	1'160	1'860	1'860	2'210	2'565	2'565	3'100
Width	mm	850	850	850	850	850	850	850	850
Height	mm	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980
Weights									
Weight - U Version	kg	320	331	436	454	519	601	633	787
Weight - V Version	kg	315	326	446	464	530	611	643	787
Weight - B Version	kg	320	331	456	475	535	621	653	797

ABED Kc - Dimensions and weights - 1-circuit units - D Versions

Size		71 Kc	81 Kc	101 Kc	131 Kc	161 Kc	211 Kc	231 Kc	461 Kc	501 Kc	551 Kc	591 Kc	771 Kc	921 Kc	991 Kc
Dimensions															
Length	mm	550	550	550	750	750	980	980	1'160	1'160	1'860	1'860	2.210	2.565	2.565
Width	mm	550	550	550	550	550	750	750	850	850	850	850	850	850	850
Height	mm	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980
Weights															
Weight - D Version	kg	153	155	158	189	194	257	266	315	325	450	478	539	615	647

ABED Kc - Dimensions and weights - 2-circuits units- D Versions

Size		332 Kc	422 Kc	502 Kc	642 Kc	852 Kc	922 Kc	1122 Kc	1462 Kc
Dimensions									
Length	mm	1'160	1'160	1'860	1'860	2'210	2'565	2'565	3'100
Width	mm	850	850	850	850	850	850	850	850
Height	mm	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980
Weights									
Weight - D Version	kg	320	331	466	485	845	616	648	817

DIRECT EXPANSION CLOSE CONTROL UNITS WITH WATER COOLED CONDENSER

ABED Kc - Technical data - 1-circuit units - U-V-B Versions

Size		71 Kc	81 Kc	101 Kc	131 Kc	161 Kc	211 Kc	271 Kc	331 Kc	421 Kc	501 Kc	591 Kc	771 Kc	921 Kc	991 Kc
Frame															
Frame		1			2		3		4		5		6	7	
Cooling capacity															
Total cooling capacity (27°C - 50% R.H.)	kW	8,8	11,7	14,5	18,9	24,0	29,0	38,5	40,8	54,2	72,1	90,8	113,9	117,3	151,8
Sensible cooling capacity (27°C - 50% R.H.)	kW	7,0	9,1	11,0	14,5	17,2	22,6	28,1	31,7	38,8	55,8	65,9	81,5	89,3	108,2
SHR @ 27°C-50% U.R.	%	80%	78%	76%	77%	72%	78%	73%	78%	72%	77%	73%	72%	76%	71%
Total cooling capacity (24°C - 50% R.H.)	kW	6,3	8,1	10,4	13,2	17,1	20,4	27,5	28,5	38,5	50,4	64,9	81,1	82,6	108,7
Sensible cooling capacity (24°C - 50% R.H.)	kW	5,9	7,6	9,2	12,1	14,3	18,9	23,6	26,4	32,1	46,6	54,8	67,5	74,4	89,3
SHR @ 24°C-50% U.R.	%	94%	94%	88%	92%	84%	93%	86%	93%	83%	92%	84%	83%	90%	82%
Total cooling capacity (22°C - 50% R.H.)	kW	5,3	6,8	8,2	10,9	13,3	16,9	21,4	23,8	30,1	41,9	51,0	63,2	65,5	87,7
Sensible cooling capacity (22°C - 50% R.H.)	kW	5,3	6,8	8,1	10,9	12,4	16,9	20,5	23,8	27,9	41,9	47,6	58,5	65,5	79,3
SHR @ 22°C-50% U.R.	%	100%	100%	99%	100%	93%	100%	96%	100%	93%	100%	93%	93%	100%	90%
AC fans with autotransformer															
Quantity	n.	1	1	1	1	1	1	1	1	1	2	2	2	3	3
Fan(s) supply voltage	V	270	300	340	300	340	290	320	260	280	230	250	300	260	300
Air flow	m³/h	2.330	2.330	2.330	3.500	3.500	5.610	5.610	7.880	7.880	13.820	13.820	16.550	21.600	21.600
Available pressure	Pa	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Rotation speed	rpm	1.192	1.250	1.307	1.266	1.325	1.078	1.127	1.150	1.189	1.075	1.122	1.227	1.145	1.222
Input power	kW	0,35	0,37	0,4	0,64	0,69	1,02	1,1	1,52	1,63	2,71	2,97	3,44	4,61	5,24
Input current	A	0,97	0,97	0,97	1,49	1,45	2,63	2,63	4,13	4,13	8,3	8,38	8,16	12,54	12,42
Max available pressure (max ESP)	Pa	106	75	46	88	46	133	91	242	197	310	263	156	237	170
Sound pressure level @ 2 m - U Version	dB(A)	47	47	48	52	53	56	57	59	59	60	60	63	63	64
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	49	49	49	54	54	59	59	62	62	64	64	65	66	66
Sound pressure level @ 2 m - B Version	dB(A)	43	44	45	49	50	52	53	55	55	56	56	60	59	60
Sound pressure level @ 2 m - B Version (max ESP)	dB(A)	45	45	45	50	50	56	56	58	58	61	61	62	63	63
Sound pressure level @ 2 m - V Version	dB(A)	43	43	44	48	49	51	52	54	55	55	56	59	59	59
Sound pressure level @ 2 m - V Version (max ESP)	dB(A)	45	45	45	50	50	55	55	58	58	60	60	61	62	62
EC Fans - LP (low pressure)															
Quantity	n.	-	-	-	-	-	1	1	1	1	2	2	2	3	3
Air flow	m³/h	-	-	-	-	-	5.610	5.610	7.880	7.880	13.820	13.820	16.550	21.600	21.600
Max available pressure (max ESP)	Pa	-	-	-	-	-	182	136	156	108	223	177	75	151	92
Rotation speed	rpm	-	-	-	-	-	1.237	1.282	1.118	1.159	1.047	1.094	1.196	1.119	1.182
Input power	kW	-	-	-	-	-	0,83	0,93	1,07	1,22	1,8	2,08	2,66	3,33	3,99
Sound pressure level @ 2 m - U Version	dB(A)	-	-	-	-	-	55	55	56	56	57	57	60	60	60
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	-	-	-	-	-	56	56	57	57	59	59	61	61	61
Sound pressure level @ 2 m - B Version	dB(A)	-	-	-	-	-	51	51	52	52	53	53	57	56	57
Sound pressure level @ 2 m - B Version (max ESP)	dB(A)	-	-	-	-	-	52	52	53	53	55	55	57	58	58
Sound pressure level @ 2 m - V Version	dB(A)	-	-	-	-	-	50	51	52	52	53	53	56	56	56
Sound pressure level @ 2 m - V Version (max ESP)	dB(A)	-	-	-	-	-	52	52	52	52	55	55	56	57	57
EC Fans - HP (High pressure)															
Quantity	n.	1	1	1	1	1	1	1	1	1	2	2	2	3	3
Air flow	m³/h	2.330	2.330	2.330	3.500	3.500	5.610	5.610	7.880	7.880	13.820	13.820	16.550	21.600	21.600
Max available pressure (max ESP)	Pa	671	655	625	486	447	664	618	593	545	654	608	516	585	526
Rotation speed	rpm	1.210	1.265	1.313	1.284	1.341	1.249	1.292	1.128	1.168	1.054	1.101	1.205	1.127	1.189
Input power	kW	0,28	0,31	0,35	0,52	0,6	0,87	0,97	1,08	1,22	1,83	2,1	2,65	3,36	3,99
Sound pressure level @ 2 m - U Version	dB(A)	47	47	47	52	53	57	57	57	57	58	58	61	61	61
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	63	63	63	62	62	64	64	62	62	65	65	65	67	67
Sound pressure level @ 2 m - B Version	dB(A)	43	43	44	49	49	53	53	53	54	54	55	58	57	58
Sound pressure level @ 2 m - B Version (max ESP)	dB(A)	59	59	59	58	58	60	60	58	58	62	62	62	63	63
Sound pressure level @ 2 m - V Version	dB(A)	42	43	43	48	49	52	53	53	53	54	54	57	57	57
Sound pressure level @ 2 m - V Version (max ESP)	dB(A)	59	59	59	58	58	59	59	58	58	61	61	61	63	63

DIRECT EXPANSION CLOSE CONTROL UNITS WITH REMOTE CONDENSING UNIT

Size		71 Kc	81 Kc	101 Kc	131 Kc	161 Kc	211 Kc	271 Kc	331 Kc	421 Kc	501 Kc	591 Kc	771 Kc	921 Kc	991 Kc
Humidifier															
Steam production (nominal)	kg/h	1,5	1,5	1,5	3	3	5	5	8	8	8	8	8	8	8
Steam production (max)	kg/h	3	3	3	3	3	8	8	8	8	8	8	8	8	8
Maximum input power	kW	1,12	1,12	1,12	2,25	2,25	2,25	3,75	6	6	6	6	6	6	6
Maximum input current	A	5	5	5	10	10	10	5,5	8,7	8,7	8,7	8,7	8,7	8,7	8,7
Specific conductivity at 20°C (min/max)	µS/cm	300 / 1'250													
Total hardness (min/max)	mg/l CaCo3	100 / 400													
Electrical heaters															
Steps	n.	1	1	1	3	3	2	2	3	3	3	3	3	3	3
Power	kW	3	3	3	4,5	4,5	6	6	9	9	15	15	18	18	18
Input current	A	4,3	4,3	4,3	6,5	6,5	8,7	8,7	13	13	21,7	21,7	26	26	26
Oversized electrical heaters															
Steps	n.	3	3	3	2	2	3	3	3	3	3	3	3	3	3
Power	kW	4,5	4,5	4,5	6	6	9	9	12	12	18	18	24	27	27
Input current	A	6,5	6,5	6,5	8,7	8,7	13	13	17,3	17,3	26	26	34,6	39	39
Hot water coil															
Heating capacity	kW	4,5	4,5	4,5	6,90	6,90	10,2	10,2	19,8	19,8	35,7	35,7	43,70	54,3	54,3
Water flow rate	m³/h	0,8	0,8	0,8	1,20	1,20	1,8	1,8	3,4	3,4	6,2	6,2	7,60	9,5	9,5
Pressure drop (coil+3-way valve)	kPa	37	37	37	35	35	55	55	77	77	79	79	70	79	79
Internal volume of the coil	dm³	1	1	1	1,3	1,3	1,5	1,5	2,8	2,8	5,3	5,3	6,5	10,1	10,1
Hot gas coil															
Heating capacity	kW	5,1	5,1	5,1	7,5	7,5	9,8	9,8	14,5	14,5	30	30	37,6	50,3	50,3
Condensing water pump															
Nominal water flow	l/h	27,5	27,5	27,5	390	390	390	390	390	390	390	390	390	390	390
Max water flow (pressure = 0 m)	l/h	34	34	34	500	500	500	500	500	500	500	500	500	500	500
Max height (water flow = 0 m³/h)	l/h	15,0	15,0	15,0	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40
Condensing water pump + humidifier															
Nominal water flow	l/h	-	-	-	-	-	-	-	600	600	600	600	600	600	600
Max water flow (pressure = 0 m)	l/h	-	-	-	-	-	-	-	900	900	900	900	900	900	900
Max height (water flow = 0 m³/h)	m	-	-	-	-	-	-	-	6,0	6,0	6,0	6,0	6,0	6,0	6,0
Power supply															
Power supply	V/ph/Hz	400 / 3 / 50 + T + N													

REMARKS: Evaporating temperature 8°C; Inlet vapor quality = 0,30. - Filters considered for 20% dirt - Max pressure is referred to the nominal air flow and the max tension/regulation - Hot water coil calculated for: water 40/45°C, ambient temperature 20°C and available pressure of 20 Pa - The condensing water pump is calculated for a 2 m vertical difference in height respect to the pump; total length of the discharge pipe of 5 m, internal (diameter of the flexible pipe of 12 mm (6 mm for ABED 71-81-101) - Remote condensing units suggested for external air temperature of 35°C.

DIRECT EXPANSION CLOSE CONTROL UNITS WITH WATER COOLED CONDENSER

ABED Kc - Technical data - 2-circuit units - U-V-B Versions

Size		332 Kc	422 Kc	502 Kc	642 Kc	852 Kc	922 Kc	1122 Kc	1462 Kc
Frame									
Frame		4		5		6		7	8
Cooling capacity									
Total cooling capacity (27°C - 50% R.H.)	kW	40,8	54,2	72,1	90,8	113,9	117,3	151,8	189,1
Sensible cooling capacity (27°C - 50% R.H.)	kW	31,7	38,8	55,8	65,9	81,5	89,3	108,2	135,2
SHR @ 27°C-50% U.R.	%	78%	72%	77%	73%	72%	76%	71%	71%
Total cooling capacity (24°C - 50% R.H.)	kW	28,5	38,5	50,4	64,9	81,1	82,6	108,7	135,5
Sensible cooling capacity (24°C - 50% R.H.)	kW	26,4	32,1	46,6	54,8	67,5	74,4	89,3	111,7
SHR @ 24°C-50% U.R.	%	93%	83%	92%	84%	83%	90%	82%	82%
Total cooling capacity (22°C - 50% R.H.)	kW	23,8	30,1	41,9	51,0	63,2	65,5	87,7	107,6
Sensible cooling capacity (22°C - 50% R.H.)	kW	23,8	27,9	41,9	47,6	58,5	65,5	79,3	98,3
SHR @ 22°C-50% U.R.	%	100%	93%	100%	93%	93%	100%	90%	91%
AC fans with autotransformer									
Quantity	n.	1	1	2	2	2	3	3	4
Fan(s) supply voltage	V	260	280	230	250	300	260	300	290
Air flow	m³/h	7'880	7'880	13'820	13'820	16'550	21'600	21'600	27'200
Available pressure	Pa	20	20	20	20	20	20	20	20
Rotation speed	rpm	1.150	1.189	1.075	1.122	1.227	1.145	1.222	1.204
Input power	kW	1,52	1,63	2,71	2,97	3,44	4,61	5,24	6,8
Input current	A	4,13	4,13	8,3	8,38	8,16	12,54	12,42	16,64
Max available pressure (max ESP)	Pa	242	197	310	263	156	237	170	189
Sound pressure level @ 2 m - U Version	dB(A)	59	59	60	60	63	63	64	64
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	62	62	64	64	65	66	66	67
Sound pressure level @ 2 m - B Version	dB(A)	55	55	56	56	60	59	60	61
Sound pressure level @ 2 m - B Version (max ESP)	dB(A)	58	58	61	61	62	63	63	64
Sound pressure level @ 2 m - V Version	dB(A)	54	55	55	56	59	59	59	60
Sound pressure level @ 2 m - V Version (max ESP)	dB(A)	58	58	60	60	61	62	62	63
EC Fans - LP (low pressure)									
Quantity	n.	1	1	2	2	2	3	3	4
Air flow	m³/h	7'880	7'880	13'820	13'820	16'550	21'600	21'600	27'200
Max available pressure (max ESP)	Pa	156	108	223	177	75	151	92	101
Rotation speed	rpm	1.118	1.159	1.047	1.094	1.196	1.119	1.182	1.164
Input power	kW	1,07	1,22	1,8	2,08	2,66	3,33	3,99	5,09
Sound pressure level @ 2 m - U Version	dB(A)	56	56	57	57	60	60	60	61
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	57	62	65	65	65	61	61	62
Sound pressure level @ 2 m - B Version	dB(A)	52	54	54	55	58	56	57	57
Sound pressure level @ 2 m - B Version (max ESP)	dB(A)	53	58	62	62	62	58	58	59
Sound pressure level @ 2 m - V Version	dB(A)	52	53	54	54	57	56	56	57
Sound pressure level @ 2 m - V Version (max ESP)	dB(A)	52	58	61	61	61	57	57	58
EC Fans - HP (High pressure)									
Quantity	n.	1	1	2	2	2	3	3	4
Air flow	m³/h	7'880	7'880	13'820	13'820	16'550	21'600	21'600	27'200
Max available pressure (max ESP)	Pa	593	545	654	608	516	585	526	532
Rotation speed	rpm	1.128	1.168	1.054	1.101	1.205	1.127	1.189	1.170
Input power	kW	1,08	1,22	1,83	2,1	2,65	3,36	3,99	5,1
Sound pressure level @ 2 m - U Version	dB(A)	57	57	58	58	61	61	61	62
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	62	62	65	65	65	67	67	68
Sound pressure level @ 2 m - B Version	dB(A)	53	54	54	55	58	57	58	59
Sound pressure level @ 2 m - B Version (max ESP)	dB(A)	58	58	62	62	62	63	63	65
Sound pressure level @ 2 m - V Version	dB(A)	53	53	54	54	57	57	57	58
Sound pressure level @ 2 m - V Version (max ESP)	dB(A)	58	58	61	61	61	63	63	64

Size		332 Kc	422 Kc	502 Kc	642 Kc	852 Kc	922 Kc	1122 Kc	1462 Kc
Humidifier									
Steam production (nominal)	kg/h	8	8	8	8	8	8	8	8
Steam production (max)	kg/h	8	8	8	8	8	8	8	8
Maximum input power	kW	6	6	6	6	6	6	6	6
Maximum input current	A	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7
Specific conductivity at 20°C (min/max)	µS/cm	300 / 1' 250							
Total hardness (min/max)	mg/l CaCo3	100 / 400							
Electrical heaters									
Steps	n.	3	3	3	3	3	3	3	3
Power	kW	9	9	15	15	18	24	24	27
Input current	A	13	13	21,7	21,7	26	34,6	34,6	39
Oversized electrical heaters									
Steps	n.	3	3	3	3	3	3	3	3
Power	kW	12	12	18	18	24	27	27	36
Input current	A	17,3	17,3	26	26	34,6	39	39	52
Hot water coil									
Heating capacity	kW	19,8	19,8	35,7	35,7	43,7	54,3	54,3	73,5
Water flow rate	m³/h	3,4	3,4	6,2	6,2	7,6	9,5	9,5	12,8
Pressure drop (coil+3-way valve)	kPa	77	77	79	79	70	79	79	82
Internal volume of the coil	dm³	2,8	2,8	5,3	5,3	6,6	10,1	10,1	12,4
Hot gas coil									
Heating capacity	kW	15,4	15,4	29	29	37,1	44,2	44,2	58,4
Condensing water pump									
Nominal water flow	l/h	390	390	390	390	390	390	390	390
Max water flow (pressure = 0 m)	l/h	500	500	500	500	500	500	500	500
Max height (water flow = 0 m³/h)	l/h	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40
Condensing water pump + humidifier									
Nominal water flow	l/h	600	600	600	600	600	600	600	600
Max water flow (pressure = 0 m)	l/h	900	900	900	900	900	900	900	900
Max height (water flow = 0 m³/h)	m	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0
Power supply									
Power supply	V/ph/Hz	400 / 3 / 50 + T + N							

REMARKS: Evaporating temperature 8°C; Inlet vapor quality = 0,30. - Filters considered for 20% dirt - Max pressure is referred to the nominal air flow and the max tension/regulation - Hot water coil calculated for: water 40/45°C, ambient temperature 20°C and available pressure of 20 Pa - The condensing water pump is calculated for a 2 m vertical difference in height respect to the pump; total length of the discharge pipe of 5 m, internal (diameter of the flexible pipe of 12 mm. - Remote condensing units suggested for external air temperature of 35°C.

DIRECT EXPANSION CLOSE CONTROL UNITS WITH WATER COOLED CONDENSER

ABED Kc - Technical data - 1-circuit units - D Version

Size		71 Kc	81 Kc	101 Kc	131 Kc	161 Kc	211 Kc	271 Kc	331 Kc	421 Kc	501 Kc	591 Kc	771 Kc	921 Kc	991 Kc
Frame															
Frame		1			2		3		4		5		6	7	
Cooling capacity															
Total cooling capacity (27°C - 50% R.H.)	kW	8,8	11,7	14,5	18,9	24,0	29,0	38,5	40,8	54,2	72,1	90,8	113,9	117,3	151,8
Sensible cooling capacity (27°C - 50% R.H.)	kW	7,0	9,1	11,0	14,5	17,2	22,6	28,1	31,7	38,8	55,8	65,9	81,5	89,3	108,2
SHR @ 27°C-50% U.R.	%	80%	78%	76%	77%	72%	78%	73%	78%	72%	77%	73%	72%	76%	71%
Total cooling capacity (24°C - 50% R.H.)	kW	6,3	8,1	10,4	13,2	17,1	20,4	27,5	28,5	38,5	50,4	64,9	81,1	82,6	108,7
Sensible cooling capacity (24°C - 50% R.H.)	kW	5,9	7,6	9,2	12,1	14,3	18,9	23,6	26,4	32,1	46,6	54,8	67,5	74,4	89,3
SHR @ 24°C-50% U.R.	%	94%	94%	88%	92%	84%	93%	86%	93%	83%	92%	84%	83%	90%	82%
Total cooling capacity (22°C - 50% R.H.)	kW	5,3	6,8	8,2	10,9	13,3	16,9	21,4	23,8	30,1	41,9	51,0	63,2	65,5	87,7
Sensible cooling capacity (22°C - 50% R.H.)	kW	5,3	6,8	8,1	10,9	12,4	16,9	20,5	23,8	27,9	41,9	47,6	58,5	65,5	79,3
SHR @ 22°C-50% U.R.	%	100%	100%	99%	100%	93%	100%	96%	100%	93%	100%	93%	93%	100%	90%
AC fans with autotransformer															
Quantity	n.	1	1	1	1	1	1	1	1	1	2	2	2	3	3
Fan(s) supply voltage	V	320	340	400	340	400	300	340	290	320	260	280	340	310	360
Air flow	m³/h	2.330	2.330	2.330	3.500	3.500	5.610	5.610	7.880	7.880	13.820	13.820	16.550	21.600	21.600
Available pressure	Pa	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Rotation speed	rpm	1.281	1.307	1.353	1.325	1.361	1.094	1.142	1.207	1.256	1.144	1.185	1.287	1.239	1.307
Input power	kW	0,39	0,4	0,44	0,69	0,74	1,04	1,14	1,68	1,82	3,08	3,3	3,79	5,37	5,92
Input current	A	0,97	0,97	1,06	1,45	1,53	2,63	2,63	4,12	4,09	8,38	8,36	8,08	12,39	12,21
Max available pressure (max ESP)	Pa	57	43	22	45	20	118	66	176	117	238	195	84	132	80
Sound pressure level @ 2 m - D Version	dB(A)	46	46	47	51	51	54	55	57	58	58	59	62	62	63
Sound pressure level @ 2 m - D Version (max ESP)	dB(A)	47	47	47	52	52	57	57	60	60	62	62	63	64	64
EC Fans - HP (High pressure)															
Quantity	n.	1	1	1	1	1	1	1	1	1	2	2	2	3	3
Air flow	m³/h	2.330	2.330	2.330	3.500	3.500	5.610	5.610	7.880	7.880	13.820	13.820	16.550	21.600	21.600
Max available pressure (max ESP)	Pa	640	623	594	454	415	648	603	521	473	582	536	444	490	431
Rotation speed	rpm	1.297	1.320	1.353	1.342	1.376	1.265	1.317	1.186	1.237	1.125	1.166	1.265	1.223	1.268
Input power	kW	0,34	0,35	0,38	0,6	0,64	0,91	1,03	1,28	1,48	2,25	2,52	3,13	4,35	4,86
Sound pressure level @ 2 m - D Version	dB(A)	45	45	46	51	51	55	55	55	55	56	57	60	60	60
Sound pressure level @ 2 m - D Version (max ESP)	dB(A)	61	61	61	60	60	61	61	60	60	63	63	63	65	65
Humidifier															
Steam production (nominal)	kg/h	1,5	1,5	1,5	3	3	5	5	8	8	8	8	8	8	8
Steam production (max)	kg/h	3	3	3	3	3	8	8	8	8	8	8	8	8	8
Maximum input power	kW	1,12	1,12	1,12	2,25	2,25	2,25	3,75	6	6	6	6	6	6	6
Maximum input current	A	5	5	5	10	10	10	5,5	8,7	8,7	8,7	8,7	8,7	8,7	8,7
Specific conductivity at 20°C (min/max)	µS/cm	300 / 1'250													
Total hardness (min/max)	mg/l CaCo3	100 / 400													
Electrical heaters															
Steps	n.	1	1	1	3	3	2	2	3	3	3	3	3	3	3
Power	kW	3	3	3	4,5	4,5	6	6	9	9	15	15	18	18	18
Input current	A	4,3	4,3	4,3	6,5	6,5	8,7	8,7	13	13	21,7	21,7	26	26	26
Oversized electrical heaters															
Steps	n.	3	3	3	2	2	3	3	3	3	3	3	3	3	3
Power	kW	4,5	4,5	4,5	6	6	9	9	12	12	18	18	24	27	27
Input current	A	6,5	6,5	6,5	8,7	8,7	13	13	17,3	17,3	26	26	34,6	39	39
Hot water coil															
Heating capacity	kW	4,5	4,5	4,5	6,90	6,90	10,2	10,2	19,8	19,8	35,7	35,7	43,70	54,3	54,3
Water flow rate	m³/h	0,8	0,8	0,8	1,20	1,20	1,8	1,8	3,4	3,4	6,2	6,2	7,60	9,5	9,5
Pressure drop (coil+3-way valve)	kPa	37	37	37	35	35	55	55	77	77	79	79	70	79	79
Internal volume of the coil	dm³	1	1	1	1,3	1,3	1,5	1,5	2,8	2,8	5,3	5,3	6,5	10,1	10,1
Hot gas coil															
Heating capacity	kW	5,1	5,1	5,1	7,5	7,5	9,8	9,8	14,5	14,5	30	30	37,6	50,3	50,3

Size		71 Kc	81 Kc	101 Kc	131 Kc	161 Kc	211 Kc	271 Kc	331 Kc	421 Kc	501 Kc	591 Kc	771 Kc	921 Kc	991 Kc
Condensing water pump															
Nominal water flow	l/h	27,5	27,5	27,5	390	390	390	390	390	390	390	390	390	390	390
Max water flow (pressure = 0 m)	l/h	34	34	34	500	500	500	500	500	500	500	500	500	500	500
Max height (water flow = 0 m ³ /h)	l/h	15,0	15,0	15,0	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40
Condensing water pump + humidifier															
Nominal water flow	l/h	-	-	-	-	-	-	-	600	600	600	600	600	600	600
Max water flow (pressure = 0 m)	l/h	-	-	-	-	-	-	-	900	900	900	900	900	900	900
Max height (water flow = 0 m ³ /h)	m	-	-	-	-	-	-	-	6,0	6,0	6,0	6,0	6,0	6,0	6,0
Power supply															
Power supply	V/ph/Hz	400 / 3 / 50 + T + N													

REMARKS: Evaporating temperature 8°C; Inlet vapor quality = 0,30. - Filters considered for 20% dirt - Max pressure is referred to the nominal air flow and the max tension/regulation - Hot water coil calculated for: water 40/45°C, ambient temperature 20°C and available pressure of 20 Pa - The condensing water pump is calculated for a 2 m vertical difference in height respect to the pump; total length of the discharge pipe of 5 m, internal (diameter of the flexible pipe of 12 mm (6 mm for ABED 71-81-101) - Remote condensing units suggested for external air temperature of 35°C.

DIRECT EXPANSION CLOSE CONTROL UNITS WITH WATER COOLED CONDENSER

ABED Kc - Technical data - 2-circuit units - D Version

Size		332 Kc	422 Kc	502 Kc	642 Kc	852 Kc	922 Kc	1122 Kc	1462 Kc
Frame									
Frame		4		5		6		7	8
Cooling capacity									
Total cooling capacity (27°C - 50% R.H.)	kW	40,8	54,2	72,1	90,8	113,9	117,3	151,8	189,1
Sensible cooling capacity (27°C - 50% R.H.)	kW	31,7	38,8	55,8	65,9	81,5	89,3	108,2	135,2
SHR @ 27°C-50% U.R.	%	78%	72%	77%	73%	72%	76%	71%	71%
Total cooling capacity (24°C - 50% R.H.)	kW	28,5	38,5	50,4	64,9	81,1	82,6	108,7	135,5
Sensible cooling capacity (24°C - 50% R.H.)	kW	26,4	32,1	46,6	54,8	67,5	74,4	89,3	111,7
SHR @ 24°C-50% U.R.	%	93%	83%	92%	84%	83%	90%	82%	82%
Total cooling capacity (22°C - 50% R.H.)	kW	23,8	30,1	41,9	51,0	63,2	65,5	87,7	107,6
Sensible cooling capacity (22°C - 50% R.H.)	kW	23,8	27,9	41,9	47,6	58,5	65,5	79,3	98,3
SHR @ 22°C-50% U.R.	%	100%	93%	100%	93%	93%	100%	90%	91%
AC fans with autotransformer									
Quantity	n.	1	1	2	2	2	3	3	4
Fan(s) supply voltage	V	290	320	260	280	340	310	360	360
Air flow	m³/h	7'880	7'880	13'820	13'820	16'550	21'600	21'600	27'200
Available pressure	Pa	20	20	20	20	20	20	20	20
Rotation speed	rpm	1.207	1.256	1.144	1.185	1.287	1.239	1.307	1.307
Input power	kW	1,68	1,82	3,08	3,3	3,79	5,37	5,92	7,87
Input current	A	4,12	4,09	8,38	8,36	8,08	12,39	12,21	16,24
Max available pressure (max ESP)	Pa	176	117	238	195	84	132	80	80
Sound pressure level @ 2 m - D Version	dB(A)	57	58	58	59	62	62	63	64
Sound pressure level @ 2 m - D Version (max ESP)	dB(A)	60	60	62	62	63	64	64	65
EC Fans - HP (High pressure)									
Quantity	n.	1	1	2	2	2	3	3	4
Air flow	m³/h	7'880	7'880	13'820	13'820	16'550	21'600	21'600	27'200
Max available pressure (max ESP)	Pa	521	473	582	536	444	490	431	438
Rotation speed	rpm	1.186	1.237	1.125	1.166	1.265	1.223	1.268	1.269
Input power	kW	1,28	1,48	2,25	2,52	3,13	4,35	4,86	6,51
Sound pressure level @ 2 m - D Version	dB(A)	55	55	56	57	60	60	60	61
Sound pressure level @ 2 m - D Version (max ESP)	dB(A)	60	60	63	63	63	65	65	66
Humidifier									
Steam production (nominal)	kg/h	8	8	8	8	8	8	8	8
Steam production (max)	kg/h	8	8	8	8	8	8	8	8
Maximum input power	kW	6	6	6	6	6	6	6	6
Maximum input current	A	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7
Specific conductivity at 20°C (min/max)	µS/cm	300 / 1'250							
Total hardness (min/max)	mg/l CaCo3	100 / 400							
Electrical heaters									
Steps	n.	3	3	3	3	3	3	3	3
Power	kW	9	9	15	15	18	24	24	27
Input current	A	13	13	21,7	21,7	26	34,6	34,6	39
Oversized electrical heaters									
Steps	n.	3	3	3	3	3	3	3	3
Power	kW	12	12	18	18	24	27	27	36
Input current	A	17,3	17,3	26	26	34,6	39	39	52
Hot water coil									
Heating capacity	kW	19,8	19,8	35,7	35,7	43,7	54,3	54,3	73,5
Water flow rate	m³/h	3,4	3,4	6,2	6,2	7,6	9,5	9,5	12,8
Pressure drop (coil+3-way valve)	kPa	77	77	79	79	70	79	79	82
Internal volume of the coil	dm³	2,8	2,8	5,3	5,3	6,6	10,1	10,1	12,4
Hot gas coil									
Heating capacity	kW	15,4	15,4	29	29	37,1	44,2	44,2	58,4

Size		332 Kc	422 Kc	502 Kc	642 Kc	852 Kc	922 Kc	1122 Kc	1462 Kc
Condensing water pump									
Nominal water flow	l/h	390	390	390	390	390	390	390	390
Max water flow (pressure = 0 m)	l/h	500	500	500	500	500	500	500	500
Max height (water flow = 0 m ³ /h)	l/h	5,40	5,40	5,40	5,40	5,40	5,40	5,40	5,40
Condensing water pump + humidifier									
Nominal water flow	l/h	600	600	600	600	600	600	600	600
Max water flow (pressure = 0 m)	l/h	900	900	900	900	900	900	900	900
Max height (water flow = 0 m ³ /h)	m	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0
Power supply									
Power supply	V/ph/Hz	400 / 3 / 50 + T + N							

REMARKS: Evaporating temperature 8°C; Inlet vapor quality = 0,30. - Filters considered for 20% dirt - Max pressure is referred to the nominal air flow and the max tension/regulation - Hot water coil calculated for: water 40/45°C, ambient temperature 20°C and available pressure of 20 Pa - The condensing water pump is calculated for a 2 m vertical difference in height respect to the pump; total length of the discharge pipe of 5 m, internal (diameter of the flexible pipe of 12 mm. - Remote condensing units suggested for external air temperature of 35°C.

Series AED FC Kc

Cooling capacity: from 20,8 to 93,3 kW



The range of direct expansion close control with remote condenser and free cooling coil, **AED FC series**, provided with a water-refrigerant interlaced row coil and allowing, besides direct expansion, the production of cool air by using external temperature (for example matching to a dry cooler), it is particularly suitable for use in data centres, technological rooms, in telecom centres and all areas where it is necessary to maintain constant hygrometric conditions all-year long, as to guarantee correct functioning of installed equipments. Thanks to this technology, based on energy saving, it is possible to remarkably save the operating costs, by sensibly reducing amortisation time of the plant.

Depending on the cooling capacity, they are available with one or two cooling circuits.

Thanks to their technologically advanced design, these close control units are able to control the ambient temperature with remarkably high precision and, when the humidity level is required, to adapt their cooling capacity to the room requirements, all automatically managed by the microprocessor on board.

The high technology employed during their design together with the use of the best components available on the markets, make these units extremely reliable and therefore able to work for long periods, without a break.

These units are particularly easy to install also in small spaces and easily accessible on the front side for ordinary and extraordinary service operations.

They are completely assembled and tested in the factory and supplied under dry air pressure and with oil charge.

For the remote condensers to be matched to these units, on request, it is possible to provide a voltage actuated pressure fan speed controller (option RG), installed inside the indoor unit, for condensing pressure control which provides speed variation with a reduced full load current and allows the operation of the condenser down to -20°C. For lower temperatures down to -40°C, it is necessary to select option BW on remote condensers.

The units are available in different configurations, related to the air return and discharge:

- U** front air return, upflow air discharge
- V** bottom air return, upflow air discharge
- B** back air return, upflow air discharge
- D** top air return, downflow air discharge

Operation limits: ambient temperature from 19 to 35°C.

Main components:

Structure realized with a framework and internal parts made of galvanized steel riveted profiles and supports, making the structure strong and suitable also for extreme transport and handling conditions.

The external panels, fixed to frame with quick opening connections, are made of pre-painted steel sheet (RAL 9004), ensuring a long-term durability to the unit. They are internally insulated with self-extinguishing sound-proofing material (class HF1 - UL94) reducing the overall sound

level of the unit. On request (option IS1), it is available the sound-proofing insulation with class 1 material in conformity to the main European regulations in force. All the front and side panels can be dismantled so to allow an easy access to the main components.

Moreover, the front of the unit is provided with double panels and inspection window (not available for version U), suitably arranged to let the unit work also with open panels during technical interventions, to allow more accurate regulations and more quick timing for ordinary and extraordinary service operations.

High-efficiency **scroll compressor** (EER > 3.2 at ARI conditions), with low sound level, internal heat protection, installed on rubber vibration dampers, supplied with crankcase heater.

In the case of 2 circuit units, in case of problem on one of the circuit, the 50% operation of the unit is anyway granted.

Single-inlet and backward curved centrifugal fans made of high-performance composite material, directly coupled to a three-phase electrical motor with IP54 Class F protection and provided with a thermal protection inside the motor winding. The fans are fixed on suitable supports reducing the transmission of vibration to the frame and the impeller is statically and dynamically balanced with long-life bearings. It is possible to regulate the fan speed by means of an autotransformer and to adjust their air flow to the head pressure requested on site. It is clear that a higher fans speed rotation involves an increase in the sound level of the unit. All the units are equipped with low airflow and clogged filter alarms which, by means of differential pressure switches, stop the unit operation in case of fans problems and give a signal on microprocessor for replacement respectively.

Interlaced row **evaporating and free cooling coil**, so to maximize cooling capacity both in free cooling and direct expansion operation, all exploiting the finned surface of the coil. It is realized with copper tube and aluminium fins and suitably sized with a wide exchange surface and a low air crossing speed so to allow a remarkable heat exchange and reduce the pressure drops on the air side. It is provided with a hydrophilic treatment to reduce the surface tension between water and metal surface, promoting film condensation and avoiding the risk of condensing drops outside the drain tray.

Condensing drain tray, made in corrosion proof peraluman, placed underneath the evaporating coil, it is provided with a flexible pipe for condensing water discharge.

Washable and self-extinguishing air filters efficiency G4 - of pleated type, they are made of synthetic fibre and are contained in a suitable metal frame. Their pleated arrangement, with a wide surface area, ensures a higher filtering efficiency and low pressure drops.

Cooling circuit made of: electronic thermostatic valve, sight glass, dehydrating filter, safety device, high pressure switch, solenoid valve, liquid receiver, shut-off valve on compressor discharge and on liquid line. Thanks to the electronic thermostatic valve, there is a more accurate regulation of the evaporating pressure/temperature in all working conditions, with superheating at a constant value.

Electric board in compliance with CE norms, protected by a panel is separated by the air flow and is provided with main switch, automatic



AED FC 1462 F U Kc

switches, remote control switches, motor protection switches, low tension auxiliary circuits and terminal board for free contacts and remote general alarm, magnetothermic switches for humidifier and electric heaters (when installed).

Unit management **microprocessor** installed inside the electrical board, complete with hour counter and electronic card to program the switch-over and rotation between to units, after a pre-set time. On this purpose, in case of order, the information necessary for programming must be clearly defined. It allows a multi-language display reading, a detailed description of parameters, the possibility to manage up to 8 units, to manage non standard communication protocols, a quickest access to the program, the control of the electronic thermostatic valve and of the humidifier, the control of modulating valves.

Accessories

AA	Flooding detector: placed in the downflow units, it is already wired and detects water in the false floor.
AE	Electrical power supply different from standard: mainly, 230V three-phase, 460V three-phase. Frequency 50/60 Hz.
AL	Smoke alarm: it consists of a sensor detecting smoke inside the unit and activating an alarm signal which stops the fans.
B	Adjustable base-frame from 170mm to max 600mm for installation on raised floors. It is provided with adjustable feet.
BC	Hot water coil: one-row or 2-row water coil, placed after the cooling coil for the re-heating and/or the heating of treated air. Provided with modulating actuator and with three-way valve, it is controlled by the microprocessor on board. This option is priority when requested with the electric heaters RE option. (Alternative to BG and not available with REM).
BG	Hot gas coil: placed after the cooling coil, it makes the re-heating of the treated air and is provided with a 3-way valve (ON/OFF) controlled by the microprocessor on board. It is available only with the dehumidification control (options DH) (Alternative to BC and not available with HG).
BN	Base-frame with conveyor: it is provided with a suitable conveyor facilitating the air flow and remarkably reducing the pressure drop in case of horizontal air flow. It is adjustable in height from min 400mm to max 800mm. (Only for D version).
BS	Base-frame with ON/OFF damper: it is equipped with an ON/OFF motorized damper. This device prevents the air return from the unit when it is not working or in the case some units are working near to it. Available only for D version; for other versions, being a special execution, please contact our Sales Dept.
BSN	Base-frame with conveyor and ON/OFF damper: a single base-frame with both options BS and BN so to optimize efficiency and overall dimensions.
CI	Soundproofing jacket on compressors: made of sound-

proofing material, wrapped all around compressors so to further reduce the overall sound level of the unit.

Compressors inrush counter: Electromechanical device positioned inside the electrical board, recording the total inrush starts of compressors.

Dehumidification control system: managed by microprocessor, through the electronic thermostatic valves, it operates on two parameters, ensuring that the dehumidification process is carried out with a constant air flow, without partializing the evaporating coil. This will optimize the air distribution throughout the room.

Internal double panels: for shutting off the compartments affected by the air flow, they are made from pre-painted and galvanized steel plate, ensuring reduction in the noise transmitted through the panels and a better air tightness even without the external panels so that the access is guaranteed with the doors open during service operation.

Single-inlet EC (electronically commutated) centrifugal fans with backward curved blade (LP not available for D version): made of high-performance composite material, directly coupled to a three-phase electrical rotor with IP54 protection grade, they have the possibility of a continuous regulation of the speed by means of 10V signal, sent and integrated to the control. The fans are fixed on suitable supports reducing the transmission of vibration to the frame and the impeller is statically and dynamically balanced with long-life bearings. Thanks to their technology, the EC fans ensures a lower electrical absorption and sound level, if compared to the traditional centrifugal fans. It is possible to adjust their air flow to the head pressure requested on site. In case of IT electrical supplies, this option is not available. Please contact our Sales Dept.

Higher efficiency air filters: pleated filters, supplied as an alternative to standard G4 filters.

Spare filter kit G4 as a replacement to the ones on board of the unit.

Humidifier of immersed-electrode type for the modulating production of steam. It is made by a steam cylinder, by a steam distributor, by water inlet and outlet valves and by a maximum level probe. The microprocessor on board indicates when the steam cylinder needs to be replaced. It is electrically protected by a magnetothermic switch.

Hot gas by-pass: it is a mechanical device for modulating the cooling capacity, so to reduce the ON/OFF of compressors and therefore to wait for the re-starting timing, with influence on condensing temperature. It is not available for sizes 1, 2 and 3 and with options BG and DH.

Fumigated wooden crate packing: available on request for critical transports, so to assure a suitable protection to the unit.

RS 485 serial interface: electronic card to be connected to microprocessor, to allow communication between the units

and a Carel supervision system. It is possible to fully control the unit from remote.

For connection to other supervision systems, the protocol of the controlled parameters is available on request.

Seawood packing: fumigated seawood case and protection bag with hygroscopic salts, suitable for long sea transports.

Magnetothermic switches for auxiliary circuits: when required, they replace the fuses, as a protection of the auxiliary circuits.

Class 1 insulating material in conformity to the main European regulations in force.

Phase monitor: electronic device controlling the correct sequence and/or the eventual lack of one of the 3 phases, switching off the unit if necessary.

Lack of neutral wire for 400/3/50 power supply: unit general power supply without neutral wire.

Oversized microprocessor: in addition to the standard microprocessor, it allows more languages display reading (maximum 5), it has an increased hardware so to allow the managing of more inputs and outputs for the control of on board installed components (Already included on two circuit units).

Condensing water pump: micro pump discharging the condensing water produced by the unit, it is factory installed.

Condensing water and humidifier discharge pump: pump discharging the condensing water produced by the unit and the humidifier discharge water, it is factory installed.

Distribution plenum with front grid and a double row of adjustable fins for a better air distribution (for versions U,V,B and not available with options ST and STM).

Remote display: remote terminal, allowing to display the temperature and humidity values detected by probes, the alarm digital inputs, the outputs and the remote ON/OFF of the unit, to change and program of the parameters, the sound signal and the display of the present alarms.

Fresh air inlet: external fresh air inlet with filter, placed on side (standard on the left side), with circular connection (Ø 100 mm).

Electrical heaters: made in aluminium and installed after the cooling coil, for re-heating and/or heating of the treated air. The heating capacity is split on 3 steps max, so to reduce the energy absorption. They are controlled by the microprocessor on board and electrically protected by a magnetothermic switch.

Oversized Electrical heaters.

Rephasing condensers (available for compressors only): electrical device for rephasing the compressors charge at power factor $\cos\Phi > 0,9$.

Personalized frame painting in RAL colour.

DIRECT EXPANSION CLOSE CONTROL UNIT WITH REMOTE CONDENSER AND ADDITIONAL CHILLED WATER FREE COOLING COIL

SL	Main switch with external padlock.
ST	Manual calibration damper , in galvanized steel plate with opposed-movement fins. Through the manual control, it is possible to accurately regulate the air flow. (Alternative to STM and not available with option PL).
STM	Motorized calibration damper , in galvanized steel plate with opposed-movement fins. Through the modulating control (0-10V), it is possible to accurately regulate the air flow. (Alternative to ST and not available with option PL).
SV	Gravity overpressure damper for ducted units , to prevent the air return when the units are not operating, where several units are installed in the same room. Available for U,V,B versions; for D version, being a special execution, please contact our Sales Dept.
TS	Touch screen graphic terminal designed to simplify user interface with the unit controller. It allows the set-point fixing, the alarm reading, the graphic display of the main controlled parameters in real time (suitable for download on USB interface) and possibility of set-point scheduling. The 4.3", 65.000 colours and 480x422 resolution display, being a dedicated terminal for the end user, does not allow to change the basic configuration of the unit.
WG	Electronic card for interfacing to BMS with SNMP or TCP/IP protocols. Only available with option IH.

AED FC Kc - Dimensions and weights - 1-circuit units - U-V-B Versions

Size		211 F Kc	331 F Kc	501 F Kc	771 F Kc	921 F Kc
Dimensions						
Length	mm	980	1.160	1.860	2.210	2.565
Width	mm	750	850	850	850	850
Height	mm	1.980	1.980	1.980	1.980	1.980
Weights						
Weight - U Version	kg	314	389	549	665	803
Weight - V Version	kg	319	384	559	675	813
Weight - B Version	kg	324	389	570	680	823

AED FC Kc - Dimensions and weights - 2-circuits units - U-V-B Versions

Size		332 F Kc	502 F Kc	772 F Kc	922 F Kc	1442 F Kc	1462 F Kc
Dimensions							
Length	mm	1.160	1.860	2.210	2.565	3.100	3.100
Width	mm	850	850	850	850	850	850
Height	mm	1.980	1.980	1.980	1.980	1.980	1.980
Weights							
Weight - U Version	kg	424	559	651	803	975	964
Weight - V Version	kg	419	569	661	813	975	964
Weight - B Version	kg	424	579	667	824	985	975

AED FC Kc - Dimensions and weights - 1-circuit units - D Versions

Size		211 F Kc	331 F Kc	501 F Kc	771 F Kc	921 F Kc
Dimensions						
Length	mm	980	1.160	1.860	2.210	2.565
Width	mm	750	850	850	850	850
Height	mm	1.980	1.980	1.980	1.980	1.980
Weights						
Weight - D Version	kg	324	389	580	691	818

AED FC Kc - Dimensions and weights - 2-circuits units- D Versions

Size		332 F Kc	502 F Kc	772 F Kc	922 F Kc	1442 F Kc	1462 F Kc
Dimensions							
Length	mm	1.160	1'860	2.210	2.565	3.100	3.100
Width	mm	850	850	850	850	850	850
Height	mm	1'980	1.980	1.980	1.980	1.980	1.980
Weights							
Weight - D Version	kg	424	590	677	818	1.006	1.006

DIRECT EXPANSION CLOSE CONTROL UNIT WITH REMOTE CONDENSER AND ADDITIONAL CHILLED WATER FREE COOLING COIL

AED FC Kc - Technical data sheet - 1-circuit units - U-V-B Version

Size		211 F Kc	331 F Kc	501 F Kc	771 F Kc	921 F Kc
Frame						
Frame		3	4	5	6	7
Direct expansion operation						
Total cooling capacity (27°C - 50% R.H.)	kW	22,5	32,6	51,3	75,9	87,4
Sensible cooling capacity (27°C - 50% R.H.)	kW	21	29,4	50,4	67,5	79,3
SHR @ 27°C-50% U.R.	%	93	90	98	89	91
Nominal input power (27°C - 50% R.H.)	kW	4,8	7,3	10,7	16,2	19,1
Nominal input current (27°C - 50% R.H.)	kW	9,9	15	18,7	29,8	35,3
Total cooling capacity (24°C - 50% R.H.)	kW	20,8	30,1	47,8	70,1	80,9
Sensible cooling capacity (24°C - 50% R.H.)	kW	20,2	28,3	47,8	65,2	76,6
SHR @ 24°C-50% U.R.	%	97	94	100	93	95
Nominal input power (24°C - 50% R.H.)	kW	4,8	7,3	10,6	16,2	19,1
Nominal input current (24°C - 50% R.H.)	A	10,1	14,9	18,6	29,8	35,2
Total cooling capacity (22°C - 50% R.H.)	kW	19,7	28,6	45,6	66,5	76,8
Sensible cooling capacity (22°C - 50% R.H.)	kW	19,7	27,6	45,6	63,6	74,8
SHR @ 22°C-50% U.R.	%	100	97	100	96	97
Nominal input power (22°C - 50% R.H.)	kW	4,9	7,2	10,6	16,2	19,1
Nominal input current (22°C - 50% R.H.)	A	10,2	14,9	18,6	29,8	35,1
Free cooling operation (Water 7/12°C)						
Total cooling capacity (27°C - 50% R.H.)	kW	24,5	35,9	66,1	82,5	101
Sensible cooling capacity (27°C - 50% R.H.)	kW	22	30,9	57,5	70,9	85,4
SHR @ 27°C-50% U.R.	%	90	86	87	86	85
Water flow rate	m³/h	4,21	6,17	11,37	14,19	17,37
Water flow rate	l/s	1,17	1,71	3,16	3,94	4,82
Pressure drop (coil+valve)	kPa	37	49	67	52	76
Total cooling capacity (24°C - 50% R.H.)	kW	18,9	27	50	61,9	75,1
Sensible cooling capacity (24°C - 50% R.H.)	kW	18,9	27	50	61,9	75,1
SHR @ 24°C-50% U.R.	%	100	100	100	100	100
Water flow rate	m³/h	3,25	4,64	8,6	10,65	12,91
Water flow rate	l/s	0,9	1,29	2,39	2,96	3,58
Pressure drop (coil+valve)	kPa	23	29	40	30	43
Total cooling capacity (22°C - 50% R.H.)	kW	15,8	22,8	42,2	52,3	63,6
Sensible cooling capacity (22°C - 50% R.H.)	kW	15,8	22,8	42,2	52,3	63,6
SHR @ 22°C-50% U.R.	%	100	100	100	100	100
Water flow rate	m³/h	2,72	3,92	7,26	9	10,94
Water flow rate	l/s	0,76	1,09	2,02	2,5	3,04
Pressure drop (coil+valve)	kPa	16	21	29	22	32
Free cooling operation (Water 9/14°C)						
Total cooling capacity (27°C - 50% R.H.)	kW	20,5	29,2	54,1	66,8	77,2
Sensible cooling capacity (27°C - 50% R.H.)	kW	20,5	29,2	54,1	66,8	76,6
SHR @ 27°C-50% U.R.	%	100	100	100	100	100
Water flow rate	m³/h	3,52	5,01	9,3	11,49	13,27
Water flow rate	l/s	0,98	1,39	2,58	3,19	3,69
Pressure drop (coil+valve)	kPa	26	33	46	35	45
Total cooling capacity (24°C - 50% R.H.)	kW	15,9	22,9	42,4	52,6	63,9
Sensible cooling capacity (24°C - 50% R.H.)	kW	15,9	22,9	42,4	52,6	63,9
SHR @ 24°C-50% U.R.	%	100	100	100	100	100
Water flow rate	m³/h	2,74	3,94	7,29	9,04	10,98
Water flow rate	l/s	0,76	1,09	2,03	2,51	3,05
Pressure drop (coil+valve)	kPa	16	21	29	22	32
Total cooling capacity (22°C - 50% R.H.)	kW	12,9	18,7	34,5	42,9	52,3
Sensible cooling capacity (22°C - 50% R.H.)	kW	12,9	18,7	34,5	42,9	52,3
SHR @ 22°C-50% U.R.	%	100	100	100	100	100
Water flow rate	m³/h	2,21	3,21	5,93	7,37	8,99
Water flow rate	l/s	0,61	0,89	1,65	2,05	2,5
Pressure drop (coil+valve)	kPa	11	14	19	15,1	22

Size		211 F Kc	331 F Kc	501 F Kc	771 F Kc	921 F Kc
Scroll compressors						
Quantity	n.	1	1	1	1	2
Circuits	n.	1	1	1	1	1
Capacity steps	%	0 / 100				0 / 50 / 100
Max input current	A	19	25	33	51	66
Inrush current	A	87	110	158	215	191
AC fans with autotransformer						
Quantity	n.	1	1	2	2	3
Fan(s) supply voltage	V	310	260	260	320	250
Air flow	m³/h	5.200	7.100	13.300	16.200	19.300
Available pressure	Pa	20	20	20	20	20
Rotation speed	rpm	1.282	1.162	1.153	1.258	1.140
Input power	kW	1,11	1,61	3,2	3,71	4,71
Input current	A	2,12	2,77	5,45	6,71	8
Max available pressure (max ESP)	Pa	104	229	236	128	247
Sound pressure level @ 2 m - U Version	dB(A)	58	60	62	68	64
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	60	63	65	69	67
Sound pressure level @ 2 m - B Version	dB(A)	55	57	58	65	60
Sound pressure level @ 2 m - B Version (max ESP)	dB(A)	57	59	61	65	63
Sound pressure level @ 2 m - V Version	dB(A)	54	56	57	64	59
Sound pressure level @ 2 m - V Version (max ESP)	dB(A)	56	58	60	65	62
EC Fans - LP (low pressure)						
Quantity	n.	1	1	2	2	3
Fan(s) supply voltage	V	400	400	400	400	400
Air flow	m³/h	5.200	7.100	13.300	16.200	19.300
Max available pressure (max ESP)	Pa	146	146	153	39	164
Rotation speed	rpm	1.267	1.115	1.107	1.214	1.094
Input power	kW	0,91	1,15	2,26	2,91	3,29
Input current	A	1,46	1,84	3,63	4,66	5,28
Sound pressure level @ 2 m - U Version	dB(A)	58	59	60	67	62
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	59	60	61	68	63
Sound pressure level @ 2 m - B Version	dB(A)	54	56	57	64	59
Sound pressure level @ 2 m - B Version (max ESP)	dB(A)	55	56	58	64	60
Sound pressure level @ 2 m - V Version	dB(A)	53	55	56	63	58
Sound pressure level @ 2 m - V Version (max ESP)	dB(A)	54	55	57	63	59
EC Fans - HP (High pressure)						
Quantity	n.	1	1	2	2	3
Fan(s) supply voltage	V	400	400	400	400	400
Air flow	m³/h	5.200	7.100	13.300	16.200	19.300
Max available pressure (max ESP)	Pa	627	577	583	479	594
Rotation speed	rpm	1.261	1.113	1.104	1.213	1.091
Input power	kW	0,94	1,12	2,21	2,83	3,22
Input current	A	1,5	1,8	3,55	4,54	5,17
Sound pressure level @ 2 m - U Version	dB(A)	59	60	61	68	63
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	64	63	66	69	68
Sound pressure level @ 2 m - B Version	dB(A)	55	56	58	64	59
Sound pressure level @ 2 m - B Version (max ESP)	dB(A)	61	60	63		65
Sound pressure level @ 2 m - V Version	dB(A)	54	55	56	63	58
Sound pressure level @ 2 m - V Version (max ESP)	dB(A)	60	59	62		64
Humidifier						
Steam production (nominal)	kg/h	5	8	8	8	8
Steam production (max)	kg/h	8	8	8	8	8
Maximum input power	kW	3,75	6	6	6	6
Maximum input current	A	5,5	8,7	8,7	8,7	8,7
Specific conductivity at 20°C (min/max)	µS/cm	300 / 1'250				
Total hardness (min/max)	mg/l CaCo3	100 / 400				

DIRECT EXPANSION CLOSE CONTROL UNIT WITH REMOTE CONDENSER AND ADDITIONAL CHILLED WATER FREE COOLING COIL

Size		211 F Kc	331 F Kc	501 F Kc	771 F Kc	921 F Kc
Electrical heaters						
Steps	n.	2	3	3	3	3
Power	kW	6	9	15	18	24
Input current	A	8,7	13	21,7	26	34,6
Oversized electrical heaters						
Steps	n.	3	3	3	3	3
Power	kW	9	12	18	24	27
Input current	A	13	17,3	26	34,6	39
Hot water coil						
Heating capacity	kW	10,2	19,7	35,5	43,6	54,1
Water flow rate	m ³ /h	1,8	3,4	6,1	7,5	9,4
Pressure drop (coil+3-way valve)	kPa	55	76	79	70	78
Internal volume of the coil	dm ³	2,1	3,8	6,4	7,7	8,7
Hot gas coil						
Heating capacity	kW	11	18	32	39	49
Condensing water pump						
Nominal water flow	l/h	390	390	390	390	390
Max water flow (pressure = 0 m)	l/h	500	500	500	500	500
Max height (water flow = 0 m ³ /h)	m	5,4	5,4	5,4	5,4	5,4
Condensing water pump + humidifier						
Nominal water flow	l/h	-	600	600	600	600
Max water flow (pressure = 0 m)	l/h	-	900	900	900	900
Max height (water flow = 0 m ³ /h)	m	-	6	6	6	6
Remote condenser						
1-circuit Standard version	ACR	29	47	64	97	114
1-circuit Silenced version	ACR LN	30	46	73	97	114
1-circuit Ultrasilenced version	ACR SL	29	46	64	92	-
Power supply						
Power supply	V/ph/Hz	400 / 3 / 50 + T + N				

REMARKS: Condensing temperature 48°C - Filters calculated for 20% dirt - Max pressure is referred to the nominal air flow and the max tension/ regulation - Hot water coil calculated for: water 40/45°C, ambient temperature 20°C and available pressure of 20 Pa - Sound pressure level measured at 2 m in open field (ISO 3744) with ducted air inlet and discharge - The condensing / condensing+humidifier water pump is calculated for a 2 m vertical difference in height respect to the pump; total length of the discharge pipe of 5 m, internal diameter of flexible pipe of 12 mm - Remote condensers suggested for external air temperature for 35°C

AED FC Kc - Technical data sheet - 2-circuit units - U-V-B Version

Size		332 F Kc	502 F Kc	772 F Kc	922 F Kc	1442 F Kc	1462 F Kc
Frame							
Frame		4	5	6	7	8	
Direct expansion operation							
Total cooling capacity (27°C - 50% R.H.)	kW	33,1	53,2	74,7	87,4	104,5	100,9
Sensible cooling capacity (27°C - 50% R.H.)	kW	29,5	52	67,1	79,3	97,7	96,4
SHR @ 27°C-50% U.R.	%	89	98	90	91	94	96
Nominal input power (27°C - 50% R.H.)	kW	7,6	11	17,1	19,1	22	21,3
Nominal input current (27°C - 50% R.H.)	kW	13,1	22,6	34,3	35,3	45	37,3
Total cooling capacity (24°C - 50% R.H.)	kW	30,6	49,2	69,1	80,9	96,6	93,3
Sensible cooling capacity (24°C - 50% R.H.)	kW	28,5	49,2	64,8	76,6	94,3	92,9
SHR @ 24°C-50% U.R.	%	93	100	94	95	98	100
Nominal input power (24°C - 50% R.H.)	kW	7,6	11,1	16,8	19,1	22,1	21,3
Nominal input current (24°C - 50% R.H.)	A	13,4	23,2	34,1	35,2	46,6	37,3
Total cooling capacity (22°C - 50% R.H.)	kW	29	47	65,5	76,8	91,7	88,7
Sensible cooling capacity (22°C - 50% R.H.)	kW	27,8	47	63,2	74,8	90,2	88,7
SHR @ 22°C-50% U.R.	%	96	100	96	97	98	100
Nominal input power (22°C - 50% R.H.)	kW	7,6	11,1	16,7	19,1	22,2	21,2
Nominal input current (22°C - 50% R.H.)	A	13,5	23,4	34	35,1	47,1	37,2
Free cooling operation (Water 7/12°C)							
Total cooling capacity (27°C - 50% R.H.)	kW	35,9	66,1	82,5	101	132,9	132,9
Sensible cooling capacity (27°C - 50% R.H.)	kW	30,9	57,5	70,9	85,4	109,8	109,8
SHR @ 27°C-50% U.R.	%	86	87	86	85	83	83
Water flow rate	m³/h	6,17	11,37	14,19	17,37	22,85	22,85
Water flow rate	l/s	1,71	3,16	3,94	4,82	6,35	6,35
Pressure drop (coil+valve)	kPa	49	67	52	76	112	112
Total cooling capacity (24°C - 50% R.H.)	kW	27	50	61,9	75,1	97,2	97,2
Sensible cooling capacity (24°C - 50% R.H.)	kW	27	50	61,9	75,1	97,2	97,2
SHR @ 24°C-50% U.R.	%	100	100	100	100	100	100
Water flow rate	m³/h	4,64	8,6	10,65	12,91	16,71	16,71
Water flow rate	l/s	1,29	2,39	2,96	3,58	4,64	4,64
Pressure drop (coil+valve)	kPa	29	40	30	43	62	62
Total cooling capacity (22°C - 50% R.H.)	kW	22,8	42,2	42,9	63,6	82,8	82,8
Sensible cooling capacity (22°C - 50% R.H.)	kW	22,8	42,2	42,9	63,6	82,8	82,8
SHR @ 22°C-50% U.R.	%	100	100	100	100	100	100
Water flow rate	m³/h	3,92	7,26	7,37	10,94	14,24	14,24
Water flow rate	l/s	1,09	2,02	2,05	3,04	3,96	3,96
Pressure drop (coil+valve)	kPa	21	29	15	32	46	46
Free cooling operation (Water 9/14°C)							
Total cooling capacity (27°C - 50% R.H.)	kW	29,2	54,1	66,8	77,2	102,8	102,8
Sensible cooling capacity (27°C - 50% R.H.)	kW	29,2	54,1	66,8	76,6	98,3	98,3
SHR @ 27°C-50% U.R.	%	100	100	100	99	96	96
Water flow rate	m³/h	5,01	9,3	11,49	13,27	17,68	17,68
Water flow rate	l/s	1,39	2,58	3,19	3,69	4,91	4,91
Pressure drop (coil+valve)	kPa	33	46	35	45	69	69
Total cooling capacity (24°C - 50% R.H.)	kW	22,9	42,4	52,6	63,9	83	83
Sensible cooling capacity (24°C - 50% R.H.)	kW	22,9	42,4	52,6	63,9	83	83
SHR @ 24°C-50% U.R.	%	100	100	100	100	100	100
Water flow rate	m³/h	3,94	7,29	9,04	10,98	14,27	14,27
Water flow rate	l/s	1,09	2,03	2,51	3,05	3,96	3,96
Pressure drop (coil+valve)	kPa	21	29	22	32	46	46
Total cooling capacity (22°C - 50% R.H.)	kW	18,7	34,5	42,9	52,3	68,5	68,5
Sensible cooling capacity (22°C - 50% R.H.)	kW	18,7	34,5	42,9	52,3	68,5	68,5
SHR @ 22°C-50% U.R.	%	100	100	100	100	100	100
Water flow rate	m³/h	3,21	5,93	7,37	8,99	11,77	11,77
Water flow rate	l/s	0,89	1,65	2,05	2,5	3,27	3,27
Pressure drop (coil+valve)	kPa	14	19	15	22	32	32

DIRECT EXPANSION CLOSE CONTROL UNIT WITH REMOTE CONDENSER AND ADDITIONAL CHILLED WATER FREE COOLING COIL

Size		332 F Kc	502 F Kc	772 F Kc	922 F Kc	1442 F Kc	1462 F Kc
Scroll compressors							
Quantity	n.	2	2	2	2	4	2
Circuits	n.	2	2	2	2	2	2
Capacity steps	%	0 / 50 / 100					
Max input current	A	30	38	54	66	108	102
Inrush current	A	85	119	167	191	221	266
AC fans with autotransformer							
Quantity	n.	1	2	2	3	4	4
Fan(s) supply voltage	V	260	260	320	320	250	250
Air flow	m³/h	7.100	13.300	16.200	19.300	24.300	24.300
Available pressure	Pa	20	20	20	20	20	20
Rotation speed	rpm	1.162	1.153	1.258	1.140	1.130	1.130
Input power	kW	1,61	3,2	3,71	4,71	6,18	6,18
Input current	A	2,77	5,45	6,71	8	10,48	10,48
Max available pressure (max ESP)	Pa	229	236	128	247	256	256
Sound pressure level @ 2 m - U Version	dB(A)	59	62	65	64	65	65
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	62	65	66	67	68	68
Sound pressure level @ 2 m - B Version	dB(A)	56	59	62	60	61	61
Sound pressure level @ 2 m - B Version (max ESP)	dB(A)	58	61	63	63	64	64
Sound pressure level @ 2 m - V Version	dB(A)	55	58	61	59	60	60
Sound pressure level @ 2 m - V Version (max ESP)	dB(A)	57	60	62	62	63	63
EC Fans - LP (low pressure)							
Quantity	n.	1	2	2	3	4	4
Fan(s) supply voltage	V	400	400	400	400	400	400
Air flow	m³/h	7.100	13.300	16.200	19.300	24.300	24.300
Max available pressure (max ESP)	Pa	146	153	39	164	173	173
Rotation speed	rpm	1.115	1.107	1.214	1.094	1.085	1.085
Input power	kW	1,15	2,26	2,91	3,29	4,29	4,29
Input current	A	1,84	3,63	4,66	5,28	6,89	6,89
Sound pressure level @ 2 m - U Version	dB(A)	57	61	63	62	63	63
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	58	62	63	63	65	65
Sound pressure level @ 2 m - B Version	dB(A)	54	57	60	59	60	60
Sound pressure level @ 2 m - B Version (max ESP)	dB(A)	55	58	60	60	61	61
Sound pressure level @ 2 m - V Version	dB(A)	53	56	59	58	59	59
Sound pressure level @ 2 m - V Version (max ESP)	dB(A)	54	57	59	59	60	60
EC Fans - HP (High pressure)							
Quantity	n.	1	2	2	3	4	4
Fan(s) supply voltage	V	400	400	400	400	400	400
Air flow	m³/h	7.100	13.300	16.200	19.300	24.300	24.300
Max available pressure (max ESP)	Pa	577	583	479	594	601	601
Rotation speed	rpm	1.113	1.104	1.213	1.091	1.080	1.080
Input power	kW	1,12	2,21	2,83	3,22	4,2	4,2
Input current	A	1,8	3,55	4,54	5,17	6,74	6,74
Sound pressure level @ 2 m - U Version	dB(A)	58	61	64	63	64	64
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	63	66	66	68	70	70
Sound pressure level @ 2 m - B Version	dB(A)	54	58	60	59	60	60
Sound pressure level @ 2 m - B Version (max ESP)	dB(A)	59	63	63	65	66	66
Sound pressure level @ 2 m - V Version	dB(A)	53	57	59	58	59	59
Sound pressure level @ 2 m - V Version (max ESP)	dB(A)	58	62	62	64	65	65
Humidifier							
Steam production (nominal)	kg/h	8	8	8	8	8	8
Steam production (max)	kg/h	8	8	8	8	8	8
Maximum input power	kW	6	6	6	6	6	6
Maximum input current	A	8,7	8,7	8,7	8,7	8,7	8,7
Specific conductivity at 20°C (min/max)	µS/cm	300 / 1'250					
Total hardness (min/max)	mg/l CaCo3	100 / 400					

Size		332 F Kc	502 F Kc	772 F Kc	922 F Kc	1442 F Kc	1462 F Kc
Electrical heaters							
Steps	n.	3	3	3	3	3	3
Power	kW	9	15	18	24	27	27
Input current	A	13	21,7	26	34,6	39	39
Oversized electrical heaters							
Steps	n.	3	3	3	3	3	3
Power	kW	12	18	24	27	36	36
Input current	A	17,3	26	34,6	39	52	52
Hot water coil							
Heating capacity	kW	19,7	35,5	43,6	54,1	73,2	73,2
Water flow rate	m³/h	3,4	6,1	7,5	9,4	12,8	12,8
Pressure drop (coil+3-way valve)	kPa	76	79	70	78	81	81
Internal volume of the coil	dm³	3,8	6,4	7,7	8,7	15,3	15,3
Hot gas coil							
Heating capacity	kW	18	32	39	49	60	60
Condensing water pump							
Nominal water flow	l/h	390	390	390	390	390	390
Max water flow (pressure = 0 m)	l/h	500	500	500	500	500	500
Max height (water flow = 0 m³/h)	m	5,4	5,4	5,4	5,4	5,4	5,4
Condensing water pump + humidifier							
Nominal water flow	l/h	600	600	600	600	600	600
Max water flow (pressure = 0 m)	l/h	900	900	900	900	900	900
Max height (water flow = 0 m³/h)	m	6,0	6,0	6,0	6,0	6,0	6,0
Remote condenser							
1-circuit Standard version	ACR	2x22	2x34	2x55	2x64	2x97	2x97
1-circuit Silenced version	ACR LN	2x23	2x34	2x55	2x73	2x97	2x97
1-circuit Ultrasilenced version	ACR SL	2x22	2x34	2x55	2x64	2x92	2x92
2-circuit Standard version	ACR/2	40	70	101	120	183	183
2-circuit Silenced version	ACR/2 LN	40	70	101	120	183	183
2-circuit Ultrasilenced version	ACR/2 SL	40	70	100	100	-	-
Power supply							
Power supply	V/ph/Hz	400 / 3 / 50 + T + N					

REMARKS: Condensing temperature 48°C - Filters calculated for 20% dirt - Max pressure is referred to the nominal air flow and the max tension/ regulation - Hot water coil calculated for: water 40/45°C, ambient temperature 20°C and available pressure of 20 Pa - Sound pressure level measured at 2 m in open field (ISO 3744) with ducted air inlet and discharge - The condensing / condensing+humidifier water pump is calculated for a 2 m vertical difference in height respect to the pump; total length of the discharge pipe of 5 m, internal diameter of flexible pipe of 12 mm - Remote condensers suggested for external air temperature for 35°C

DIRECT EXPANSION CLOSE CONTROL UNIT WITH REMOTE CONDENSER AND ADDITIONAL CHILLED WATER FREE COOLING COIL

AED FC Kc - Technical data sheet - 1-circuit units - D Version

Size		211 F Kc	331 F Kc	501 F Kc	771 F Kc	921 F Kc
Frame						
Frame		3	4	5	6	7
Direct expansion operation						
Total cooling capacity (27°C - 50% R.H.)	kW	22,5	32,6	51,3	75,9	87,4
Sensible cooling capacity (27°C - 50% R.H.)	kW	21	29,4	50,4	67,5	79,3
SHR @ 27°C-50% U.R.	%	93	90	98	89	91
Nominal input power (27°C - 50% R.H.)	kW	4,8	7,3	10,7	16,2	19,1
Nominal input current (27°C - 50% R.H.)	kW	9,9	15	18,7	29,8	35,3
Total cooling capacity (24°C - 50% R.H.)	kW	20,8	30,1	47,8	70,1	80,9
Sensible cooling capacity (24°C - 50% R.H.)	kW	20,2	28,3	47,8	65,2	76,6
SHR @ 24°C-50% U.R.	%	97	94	100	93	95
Nominal input power (24°C - 50% R.H.)	kW	4,8	7,3	10,6	16,2	19,1
Nominal input current (24°C - 50% R.H.)	A	10,1	14,9	18,6	29,8	35,2
Total cooling capacity (22°C - 50% R.H.)	kW	19,7	28,6	45,6	66,5	76,8
Sensible cooling capacity (22°C - 50% R.H.)	kW	19,7	27,6	45,6	63,6	74,8
SHR @ 22°C-50% U.R.	%	100	97	100	96	97
Nominal input power (22°C - 50% R.H.)	kW	4,9	7,2	10,6	16,2	19,1
Nominal input current (22°C - 50% R.H.)	A	10,2	14,9	18,6	29,8	35,1
Free cooling operation (Water 7/12°C)						
Total cooling capacity (27°C - 50% R.H.)	kW	24,5	35,9	66,1	82,5	101
Sensible cooling capacity (27°C - 50% R.H.)	kW	22	30,9	57,5	70,9	85,4
SHR @ 27°C-50% U.R.	%	90	86	87	86	85
Water flow rate	m³/h	4,21	6,17	11,37	14,19	17,37
Water flow rate	l/s	1,17	1,71	3,16	3,94	4,82
Pressure drop (coil+valve)	kPa	37	49	67	52	76
Total cooling capacity (24°C - 50% R.H.)	kW	18,9	27	50	61,9	75,1
Sensible cooling capacity (24°C - 50% R.H.)	kW	18,9	27	50	61,9	75,1
SHR @ 24°C-50% U.R.	%	100	100	100	100	100
Water flow rate	m³/h	3,25	4,64	8,6	10,65	12,91
Water flow rate	l/s	0,9	1,29	2,39	2,96	3,58
Pressure drop (coil+valve)	kPa	23	29	40	30	43
Total cooling capacity (22°C - 50% R.H.)	kW	15,8	22,8	42,2	52,3	63,6
Sensible cooling capacity (22°C - 50% R.H.)	kW	15,8	22,8	42,2	52,3	63,6
SHR @ 22°C-50% U.R.	%	100	100	100	100	100
Water flow rate	m³/h	2,72	3,92	7,26	9	10,94
Water flow rate	l/s	0,76	1,09	2,02	2,5	3,04
Pressure drop (coil+valve)	kPa	16	21	29	22	32
Free cooling operation (Water 9/14°C)						
Total cooling capacity (27°C - 50% R.H.)	kW	20,5	29,2	54,1	66,8	77,2
Sensible cooling capacity (27°C - 50% R.H.)	kW	20,5	29,2	54,1	66,8	76,6
SHR @ 27°C-50% U.R.	%	100	100	100	100	99
Water flow rate	m³/h	3,52	5,01	9,3	11,49	13,27
Water flow rate	l/s	0,98	1,39	2,58	3,19	3,69
Pressure drop (coil+valve)	kPa	26	33	46	35	45
Total cooling capacity (24°C - 50% R.H.)	kW	15,9	22,9	42,4	52,6	63,9
Sensible cooling capacity (24°C - 50% R.H.)	kW	15,9	22,9	42,4	52,6	63,9
SHR @ 24°C-50% U.R.	%	100	100	100	100	100
Water flow rate	m³/h	2,74	3,94	7,29	9,04	10,98
Water flow rate	l/s	0,76	1,09	2,03	2,51	3,05
Pressure drop (coil+valve)	kPa	16	21	29	22	32
Total cooling capacity (22°C - 50% R.H.)	kW	12,9	18,7	34,5	42,9	52,3
Sensible cooling capacity (22°C - 50% R.H.)	kW	12,9	18,7	34,5	42,9	52,3
SHR @ 22°C-50% U.R.	%	100	100	100	100	100
Water flow rate	m³/h	2,21	3,21	5,93	7,37	8,99
Water flow rate	l/s	0,61	0,89	1,65	2,05	2,5
Pressure drop (coil+valve)	kPa	11	14	19	15,1	22

Size		211 F Kc	331 F Kc	501 F Kc	771 F Kc	921 F Kc
Scroll compressors						
Quantity	n.	1	1	1	1	2
Circuits	n.	1	1	1	1	1
Capacity steps	%	0 / 100				0 / 50 / 100
Max input current	A	19	25	33	51	66
Inrush current	A	87	110	158	215	191
AC fans with autotransformer						
Quantity	n.	1	1	2	2	3
Fan(s) supply voltage	V	320	290	290	360	290
Air flow	m³/h	5.200	7.100	13.300	16.200	19.300
Available pressure	Pa	20	20	20	20	20
Rotation speed	rpm	1.297	1.218	1.217	1.315	1.215
Input power	kW	1,14	1,77	3,54	4,07	5,29
Input current	A	2,21	3,08	6,13	7,73	9,15
Max available pressure (max ESP)	Pa	89	169	168	58	169
Sound pressure level @ 2 m - D Version	dB(A)	55	57	60	65	61
Sound pressure level @ 2 m - D Version (max ESP)	dB(A)	57	59	62	65	64
EC Fans - HP (High pressure)						
Quantity	n.	1	1	2	2	3
Fan(s) supply voltage	V	400	400	400	400	400
Air flow	m³/h	5.200	7.100	13.300	16.200	19.300
Max available pressure (max ESP)	Pa	613	517	515	409	515
Rotation speed	rpm	1.265	1.168	1.166	1.270	1.164
Input power	kW	0,97	1,31	2,64	3,33	3,96
Input current	A	1,56	2,11	4,24	5,34	6,34
Sound pressure level @ 2 m - D Version	dB(A)	55	56	58	64	60
Sound pressure level @ 2 m - D Version (max ESP)	dB(A)	62	60	63	65	65
Humidifier						
Steam production (nominal)	kg/h	5	8	8	8	8
Steam production (max)	kg/h	8	8	8	8	8
Maximum input power	kW	3,75	6	6	6	6
Maximum input current	A	5,5	8,7	8,7	8,7	8,7
Specific conductivity at 20°C (min/max)	µS/cm	300 / 1'250				
Total hardness (min/max)	mg/l CaCo3	100 / 400				
Electrical heaters						
Steps	n.	2	3	3	3	3
Power	kW	6	9	15	18	24
Input current	A	8,7	13	21,7	26	34,6
Oversized electrical heaters						
Steps	n.	3	3	3	3	3
Power	kW	9	12	18	24	27
Input current	A	13	17,3	26	34,6	39
Hot water coil						
Heating capacity	kW	10,2	19,7	35,5	43,6	54,1
Water flow rate	m³/h	1,8	3,4	6,1	7,5	9,4
Pressure drop (coil+3-way valve)	kPa	55	76	79	70	78
Internal volume of the coil	dm³	2,1	3,8	6,4	7,7	8,7
Hot gas coil						
Heating capacity	kW	11	18	32	39	49
Condensing water pump						
Nominal water flow	l/h	390	390	390	390	390
Max water flow (pressure = 0 m)	l/h	500	500	500	500	500
Max height (water flow = 0 m³/h)	m	5,4	5,4	5,4	5,4	5,4

DIRECT EXPANSION CLOSE CONTROL UNIT WITH REMOTE CONDENSER AND ADDITIONAL CHILLED WATER FREE COOLING COIL

Size		211 F Kc	331 F Kc	501 F Kc	771 F Kc	921 F Kc
Condensing water pump + humidifier						
Nominal water flow	l/h	-	600	600	600	600
Max water flow (pressure = 0 m)	l/h	-	900	900	900	900
Max height (water flow = 0 m ³ /h)	m	-	6,0	6,0	6,0	6,0
Remote condenser						
1-circuit Standard version	ACR	29	47	64	97	114
1-circuit Silenced version	ACR LN	30	46	73	97	114
1-circuit Ultrasilenced version	ACR SL	29	46	64	92	-
Power supply						
Power supply	V/ph/Hz	400 / 3 / 50 + T + N				

AED FC Kc - Technical data sheet - 2-circuit units - D Version

Size		332 F Kc	502 F Kc	772 F Kc	922 F Kc	1442 F Kc	1462 F Kc
Frame							
Frame		4	5	6	7	8	8
Direct expansion operation							
Total cooling capacity (27°C - 50% R.H.)	kW	33,1	53,2	74,7	87,4	104,5	100,9
Sensible cooling capacity (27°C - 50% R.H.)	kW	29,5	52	67,1	79,3	97,7	96,4
SHR @ 27°C-50% U.R.	%	89	98	90	91	94	96
Nominal input power (27°C - 50% R.H.)	kW	7,6	11	17,1	19,1	22	21,3
Nominal input current (27°C - 50% R.H.)	kW	13,1	22,6	34,3	35,3	45	37,3
Total cooling capacity (24°C - 50% R.H.)	kW	30,6	49,2	69,1	80,9	96,6	93,3
Sensible cooling capacity (24°C - 50% R.H.)	kW	28,5	49,2	64,8	76,6	94,3	92,9
SHR @ 24°C-50% U.R.	%	93	100	94	95	98	100
Nominal input power (24°C - 50% R.H.)	kW	7,6	11,1	16,8	19,1	22,1	21,3
Nominal input current (24°C - 50% R.H.)	A	13,4	23,2	34,1	35,2	46,6	37,3
Total cooling capacity (22°C - 50% R.H.)	kW	29	47	65,5	76,8	91,7	88,7
Sensible cooling capacity (22°C - 50% R.H.)	kW	27,8	47	63,2	74,8	90,2	88,7
SHR @ 22°C-50% U.R.	%	96	100	96	97	98	100
Nominal input power (22°C - 50% R.H.)	kW	7,6	11,1	16,7	19,1	22,2	21,2
Nominal input current (22°C - 50% R.H.)	A	13,5	23,4	34	35,1	47,1	37,2
Free cooling operation (Water 7/12°C)							
Total cooling capacity (27°C - 50% R.H.)	kW	35,9	66,1	82,5	101	132,9	132,9
Sensible cooling capacity (27°C - 50% R.H.)	kW	30,9	57,5	70,9	85,4	109,8	109,8
SHR @ 27°C-50% U.R.	%	86	87	86	85	83	83
Water flow rate	m ³ /h	6,17	11,37	14,19	17,37	22,85	22,85
Water flow rate	l/s	1,71	3,16	3,94	4,82	6,35	6,35
Pressure drop (coil+valve)	kPa	49	67	52	76	112	112
Total cooling capacity (24°C - 50% R.H.)	kW	27	50	61,9	75,1	97,2	97,2
Sensible cooling capacity (24°C - 50% R.H.)	kW	27	50	61,9	75,1	97,2	97,2
SHR @ 24°C-50% U.R.	%	100	100	100	100	100	100
Water flow rate	m ³ /h	4,64	8,6	10,65	12,91	16,71	16,71
Water flow rate	l/s	1,29	2,39	2,96	3,58	4,64	4,64
Pressure drop (coil+valve)	kPa	29	40	30	43	62	62
Total cooling capacity (22°C - 50% R.H.)	kW	22,8	42,2	42,9	63,6	82,8	82,8
Sensible cooling capacity (22°C - 50% R.H.)	kW	22,8	42,2	42,9	63,6	82,8	82,8
SHR @ 22°C-50% U.R.	%	100	100	100	100	100	100
Water flow rate	m ³ /h	3,92	7,26	7,37	10,94	14,24	14,24
Water flow rate	l/s	1,09	2,02	2,05	3,04	3,96	3,96
Pressure drop (coil+valve)	kPa	21	29	15	32	46	46
Free cooling operation (Water 9/14°C)							
Total cooling capacity (27°C - 50% R.H.)	kW	29,2	54,1	66,8	77,2	102,8	102,8
Sensible cooling capacity (27°C - 50% R.H.)	kW	29,2	54,1	66,8	76,6	98,3	98,3
SHR @ 27°C-50% U.R.	%	100	100	100	99	96	96
Water flow rate	m ³ /h	5,01	9,3	11,49	13,27	17,68	17,68
Water flow rate	l/s	1,39	2,58	3,19	3,69	4,91	4,91
Pressure drop (coil+valve)	kPa	33	46	35	45	69	69
Total cooling capacity (24°C - 50% R.H.)	kW	22,9	42,4	52,6	63,9	83	83
Sensible cooling capacity (24°C - 50% R.H.)	kW	22,9	42,4	52,6	63,9	83	83
SHR @ 24°C-50% U.R.	%	100	100	100	100	100	100
Water flow rate	m ³ /h	3,94	7,29	9,04	10,98	14,27	14,27
Water flow rate	l/s	1,09	2,03	2,51	3,05	3,96	3,96
Pressure drop (coil+valve)	kPa	21	29	22	32	46	46
Total cooling capacity (22°C - 50% R.H.)	kW	18,7	34,5	42,9	52,3	68,5	68,5
Sensible cooling capacity (22°C - 50% R.H.)	kW	18,7	34,5	42,9	52,3	68,5	68,5
SHR @ 22°C-50% U.R.	%	100	100	100	100	100	100
Water flow rate	m ³ /h	3,21	5,93	7,37	8,99	11,77	11,77
Water flow rate	l/s	0,89	1,65	2,05	2,5	3,27	3,27
Pressure drop (coil+valve)	kPa	14	19	15	22	32	32

REMARKS: Condensing temperature 48°C - Filters calculated for 20% dirt - Max pressure is referred to the nominal air flow and the max tension/ regulation - Hot water coil calculated for: water 40/45°C, ambient temperature 20°C and available pressure of 20 Pa - Sound pressure level measured at 2 m in open field (ISO 3744) with ducted air inlet and discharge - The condensing / condensing+humidifier water pump is calculated for a 2 m vertical difference in height respect to the pump; total length of the discharge pipe of 5 m, internal diameter of flexible pipe of 12 mm - Remote condensers suggested for external air temperature for 35°C

DIRECT EXPANSION CLOSE CONTROL UNIT WITH REMOTE CONDENSER AND ADDITIONAL CHILLED WATER FREE COOLING COIL

Size		332 F Kc	502 F Kc	772 F Kc	922 F Kc	1442 F Kc	1462 F Kc
Scroll compressors							
Quantity	n.	2	2	2	2	4	2
Circuits	n.	2	2	2	2	2	2
Capacity steps	%	0 / 50 / 100					
Max input current	A	30	38	54	66	108	102
Inrush current	A	85	119	167	191	221	266
AC fans with autotransformer							
Quantity	n.	1	2	2	3	4	4
Fan(s) supply voltage	V	290	290	360	290	280	280
Air flow	m³/h	7.100	13.300	16.200	19.300	24.300	24.300
Available pressure	Pa	20	20	20	20	20	20
Rotation speed	rpm	1.218	1.217	1.315	1.215	1.205	1.205
Input power	kW	1,77	3,54	4,07	5,29	6,94	6,94
Input current	A	3,08	6,13	7,73	9,15	11,92	11,92
Max available pressure (max ESP)	Pa	169	168	58	169	178	178
Sound pressure level @ 2 m - D Version	dB(A)	57	60	63	61	62	62
Sound pressure level @ 2 m - D Version (max ESP)	dB(A)	59	62	65	64	65	65
EC Fans - HP (High pressure)							
Quantity	n.	1	2	2	3	4	4
Fan(s) supply voltage	V	400	400	400	400	400	400
Air flow	m³/h	7.100	13.300	16.200	19.300	24.300	24.300
Available pressure	Pa	517	515	409	515	523	523
Input power	rpm	1.168	1.166	1.270	1.164	1.154	1.154
Input current	kW	1,31	2,64	3,33	3,96	5,15	5,15
Max available pressure (max ESP)	A	2,11	4,24	5,34	6,34	8,26	8,26
Sound pressure level @ 2 m - D Version	dB(A)	55	58	61	60	61	61
Sound pressure level @ 2 m - D Version (max ESP)	dB(A)	60	63	64	65	67	67
Humidifier							
Steam production (nominal)	kg/h	8	8	8	8	8	8
Steam production (max)	kg/h	8	8	8	8	8	8
Maximum input power	kW	6	6	6	6	6	6
Maximum input current	A	8,7	8,7	8,7	8,7	8,7	8,7
Specific conductivity at 20°C (min/max)	µS/cm	300 / 1 250					
Total hardness (min/max)	mg/l CaCo3	100 / 400					
Electrical heaters							
Steps	n.	3	3	3	3	3	3
Power	kW	9	15	18	24	27	27
Input current	A	13	21,7	26	34,6	39	39
Oversized electrical heaters							
Steps	n.	3	3	3	3	3	3
Power	kW	12	18	24	27	36	36
Input current	A	17,3	26	34,6	39	52	52
Hot water coil							
Heating capacity	kW	19,7	35,5	43,6	54,1	73,2	73,2
Water flow rate	m³/h	3,4	6,1	7,5	9,4	12,8	12,8
Pressure drop (coil+3-way valve)	kPa	76	79	70	78	81	81
Internal volume of the coil	dm³	3,8	6,4	7,7	8,7	15,3	15,3
Hot gas coil							
Heating capacity	kW	18	32	39	49	60	60
Condensing water pump							
Nominal water flow	l/h	390	390	390	390	390	390
Max water flow (pressure = 0 m)	l/h	500	500	500	500	500	500
Max height (water flow = 0 m³/h)	m	5,4	5,4	5,4	5,4	5,4	5,4

Size	332 F Kc	502 F Kc	772 F Kc	922 F Kc	1442 F Kc	1462 F Kc
Condensing water pump + humidifier						
Nominal water flow	l/h	600	600	600	600	600
Max water flow (pressure = 0 m)	l/h	900	900	900	900	900
Max height (water flow = 0 m ³ /h)	m	6,0	6,0	6,0	6,0	6,0
Remote condenser						
1-circuit Standard version	ACR	2x22	2x34	2x55	2x64	2x97
1-circuit Silenced version	ACR LN	2x23	2x34	2x55	2x73	2x97
1-circuit Ultrasilenced version	ACR SL	2x22	2x34	2x55	2x64	2x92
2-circuit Standard version	ACR/2	40	70	101	120	183
2-circuit Silenced version	ACR/2 LN	40	70	101	120	183
2-circuit Ultrasilenced version	ACR/2 SL	40	70	100	100	-
Power supply						
Power supply	V/ph/Hz	400 / 3 / 50 + T + N				

REMARKS: Condensing temperature 48°C - Filters calculated for 20% dirt - Max pressure is referred to the nominal air flow and the max tension/ regulation - Hot water coil calculated for: water 40/45°C, ambient temperature 20°C and available pressure of 20 Pa - Sound pressure level measured at 2 m in open field (ISO 3744) with ducted air inlet and discharge - The condensing / condensing+humidifier water pump is calculated for a 2 m vertical difference in height respect to the pump; total length of the discharge pipe of 5 m, internal diameter of flexible pipe of 12 mm - Remote condensers suggested for external air temperature for 35°C

Series ACA FC Kc

Cooling capacity: from 21,9 tp 103 kW



The range of direct expansion close control with water cooled condenser and free cooling coil, **ACA FC series**, provided with a water-refrigerant interlaced row coil and allowing, besides direct expansion, the production of cool air by using external temperature (for example matching to a dry cooler), it is particularly suitable for use in data centres, technological rooms, in telecom centres and all areas where it is necessary to maintain constant hygrometric conditions all-year long, as to guarantee correct functioning of installed equipments. Thanks to this technology, based on energy saving, it is possible to remarkably save the operating costs, by sensibly reducing amortisation time of the plant.

Depending on the cooling capacity, they are available with one or two cooling circuits.

Thanks to their technologically advanced design, these close control units are able to control the ambient temperature with remarkably high precision and, when the humidity level is required, to adapt their cooling capacity to the room requirements, all automatically managed by the microprocessor on board.

The high technology employed during their design together with the use of the best components available on the markets, make these units extremely reliable and therefore able to work for long periods, without a break.

These units are particularly easy to install also in small spaces and easily accessible on the front side for ordinary and extraordinary service operations. They are completely assembled and tested in the factory and supplied with refrigerant and oil charge.

The units are available in different configurations, related to the air return and discharge:

- U** front air return, upflow air discharge
- V** bottom air return, upflow air discharge
- B** back air return, upflow air discharge
- D** top air return, downflow air discharge

Operation limits: ambient temperature from 19 to 35°C - water at condenser inlet min. 20°C – outlet max 50 °C - (for water at inlet < 20°C it is necessary to install option VP).

Main components:

Structure realized with a framework and internal parts made of galvanized steel riveted profiles and supports, making the structure strong and suitable also for extreme transport and handling conditions.

The external panels, fixed to frame with quick opening connections, are made of pre-painted steel sheet (RAL 9004), ensuring a long-term durability to the unit. They are internally insulated with self-extinguishing sound-proofing material (class HF1 - UL94) reducing the overall sound level of the unit. On request (option IS1), it is available the sound-proofing insulation with class 1 material in conformity to the main European regulations in force. All the front and side panels can be dismantled so to allow an easy access to the main components.

Moreover, the front of the unit is provided with double panels and inspection window (not available for version U), suitably arranged to let the unit work also with open panels during technical interventions, to allow more

accurate regulations and more quick timing for ordinary and extraordinary service operations.

High-efficiency **scroll compressor** (EER > 3.2 at ARI conditions), with low sound level, internal heat protection, installed on rubber vibration dampers, supplied with crankcase heater.

In the case of 2 circuit units, in case of problem on one of the circuit, the 50% operation of the unit is anyway granted.

Single-inlet and backward curved centrifugal fans made of high-performance composite material, directly coupled to a three-phase electrical motor with IP54 Class F protection and provided with a thermal protection inside the motor winding. The fans are fixed on suitable supports reducing the transmission of vibration to the frame and the impeller is statically and dynamically balanced with long-life bearings. It is possible to regulate the fan speed by means of an autotransformer and to adjust their air flow to the head pressure requested on site. It is clear that a higher fans speed rotation involves an increase in the sound level of the unit.

All the units are equipped with low airflow and clogged filter alarms which, by means of differential pressure switches, stop the unit operation in case of fans problems and give a signal on microprocessor for replacement respectively.

Interlaced row **evaporating and free cooling coil**, so to maximize cooling capacity both during mixed operation (through a 3-way modulating valve controlled by the microprocessor) and particularly during free cooling or direct operation when completely exploiting the finned surface of the coil. It is realized with copper tube and aluminium fins and suitably sized with a wide exchange surface and a low air crossing speed so to allow a remarkable heat exchange and reduce the pressure drops on the air side. It is provided with a hydrophilic treatment to reduce the surface tension between water and metal surface, promoting film condensation and avoiding the risk of condensing drops outside the drain tray.

Weld-brazed plate condenser in AISI 316 stainless steel, with pipes and patented manifold so to reach a high heat exchange coefficient. Its design allows a uniform water distribution, compatibly with pressure drops.

Condensing drain tray, made in corrosion proof peraluman, placed underneath the evaporating coil, it is provided with a flexible pipe for condensing water discharge.

Washable and self-extinguishing **air filters** efficiency G4 - of pleated type, they are made of synthetic fibre and are contained in a suitable metal frame. Their pleated arrangement, with a wide surface area, ensures a higher filtering efficiency and low pressure drops.

Cooling circuit made of: electronic thermostatic valve, sight glass, dehydrating filter, safety device, high pressure switch, solenoid valve, liquid receiver, shut-off valve on compressor discharge and on liquid line. Thanks to the electronic thermostatic valve, there is a more accurate regulation of the evaporating pressure/temperature in all working conditions, with superheating at a constant value.

Electric board in compliance with CE norms, protected by a panel is separated by the air flow and is provided with main switch, automatic switches, remote control switches, motor protection switches, low tension auxiliary circuits and terminal board for free contacts and remote general alarm,



ACA FC 331 F U Kc

magnetothermic switches for humidifier and electric heaters (when installed).

Unit management **microprocessor** installed inside the electrical board, complete with hour counter and electronic card to program the switch-over and rotation between to units, after a pre-set time. On this purpose, in case of order, the information necessary for programming must be clearly defined. It allows a multi-language display reading, a detailed description of parameters, the possibility to manage up to 8 units, to manage non standard communication protocols, a quickest access to the program, the control of the electronic thermostatic valve and of the humidifier, the control of modulating valves.

Accessories

AA	Flooding detector: placed in the downflow units, it is already wired and detects water in the false floor.
AE	Electrical power supply different from standard: mainly, 230V three-phase, 460V three-phase. Frequency 50/60 Hz.
AL	Smoke alarm: it consists of a sensor detecting smoke inside the unit and activating an alarm signal which stops the fans.
B	Adjustable base-frame from 170mm to max 600mm for installation on raised floors. It is provided with adjustable feet.
BC	Hot water coil: one-row or 2-row water coil, placed after the cooling coil for the re-heating and/or the heating of treated air. Provided with modulating actuator and with three-way valve, it is controlled by the microprocessor on board. This option is priority when requested with the electric heaters RE option. (Alternative to BG and not available with REM).
BG	Hot gas coil: placed after the cooling coil, it makes the re-heating of the treated air and is provided with a 3-way valve (ON/OFF) controlled by the microprocessor on board. It is available only with the dehumidification control (options DH) (Alternative to BC and not available with HG).
BN	Base-frame with conveyor: it is provided with a suitable conveyor facilitating the air flow and remarkably reducing the pressure drop in case of horizontal air flow. It is adjustable in height from min 400mm to max 800mm. (Only for D version).
BS	Base-frame with ON/OFF damper: it is equipped with an ON/OFF motorized damper. This device prevents the air return from the unit when it is not working or in the case some units are working near to it. Available only for D version; for other versions, being a special execution, please contact our Sales Dept.
BSN	Base-frame with conveyor and ON/OFF damper: a single base-frame with both options BS and BN so to optimize efficiency and overall dimensions.
CI	Soundproofing jacket on compressors: made of sound-proofing material, wrapped all around compressors so to further reduce the overall sound level of the unit.
CS	Compressors inrush counter: Electromechanical device positioned inside the electrical board, recording the total inrush starts of compressors.

DH

Dehumidification control system: managed by microprocessor, through the electronic thermostatic valves, it operates on two parameters, ensuring that the dehumidification process is carried out with a constant air flow, without partializing the evaporating coil. This will optimize the air distribution throughout the room.

DP

Internal double panels: for shutting off the compartments affected by the air flow, they are made from pre-painted and galvanized steel plate, ensuring reduction in the noise transmitted through the panels and a better air tightness even without the external panels so that the access is guaranteed with the doors open during service operation.

EC-LP&HP

Single-inlet EC (electronically commutated) centrifugal fans with backward curved blade (LP not available for D version): made of high-performance composite material, directly coupled to a three-phase electrical rotor with IP54 protection grade, they have the possibility of a continuous regulation of the speed by means of 10V signal, sent and integrated to the control. The fans are fixed on suitable supports reducing the transmission of vibration to the frame and the impeller is statically and dynamically balanced with long-life bearings. Thanks to their technology, the EC fans ensures a lower electrical absorption and sound level, if compared to the traditional centrifugal fans. It is possible to adjust their air flow to the head pressure requested on site. In case of IT electrical supplies, this option is not available. Please contact our Sales Dept.

F5-F6-F7-F9

Higher efficiency air filters: pleated filters, supplied as an alternative to standard G4 filters.

FR

Spare filter kit G4 as a replacement to the ones on board of the unit.

H

Humidifier of immersed-electrode type for the modulating production of steam. It is made by a steam cylinder, by a steam distributor, by water inlet and outlet valves and by a maximum level probe. The microprocessor on board indicates when the steam cylinder needs to be replaced. It is electrically protected by a magnetothermic switch.

HG

Hot gas by-pass: it is a mechanical device for modulating the cooling capacity, so to reduce the ON/OFF of compressors and therefore to wait for the re-starting timing, with influence on condensing temperature. It is not available for sizes 1, 2 and 3 and with options BG and DH.

IE

Fumigated wooden crate packing: available on request for critical transports, so to assure a suitable protection to the unit.

IH

RS 485 serial interface: electronic card to be connected to microprocessor, to allow communication between the units and a Carel supervision system. It is possible to fully control the unit from remote. For connection to other supervision systems, the protocol of the controlled parameters is available on request.

IM

Seawood packing: fumigated seawood case and protection

IP

bag with hygroscopic salts, suitable for long sea transports.

IS1

Magnetothermic switches for auxiliary circuits: when required, they replace the fuses, as a protection of the auxiliary circuits.

MF

Class 1 insulating material in conformity to the main European regulations in force.

MN

Phase monitor: electronic device controlling the correct sequence and/or the eventual lack of one of the 3 phases, switching off the unit if necessary.

MP

Lack of neutral wire for 400/3/50 power supply: unit general power supply without neutral wire.

PB

Oversized microprocessor: in addition to the standard microprocessor, it allows more languages display reading (maximum 5), it has an increased hardware so to allow the managing of more inputs and outputs for the control of on board installed components (Already included on two circuit units).

PBH

Condensing water pump: micro pump discharging the condensing water produced by the unit, it is factory installed.

PL

Condensing water and humidifier discharge pump: pump discharging the condensing water produced by the unit and the humidifier discharge water, it is factory installed.

PQ

Distribution plenum with front grid and a double row of adjustable fins for a better air distribution (for versions U,V,B and not available with options ST and STM).

PR

Remote display: remote terminal, allowing to display the temperature and humidity values detected by probes, the alarm digital inputs, the outputs and the remote ON/OFF of the unit, to change and program of the parameters, the sound signal and the display of the present alarms.

RE

Fresh air inlet: external fresh air inlet with filter, placed on side (standard on the left side), with circular connection (Ø 100 mm).

REM

Electrical heaters: made in aluminium and installed after the cooling coil, for re-heating and/or heating of the treated air. The heating capacity is split on 3 steps max, so to reduce the energy absorption. They are controlled by the microprocessor on board and electrically protected by a magnetothermic switch.

RF

Oversized Electrical heaters.
Rephasing condensers (available for compressors only): electrical device for rephasing the compressors charge at power factor $\cos\Phi > 0,9$.

RV

Personalized frame painting in RAL colour.

SL

Main switch with external padlock.

ST

Manual calibration damper, in galvanized steel plate with opposed-movement fins. Through the manual control, it is possible to accurately regulate the air flow. (Alternative to STM and not available with option PL).

STM

Motorized calibration damper, in galvanized steel plate with opposed-movement fins. Through the modulating control (0-10V), it is possible to accurately regulate the air flow.

DIRECT EXPANSION CLOSE CONTROL UNIT WITH WATER COOLED CONDENSERS AND ADDITIONAL CHILLED WATER FREE COOLING COIL

SV	(Alternative to ST and not available with option PL). Gravity overpressure damper for ducted units , to prevent the air return when the units are not operating, where several units are installed in the same room. Available for U,V,B versions; for D version, being a special execution, please contact our Sales Dept.
TS	Touch screen graphic terminal designed to simplify user interface with the unit controller. It allows the set-point fixing, the alarm reading, the graphic display of the main controlled parameters in real time (suitable for download on USB interface) and possibility of set-point scheduling. The 4.3", 65,000 colours and 480x422 resolution display, being a dedicated terminal for the end user, does not allow to change the basic configuration of the unit.
VCP	3-way valve for regulation of the condensing pressure. (Alternative to VP).
VP	2-way Pressostatic valve : it is placed on condenser water side and controls the water flow rate according to the unit condensing pressure. (Alternative to VCP).
WG	Electronic card for interfacing to BMS with SNMP or TCP/IP protocols. Only available with option IH.

ACA FC Kc - Dimensions and weights - 1-circuit units - U-V-B Versions

Size		211 F Kc	331 F Kc	501 F Kc	771 F Kc	921 F Kc
Dimensions						
Length	mm	980	1.160	1.860	2.210	2.565
Width	mm	750	850	850	850	850
Height	mm	1.980	1.980	1.980	1.980	1.980
Weights						
Weight - U Version	kg	343	424	597	720	865
Weight - V Version	kg	349	419	607	731	876
Weight - B Version	kg	354	424	618	737	887

ACA FC Kc - Dimensions and weights - 2-circuits units - U-V-B Versions

Size		332 F Kc	502 F Kc	772 F Kc	922 F Kc	1442 F Kc	1462 F Kc
Dimensions							
Length	mm	1.160	1.860	2.210	2.565	3.100	3.100
Width	mm	850	850	850	850	850	850
Height	mm	1.980	1.980	1.980	1.980	1.980	1.980
Weights							
Weight - U Version	kg	457	603	720	881	1.091	1.081
Weight - V Version	kg	452	614	731	892	1.091	1.081
Weight - B Version	kg	457	624	737	903	1.102	1.091

ACA FC Kc - Dimensions and weights - 1-circuit units - D Versions

Size		211 F Kc	331 F Kc	501 F Kc	771 F Kc	921 F Kc
Dimensions						
Length	mm	980	1.160	1.860	2.210	2.565
Width	mm	750	850	850	850	850
Height	mm	1.980	1.980	1.980	1.980	1.980
Weights						
Weight - D Version	kg	354	424	629	747	881

ACA FC Kc - Dimensions and weights - 2-circuits units- D Versions

Size		332 F Kc	502 F Kc	772 F Kc	922 F Kc	1442 F Kc	1462 F Kc
Dimensions							
Length	mm	1.160	1.860	2.210	2.565	3.100	3.100
Width	mm	850	850	850	850	850	850
Height	mm	1.980	1.980	1.980	1.980	1.980	1.980
Weights							
Weight - D Version	kg	457	635	747	897	1.124	1.113

DIRECT EXPANSION CLOSE CONTROL UNIT WITH WATER COOLED CONDENSERS AND ADDITIONAL CHILLED WATER FREE COOLING COIL

ACA FC Kc - Technical data sheet - 1-circuit units - U-V-B Version

Size		211 F Kc	331 F Kc	501 F Kc	771 F Kc	921 F Kc
Frame						
Frame		3	4	5	6	7
Direct expansion operation (water 30/35°C)						
Water cooled condenser - quantity	n.	1	1	1	1	1
Total cooling capacity (27°C - 50% R.H.)	kW	23,5	34,5	54,4	80,8	92,1
Sensible cooling capacity (27°C - 50% R.H.)	kW	21,4	30,1	52,4	69,4	81,1
SHR @ 27°C-50% U.R.	%	91	87	96	86	88
Nominal input power (27°C - 50% R.H.)	kW	4,4	6,5	9,5	14,1	17,1
Nominal input current (27°C - 50% R.H.)	A	9,2	15	17,2	27,2	32,9
Water flow rate	m³/h	4,83	7,11	11,07	16,44	18,93
Water flow rate	l/s	1,34	1,97	3,07	4,57	5,26
Total cooling capacity (24°C - 50% R.H.)	kW	21,9	32	50,5	75,1	85,7
Sensible cooling capacity (24°C - 50% R.H.)	kW	20,7	29,2	49,7	67,4	78,6
SHR @ 24°C-50% U.R.	%	95	91	98	90	92
Nominal input power (24°C - 50% R.H.)	kW	4,3	6,5	9,4	13,9	16,9
Nominal input current (24°C - 50% R.H.)	A	9,3	14,9	17,1	27	32,6
Water flow rate	m³/h	4,54	6,66	10,38	15,42	17,78
Water flow rate	l/s	1,26	1,85	2,88	4,28	4,94
Total cooling capacity (22°C - 50% R.H.)	kW	20,9	30,5	48,3	71,6	81,8
Sensible cooling capacity (22°C - 50% R.H.)	kW	20,2	28,5	48,3	65,9	77
SHR @ 22°C-50% U.R.	%	97	93	100	92	94
Nominal input power (22°C - 50% R.H.)	kW	4,3	6,4	9,3	13,8	16,7
Nominal input current (22°C - 50% R.H.)	A	9,3	14,9	17	26,8	32,3
Water flow rate	m³/h	4,36	6,39	9,98	14,78	17,06
Water flow rate	l/s	1,21	1,77	2,77	4,11	4,74
Free cooling operation (Water IN 7°C)						
Total cooling capacity (27°C - 50% R.H.)	kW	26,6	38,8	67,6	89,3	107
Sensible cooling capacity (27°C - 50% R.H.)	kW	22,8	32,1	58,1	73,5	87,7
SHR @ 27°C-50% U.R.	%	86	83	86	82	82
Water flow rate	m³/h	4,83	7,11	11,07	16,44	18,93
Water flow rate	l/s	1,34	1,97	3,07	4,57	5,26
Pressure drop (coil+evaporator+valve)	kPa	92	115	124	105	117
Total cooling capacity (24°C - 50% R.H.)	kW	20,3	29,6	51,5	68,2	81,7
Sensible cooling capacity (24°C - 50% R.H.)	kW	20,3	28,5	51,2	65,2	77,8
SHR @ 24°C-50% U.R.	%	100	96	99	96	95
Water flow rate	m³/h	4,54	6,66	10,38	15,42	17,78
Water flow rate	l/s	1,26	1,85	2,88	4,28	4,94
Pressure drop (coil+evaporator+valve)	kPa	82	101	109,3	92	103
Total cooling capacity (22°C - 50% R.H.)	kW	18,3	26	46,7	59,7	71,5
Sensible cooling capacity (22°C - 50% R.H.)	kW	18,3	26	46,7	59,7	71,5
SHR @ 22°C-50% U.R.	%	100	100	100	100	100
Water flow rate	m³/h	4,36	6,39	9,98	14,78	17,06
Water flow rate	l/s	1,21	1,77	2,77	4,11	4,74
Pressure drop (coil+evaporator+valve)	kPa	76	94	101	85	96

Size		211 F Kc	331 F Kc	501 F Kc	771 F Kc	921 F Kc
Direct expansion operation (water 40/45°C)						
Water cooled condenser - quantity	n.	1	1	1	1	1
Total cooling capacity (27°C - 50% R.H.)	kW	21,1	31	48,8	72,9	83,2
Sensible cooling capacity (27°C - 50% R.H.)	kW	20,5	28,7	48,8	66,4	77,7
SHR @ 27°C-50% U.R.	%	97	93	100	91	93
Nominal input power (27°C - 50% R.H.)	kW	5,4	7,9	11,7	17,6	21
Nominal input current (27°C - 50% R.H.)	A	10,9	15	20	31,5	37,5
Water flow rate	m³/h	4,62	6,77	10,53	15,72	18,1
Water flow rate	l/s	1,28	1,88	2,92	4,37	5,03
Total cooling capacity (24°C - 50% R.H.)	kW	19,9	29,1	46,3	68,6	78,3
Sensible cooling capacity (24°C - 50% R.H.)	kW	19,9	27,9	46,3	64,6	75,5
SHR @ 24°C-50% U.R.	%	100	96	100	94	96
Nominal input power (24°C - 50% R.H.)	kW	5,3	7,7	11,3	17	20,3
Nominal input current (24°C - 50% R.H.)	A	10,9	14,9	19,5	30,7	36,6
Water flow rate	m³/h	4,38	6,4	10,02	14,87	17,13
Water flow rate	l/s	1,22	1,78	2,78	4,13	4,76
Total cooling capacity (22°C - 50% R.H.)	kW	18,7	27,3	43,7	64,2	73,4
Sensible cooling capacity (22°C - 50% R.H.)	kW	18,7	27,1	43,7	62,6	73,2
SHR @ 22°C-50% U.R.	%	100	99	100	97	100
Nominal input power (22°C - 50% R.H.)	kW	5,4	7,8	11,6	17,4	20,7
Nominal input current (22°C - 50% R.H.)	A	11,2	14,9	19,8	31,2	37,1
Water flow rate	m³/h	4,19	6,11	9,6	14,18	16,35
Water flow rate	l/s	1,16	1,7	2,67	3,94	4,54
Free cooling operation (Water IN 7°C)						
Total cooling capacity (27°C - 50% R.H.)	kW	26,2	38,1	66,3	88	105,4
Sensible cooling capacity (27°C - 50% R.H.)	kW	22,6	31,8	57,6	72,9	87,1
SHR @ 27°C-50% U.R.	%	86	83	87	83	83
Water flow rate	m³/h	4,62	6,77	10,53	15,72	18,1
Water flow rate	l/s	1,28	1,88	2,92	4,37	5,03
Pressure drop (coil+evaporator+valve)	kPa	84	104	112	95	107
Total cooling capacity (24°C - 50% R.H.)	kW	20	29,2	52,8	67,3	80,6
Sensible cooling capacity (24°C - 50% R.H.)	kW	20	28,3	52,8	64,8	77,4
SHR @ 24°C-50% U.R.	%	100	97	100	96	96
Water flow rate	m³/h	4,38	6,4	10,02	14,87	17,13
Water flow rate	l/s	1,22	1,78	2,78	4,13	4,76
Pressure drop (coil+evaporator+valve)	kPa	76	94	101	86	96
Total cooling capacity (22°C - 50% R.H.)	kW	18,1	25,8	46,3	59,3	70,9
Sensible cooling capacity (22°C - 50% R.H.)	kW	18,1	25,8	46,3	59,3	70,9
SHR @ 22°C-50% U.R.	%	100	100	100	100	100
Water flow rate	m³/h	4,19	6,11	9,6	14,18	16,35
Water flow rate	l/s	1,16	1,7	2,67	3,94	4,54
Pressure drop (coil+evaporator+valve)	kPa	70	85	94	78	88
Scroll compressors						
Quantity	n.	1	1	1	1	2
Circuits	n.	1	1	1	1	1
Capacity steps	%	0 / 100				0 / 50 / 100
Max input current	A	19	25	33	51	66
Inrush current	A	87	110	158	215	191

DIRECT EXPANSION CLOSE CONTROL UNIT WITH WATER COOLED CONDENSERS AND ADDITIONAL CHILLED WATER FREE COOLING COIL

Size		211 F Kc	331 F Kc	501 F Kc	771 F Kc	921 F Kc
AC fans with autotransformer						
Quantity	n.	1	1	2	2	3
Fan(s) supply voltage	V	310	260	260	310	250
Air flow	m ³ /h	5.200	7.100	13.300	16.200	19.300
Available pressure	Pa	20	20	20	20	20
Rotation speed	rpm	1.282	1.162	1.153	1.242	1.140
Input power	kW	1,11	1,61	3,2	3,6	4,71
Input current	A	2,12	2,77	5,45	6,46	8
Max available pressure (max ESP)	Pa	104	229	236	128	247
Sound pressure level @ 2 m - U Version	dB(A)	58	60	62	68	64
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	60	63	65	69	67
Sound pressure level @ 2 m - B Version	dB(A)	55	57	58	65	60
Sound pressure level @ 2 m - B Version (max ESP)	dB(A)	57	59	61	65	63
Sound pressure level @ 2 m - V Version	dB(A)	54	56	57	64	59
Sound pressure level @ 2 m - V Version (max ESP)	dB(A)	56	58	60	64	62
EC Fans - LP (low pressure)						
Quantity	n.	1	1	2	2	3
Fan(s) supply voltage	V	400	400	400	400	400
Air flow	m ³ /h	5.200	7.100	13.300	16.220	19.300
Max available pressure (max ESP)	Pa	146	146	153	39	164
Rotation speed	rpm	1.267	1.115	1.107	1.197	1.094
Input power	kW	0,91	1,15	2,26	2,77	3,29
Input current	A	1,46	1,84	3,63	4,44	5,28
Sound pressure level @ 2 m - U Version	dB(A)	58	59	60	67	62
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	59	60	61	66	63
Sound pressure level @ 2 m - B Version	dB(A)	54	56	57	64	59
Sound pressure level @ 2 m - B Version (max ESP)	dB(A)	55	56	58	64	60
Sound pressure level @ 2 m - V Version	dB(A)	53	55	56	63	58
Sound pressure level @ 2 m - V Version (max ESP)	dB(A)	54	55	57	63	59
EC Fans - HP (High pressure)						
Quantity	n.	1	1	2	2	3
Fan(s) supply voltage	V	400	400	400	400	400
Air flow	m ³ /h	5.200	7.100	13.300	16.220	19.300
Max available pressure (max ESP)	Pa	627	577	583	479	594
Rotation speed	rpm	1.261	1.113	1.104	1.196	1.091
Input power	kW	0,94	1,12	2,21	2,7	3,22
Input current	A	1,5	1,8	3,55	4,33	5,17
Sound pressure level @ 2 m - U Version	dB(A)	59	60	61	68	63
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	64	63	66	69	68
Sound pressure level @ 2 m - B Version	dB(A)	55	56	57	64	59
Sound pressure level @ 2 m - B Version (max ESP)	dB(A)	61	60	63	65	65
Sound pressure level @ 2 m - V Version	dB(A)	54	55	56	63	58
Sound pressure level @ 2 m - V Version (max ESP)	dB(A)	60	59	62	64	64
Humidifier						
Steam production (nominal)	kg/h	5	8	8	8	8
Steam production (max)	kg/h	8	8	8	8	8
Maximum input power	kW	3,75	6	6	6	6
Maximum input current	A	5,5	8,7	8,7	8,7	8,7
Specific conductivity at 20°C (min/max)	µS/cm	300 / 1250				
Total hardness (min/max)	mg/l CaCo3	100 / 400				

Size		211 F Kc	331 F Kc	501 F Kc	771 F Kc	921 F Kc
Electrical heaters						
Steps	n.	2	3	3	3	3
Power	kW	6	9	15	18	24
Input current	A	8,7	13	21,7	26	34,6
Oversized electrical heaters						
Steps	n.	3	3	3	3	3
Power	kW	9	12	18	24	27
Input current	A	13	17,3	26	34,6	39
Hot water coil						
Heating capacity	kW	10,2	19,7	35,5	43,6	54,1
Water flow rate	m ³ /h	1,8	3,4	6,1	7,5	9,4
Pressure drop (coil+3-way valve)	kPa	55	76	79	70	78
Internal volume of the coil	dm ³	2,1	3,8	6,4	7,7	8,7
Hot gas coil						
Heating capacity	kW	11	18	32	39	49
Condensing water pump						
Nominal water flow	l/h	390	390	390	390	390
Max water flow (pressure = 0 m)	l/h	500	500	500	500	500
Max height (water flow = 0 m ³ /h)	m	5,4	5,4	5,4	5,4	5,4
Condensing water pump + humidifier						
Nominal water flow	l/h	-	600	600	600	600
Max water flow (pressure = 0 m)	l/h	-	900	900	900	900
Max height (water flow = 0 m ³ /h)	m	-	6,0	6,0	6,0	6,0
Alimentazione elettrica						
Alimentazione elettrica	V / ph / Hz	400 / 3 / 50 + T + N				

REMARKS: Filters calculated for 20% dirt - Max pressure is referred to the nominal air flow and the max tension/regulation - Hot water coil calculated for: water 40/45°C, ambient temperature 20°C and available pressure of 20 Pa - Sound pressure level measured at 2 m in open field (ISO 3744) with ducted air inlet and discharge - The condensing / condensing+humidifier water pump is calculated for a 2 m vertical difference in height respect to the pump; total length of the discharge pipe of 5 m, internal diameter of flexible pipe of 12 mm - The condenser pressure drop does not include the pressostatic valve.

DIRECT EXPANSION CLOSE CONTROL UNIT WITH WATER COOLED CONDENSERS AND ADDITIONAL CHILLED WATER FREE COOLING COIL

ACA FC Kc - Technical data sheet - 2-circuit units - U-V-B Version

Size	332 F Kc	502 F Kc	772 F Kc	922 F Kc	1442 F Kc	1462 F Kc
Frame						
Frame	4	5	6	7	8	8
Direct expansion operation (water 30/35°C)						
Water cooled condenser - quantity	n.	2	2	2	1	1
Total cooling capacity (27°C - 50% R.H.)	kW	34,7	56,2	79,2	92,1	115,6
Sensible cooling capacity (27°C - 50% R.H.)	kW	30,2	53,1	68,8	81,1	102
SHR @ 27°C-50% U.R.	%	87	95	87	88	90
Nominal input power (27°C - 50% R.H.)	kW	6,8	9,9	15,1	17,1	18,2
Nominal input current (27°C - 50% R.H.)	A	12,1	20,7	31,7	32,9	38,4
Water flow rate	m³/h	7,19	11,46	16,33	18,93	23,17
Water flow rate	l/s	2	3,18	4,54	5,26	6,44
Total cooling capacity (24°C - 50% R.H.)	kW	32,2	52,2	73,6	85,7	107,3
Sensible cooling capacity (24°C - 50% R.H.)	kW	29,2	51,3	66,7	78,6	98,7
SHR @ 24°C-50% U.R.	%	91	98	91	92	94
Nominal input power (24°C - 50% R.H.)	kW	6,8	9,9	14,8	16,9	18,2
Nominal input current (24°C - 50% R.H.)	A	12,3	21,1	31,4	32,6	39,1
Water flow rate	m³/h	6,76	10,77	15,32	17,78	21,72
Water flow rate	l/s	1,88	2,99	4,26	4,94	6,03
Total cooling capacity (22°C - 50% R.H.)	kW	30,7	49,8	70,3	81,8	102,2
Sensible cooling capacity (22°C - 50% R.H.)	kW	28,6	49,2	65,4	77	96,5
SHR @ 22°C-50% U.R.	%	93	99	93	94	97
Nominal input power (22°C - 50% R.H.)	kW	6,7	9,9	14,5	16,7	18,1
Nominal input current (22°C - 50% R.H.)	A	12,3	21,2	31,1	32,3	39,4
Water flow rate	m³/h	6,49	10,33	14,7	17,06	20,82
Water flow rate	l/s	1,8	2,87	4,08	4,74	5,78
Free cooling operation (Water IN 7°C)						
Total cooling capacity (27°C - 50% R.H.)	kW	38,9	68,4	89,1	107	137,2
Sensible cooling capacity (27°C - 50% R.H.)	kW	32,1	58,4	73,4	87,7	111,4
SHR @ 27°C-50% U.R.	%	82	85	82	82	81
Water flow rate	m³/h	7,19	11,46	16,33	18,93	23,17
Water flow rate	l/s	2	3,18	4,54	5,26	6,44
Pressure drop (coil+evaporator+valve)	kPa	105	111	109	125	157
Total cooling capacity (24°C - 50% R.H.)	kW	29,7	52,2	68	81,7	104,8
Sensible cooling capacity (24°C - 50% R.H.)	kW	28,5	51,9	65,1	77,8	98,8
SHR @ 24°C-50% U.R.	%	96	99	96	95	94
Water flow rate	m³/h	6,76	10,77	15,32	17,78	21,7
Water flow rate	l/s	1,88	2,99	4,26	4,94	6,03
Pressure drop (coil+evaporator+valve)	kPa	93	98	96	111	138
Total cooling capacity (22°C - 50% R.H.)	kW	26,1	47,1	59,7	71,5	91,1
Sensible cooling capacity (22°C - 50% R.H.)	kW	26,1	47,1	59,7	71,5	91,1
SHR @ 22°C-50% U.R.	%	100	100	100	100	100
Water flow rate	m³/h	6,49	10,33	14,7	17,06	20,82
Water flow rate	l/s	1,8	2,87	4,08	4,74	5,78
Pressure drop (coil+evaporator+valve)	kPa	87	91	89	103	128

Size	332 F Kc	502 F Kc	772 F Kc	922 F Kc	1442 F Kc	1462 F Kc
Direct expansion operation (water 40/45°C)						
Water cooled condenser - quantity	n.	2	2	2	1	1
Total cooling capacity (27°C - 50% R.H.)	kW	31,1	50,1	71,4	83,2	103,7
Sensible cooling capacity (27°C - 50% R.H.)	kW	28,8	49,9	65,8	77,7	97,5
SHR @ 27°C-50% U.R.	%	93	100	92	93	94
Nominal input power (27°C - 50% R.H.)	kW	8,6	12,1	18,5	21	22,3
Nominal input current (27°C - 50% R.H.)	A	14,4	24,7	36,4	37,5	46
Water flow rate	m³/h	6,89	10,8	15,62	18,1	21,9
Water flow rate	l/s	1,91	3	4,34	5,03	6,08
Total cooling capacity (24°C - 50% R.H.)	kW	29,2	47,5	67,1	78,3	97,6
Sensible cooling capacity (24°C - 50% R.H.)	kW	28	47,5	64	75,5	94,7
SHR @ 24°C-50% U.R.	%	96	100	95	96	97
Nominal input power (24°C - 50% R.H.)	kW	8,3	11,8	17,7	20,3	21,8
Nominal input current (24°C - 50% R.H.)	A	14,3	24,6	35,3	36,6	45,9
Water flow rate	m³/h	6,53	10,31	14,75	17,13	20,74
Water flow rate	l/s	1,82	2,86	4,1	4,76	5,76
Total cooling capacity (22°C - 50% R.H.)	kW	27,4	44,9	62,9	73,4	91,6
Sensible cooling capacity (22°C - 50% R.H.)	kW	27,1	44,9	62	73,4	90,1
SHR @ 22°C-50% U.R.	%	99	100	99	100	98
Nominal input power (22°C - 50% R.H.)	kW	8,6	12,1	17,9	20,7	22,3
Nominal input current (22°C - 50% R.H.)	A	14,6	25,3	35,7	37,1	47,2
Water flow rate	m³/h	6,25	9,89	14,05	16,35	19,79
Water flow rate	l/s	1,74	2,75	3,9	4,54	5,5
Free cooling operation (Water IN 7°C)						
Total cooling capacity (27°C - 50% R.H.)	kW	38,4	66,9	87,8	105,4	134,7
Sensible cooling capacity (27°C - 50% R.H.)	kW	31,9	57,8	72,9	87,1	110,4
SHR @ 27°C-50% U.R.	%	83	86	83	83	82
Water flow rate	m³/h	6,89	10,8	15,62	18,1	21,9
Water flow rate	l/s	1,91	3	4,34	5,03	6,08
Pressure drop (coil+evaporator+valve)	kPa	97	99	100	115	141
Total cooling capacity (24°C - 50% R.H.)	kW	29,4	51,3	67,1	71,6	103,2
Sensible cooling capacity (24°C - 50% R.H.)	kW	28,4	51,1	64,8	71,6	98,1
SHR @ 24°C-50% U.R.	%	97	100	97	100	95
Water flow rate	m³/h	6,53	10,31	14,75	17,13	20,74
Water flow rate	l/s	1,82	2,86	4,1	4,76	5,76
Pressure drop (coil+evaporator+valve)	kPa	87	90	89	103	128
Total cooling capacity (22°C - 50% R.H.)	kW	25,9	46,6	62,9	70,9	90,3
Sensible cooling capacity (22°C - 50% R.H.)	kW	25,9	46,6	62	70,9	90,3
SHR @ 22°C-50% U.R.	%	100	100	99	100	100
Water flow rate	m³/h	6,25	9,89	14,05	16,35	19,79
Water flow rate	l/s	1,74	2,75	3,9	4,54	5,5
Pressure drop (coil+evaporator+valve)	kPa	80	83	55	95	116
Scroll compressors						
Quantity	n.	2	2	2	2	4
Circuits	n.	2	2	2	2	2
Capacity steps	%	0 / 50 / 100				
Max input current	A	30	38	54	66	108
Inrush current	A	85	119	167	191	266

DIRECT EXPANSION CLOSE CONTROL UNIT WITH WATER COOLED CONDENSERS AND ADDITIONAL CHILLED WATER FREE COOLING COIL

Size		332 F Kc	502 F Kc	772 F Kc	922 F Kc	1442 F Kc	1462 F Kc
AC fans with autotransformer							
Quantity	n.	1	2	2	3	4	4
Fan(s) supply voltage	V	260	260	310	250	250	250
Air flow	m ³ /h	7.100	13.300	16.200	19.300	24.300	24.300
Available pressure	Pa	20	20	20	20	20	20
Rotation speed	rpm	1.162	1.153	1.242	1.140	1.130	1.130
Input power	kW	1,61	3,2	3,6	4,71	6,18	6,18
Input current	A	2,77	5,45	6,46	8	10,48	10,48
Max available pressure (max ESP)	Pa	229	236	128	247	256	256
Sound pressure level @ 2 m - U Version	dB(A)	59	62	65	64	65	65
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	62	65	66	67	68	68
Sound pressure level @ 2 m - B Version	dB(A)	56	59	62	60	61	61
Sound pressure level @ 2 m - B Version (max ESP)	dB(A)	58	61	63	63	64	64
Sound pressure level @ 2 m - V Version	dB(A)	55	58	61	59	60	60
Sound pressure level @ 2 m - V Version (max ESP)	dB(A)	57	60	62	62	63	63
EC Fans - LP (low pressure)							
Quantity	kW	1	2	2	3	4	4
Fan(s) supply voltage	kW	400	400	400	400	400	400
Air flow	%	7.100	13.300	16.200	19.300	24.300	24.300
Max available pressure (max ESP)	m ³ /h	146	153	39	164	173	173
Rotation speed	l/s	1.115	1.107	1.197	1.094	1.085	1.085
Input power	kPa	1,15	2,26	2,77	3,29	4,29	4,29
Input current	kW	1,84	3,63	4,44	5,28	6,89	6,89
Sound pressure level @ 2 m - U Version	kW	57	61	63	62	64	63
Sound pressure level @ 2 m - U Version (max ESP)	%	58	62	63	63	65	65
Sound pressure level @ 2 m - B Version	m ³ /h	54	57	60	59	60	60
Sound pressure level @ 2 m - B Version (max ESP)	l/s	55	58	60	60	61	61
Sound pressure level @ 2 m - V Version	kPa	53	56	59	58	59	59
Sound pressure level @ 2 m - V Version (max ESP)	kW	54	57	59	59	60	60
EC Fans - HP (High pressure)							
Quantity	n.	1	2	2	3	4	4
Fan(s) supply voltage	V	400	400	400	400	400	400
Air flow	m ³ /h	7.100	13.300	16.200	19.300	24.300	24.300
Max available pressure (max ESP)	Pa	577	583	479	594	601	601
Rotation speed	rpm	1.113	1.107	1.196	1.091	1.080	1.080
Input power	kW	1,12	2,26	2,7	3,22	4,2	4,2
Input current	A	1,8	3,63	4,33	5,17	6,74	6,74
Sound pressure level @ 2 m - U Version	dB(A)	58	61	64	63	64	64
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	63	66	66	68	70	70
Sound pressure level @ 2 m - B Version	dB(A)	54	58	60	59	61	60
Sound pressure level @ 2 m - B Version (max ESP)	dB(A)	59	63	63	65	66	66
Sound pressure level @ 2 m - V Version	dB(A)	53	57	59	58	60	59
Sound pressure level @ 2 m - V Version (max ESP)	dB(A)	58	62	62	64	65	65
Humidifier							
Steam production (nominal)	kg/h	8	8	8	8	8	8
Steam production (max)	kg/h	8	8	8	8	8	8
Maximum input power	kW	6	6	6	6	6	6
Maximum input current	A	8,7	8,7	8,7	8,7	8,7	8,7
Specific conductivity at 20°C (min/max)	µS/cm	300 / 1250					
Total hardness (min/max)	mg/l CaCo3	100 / 400					

Size		332 F Kc	502 F Kc	772 F Kc	922 F Kc	1442 F Kc	1462 F Kc
Electrical heaters							
Steps	n.	3	3	3	3	3	3
Power	kW	9	15	18	24	27	27
Input current	A	13	21,7	26	34,6	39	39
Oversized electrical heaters							
Steps	n.	3	3	3	3	3	3
Power	kW	12	18	24	27	36	36
Input current	A	17,3	26	34,6	39	52	52
Hot water coil							
Heating capacity	kW	19,7	35,5	43,6	54,1	73,2	73,2
Water flow rate	m ³ /h	3,4	6,1	7,5	9,4	12,8	12,8
Pressure drop (coil+3-way valve)	kPa	76	79	70	78	81	81
Internal volume of the coil	dm ³	3,8	6,4	7,7	8,7	15,3	15,3
Hot gas coil							
Heating capacity	kW	18	32	39	49	60	60
Condensing water pump							
Nominal water flow	l/h	390	390	390	390	390	390
Max water flow (pressure = 0 m)	l/h	500	500	500	500	500	500
Max height (water flow = 0 m ³ /h)	m	5,4	5,4	5,4	5,4	5,4	5,4
Condensing water pump + humidifier							
Nominal water flow	l/h	600	600	600	600	600	600
Max water flow (pressure = 0 m)	l/h	900	900	900	900	900	900
Max height (water flow = 0 m ³ /h)	m	6,0	6,0	6,0	6,0	6,0	6,0
Power supply							
Power supply	V / ph / Hz	400 / 3 / 50 + T + N					

REMARKS: Filters calculated for 20% dirt - Max pressure is referred to the nominal air flow and the max tension/regulation - Hot water coil calculated for: water 40/45°C, ambient temperature 20°C and available pressure of 20 Pa - Sound pressure level measured at 2 m in open field (ISO 3744) with ducted air inlet and discharge - The condensing / condensing+humidifier water pump is calculated for a 2 m vertical difference in height respect to the pump; total length of the discharge pipe of 5 m, internal diameter of flexible pipe of 12 mm - The condenser pressure drop does not include the pressostatic valve.

DIRECT EXPANSION CLOSE CONTROL UNIT WITH WATER COOLED CONDENSERS AND ADDITIONAL CHILLED WATER FREE COOLING COIL

ACA FC Kc - Technical data sheet - 1-circuit units - D Version

Size		211 F Kc	331 F Kc	501 F Kc	771 F Kc	921 F Kc
Frame						
Frame		3	4	5	6	7
Direct expansion operation (water 30/35°C)						
Water cooled condenser - quantity	n.	1	1	1	1	1
Total cooling capacity (27°C - 50% R.H.)	kW	23,5	34,5	54,4	80,8	92,1
Sensible cooling capacity (27°C - 50% R.H.)	kW	21,4	30,1	52,4	69,4	81,1
SHR @ 27°C-50% U.R.	%	91	87	96	86	88
Nominal input power (27°C - 50% R.H.)	kW	4,4	6,5	9,5	14,1	17,1
Nominal input current (27°C - 50% R.H.)	A	9,2	15	17,2	27,2	32,9
Water flow rate	m³/h	4,83	7,11	11,07	16,44	18,93
Water flow rate	l/s	1,34	1,97	3,07	4,57	5,26
Total cooling capacity (24°C - 50% R.H.)	kW	21,9	32	50,5	75,1	85,7
Sensible cooling capacity (24°C - 50% R.H.)	kW	20,7	29,2	49,7	67,4	78,6
SHR @ 24°C-50% U.R.	%	95	91	98	90	92
Nominal input power (24°C - 50% R.H.)	kW	4,3	6,5	9,4	13,9	16,9
Nominal input current (24°C - 50% R.H.)	A	9,3	14,9	17,1	27	32,6
Water flow rate	m³/h	4,54	6,66	10,38	15,42	17,78
Water flow rate	l/s	1,26	1,85	2,88	4,28	4,94
Total cooling capacity (22°C - 50% R.H.)	kW	20,9	30,5	48,3	71,6	81,8
Sensible cooling capacity (22°C - 50% R.H.)	kW	20,2	28,5	48,3	65,9	77
SHR @ 22°C-50% U.R.	%	97	93	100	92	94
Nominal input power (22°C - 50% R.H.)	kW	4,3	6,4	9,3	13,8	16,7
Nominal input current (22°C - 50% R.H.)	A	9,3	14,9	17	26,8	32,3
Water flow rate	m³/h	4,36	6,39	9,98	14,78	17,06
Water flow rate	l/s	1,21	1,77	2,77	4,11	4,74
Free cooling operation (Water IN 7°C)						
Total cooling capacity (27°C - 50% R.H.)	kW	26,6	38,8	67,6	89,3	107
Sensible cooling capacity (27°C - 50% R.H.)	kW	22,8	32,1	58,1	73,5	87,7
SHR @ 27°C-50% U.R.	%	86	83	86		82
Water flow rate	m³/h	4,83	7,11	11,07	16,44	18,93
Water flow rate	l/s	1,34	1,97	3,07	4,57	5,26
Pressure drop (coil+evaporator+valve)	kPa	92	115	124	105	117
Total cooling capacity (24°C - 50% R.H.)	kW	20,3	29,6	51,5	68,2	81,7
Sensible cooling capacity (24°C - 50% R.H.)	kW	20,3	28,5	51,2	65,2	77,8
SHR @ 24°C-50% U.R.	%	100	96	99	96	95
Water flow rate	m³/h	4,54	6,66	10,38	15,42	17,78
Water flow rate	l/s	1,26	1,85	2,88	4,28	4,94
Pressure drop (coil+evaporator+valve)	kPa	82	101	109,3	92	103
Total cooling capacity (22°C - 50% R.H.)	kW	18,3	26	46,7	59,7	71,5
Sensible cooling capacity (22°C - 50% R.H.)	kW	18,3	26	46,7	59,7	71,5
SHR @ 22°C-50% U.R.	%	100	100	100	100	100
Water flow rate	m³/h	4,36	6,39	9,98	14,78	17,06
Water flow rate	l/s	1,21	1,77	2,77	4,11	4,74
Pressure drop (coil+evaporator+valve)	kPa	76	94	101	85	96

Size		211 F Kc	331 F Kc	501 F Kc	771 F Kc	921 F Kc
Direct expansion operation (water 40/45°C)						
Water cooled condenser - quantity	n.	1	1	1	1	1
Total cooling capacity (27°C - 50% R.H.)	kW	21,1	31	48,8	72,9	83,2
Sensible cooling capacity (27°C - 50% R.H.)	kW	20,5	28,7	48,8	66,4	77,7
SHR @ 27°C-50% U.R.	%	97	93	100	91	93
Nominal input power (27°C - 50% R.H.)	kW	5,4	7,9	11,7	17,6	21
Nominal input current (27°C - 50% R.H.)	A	10,9	15	20	31,5	37,5
Water flow rate	m³/h	4,62	6,77	10,53	15,72	18,1
Water flow rate	l/s	1,28	1,88	2,92	4,37	5,03
Total cooling capacity (24°C - 50% R.H.)	kW	19,9	29,1	46,3	68,6	78,3
Sensible cooling capacity (24°C - 50% R.H.)	kW	19,9	27,9	46,3	64,6	75,5
SHR @ 24°C-50% U.R.	%	100	96	100	94	96
Nominal input power (24°C - 50% R.H.)	kW	5,3	7,7	11,3	17	20,3
Nominal input current (24°C - 50% R.H.)	A	10,9	14,9	19,5	30,7	36,6
Water flow rate	m³/h	4,38	6,4	10,02	14,87	17,13
Water flow rate	l/s	1,22	1,78	2,78	4,13	4,76
Total cooling capacity (22°C - 50% R.H.)	kW	18,7	27,3	43,7	64,2	73,4
Sensible cooling capacity (22°C - 50% R.H.)	kW	18,7	27,1	43,7	62,6	73,2
SHR @ 22°C-50% U.R.	%	100	99	100	97	100
Nominal input power (22°C - 50% R.H.)	kW	5,4	7,8	11,6	17,4	20,7
Nominal input current (22°C - 50% R.H.)	A	11,2	14,9	19,8	31,2	37,1
Water flow rate	m³/h	4,19	6,11	9,6	14,18	16,35
Water flow rate	l/s	1,16	1,7	2,67	3,94	4,54
Free cooling operation (Water IN 7°C)						
Total cooling capacity (27°C - 50% R.H.)	kW	26,2	38,1	66,3	88	105,4
Sensible cooling capacity (27°C - 50% R.H.)	kW	22,6	31,8	57,6	72,9	87,1
SHR @ 27°C-50% U.R.	%	86	83	87	83	83
Water flow rate	m³/h	4,62	6,77	10,53	15,72	18,1
Water flow rate	l/s	1,28	1,88	2,92	4,37	5,03
Pressure drop (coil+evaporator+valve)	kPa	84	104	112	95	107
Total cooling capacity (24°C - 50% R.H.)	kW	20	29,2	52,8	67,3	80,6
Sensible cooling capacity (24°C - 50% R.H.)	kW	20	28,3	52,8	64,8	77,4
SHR @ 24°C-50% U.R.	%	100	97	100	96	96
Water flow rate	m³/h	4,38	6,4	10,02	14,87	17,13
Water flow rate	l/s	1,22	1,78	2,78	4,13	4,76
Pressure drop (coil+evaporator+valve)	kPa	76	94	101	86	96
Total cooling capacity (22°C - 50% R.H.)	kW	18,1	25,8	46,3	59,3	70,9
Sensible cooling capacity (22°C - 50% R.H.)	kW	18,1	25,8	46,3	59,3	70,9
SHR @ 22°C-50% U.R.	%	100	100	100	100	100
Water flow rate	m³/h	4,19	6,11	9,6	14,18	16,35
Water flow rate	l/s	1,16	1,7	2,67	3,94	4,54
Pressure drop (coil+evaporator+valve)	kPa	70	85	94	78	88
Scroll compressors						
Quantity	n.	1	1	1	1	2
Circuits	n.	1	1	1	1	1
Capacity steps	%	0 / 100				0 / 50 / 100
Max input current	A	19	25	33	51	66
Inrush current	A	87	110	158	215	191

DIRECT EXPANSION CLOSE CONTROL UNIT WITH WATER COOLED CONDENSERS AND ADDITIONAL CHILLED WATER FREE COOLING COIL

Size		211 F Kc	331 F Kc	501 F Kc	771 F Kc	921 F Kc
AC fans with autotransformer						
Quantity	n.	1	1	2	2	3
Fan(s) supply voltage	V	320	290	290	360	290
Air flow	m³/h	5.200	7.100	13.300	16.200	19.300
Available pressure	Pa	20	20	20	20	20
Rotation speed	rpm	1.297	1.218	1.217	1.299	1.215
Input power	kW	1,14	1,77	3,54	3,97	5,29
Input current	A	2,21	3,08	6,13	7,41	9,15
Max available pressure (max ESP)	Pa	89	169	168	58	169
Sound pressure level @ 2 m - D Version	dB(A)	55	57	60	65	61
Sound pressure level @ 2 m - D Version (max ESP)	dB(A)	57	59	62	65	64
EC Fans - HP (High pressure)						
Quantity	n.	1	1	2	2	3
Fan(s) supply voltage	V	400	400	400	400	400
Air flow	m³/h	5.200	7.100	13.300	16.200	19.300
Max available pressure (max ESP)	Pa	613	517	515	409	515
Rotation speed	rpm	1.275	1.168	1.166	1.254	1.164
Input power	kW	0,97	1,31	2,64	3,18	3,96
Input current	A	1,56	2,11	4,24	5,11	6,34
Sound pressure level @ 2 m - D Version	dB(A)	55	56	58	64	60
Sound pressure level @ 2 m - D Version (max ESP)	dB(A)	62	60	63	65	65
Humidifier						
Steam production (nominal)	kg/h	5	8	8	8	8
Steam production (max)	kg/h	8	8	8	8	8
Maximum input power	kW	3,75	6	6	6	6
Maximum input current	A	5,5	8,7	8,7	8,7	8,7
Specific conductivity at 20°C (min/max)	µS/cm	300 / 1250				
Total hardness (min/max)	mg/l CaCo3	100 / 400				
Electrical heaters						
Steps	n.	2	3	3	3	3
Power	kW	6	9	15	18	24
Input current	A	8,7	13	21,7	26	34,6
Oversized electrical heaters						
Steps	n.	3	3	3	3	3
Power	kW	9	12	18	24	27
Input current	A	13	17,3	26	34,6	39
Hot water coil						
Heating capacity	kW	10,2	19,7	35,5	43,6	54,1
Water flow rate	m³/h	1,8	3,4	6,1	7,5	9,4
Pressure drop (coil+3-way valve)	kPa	55	76	79	70	78
Internal volume of the coil	dm³	2,1	3,8	6,4	7,7	8,7
Hot gas coil						
Heating capacity	kW	11	18	32	39	49
Condensing water pump						
Nominal water flow	l/h	390	390	390	390	390
Max water flow (pressure = 0 m)	l/h	500	500	500	500	500
Max height (water flow = 0 m³/h)	m	5,4	5,4	5,4	5,4	5,4

Size		211 F Kc	331 F Kc	501 F Kc	771 F Kc	921 F Kc
Condensing water pump + humidifier						
Nominal water flow	l/h	-	600	600	600	600
Max water flow (pressure = 0 m)	l/h	-	900	900	900	900
Max height (water flow = 0 m ³ /h)	m	-	6,0	6,0	6,0	6,0
Power supply						
Power supply	V / ph / Hz	400 / 3 / 50 + T + N				

REMARKS: Filters calculated for 20% dirt - Max pressure is referred to the nominal air flow and the max tension/regulation - Hot water coil calculated for: water 40/45°C, ambient temperature 20°C and available pressure of 20 Pa - Sound pressure level measured at 2 m in open field (ISO 3744) with ducted air inlet and discharge - The condensing / condensing+humidifier water pump is calculated for a 2 m vertical difference in height respect to the pump; total length of the discharge pipe of 5 m, internal diameter of flexible pipe of 12 mm - The condenser pressure drop does not include the pressostatic valve.

DIRECT EXPANSION CLOSE CONTROL UNIT WITH WATER COOLED CONDENSERS AND ADDITIONAL CHILLED WATER FREE COOLING COIL

ACA FC Kc - Technical data sheet - 2-circuit units - D Version

Size	332 F Kc	502 F Kc	772 F Kc	922 F Kc	1442 F Kc	1462 F Kc
Frame						
Frame	4	5	6	7	8	8
Direct expansion operation (water 30/35°C)						
Water cooled condenser - quantity	n.	2	2	2	1	1
Total cooling capacity (27°C - 50% R.H.)	kW	34,7	56,2	79,2	92,1	115,6
Sensible cooling capacity (27°C - 50% R.H.)	kW	30,2	53,1	68,8	81,1	102,0
SHR @ 27°C-50% U.R.	%	87	95	87	88	90
Nominal input power (27°C - 50% R.H.)	kW	6,8	9,9	15,1	17,1	18,2
Nominal input current (27°C - 50% R.H.)	A	12,1	20,7	31,7	32,9	38,4
Water flow rate	m³/h	7,19	11,46	16,33	18,93	23,17
Water flow rate	l/s	2	3,18	4,54	5,26	6,44
Total cooling capacity (24°C - 50% R.H.)	kW	32,2	52,2	73,6	85,7	107,3
Sensible cooling capacity (24°C - 50% R.H.)	kW	29,2	51,3	66,7	78,6	98,7
SHR @ 24°C-50% U.R.	%	91	98	91	92	94
Nominal input power (24°C - 50% R.H.)	kW	6,8	9,9	14,8	16,9	18,2
Nominal input current (24°C - 50% R.H.)	A	12,3	21,1	31,4	32,6	39,1
Water flow rate	m³/h	6,76	10,77	15,32	17,78	21,72
Water flow rate	l/s	1,88	2,99	4,26	4,94	6,03
Total cooling capacity (22°C - 50% R.H.)	kW	30,7	49,8	70,3	81,8	102,2
Sensible cooling capacity (22°C - 50% R.H.)	kW	28,6	49,2	65,4	77,0	96,5
SHR @ 22°C-50% U.R.	%	93	99	93	94	97
Nominal input power (22°C - 50% R.H.)	kW	6,7	9,9	14,5	16,7	18,1
Nominal input current (22°C - 50% R.H.)	A	12,3	21,2	31,1	32,3	39,4
Water flow rate	m³/h	6,49	10,33	14,7	17,06	20,82
Water flow rate	l/s	1,8	2,87	4,08	4,74	5,78
Free cooling operation (Water IN 7°C)						
Total cooling capacity (27°C - 50% R.H.)	kW	38,9	68,4	89,1	107,0	137,2
Sensible cooling capacity (27°C - 50% R.H.)	kW	32,1	58,4	73,4	87,7	111,4
SHR @ 27°C-50% U.R.	%	82	85	82	82	81
Water flow rate	m³/h	7,19	11,46	16,33	18,93	23,17
Water flow rate	l/s	2	3,18	4,54	5,26	6,44
Pressure drop (coil+evaporator+valve)	kPa	105	111	109	125	157
Total cooling capacity (24°C - 50% R.H.)	kW	29,7	52,2	68,0	81,7	104,8
Sensible cooling capacity (24°C - 50% R.H.)	kW	28,5	51,9	65,1	77,8	98,8
SHR @ 24°C-50% U.R.	%	96	99	96	95	94
Water flow rate	m³/h	6,76	10,77	15,32	17,78	21,7
Water flow rate	l/s	1,88	2,99	4,26	4,94	6,03
Pressure drop (coil+evaporator+valve)	kPa	93	98	96	111	138
Total cooling capacity (22°C - 50% R.H.)	kW	26,1	47,1	59,7	71,5	91,1
Sensible cooling capacity (22°C - 50% R.H.)	kW	26,1	47,1	59,7	71,5	91,1
SHR @ 22°C-50% U.R.	%	100	100	100	100	100
Water flow rate	m³/h	6,49	10,33	14,7	17,06	20,82
Water flow rate	l/s	1,8	2,87	4,08	4,74	5,78
Pressure drop (coil+evaporator+valve)	kPa	87	91	89	103	128

Size	332 F Kc	502 F Kc	772 F Kc	922 F Kc	1442 F Kc	1462 F Kc
Direct expansion operation (water 40/45°C)						
Water cooled condenser - quantity	n.	2	2	2	2	1
Total cooling capacity (27°C - 50% R.H.)	kW	31,1	50,1	71,4	83,2	103,7
Sensible cooling capacity (27°C - 50% R.H.)	kW	28,8	49,9	65,8	77,7	97,5
SHR @ 27°C-50% U.R.	%	93	100	92	93	94
Nominal input power (27°C - 50% R.H.)	kW	8,6	12,1	18,5	21	22,3
Nominal input current (27°C - 50% R.H.)	A	14,4	24,7	36,4	37,5	46
Water flow rate	m³/h	6,89	10,8	15,62	18,1	21,9
Water flow rate	l/s	1,91	3	4,34	5,03	6,08
Total cooling capacity (24°C - 50% R.H.)	kW	29,2	47,5	67,1	78,3	97,6
Sensible cooling capacity (24°C - 50% R.H.)	kW	28,0	47,5	64,0	75,5	94,7
SHR @ 24°C-50% U.R.	%	96	100	95	96	97
Nominal input power (24°C - 50% R.H.)	kW	8,3	11,8	17,7	20,3	21,8
Nominal input current (24°C - 50% R.H.)	A	14,3	24,6	35,3	36,6	45,9
Water flow rate	m³/h	6,53	10,31	14,75	17,13	20,74
Water flow rate	l/s	1,82	2,86	4,1	4,76	5,76
Total cooling capacity (22°C - 50% R.H.)	kW	27,4	44,9	62,9	73,4	91,6
Sensible cooling capacity (22°C - 50% R.H.)	kW	27,1	44,9	62,0	73,4	90,1
SHR @ 22°C-50% U.R.	%	99	100	99	100	98
Nominal input power (22°C - 50% R.H.)	kW	8,6	12,1	17,9	20,7	22,3
Nominal input current (22°C - 50% R.H.)	A	14,6	25,3	35,7	37,1	47,2
Water flow rate	m³/h	6,25	9,89	14,05	16,35	19,79
Water flow rate	l/s	1,74	2,75	3,9	4,54	5,5
Free cooling operation (Water IN 7°C)						
Total cooling capacity (27°C - 50% R.H.)	kW	38,4	66,9	87,8	105,4	134,7
Sensible cooling capacity (27°C - 50% R.H.)	kW	31,9	57,8	72,9	87,1	110,4
SHR @ 27°C-50% U.R.	%	83	86	83	83	82
Water flow rate	m³/h	6,89	10,8	15,62	18,1	21,9
Water flow rate	l/s	1,91	3	4,34	5,03	6,08
Pressure drop (coil+evaporator+valve)	kPa	97	99	100	115	141
Total cooling capacity (24°C - 50% R.H.)	kW	29,4	51,3	67,1	71,6	103,2
Sensible cooling capacity (24°C - 50% R.H.)	kW	28,4	51,1	64,8	71,6	98,1
SHR @ 24°C-50% U.R.	%	97	100	97	100	95
Water flow rate	m³/h	6,53	10,31	14,75	17,13	20,74
Water flow rate	l/s	1,82	2,86	4,1	4,76	5,76
Pressure drop (coil+evaporator+valve)	kPa	87	90	89	103	128
Total cooling capacity (22°C - 50% R.H.)	kW	25,9	46,6	62,9	70,9	90,3
Sensible cooling capacity (22°C - 50% R.H.)	kW	25,9	46,6	62,0	70,9	89,7
SHR @ 22°C-50% U.R.	%	100	100	99	100	100
Water flow rate	m³/h	6,25	9,89	14,05	16,35	19,79
Water flow rate	l/s	1,74	2,75	3,9	4,54	5,5
Pressure drop (coil+evaporator+valve)	kPa	80	83	55	95	116
Scroll compressors						
Quantity	n.	2	2	2	2	4
Circuits	n.	2	2	2	2	2
Capacity steps	%	0 / 50 / 100				
Max input current	A	30	38	54	66	108
Inrush current	A	85	119	167	191	266

DIRECT EXPANSION CLOSE CONTROL UNIT WITH WATER COOLED CONDENSERS AND ADDITIONAL CHILLED WATER FREE COOLING COIL

Size		332 F Kc	502 F Kc	772 F Kc	922 F Kc	1442 F Kc	1462 F Kc
AC fans with autotransformer							
Quantity	n.	1	2	2	3	4	4
Fan(s) supply voltage	V	290	290	360	290	280	280
Air flow	m³/h	7.100	13.300	16.200	19.300	24.300	24.300
Available pressure	Pa	20	20	20	20	20	20
Rotation speed	rpm	1.218	1.217	1.299	1.215	1.205	1.205
Input power	kW	1,77	3,54	3,97	5,29	6,94	6,94
Input current	A	3,08	6,13	7,41	9,15	11,92	11,92
Max available pressure (max ESP)	Pa	169	168	58	169	178	178
Sound pressure level @ 2 m - D Version	dB(A)	56	60	63	61	62	62
Sound pressure level @ 2 m - D Version (max ESP)	dB(A)	59	62	63	64	65	65
EC Fans - HP (High pressure)							
Quantity	n.	1	2	2	3	4	4
Fan(s) supply voltage	V	400	400	400	400	400	400
Air flow	m³/h	7.100	13.300	16.200	19.300	24.300	24.300
Rotation speed	Pa	517	409	409	515	523	523
Input power	rpm	1.168	1.254	1.254	1.164	1.154	1.154
Input current	kW	1,31	3,18	3,18	3,96	5,15	5,15
Max available pressure (max ESP)	A	2,11	5,11	5,11	6,34	8,26	8,26
Sound pressure level @ 2 m - D Version	dB(A)	55	58	61	60	61	61
Sound pressure level @ 2 m - D Version (max ESP)	dB(A)	60	63	64	65	67	67
Humidifier							
Steam production (nominal)	kg/h	8	8	8	8	8	8
Steam production (max)	kg/h	8	8	8	8	8	8
Maximum input power	kW	6	6	6	6	6	6
Maximum input current	A	8,7	8,7	8,7	8,7	8,7	8,7
Specific conductivity at 20°C (min/max)	µS/cm	300 / 1250					
Total hardness (min/max)	mg/l CaCo3	100 / 400					
Electrical heaters							
Steps	n.	3	3	3	3	3	3
Power	kW	9	15	18	24	27	27
Input current	A	13	21,7	26	34,6	39	39
Oversized electrical heaters							
Steps	n.	3	3	3	3	3	3
Power	kW	12	18	24	27	36	36
Input current	A	17,3	26	34,6	39	52	52
Hot water coil							
Heating capacity	kW	19,7	35,5	43,6	54,1	73,2	73,2
Water flow rate	m³/h	3,4	6,1	7,5	9,4	12,8	12,8
Pressure drop (coil+3-way valve)	kPa	76	79	70	78	81	81
Internal volume of the coil	dm³	3,8	6,4	7,7	8,7	15,3	15,3
Hot gas coil							
Heating capacity	kW	18	32	39	49	60	60
Condensing water pump							
Nominal water flow	l/h	390	390	390	390	390	390
Max water flow (pressure = 0 m)	l/h	500	500	500	500	500	500
Max height (water flow = 0 m³/h)	m	5,4	5,4	5,4	5,4	5,4	5,4

Size		332 F Kc	502 F Kc	772 F Kc	922 F Kc	1442 F Kc	1462 F Kc
Condensing water pump + humidifier							
Nominal water flow	l/h	600	600	600	600	600	600
Max water flow (pressure = 0 m)	l/h	900	900	900	900	900	900
Max height (water flow = 0 m ³ /h)	m	6,0	6,0	6,0	6,0	6,0	6,0
Power supply							
Power supply	V / ph / Hz	400 / 3 / 50 + T + N					

REMARKS: Filters calculated for 20% dirt - Max pressure is referred to the nominal air flow and the max tension/regulation - Hot water coil calculated for: water 40/45°C, ambient temperature 20°C and available pressure of 20 Pa - Sound pressure level measured at 2 m in open field (ISO 3744) with ducted air inlet and discharge - The condensing / condensing+humidifier water pump is calculated for a 2 m vertical difference in height respect to the pump; total length of the discharge pipe of 5 m, internal diameter of flexible pipe of 12 mm - The condenser pressure drop does not include the pressostatic valve.

Series AAR

Cooling capacity: from 5 to 154 kW



The range of chilled water close control units, **series AAR**, is particularly indicated for use in technological centres, data processing rooms, in telecom centres and in such applications where it is important to keep the thermo-hygrometric conditions constant all over the year, so to assure the correct operation of the equipments installed in these sites.

Thanks to their technologically advanced design, these close control units are able to control the ambient temperature with remarkably high precision and, when the humidity level is required, to adapt their cooling capacity to the room requirements, all automatically managed by the microprocessor on board.

The high technology employed during their design together with the use of the best components available on the markets, make these units extremely reliable and therefore able to work for long periods, without a break.

These units are particularly easy to install also in small spaces and easily accessible on the front side for ordinary and extraordinary service operations.

They are completely assembled and tested in the factory.

The units are available in different configurations, related to the air return and discharge:

- U** front air return, upflow air discharge
- V** bottom air return, upflow air discharge
- D** top air return, downflow air discharge

The standard range has been improved with the SLIM configuration (mod. **AARL D**), available in two working modes:

HP High performance: setting of the fans, maximizing the heat exchange through the hydrophilically treated coil, which increases the total and sensible cooling capacity and ensures, on the other hand, reduced electrical absorption values, if compared to the given cooling capacity, and a low sound pressure level.

ES Energy saving: setting of the fans, maximizing their energy saving, which ensures heat exchange ratio giving a particularly high total and sensible capacity, together with a reduction of the energy consumption and of the overall sound level.

In both cases, the increase of the fan speed rotation to get higher pressure values involves, as a consequence, an increase of the sound level of the unit, which needs to be considered in the acoustics evaluation of the installation site.

Operation limits: ambient temperature from 18 to 35°C.

Main components:

Structure realized with a framework and internal parts made of galvanized steel riveted profiles and supports, making the structure strong and suitable also for extreme transport and handling conditions. The external panels, fixed to frame with quick opening connections, are made of pre-painted steel sheet (RAL 9004), ensuring a long-term durability to the

unit. They are internally insulated with self-extinguishing sound-proofing material (class HF1 – UL94) reducing the overall sound level of the unit. On request (option IS1), it is available the sound-proofing insulation with class 1 material in conformity to the main European regulations in force. All the front and side panels can be dismantled so to allow an easy access to the main components. Moreover, the front of the unit is provided with double panels and inspection window (not available for version U), suitably arranged to let the unit work also with open panels during technical interventions, to allow more accurate regulations and more quick timing for ordinary and extraordinary service operations.

Single-inlet and backward curved centrifugal fans made of high-performance composite material, directly coupled to a three-phase electrical motor with IP54 Class F protection and provided with a thermal protection inside the motor winding. The fans are fixed on suitable supports reducing the transmission of vibration to the frame and the impeller is statically and dynamically balanced with long-life bearings. It is possible to regulate the fan speed by means of an autotransformer and to adjust their air flow to the head pressure requested on site. It is clear that a higher fans speed rotation involves an increase in the sound level of the unit. All the units are equipped with low airflow and clogged filter alarms which, by means of differential pressure switches, stop the unit operation in case of fans problems and give a signal on microprocessor for replacement respectively.

Only for SLIM configuration, the EC centrifugal fans (corresponding to option EC-LP&HP) are standard provided.

Chilled water coil, realized with copper tube and aluminium fins, it is suitably sized with a wide exchange surface and a low air crossing speed so to allow a remarkable heat exchange and reduce the pressure drops on the air side. Only for SLIM configuration, an hydrophilic treatment (option BIDR) is standard provided.

Condensing drain tray, made in corrosion proof peraluman, placed underneath the evaporating coil, it is provided with a flexible pipe for condensing water discharge.

Washable and self-extinguishing air filters Efficiency G4 – of pleated type, they are made of synthetic fibre and are contained in a suitable metal frame. Their pleated arrangement, with a wide surface area, ensures a higher filtering efficiency and low pressure drops.

Water circuit realized with pipes entirely coated with insulated material and bronze fittings, complete temperature probe and with 3-way valve with 3-point control from frame 1, 2 and 3 and of 3-point modulating type for frame from 4 to 8. The max pressure of the circuit is 10 bar (PN 10).

Electric board in compliance with CE norms, protected by a panel is separated by the air flow and is provided with main switch, automatic switches, remote control switches, motor protection switches, low-tension auxiliary circuits and terminal board for free contacts and remote general alarm, magnetothermic switches for humidifier and electric heaters (when installed).

Unit management microprocessor installed inside the electrical board, complete with hour counter and electronic card to program the switch-over and rotation between to units, after a pre-set time. On this purpose, in case of order, the information necessary for programming must be clearly defined. It allows 3 languages display reading, a detailed descrip-



AAR 230 D

tion of parameters, the possibility to manage up to 8 units, to manage non standard communication protocols, a quickest access to the program, the control of the humidifier, the control of modulating valves.

Accessories

AA	Flooding detector: placed in the downflow units, it is already wired and detects water in the false floor.
AE	Electrical power supply different from standard: mainly, 230V three-phase, 460V three-phase. Frequency 50/60 Hz.
AL	Smoke alarm: it consists of a sensor detecting smoke inside the unit and activating an alarm signal which stops the fans.
B	Adjustable base-frame from 170mm to max 600mm for installation on raised floors. It is provided with adjustable feet.
BC	Hot water coil: one-row or 2-row water coil, placed after the cooling coil for the re- heating and/or the heating of treated air. Provided with three-way valve and modulating actuator, it is controlled by the microprocessor on board. This option is priority when requested with the electric heaters RE option. (Not available with REM).
BIDR	Hydrophilic treatment of the coil to reduce the surface tension between water and metal surface, promoting film condensation and avoiding the risk of condensing drops outside the drain tray. (standard for AARL configuration).
BN	Base-frame with conveyor: it is provided with a suitable conveyor facilitating the air flow and remarkably reducing the pressure drop in case of horizontal air flow. It is adjustable in height from min 400mm to max 800mm. (Only for D version and not available for AARL configurations).
BS	Base-frame with ON/OFF damper: it is equipped with an ON/OFF motorized damper. This device prevents the air return from the unit when it is not working or in the case some units are working near to it. Available only for D version and not available for AARL configurations; for other versions, being a special execution, please contact our Sales Dept.
BSN	Base-frame with conveyor and ON/OFF damper: a single base-frame with both options BS and BN so to optimize efficiency and overall dimensions. (not available for AARL configurations).
DP	Internal double panels: for shutting off the compartments affected by the air flow, they are made from pre-painted and galvanized steel plate, ensuring reduction in the noise transmitted through the panels and a better air tightness even without the external panels so that the access is guaranteed with the doors open during service operation.
EC-LP&HP	Single-inlet EC (electronically commutated) centrifugal fans with backward curved blade (LP not available for D version): made of high-performance composite material, directly coupled to a three-phase electrical rotor with IP54 protection grade, they have the possibility of a continuous

regulation of the speed by means of 10V signal, sent and integrated to the control. The fans are fixed on suitable supports reducing the transmission of vibration to the frame and the impeller is statically and dynamically balanced with long-life bearings. Thanks to their technology, the EC fans ensures a lower electrical absorption and sound level, if compared to the traditional centrifugal fans. It is possible to adjust their air flow to the head pressure requested on site. In case of IT electrical supplies, this option is not available. Please contact our Sales Dept.

F5-F6-F7-F9	Higher efficiency air filters: pleated filters, supplied as an alternative to standard G4 filters.
FR	Spare filter kit G4 as a replacement to the ones on board of the unit. H Humidifier of immersed-electrode type for the modulating production of steam. It is made by a steam cylinder, by a steam distributor, by water inlet and outlet valves and by a maximum level probe. The microprocessor on board indicates when the steam cylinder needs to be replaced.
H	Humidifier of immersed-electrode type for the modulating production of steam. It is made by a steam cylinder, by a steam distributor, by water inlet and outlet valves and by a maximum level probe. The microprocessor on board indicates when the steam cylinder needs to be replaced. It is electrically protected by a magnetothermal switch.
IE	Fumigated wooden crate packing: available on request for critical transports, so to assure a suitable protection to the unit.
IH	RS 485 serial interface: electronic card to be connected to microprocessor, to allow communication between the units and a Carel supervision system. It is possible to fully control the unit from remote. For connection to other supervision systems, the protocol of the controlled parameters is available on request.
IM	Seawood packing: fumigated seawood case and protection bag with hygroscopic salts, suitable for long sea transports.
IP	Magnetothermal switches for auxiliary circuits: when required, they replace the fuses, as a protection of the auxiliary circuits.
IS1	Class 1 insulating material in conformity to the main European regulations in force.
MF	Phase monitor: electronic device controlling the correct sequence and/or the eventual lack of one of the 3 phases, switching off the unit if necessary.
MN	Lack of neutral wire for 400/3/50 power supply: unit general power supply without neutral wire.
MP	Oversized microprocessor: in addition to the standard microprocessor, it allows more languages display reading (maximum 5), it has an increased hardware so to allow the managing of more inputs and outputs for the control of on board installed components.

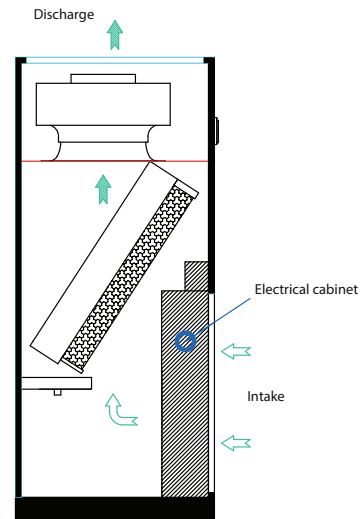
PB	Condensing water pump: micro pump discharging the condensing water produced by the unit, it is factory installed.
PBH	Condensing water and humidifier discharge pump: pump discharging the condensing water produced by the unit and the humidifier discharge water, it is factory installed.
PL	Distribution plenum with front grid and a double row of adjustable fins for a better air distribution. (for versions U and V and not available with options ST and STM).
PQ	Remote display: remote terminal, allowing to display the temperature and humidity values detected by probes, the alarm digital inputs, the outputs and the remote ON/OFF of the unit, to change and program of the parameters, the sound signal and the display of the present alarms.
PR	Fresh air inlet: external fresh air inlet with filter, placed on side (standard on the left side), with circular connection (Ø 100 mm).
RE	Electrical heaters: made in aluminium and installed after the cooling coil, for re-heating and/or heating of the treated air. The heating capacity is split max on 3 steps, so to reduce the energy absorption. They are controlled by the microprocessor on board and electrically protected by a magnetothermal switch.
REM	Oversized Electrical heaters.
RV	Personalized frame painting in RAL colour.
SL	Main switch with external padlock.
SM	0-10V control for chilled water coil, only available for frame 1, 2 and 3. For the other sizes, it is standard and the type of signal can be set from the microprocessor on board or directly on the control.
ST	Manual calibration damper, in galvanized steel plate with opposed-movement fins. Through the manual control, it is possible to accurately regulate the air flow. (Alternative to STM, not available with option PL and for AARL configurations).
STM	Motorized calibration damper, in galvanized steel plate with opposed-movement fins. Through the modulating control (0-10V), it is possible to accurately regulate the air flow. (Alternative to ST, not available with option PL and for AARL configurations).
SV	Gravity overpressure damper for ducted units, to prevent the air return when the units are not operating, where several units are installed in the same room. Available for U and versions; for D version, being a special execution, please contact our Sales Dept.
TS	Touch screen graphic terminal designed to simplify user interface with the unit controller. It allows the set-point fixing, the alarm reading, the graphic display of the main controlled parameters in real time (suitable for download on USB interface) and possibility of set-point scheduling. The 4.3", 65.000 colours and 480x422 resolution display, be-

WG

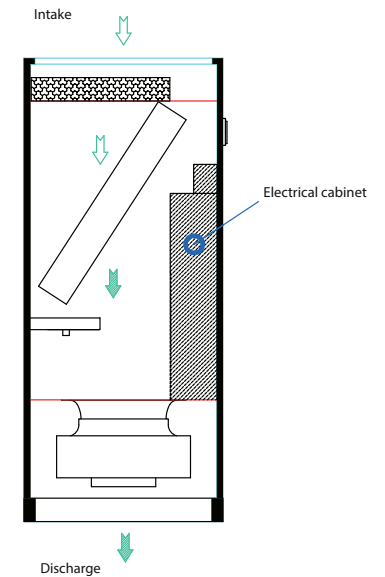
ing a dedicated terminal for the end user, does not allow to change the basic configuration of the unit.

Electronic card for interfacing to BMS with SNMP or TCP/IP protocols. Only available with option IH.

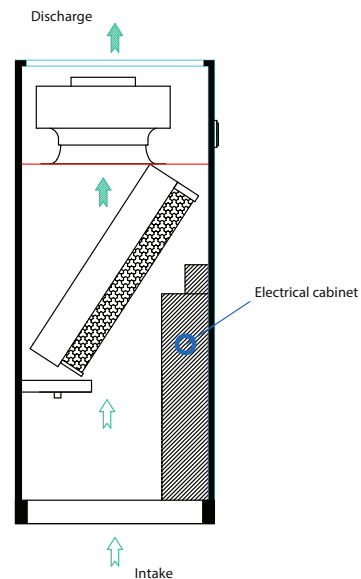
U - Frontal air intake - Upwards air discharge



D - Up air intake - Downwards air discharge



V - Down air intake - Upwards air discharge



AAR - Dimensions and weights - 1-circuit units - U-V Versions

Size		70	140	180	230	290	390	490	530	670	810	980	1240	1400	1610	1810	2000	2250
Dimensions																		
Length	mm	550	550	550	750	750	980	980	1'160	1'160	1'860	1'860	1'860	2'210	2'565	2'565	3'100	3'100
Width	mm	550	550	550	550	550	750	750	850	850	850	850	850	850	850	850	850	850
Height	mm	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980
Weights																		
Weight - U Version	kg	134	139	143	177	183	227	238	312	318	410	422	446	504	590	607	729	750
Weight - V Version	kg	134	139	143	177	183	232	243	307	313	420	431	456	513	600	617	729	750

AAR - Dimensions and weights - 2-circuits units - U-V Versions

Size		70	140	180	230	290	390	490	530	670	810	980	1240	1400	1610	1810	2000	2250
Dimensions																		
Length	mm	550	550	550	750	750	980	980	1'160	1'160	1'860	1'860	1'860	2'210	2'565	2'565	3'100	3'100
Width	mm	550	550	550	550	550	750	750	850	850	850	850	850	850	850	850	850	850
Height	mm	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980	1'980
Weights																		
Weight - D Version	kg	139	143	148	173	179	237	248	312	318	439	451	475	528	605	622	758	779

AAR - Dimensions and weights - AAR D HP Version (High Performance)

Size		860	1700	1900	2400	3000
Dimensions						
Length	mm	1'160	1'860	2'210	2'565	3'100
Width	mm	850	850	850	850	850
Height (unit + fans base-frame)	mm	1'980 + 570	1'980 + 570	1'980 + 570	1'980 + 570	1'980 + 570
Weights						
Weight	kg	383	577	646	775	959

AAR - Dimensions and weights - AAR D ES Version (Energy Saving)

Size		860	1700	1900	2400	3000
Dimensions						
Length	mm	1'160	1'860	2'210	2'565	3'100
Width	mm	850	850	850	850	850
Height (unit + fans base-frame)	mm	1'980 + 570	1'980 + 570	1'980 + 570	1'980 + 570	1'980 + 570
Weights						
Weight	kg	383	577	646	775	959

CLOSE CONTROL UNITS WITH CHILLED WATER COIL

AAR - Technical data - U and V versions

Size		70	140	180	230	290	390	490	530	670	810	980	1240	1400	1610	1810	2000	2250				
Frame																						
Frame		1			2			3			4			5			6		7		8	
Cooling capacity - Water 7/12°C																						
Total cooling capacity (27°C - 50% R.H.)	kW	7,7	13,3	16,6	21,3	26,9	37,3	47,5	59	65,7	77,8	97,2	122,3	139,3	159,4	178,1	201,3	224,3				
Sensible cooling capacity (27°C - 50% R.H.)	kW	7,7	9,9	11,3	15,7	18,3	27,3	32	41,9	45	64	71,5	83,6	93,9	112,7	121,6	143,2	153,6				
SHR @ 27°C-50% U.R.	%	100	74	68	74	68	73	67	71	68	82	74	68	67	71	68	71	68				
Water flow	m³/h	1,3	2,3	2,8	3,7	4,6	6,4	8,2	10,1	11,3	13,3	14,7	21	23,9	27,3	30,6	34,5	38,5				
Pressure drop of chilled water coil	kPa	33	35	38	45	43	48	47	58	65	71	70	73	60	71	74	77	87				
Pressure drop of 3-way valve	kPa	40	30	21	36	21	39	33	39	47	35	54	46	61	44	56	71	88				
Total pressure drop (coil+3-way valve)	kPa	73	65	59	81	64	87	80	97	112	106	124	119	121	115	130	148	175				
Total cooling capacity (24°C - 50% R.H.)	kW	5	8,6	11	14,1	18,1	24,9	32,3	39,6	44,7	52,9	65,3	83,7	95,7	108,5	122,4	136,8	154,2				
Sensible cooling capacity (24°C - 50% R.H.)	kW	5	7,9	8,9	12,6	14,6	21,9	25,7	33,2	36,1	49,5	58,4	67,4	76	92,5	98,3	117,2	124,2				
SHR @ 24°C-50% U.R.	%	100	92	81	89	81	88	80	84	81	94	89	81	79	85	80	86	81				
Water flow	m³/h	0,8	1,5	1,9	2,4	3,1	4,3	5,5	6,8	7,7	9,1	11,2	14,4	16,4	18,6	21	23,5	26,5				
Pressure drop of chilled water coil	kPa	16	16	19	23	22	24	25	30	34	37	36	38	32	36	39	40	46				
Pressure drop of 3-way valve	kPa	18	14	10	16	10	19	16	18	23	17	26	23	30	22	28	35	44				
Total pressure drop (coil+3-way valve)	kPa	34	30	29	39	32	43	41	48	57	54	62	61	62	58	67	75	90				
Total cooling capacity (22°C - 50% R.H.)	kW	4,1	6,7	8,1	10,7	13,2	18,7	23,3	29,6	32,6	40,9	49,4	60,7	69,8	79,9	88,4	101,2	111,6				
Sensible cooling capacity (22°C - 50% R.H.)	kW	4,1	6,4	7,1	10,1	11,5	17,4	20	26,4	28,3	40,9	46,4	52,6	63,1	79,7	76,4	91,7	96,6				
SHR @ 22°C-50% U.R.	%	100	96	88	94	87	93	86	89	87	100	94	87	90	100	86	91	87				
Water flow	m³/h	0,7	1,1	1,4	1,8	2,3	3,2	4	5,1	5,6	7	8,5	10,4	12	13,7	15,2	17,4	19,1				
Pressure drop of chilled water coil	kPa	11	11	11	14	13	15	14	18	18	24	23	22	19	24	23	25	27				
Pressure drop of 3-way valve	kPa	13	8	6	10	5	11	9	11	15	10	15	13	15	14	15	19	24				
Total pressure drop (coil+3-way valve)	kPa	24	19	17	24	18	26	23	29	33	34	38	35	36	34	38	44	51				
Internal volume of the coil	dm³	2,2	4,3	6,0	6,6	9,1	11,4	15,9	16,8	19,6	19,8	24,8	34,8	43,1	42,6	49,7	50,9	59,8				
Cooling capacity - Water 9/14°C																						
Total cooling capacity (27°C - 50% R.H.)	kW	5,8	10,2	13,1	16,4	21,3	29	37,7	46	51,9	60,8	75,1	96,8	111,1	125,1	141,3	157,7	177,8				
Sensible cooling capacity (27°C - 50% R.H.)	kW	5,8	8,6	9,7	13,6	15,8	23,7	27,7	35,6	38,7	55,6	62,5	72,1	81,4	98,8	105	125,5	132,6				
SHR @ 27°C-50% U.R.	%	100	84	74	83	74	82	73	77	75	91	83	74	73	79	74	80	75				
Water flow	m³/h	1	1,7	2,2	2,8	3,7	5	6,5	7,9	8,9	10,5	12,9	16,6	19,1	21,5	24,3	27,1	30,5				
Pressure drop of chilled water coil	kPa	20	21	25	29	28	31	32	38	42	46	44	47	40	46	50	50	57				
Pressure drop of 3-way valve	kPa	24	19	13	22	14	24	21	24	31	22	34	31	40	28	36	45	57				
Total pressure drop (coil+3-way valve)	kPa	44	40	38	51	42	55	53	62	73	68	78	78	80	74	86	95	114				
Total cooling capacity (24°C - 50% R.H.)	kW	4,2	6,8	8,2	10,8	13,4	18,9	23,5	29,8	32,8	41,2	49,7	61,1	69,1	80,5	89	101,9	112,3				
Sensible cooling capacity (24°C - 50% R.H.)	kW	4,2	6,4	7,1	10,1	11,5	17,4	20,1	26,4	28,4	41	46,3	52,6	58,8	80,5	76,4	92,1	96,6				
SHR @ 24°C-50% U.R.	%	100	94	87	94	86	92	86	89	87	100	93	86	85	100	86	90	86				
Water flow	m³/h	0,7	1,2	1,4	1,9	2,3	3,2	4	5,1	5,6	7,1	8,5	10,5	11,9	13,8	15,3	17,5	19,3				
Pressure drop of chilled water coil	kPa	12	11	11	14	12	15	14	18	20	24	22	22	19	22	22	24	27				
Pressure drop of 3-way valve	kPa	13	9	6	10	6	11	9	11	13	10	16	13	16	12	15	20	24				
Total pressure drop (coil+3-way valve)	kPa	25	20	17	24	18	26	23	29	33	34	38	35	35	34	38	44	51				
Total cooling capacity (22°C - 50% R.H.)	kW	3,3	5,4	6,7	8,8	11	15,5	19,4	24,5	27,1	33,7	40,8	50,6	57,4	66,5	73,9	84,1	93,2				
Sensible cooling capacity (22°C - 50% R.H.)	kW	3,3	5,4	6,7	8,8	11	15,5	19,4	24,5	27,1	33,7	40,8	50,6	57,1	66,5	73,9	84,1	93,2				
SHR @ 22°C-50% U.R.	%	100	100	100	100	100	100	100	100	100	100	100	100	99	100	100	100	100				
Water flow	m³/h	0,6	0,9	1,2	1,5	1,9	2,7	3,3	4,2	4,7	5,8	7	8,7	9,9	11,4	12,7	14,5	16				
Pressure drop of chilled water coil	kPa	7	7	8	11	9	10	10	13	14	18	16	16	13	15	16	17	19				
Pressure drop of 3-way valve	kPa	9	6	4	6	4	8	6	7	9	6	11	9	12	9	11	14	18				
Total pressure drop (coil+3-way valve)	kPa	16	13	12	17	13	18	16	20	23	24	27	25	25	24	27	31	37				
Internal volume of the coil	dm³	2,2	4,3	6,0	6,6	9,1	11,4	15,9	16,8	19,6	19,8	24,8	34,8	43,1	42,6	49,7	50,9	59,8				
AC fans with autotransformer																						
Quantity	n.	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	4	4				
Fan(s) supply voltage	V	230	250	290	250	310	260	320	280	300	230	260	290	300	260	280	260	280				
Air flow	m³/h	2.030	2.030	2.030	3.180	3.280	5.450	5.700	8.050	8.200	14.500	15.000	15.200	16.700	21.500	22.050	27.500	28.000				
Available pressure	Pa	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20				
Rotation speed	rpm	1.100	1.156	1.245	1.157	1.283	1.050	1.147	1.190	1.227	1.078	1.147	1.205	1.228	1.145	1.186	1.144	1.185				
Input power	kW	0,30	0,32	0,36	0,57	0,66	0,93	1,09	1,62	1,72	2,70	3,06	3,38	3,43	4,61	4,93	6,16	6,59				
Input current	A	0,96	0,96	0,96	1,57	1,48	2,64	2,62	4,11	4,09	8,26	8,32	8,28	8,14	12,54	12,48	16,76	16,68				
Max available pressure (max ESP)	Pa	157	129	82	164	75	185	89	198	156	314	242	175	156	246	195	239	194				
Sound pressure level @ 2 m - U Version	dB(A)	45	46	47	51	53	55	57	60	60	61	62	62	64	63	64	64	65				
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	49	49	49	54	54	59	60	62	62	65	65	65	66	67	67	68	68				
Sound pressure level @ 2 m - V Version	dB(A)	42	42	44	48	49	51	53	56	57	57	58	59	60	60	60	60	61				
Sound pressure level @ 2 m -V Version (max ESP)	dB(A)	46	46	46	51	51	56	56	59	59	61	62	62	62	63	63	64	64				

Size		70	140	180	230	290	390	490	530	670	810	980	1240	1400	1610	1810	2000	2250
EC Fans - LP (low pressure)																		
Quantity	n.	-	-	-	-	-	1	1	1	1	1	1	2	2	3	3	4	4
Air flow	m³/h	-	-	-	-	-	5'450	5'700	8'050	8'200	14'500	15'000	15'200	16'700	21'500	22'050	27'500	28'000
Available pressure	Pa	-	-	-	-	-	20	20	20	20	20	20	20	20	20	20	20	20
Max available pressure (max ESP)	Pa	-	-	-	-	-	225	146	109	63	213	151	87	71	156	105	153	108
Rotation speed	rpm	-	-	-	-	-	1.086	1.179	1.090	1.132	974	1.027	1.093	1.125	1.022	1.078	1.016	1.062
Input power	kW	-	-	-	-	-	0,54	0,70	0,96	1,10	1,36	1,62	2,01	2,12	2,44	2,91	3,25	3,76
Sound pressure level @ 2 m - U Version	dB(A)	-	-	-	-	-	54	55	57	57	58	59	60	61	60	61	61	62
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	-	-	-	-	-	56	56	57	58	60	60	60	61	61	62	63	63
Sound pressure level @ 2 m - V Version	dB(A)	-	-	-	-	-	51	52	53	54	55	56	56	57	57	57	58	58
Sound pressure level @ 2 m - V Version (max ESP)	dB(A)	-	-	-	-	-	53	53	54	54	56	56	57	58	58	58	59	59
EC Fans - HP (High pressure)																		
Quantity	n.	1	1	1	1	1	1	1	1	1	1	1	2	2	3	3	4	4
Air flow	m³/h	2'030	2'030	2'030	3'180	3'280	5'450	5'700	8'050	8'200	14'500	15'000	15'200	16'700	21'500	22'050	27'500	28'000
Available pressure	Pa	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Max available pressure (max ESP)	Pa	746	692	651	540	479	707	628	548	503	647	586	524	513	589	540	585	541
Rotation speed	rpm	1.112	1.160	1.136	1.066	1.167	1.103	1.195	1.100	1.142	981	1.036	1.102	1.135	1.030	1.086	1.023	1.069
Input power	kW	0,22	0,25	0,24	0,3	0,4	0,58	0,75	0,98	1,1	1,39	1,65	2,04	2,13	2,5	2,95	3,32	3,81
Sound pressure level @ 2 m - U Version	dB(A)	46	46	47	51	53	56	57	58	58	59	60	61	62	61	62	63	63
Sound pressure level @ 2 m - U Version (max ESP)	dB(A)	65	65	65	63	63	64	64	62	62	65	65	65	66	67	67	69	69
Sound pressure level @ 2 m - V Version	dB(A)	42	43	43	48	49	53	54	54	55	56	57	57	58	58	59	59	59
Sound pressure level @ 2 m -V Version (max ESP)	dB(A)	61	61	61	60	59	61	61	59	59	62	62	62	62	64	64	65	65
Humidifier																		
Steam production (nominal)	kg/h	1,5	1,5	1,5	3	3	5	5	8	8	8	8	8	8	8	8	8	8
Steam production (max)	kg/h	3	3	3	3	3	8	8	8	8	8	8	8	8	8	8	8	8
Maximum input power	kW	1,12	1,12	1,12	2,25	2,25	3,75	3,75	6	6	6	6	6	6	6	6	6	6
Maximum input current	A	5	5	5	10	10	5,5	5,5	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7
Specific conductivity at 20°C (min/max)	µS/cm	300 / 1'250																
Total hardness (min/max)	mg/l CaCo3	100 / 400																
Electrical heaters																		
Steps	n.	1	1	1	3	3	2	2	3	3	3	3	3	3	3	3	3	3
Power	kW	3	3	3	4,5	4,5	6	6	9	9	15	15	15	18	24	24	27	27
Input current	A	4,3	4,3	4,3	6,5	6,5	8,7	8,7	13,0	13,0	21,7	21,7	21,7	26,0	34,6	34,6	39,0	39,0
Oversized electrical heaters																		
Steps	n.	3	3	3	2	2	3	3	3	3	3	3	3	3	3	3	3	3
Power	kW	4,5	4,5	4,5	6	6	9	9	12	12	18	18	18	24	27	27	36	36
Input current	A	6,5	6,5	6,5	8,7	8,7	13,0	13,0	17,3	17,3	26,0	26,0	26,0	34,6	39,0	39,0	52,0	52,0
Hot water coil																		
Heating capacity	kW	3,9	3,9	3,9	6	6,2	8,5	8,7	17,8	18	32,4	33,1	33,5	38,9	48	48,8	65,2	65,9
Water flow rate	m³/h	0,7	0,7	0,7	1,1	1,1	1,5	1,5	3,1	3,1	5,7	5,7	5,8	6,8	8,4	8,5	11,4	11,5
Pressure drop (coil+3-way valve)	kPa	27	27	27	28	29	39	41	62	64	67	69	70	56	62	64	62	63
Internal volume of the coil	dm³	1,1	1,1	1,1	1,4	1,4	2,1	2,1	3,8	3,8	5,6	6,4	6,4	7,7	8,7	8,7	15,3	15,3
Condensing water pump																		
Nominal water flow	l/h	27,5	27,5	27,5	390	390	390	390	390	390	390	390	390	390	390	390	390	390
Max water flow (pressure = 0 m)	l/h	34	34	34	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Max height (water flow = 0 m³/h)	m	15	15	15	5,4	5,4	5,4	5,4	5,4	5,4	5,4	5,4	5,4	5,4	5,4	5,4	5,4	5,4
Condensing water pump + humidifier																		
Nominal water flow	l/h	-	-	-	-	-	-	-	600	600	600	600	600	600	600	600	600	600
Max water flow (pressure = 0 m)	l/h	-	-	-	-	-	-	-	900	900	900	900	900	900	900	900	900	900
Max height (water flow = 0 m³/h)	m	-	-	-	-	-	-	-	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0
Power supply																		
Power supply	V/ph/Hz	400 / 3 / 50 + T + N																

REMARKS: Fluid: water (glycol 0%) - Filters considered for 20% dirt - Max pressure is referred to the nominal air flow and the max tension/regulation - Hot water coil calculated for: water 40/45°C, ambient temperature 20°C and available pressure of 20 Pa - The condensing / condensing + humidifier water pump is calculated for a 2 m vertical difference in height respect to the pump; total length of the discharge pipe of 5 m, internal diameter of the flexible pipe of 12 mm (6 mm for size 70-140-180 only for condensing water pump). - The sound pressure level is referred to the unit with ducted air inlet and discharge (except for version U air inlet).

CLOSE CONTROL UNITS WITH CHILLED WATER COIL

AAR - Technical data - D version

Size		70	140	180	230	290	390	490	530	670	810	980	1240	1400	1610	1810	2000	2250
Frame																		
Frame																		
Cooling capacity - Water 7/12°C																		
Total cooling capacity (27°C - 50% R.H.)	kW	7,7	13,3	16,6	21,3	26,9	37,3	47,5	59	65,7	77,8	97,2	122,3	139,3	159,4	178,1	201,3	224,3
Sensible cooling capacity (27°C - 50% R.H.)	kW	7,7	9,9	11,3	15,7	18,3	27,3	32	41,9	45	64	71,5	83,6	93,9	112,7	121,6	143,2	153,6
SHR @ 27°C-50% U.R.	%	100	74	68	74	68	73	67	71	68	82	74	68	67	71	68	71	68
Water flow	m³/h	1,3	2,3	2,8	3,7	4,6	6,4	8,2	10,1	11,3	13,3	14,7	21	23,9	27,3	30,6	34,5	38,5
Pressure drop of chilled water coil	kPa	33	35	38	45	43	48	47	58	65	71	70	73	60	71	74	77	87
Pressure drop of 3-way valve	kPa	40	30	21	36	21	39	33	39	47	35	54	46	61	44	56	71	88
Total pressure drop (coil+3-way valve)	kPa	73	65	59	81	64	87	80	97	112	106	124	119	121	115	130	148	175
Total cooling capacity (24°C - 50% R.H.)	kW	5	8,6	11	14,1	18,1	24,9	32,3	39,6	44,7	52,9	65,3	83,7	95,7	108,5	122,4	136,8	154,2
Sensible cooling capacity (24°C - 50% R.H.)	kW	5	7,9	8,9	12,6	14,6	21,9	25,7	33,2	36,1	49,5	58,4	67,4	76	92,5	98,3	117,2	124,2
SHR @ 24°C-50% U.R.	%	100	92	81	89	81	88	80	84	81	94	89	81	79	85	80	86	81
Water flow	m³/h	0,8	1,5	1,9	2,4	3,1	4,3	5,5	6,8	7,7	9,1	11,2	14,4	16,4	18,6	21	23,5	26,5
Pressure drop of chilled water coil	kPa	16	16	19	23	22	24	25	30	34	37	36	38	32	36	39	40	46
Pressure drop of 3-way valve	kPa	18	14	10	16	10	19	16	18	23	17	26	23	30	22	28	35	44
Total pressure drop (coil+3-way valve)	kPa	34	30	29	39	32	43	41	48	57	54	62	61	62	58	67	75	90
Total cooling capacity (22°C - 50% R.H.)	kW	4,1	6,7	8,1	10,7	13,2	18,7	23,3	29,6	32,6	40,9	49,4	60,7	69,8	79,9	88,4	101,2	111,6
Sensible cooling capacity (22°C - 50% R.H.)	kW	4,1	6,4	7,1	10,1	11,5	17,4	20	26,4	28,3	40,9	46,4	52,6	63,1	79,7	76,4	91,7	96,6
SHR @ 22°C-50% U.R.	%	100	96	88	94	87	93	86	89	87	100	94	87	90	100	86	91	87
Water flow	m³/h	0,7	1,1	1,4	1,8	2,3	3,2	4	5,1	5,6	7	8,5	10,4	12	13,7	15,2	17,4	19,1
Pressure drop of chilled water coil	kPa	11	11	11	14	13	15	14	18	18	24	23	22	19	24	23	25	27
Pressure drop of 3-way valve	kPa	13	8	6	10	5	11	9	11	15	10	15	13	15	14	15	19	24
Total pressure drop (coil+3-way valve)	kPa	24	19	17	24	18	26	23	29	33	34	38	35	36	34	38	44	51
Internal volume of the coil	dm³	2,2	4,3	6,0	6,6	9,1	11,4	15,9	16,8	19,6	19,8	24,8	34,8	43,1	42,6	49,7	50,9	59,8
Cooling capacity - Water 9/14°C																		
Total cooling capacity (27°C - 50% R.H.)	kW	5,8	10,2	13,1	16,4	21,3	29	37,7	46	51,9	60,8	75,1	96,8	111,1	125,1	141,3	157,7	177,8
Sensible cooling capacity (27°C - 50% R.H.)	kW	5,8	8,6	9,7	13,6	15,8	23,7	27,7	35,6	38,7	55,6	62,5	72,1	81,4	98,8	105	125,5	132,6
SHR @ 27°C-50% U.R.	%	100	84	74	83	74	82	73	77	75	91	83	74	73	79	74	80	75
Water flow	m³/h	1	1,7	2,2	2,8	3,7	5	6,5	7,9	8,9	10,5	12,9	16,6	19,1	21,5	24,3	27,1	30,5
Pressure drop of chilled water coil	kPa	20	21	25	29	28	31	32	38	42	46	44	47	40	46	50	50	57
Pressure drop of 3-way valve	kPa	24	19	13	22	14	24	21	24	31	22	34	31	40	28	36	45	57
Total pressure drop (coil+3-way valve)	kPa	44	40	38	51	42	55	53	62	73	68	78	78	80	74	86	95	114
Total cooling capacity (24°C - 50% R.H.)	kW	4,2	6,8	8,2	10,8	13,4	18,9	23,5	29,8	32,8	41,2	49,7	61,1	69,1	80,5	89	101,9	112,3
Sensible cooling capacity (24°C - 50% R.H.)	kW	4,2	6,4	7,1	10,1	11,5	17,4	20,1	26,4	28,4	41	46,3	52,6	58,8	80,5	76,4	92,1	96,6
SHR @ 24°C-50% U.R.	%	100	94	87	94	86	92	86	89	87	100	93	86	85	100	86	90	86
Water flow	m³/h	0,7	1,2	1,4	1,9	2,3	3,2	4	5,1	5,6	7,1	8,5	10,5	11,9	13,8	15,3	17,5	19,3
Pressure drop of chilled water coil	kPa	12	11	11	14	12	15	14	18	20	24	22	22	19	22	22	24	27
Pressure drop of 3-way valve	kPa	13	9	6	10	6	11	9	11	13	10	16	13	16	12	15	20	24
Total pressure drop (coil+3-way valve)	kPa	25	20	17	24	18	26	23	29	33	34	38	35	35	34	38	44	51
Total cooling capacity (22°C - 50% R.H.)	kW	3,3	5,4	6,7	8,8	11	15,5	19,4	24,5	27,1	33,7	40,8	50,6	57,4	66,5	73,9	84,1	93,2
Sensible cooling capacity (22°C - 50% R.H.)	kW	3,3	5,4	6,7	8,8	11	15,5	19,4	24,5	27,1	33,7	40,8	50,6	57,1	66,5	73,9	84,1	93,2
SHR @ 22°C-50% U.R.	%	100	100	100	100	100	100	100	100	100	100	100	100	99	100	100	100	100
Water flow	m³/h	0,6	0,9	1,2	1,5	1,9	2,7	3,3	4,2	4,7	5,8	7	8,7	9,9	11,4	12,7	14,5	16
Pressure drop of chilled water coil	kPa	7	7	8	11	9	10	10	13	14	18	16	16	13	15	16	17	19
Pressure drop of 3-way valve	kPa	9	6	4	6	4	8	6	7	9	6	11	9	12	9	11	14	18
Total pressure drop (coil+3-way valve)	kPa	16	13	12	17	13	18	16	20	23	24	27	25	25	24	27	31	37
Internal volume of the coil	dm³	2,2	4,3	6,0	6,6	9,1	11,4	15,9	16,8	19,6	19,8	24,8	34,8	43,1	42,6	49,7	50,9	59,8
AC fans with autotransformer																		
Quantity	n.	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	4	4
Fan(s) supply voltage	V	270	290	360	290	360	290	360	340	380	280	320	360	360	320	360	320	360
Air flow	m³/h	2.030	2.030	2.030	3.180	3.280	5.450	5.700	8.050	8.200	14.500	15.000	15.200	16.700	21.500	22.050	27.500	28.000
Available pressure	Pa	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Rotation speed	rpm	1.204	1.245	1.338	1.248	1.343	1.095	1.190	1.285	1.328	1.186	1.255	1.307	1.311	1.255	1.307	1.255	1.307
Input power	kW	0,34	0,36	0,41	0,63	0,71	1,02	1,18	1,90	2,03	3,29	3,66	3,95	3,93	5,50	5,93	7,32	7,89
Input current	A	0,96	0,96	0,97	1,51	1,44	2,64	2,65	4,06	4,07	8,34	8,20	8,12	8,08	12,33	12,21	16,44	16,28
Max available pressure (max ESP)	Pa	106	84	31	102	31	134	44	84	34	197	118	56	56	123	56	117	56
Sound pressure level @ 2 m - D Version	dB(A)	45	46	47	51	52	54	57	60	60	60	62	63	64	63	65	64	66
Sound pressure level @ 2 m - D Version (max ESP)	dB(A)	48	48	48	53	53	58	58	61	61	63	64	64	64	65	65	66	66

Size		70	140	180	230	290	390	490	530	670	810	980	1240	1400	1610	1810	2000	2250
EC Fans - HP (High pressure)																		
Quantity	n.	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	4	4
Air flow	m ³ /h	2'030	2'030	2'030	3'180	3'280	5'450	5'700	8'050	8'200	14'500	15'000	15'200	16'700	21'500	22'050	27'500	28'000
Available pressure	Pa	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Max available pressure (max ESP)	Pa	706	652	611	496	433	662	580	447	400	542	475	410	415	467	412	459	411
Rotation speed	rpm	1.188	1.232	1.197	1.124	1.223	1.143	1.235	1.171	1.213	1.064	1.120	1.184	1.202	1.125	1.181	1.122	1.168
Input power	kW	0,26	0,29	0,27	0,36	0,45	0,66	0,84	1,22	1,36	1,85	2,16	2,59	2,62	3,35	3,89	4,47	5,05
Sound pressure level @ 2 m - D Version	dB(A)	45	46	47	51	52	54	57	57	60	60	62	63	64	63	65	64	66
Sound pressure level @ 2 m - D Version (max ESP)	dB(A)	63	63	63	62	61	63	63	61	61	64	64	64	64	66	66	67	67
Humidifier																		
Steam production (nominal)	kg/h	1,5	1,5	1,5	3	3	5	5	8	8	8	8	8	8	8	8	8	8
Steam production (max)	kg/h	3	3	3	3	3	8	8	8	8	8	8	8	8	8	8	8	8
Maximum input power	kW	1,12	1,12	1,12	2,25	2,25	3,75	3,75	6	6	6	6	6	6	6	6	6	6
Maximum input current	A	5	5	5	10	10	5,5	5,5	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7	8,7
Specific conductivity at 20°C (min/max)	µS/cm	300 / 1'250																
Total hardness (min/max)	mg/l CaCo3	100 / 400																
Electrical heaters																		
Steps	n.	1	1	1	3	3	2	2	3	3	3	3	3	3	3	3	3	3
Power	kW	3	3	3	4,5	4,5	6	6	9	9	15	15	15	18	24	24	27	27
Input current	A	4,3	4,3	4,3	6,5	6,5	8,7	8,7	13,0	13,0	21,7	21,7	21,7	26,0	34,6	34,6	39,0	39,0
Oversized electrical heaters																		
Steps	n.	3	3	3	2	2	3	3	3	3	3	3	3	3	3	3	3	3
Power	kW	4,5	4,5	4,5	6	6	9	9	12	12	18	18	18	24	27	27	36	36
Input current	A	6,5	6,5	6,5	8,7	8,7	13,0	13,0	17,3	17,3	26,0	26,0	26,0	34,6	39,0	39,0	52,0	52,0
Hot water coil																		
Heating capacity	kW	3,9	3,9	3,9	6	6,2	8,5	8,7	17,8	18	32,4	33,1	33,5	38,9	48	48,8	65,2	65,9
Water flow rate	m ³ /h	0,7	0,7	0,7	1,1	1,1	1,5	1,5	3,1	3,1	5,7	5,7	5,8	6,8	8,4	8,5	11,4	11,5
Pressure drop (coil+3-way valve)	kPa	27	27	27	28	29	39	41	62	64	67	69	70	56	62	64	62	63
Internal volume of the coil	dm ³	1,1	1,1	1,1	1,4	1,4	2,1	2,1	3,8	3,8	5,6	6,4	6,4	7,7	8,7	8,7	15,3	15,3
Condensing water pump																		
Nominal water flow	l/h	27,5	27,5	27,5	390	390	390	390	390	390	390	390	390	390	390	390	390	390
Max water flow (pressure = 0 m)	l/h	34	34	34	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Max height (water flow = 0 m ³ /h)	m	15	15	15	5,4	5,4	5,4	5,4	5,4	5,4	5,4	5,4	5,4	5,4	5,4	5,4	5,4	5,4
Condensing water pump + humidifier																		
Nominal water flow	l/h	-	-	-	-	-	-	-	600	600	600	600	600	600	600	600	600	600
Max water flow (pressure = 0 m)	l/h	-	-	-	-	-	-	-	900	900	900	900	900	900	900	900	900	900
Max height (water flow = 0 m ³ /h)	m	-	-	-	-	-	-	-	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,0
Power supply																		
Power supply	V/ph/Hz	400 / 3 / 50 + T + N																

REMARKS: Fluid: water (glycol 0%) - Filters considered for 20% dirt - Max pressure is referred to the nominal air flow and the max tension/regulation - Hot water coil calculated for: water 40/45°C, ambient temperature 20°C and available pressure of 20 Pa - The condensing / condensing + humidifier water pump is calculated for a 2 m vertical difference in height respect to the pump; total length of the discharge pipe of 5 m, internal diameter of the flexible pipe of 12 mm (6 mm for size 70-140-180 only for condensing water pump). - The sound pressure level is referred to the unit with ducted air inlet and discharge

CLOSE CONTROL UNITS WITH CHILLED WATER COIL

AAR - Technical data - AARL D HP Version (High Performance)

Size		860	1700	1900	2400	3000
Frame						
Frame		4	5	6	7	8
Cooling capacity - Water 7/12°C						
Total cooling capacity (27°C - 50% R.H.)	kW	91,3	168,2	196,0	253,9	313,7
Sensible cooling capacity (27°C - 50% R.H.)	kW	61,7	113,0	131,0	172,4	212,3
SHR @ 27°C-50% U.R.	%	68	67	67	68	68
Water flow	m³/h	15,7	28,9	33,6	43,6	53,8
Pressure drop of chilled water coil	kPa	74	75	54	67	89
Pressure drop of 3-way valve	kPa	49	50	66	46	70
Total pressure drop (coil+3-way valve)	kPa	124	125	120	113	159
Total cooling capacity (24°C - 50% R.H.)	kW	60,8	112,3	130,3	168,1	210,5
Sensible cooling capacity (24°C - 50% R.H.)	kW	48,9	89,8	103,9	136,1	169,2
SHR @ 24°C-50% U.R.	%	80	80	80	81	80
Water flow	m³/h	10,4	19,3	22,4	28,8	36,1
Pressure drop of chilled water coil	kPa	38	27	27	34	46
Pressure drop of 3-way valve	kPa	22	23	32	21	33
Total pressure drop (coil+3-way valve)	kPa	60	62	59	55	79
Total cooling capacity (22°C - 50% R.H.)	kW	45	83	97	127	157
Sensible cooling capacity (22°C - 50% R.H.)	kW	39	72	84	110	136
SHR @ 22°C-50% U.R.	%	87	86	86	87	87
Water flow	m³/h	7,8	14,3	16,6	21,7	26,9
Pressure drop of chilled water coil	kPa	22	23	17	20	27
Pressure drop of 3-way valve	kPa	14	13	18	13	20
Total pressure drop (coil+3-way valve)	kPa	36	36	35	33	47
Internal volume of the coil	dm³	30,5	51,6	66,0	73,7	88,9
Cooling capacity - Water 9/14°C						
Total cooling capacity (27°C - 50% R.H.)	kW	71,6	132,4	154,3	198,5	246,6
Sensible cooling capacity (27°C - 50% R.H.)	kW	52,9	97,2	112,8	147,6	182,4
SHR @ 27°C-50% U.R.	%	74	73	73	74	74
Water flow	m³/h	12,3	22,7	26,5	34,1	42,4
Pressure drop of chilled water coil	kPa	49	50	36	43	58
Pressure drop of 3-way valve	kPa	31	31	42	29	45
Total pressure drop (coil+3-way valve)	kPa	80	81	78	72	103
Total cooling capacity (24°C - 50% R.H.)	kW	45,8	84,2	97,7	128,1	158,1
Sensible cooling capacity (24°C - 50% R.H.)	kW	39,5	72,2	83,6	110,7	135,9
SHR @ 24°C-50% U.R.	%	86	86	86	86	86
Water flow	m³/h	7,9	14,5	16,8	22,0	27,2
Pressure drop of chilled water coil	kPa	23	25	16	20	27
Pressure drop of 3-way valve	kPa	13	12	19	13	20
Total pressure drop (coil+3-way valve)	kPa	36	37	35	33	47
Total cooling capacity (22°C - 50% R.H.)	kW	37,5	69,0	79,8	104,7	130,0
Sensible cooling capacity (22°C - 50% R.H.)	kW	37,5	69,0	79,8	104,7	130,0
SHR @ 22°C-50% U.R.	%	100	100	100	100	100
Water flow	m³/h	6,4	11,9	13,7	18,0	22,3
Pressure drop of chilled water coil	kPa	16	16	12	15	20
Pressure drop of 3-way valve	kPa	9	10	12	8	13
Total pressure drop (coil+3-way valve)	kPa	25	26	24	23	33
Internal volume of the coil	dm³	30,5	51,6	66,0	73,7	88,9
EC Fans - HP (High pressure)						
Quantity	n.	1	2	2	3	4
Air flow	m³/h	11'000	20'000	23'000	31'000	38'000
Available pressure	Pa	20	20	20	20	20
Max available pressure (max ESP)	Pa	207	347	163	266	364
Rotation speed	rpm	1.442	1.338	1.472	1.399	1.320
Input power	kW	2,11	3,43	4,39	5,93	6,77
Sound pressure level @ 2 m	dB(A)	62	63	66	66	65
Sound pressure level @ 2 m (max ESP)	dB(A)	63	65	67	67	67

Size		860	1700	1900	2400	3000
Humidifier						
Steam production (nominal)	kg/h	8	15	15	15	15
Steam production (max)	kg/h	8	15	15	15	15
Maximum input power	kW	6	11,2	11,2	11,2	11,2
Maximum input current	A	8,7	16,2	16,2	16,2	16,2
Specific conductivity at 20°C (min/max)	µS/cm	300 / 1' 250				
Total hardness (min/max)	mg/l CaCo3	100 / 400				
Electrical heaters						
Steps	n.	2	2	2	3	3
Power	kW	7,4	14,8	14,8	22,2	29,6
Input current	A	10,7	21,4	21,4	32	42,7
Hot water coil						
Heating capacity	kW	29,7	57,4	68,9	88,3	111,3
Water flow rate	m³/h	5,2	10	12	15,4	19,4
Pressure drop (coil+3-way valve)	kPa	62	60	67	66	83
Internal volume of the coil	dm³	8,2	14,6	16,6	18,6	21,8
Condensing water pump						
Nominal water flow	l/h	390	390	390	390	390
Max water flow (pressure = 0 m)	l/h	500	500	500	500	500
Max height (water flow = 0 m³/h)	m	5,4	5,4	5,4	5,4	5,4
Condensing water pump + humidifier						
Nominal water flow	l/h	600	600	600	600	600
Max water flow (pressure = 0 m)	l/h	900	900	900	900	900
Max height (water flow = 0 m³/h)	m	6,0	6,0	6,0	6,0	6,0
Power supply						
Power supply	V/ph/Hz	400 / 3 / 50 + T + N				

REMARKS: Fluid: water (glycol 0%) - Filters considered for 20% dirt - Max pressure is referred to the nominal air flow and the max tension/regulation - Hot water coil calculated for: water 40/45°C, ambient temperature 20°C and available pressure of 20 Pa - The condensing / condensing + humidifier water pump is calculated for a 2 m vertical difference in height respect to the pump; total length of the discharge pipe of 5 m, internal diameter of the flexible pipe of 12 mm - The sound pressure level is referred to the unit with ducted air inlet and discharge - Adjustable base-frame up to 950 mm max

AAR - Technical data - AARL D ES Version (Energy Saving)

Size		860	1700	1900	2400	3000
Frame						
Frame		4	5	6	7	8
Cooling capacity - Water 7/12°C						
Total cooling capacity (27°C - 50% R.H.)	kW	78,9	149,4	170,7	204,7	263,9
Sensible cooling capacity (27°C - 50% R.H.)	kW	52,1	98,7	112,1	134,7	174,2
SHR @ 27°C-50% U.R.	%	66	66	66	66	66
Water flow	m³/h	13,5	25,6	29,3	35,1	45,3
Pressure drop of chilled water coil	kPa	57	61	42	45	66
Pressure drop of 3-way valve	kPa	37	39	50	30	49
Total pressure drop (coil+3-way valve)	kPa	94	100	92	75	115
Total cooling capacity (24°C - 50% R.H.)	kW	52,7	100,1	113,6	136,2	178,1
Sensible cooling capacity (24°C - 50% R.H.)	kW	41,5	78,8	88,9	106,9	139,7
SHR @ 24°C-50% U.R.	%	79	79	78	78	78
Water flow	m³/h	9,0	17,2	19,5	23,4	30,6
Pressure drop of chilled water coil	kPa	29	32	21	23	34
Pressure drop of 3-way valve	kPa	17	18	24	14	24
Total pressure drop (coil+3-way valve)	kPa	46	50	45	37	58
Total cooling capacity (22°C - 50% R.H.)	kW	38,5	73,0	82,7	99,5	129,3
Sensible cooling capacity (22°C - 50% R.H.)	kW	33,1	62,6	70,8	85,3	110,5
SHR @ 22°C-50% U.R.	%	86	86	86	86	85
Water flow	m³/h	6,6	12,5	14,2	17,1	22,2
Pressure drop of chilled water coil	kPa	17	18	12	13	19
Pressure drop of 3-way valve	kPa	10	10	14	8	14
Total pressure drop (coil+3-way valve)	kPa	27	28	26	21	33
Internal volume of the coil	dm³	30,5	51,6	66,0	73,7	88,9
Cooling capacity - Water 9/14°C						
Total cooling capacity (27°C - 50% R.H.)	kW	62,5	118,5	135,6	162,3	209,7
Sensible cooling capacity (27°C - 50% R.H.)	kW	45,1	85,5	96,9	116,5	151,0
SHR @ 27°C-50% U.R.	%	72	72	71	72	72
Water flow	m³/h	10,7	20,4	23,3	27,9	36,0
Pressure drop of chilled water coil	kPa	38	40	30	30	43
Pressure drop of 3-way valve	kPa	24	26	31	20	31
Total pressure drop (coil+3-way valve)	kPa	62	66	61	50	74
Total cooling capacity (24°C - 50% R.H.)	kW	38,9	73,8	83,7	100,6	130,5
Sensible cooling capacity (24°C - 50% R.H.)	kW	33,1	62,6	70,7	85,3	110,4
SHR @ 24°C-50% U.R.	%	85	85	84	85	85
Water flow	m³/h	6,7	12,7	14,4	17,3	22,4
Pressure drop of chilled water coil	kPa	16	17	13	13	20
Pressure drop of 3-way valve	kPa	11	12	13	8	13
Total pressure drop (coil+3-way valve)	kPa	27	29	26	21	33
Total cooling capacity (22°C - 50% R.H.)	kW	31,8	60,4	68,3	82,1	107,3
Sensible cooling capacity (22°C - 50% R.H.)	kW	31,8	60,4	68,1	82,1	106,7
SHR @ 22°C-50% U.R.	%	100	100	100	100	99
Water flow	m³/h	5,5	10,4	11,7	14,1	18,4
Pressure drop of chilled water coil	kPa	12	13	9	10	14
Pressure drop of 3-way valve	kPa	7	7	9	5	9
Total pressure drop (coil+3-way valve)	kPa	19	20	18	15	23
Internal volume of the coil	dm³	30,5	51,6	66,0	73,7	88,9
EC Fans - HP (High pressure)						
Quantity	n.	1	2	2	3	4
Air flow	m³/h	9'000	17'000	19'000	23'000	30'000
Available pressure	Pa	20	20	20	20	20
Max available pressure (max ESP)	Pa	512	557	480	637	633
Rotation speed	rpm	1.200	1.155	1.235	1.069	1.069
Input power	kW	1,24	2,24	2,62	2,73	3,69
Sound pressure level @ 2 m	dB(A)	62	63	66	66	65
Sound pressure level @ 2 m (max ESP)	dB(A)	63	65	67	67	67

Size		860	1700	1900	2400	3000
Humidifier						
Steam production (nominal)	kg/h	8	8	8	15	15
Steam production (max)	kg/h	8	8	8	15	15
Maximum input power	kW	6	6	6	11,2	11,2
Maximum input current	A	8,7	8,7	8,7	16,2	16,2
Specific conductivity at 20°C (min/max)	µS/cm	300 / 1'250				
Total hardness (min/max)	mg/l CaCo3	100 / 400				
Electrical heaters						
Steps	n.	2	2	2	3	3
Power	kW	7,4	14,8	14,8	22,2	22,2
Input current	A	10,7	21,4	21,4	32	32
Hot water coil						
Heating capacity	kW	29,7	57,4	68,9	88,3	111,3
Water flow rate	m³/h	5,2	10,0	12,0	15,4	19,4
Pressure drop (coil+3-way valve)	kPa	62	60	67	66	83
Internal volume of the coil	dm³	8,2	14,6	16,6	18,6	18,6
Condensing water pump						
Nominal water flow	l/h	390	390	390	390	390
Max water flow (pressure = 0 m)	l/h	500	500	500	500	500
Max height (water flow = 0 m³/h)	m	5,4	5,4	5,4	5,4	5,4
Condensing water pump + humidifier						
Nominal water flow	l/h	600	600	600	600	600
Max water flow (pressure = 0 m)	l/h	900	900	900	900	900
Max height (water flow = 0 m³/h)	m	6,0	6,0	6,0	6,0	6,0
Power supply						
Power supply	V/ph/Hz	400 / 3 / 50 + T + N				

REMARKS: Fluid: water (glycol 0%) - Filters considered for 20% dirt - Max pressure is referred to the nominal air flow and the max tension/regulation - Hot water coil calculated for: water 40/45°C, ambient temperature 20°C and available pressure of 20 Pa - The condensing / condensing + humidifier water pump is calculated for a 2 m vertical difference in height respect to the pump; total length of the discharge pipe of 5 m, internal diameter of the flexible pipe of 12 mm - The sound pressure level is referred to the unit with ducted air inlet and discharge - Adjustable base-frame up to 950 mm max

Serie ACR Kc



Packaged air condensers with axial fans for external installation, especially designed to satisfy many refrigeration and air conditioning applications, so to reduce the overall noise level.

On request, the remote condensers can be provided with a condensing pressure control (option RG), by means of an actuated pressure fan speed controller, providing speed variation with a reduced full load current and allowing their operation down to -20°C. For lower temperatures down to -40°C, it is necessary to select option BW.

The following versions are available:

1-circuit

- ACR Kc** standard version (4/6 pole fans)
- ACR LN Kc** silenced version (6/8 pole fans)
- ACR SL Kc** ultra-silenced version (6/8 pole fans)

2-circuits

- ACR/2 Kc** standard version (4/6 pole fans)
- ACR LN/2 Kc** silenced version (6/8 pole fans)
- ACR SL/2 Kc** Ultra-silenced version (6/8 pole fans)

Operation limits: external air temperature from +15 to +42°C.

Main components:

Casing built using modular components in warm galvanized steel, powder painted (standard colour: RAL 9002), resistant to corrosive agents up to corrosion class C5. The cuvettes are protected by a safety panel fixed to the structure. All operations necessary for manufacturing components (punching, drilling, bending) are performed prior to painting: maximum protection against rust is thus guaranteed. Mounting elements (screws, threaded inserts, rivets, washers and nuts) are all in stainless steel. The kit for vertical airflow is standard provided.

Coil built using copper pipes mechanically expanded on high efficiency aluminium fins separated by 2.1 mm. Tiles are in warm galvanized steel while sides are in aluminium to prevent pipe damage due to thermal expansion. Circuits are designed for counter flow. Manifolds are in copper. Test pressure (with dry air): 30 bars. Test pressure (with dry air) for use with R410a: 45 bars.

AC Single phase **axial fans**, thermally protected, permanently lubricated, statically and dynamically balanced, single speed, class B and F insulation; built-in thermal contact, IP54 protection. Power and sound pressure reference levels (free field conditions) for each fan are declared by the fan manufacturer according to EN13487 standards.

Condensers are standard provided with:

Electrical main switch realized in a switchboard box in plastic material resistant to UV rays, box protection class IP55, with cables suitable for outdoor and complete with fans wiring.

Accessories

BW

Low temperature operation down to -40 °C: in order to allow operation down to such external air temperature, we provide a kit of components to be installed close to the re-

IM

mote condenser including: liquid receiver, condensing control valve, non-return valve, safety valve.

RG

Seawood packing: fumigated seawood case and protection bag with hygroscopic salts, suitable for long sea transports.

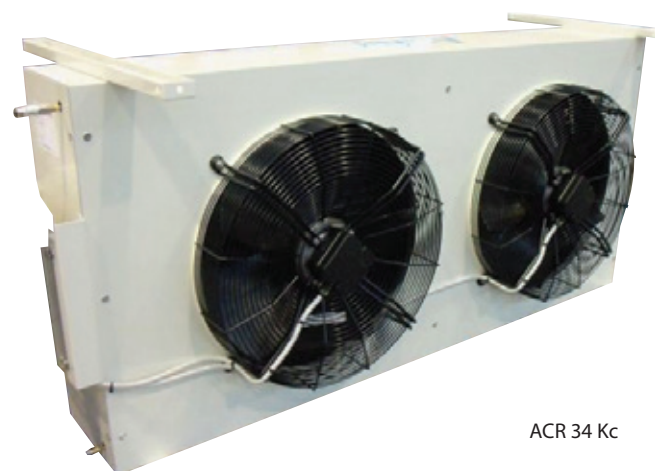
RM

Condensing pressure control: for operation down to -20°C external air, on the indoor unit we provide a voltage fans speed controller, already factory set.

RR

Condensing coil with pre-painted fins: superficial treatment of the condensing coils realized in epoxy pre-painted aluminium material.

Copper/copper condensing coils: special execution of the condensing coils with copper pipe and fins.



ACR 34 Kc

ACR Kc - Technical data - ACR (Standard) - 1-circuit version

Size		9	12	19	22	29	34	47	55	64	73	97	114	137	183		
Heating rejection																	
Power	kW	7,5	10,0	17,1	20,3	26,7	32,1	42,8	51,4	59,9	68,5	91,0	107,0	128,4	171,2		
Axial fans																	
Quantity	n.	1	1	1	1	3	2	2	2	4	4	4	3	3	4		
Rotation speed	rpm	1'400	1'400	1'300	1'300	1'400	1'300	1'300	1'300	1'300	1'300	1'300	860	860	860		
Air flow	m³/h	2'300	5'000	5'900	5'500	6'900	11'800	11'000	9'800	23'600	23'600	20'800	30'300	29'400	39'200		
Motor input power	kW	0,13	0,13	0,49	0,49	0,39	0,98	0,98	0,98	1,96	1,96	1,96	1,8	1,8	2,4		
Input current	A	0,58	0,58	2,1	2,1	1,74	4,2	4,2	4,2	8,4	8,4	8,4	7,86	7,86	10,48		
Diameter	mm	350	350	450	450	350	450	450	450	450	450	450	630	630	630		
Sound pressure level																	
Sound pressure at 10 m	dB(A)	39	39	41	41	45	44	44	44	47	47	47	43	43	44		
Dimensions																	
Length	mm	857	857	1.092	1.092	1.792	1.792	1.792	1.792	1.792	1.792	1.792	4.232	4.232	5.425		
Width	mm	670	670	670	670	670	670	670	670	670	670	670	670	800	800		
Height	mm	555	555	755	755	555	755	755	755	1'454	1'454	1'454	1.230	1.230	1.230		
Length (vertical air flow)	mm	857	857	1.092	1.092	1.792	1.792	1.792	1.792	1.792	1.792	1.792	4.232	4.232	5.425		
Width (vertical air flow)	mm	575	575	775	775	575	775	775	775	1'474	1'474	1'474	1'250	1'250	1'250		
Height (vertical air flow)	mm	795	795	795	795	795	795	795	795	795	795	795	1'270	1'270	1'270		
Transport weight	kg	15	17	31	34	41	56	62	74	115	115	140	200	225	305		
IN/OUT connections	Ø	18 / 16						22 / 18				28 / 22		42 / 35		54 / 42	
Electrical power supply																	
Electrical power supply	V / ph / Hz	230 / 1 / 50 + T															

REMARKS: Selected for external air temperature of 35°C - Sound pressure level measured at 10 m in open field (ISO 3744)

ACR Kc - Technical data - ACR LN (Silenced) - 1-circuit version

Size		8	14	18	23	30	34	46	55	73	97	114	137	183
Heating rejection														
Power	kW	7,5	12,8	17,1	20,3	26,7	32,1	42,8	51,4	68,5	90,9	107,0	128,4	171,2
Axial fans														
Quantity	n.	1	1	1	1	2	2	2	4	4	2	3	4	4
Rotation speed	rpm	945	900	900	915	900	900	915	900	900	860	670	670	670
Air flow	m³/h	1'400	4'000	3'700	4'100	8'000	7'400	8'200	16'000	14'800	19'600	22'500	31'200	28'000
Motor input power	kW	0,065	0,19	0,19	0,27	0,38	0,38	0,54	0,76	0,76	1,2	1,02	1,36	1,36
Input current	A	0,31	0,86	0,86	1,18	1,72	1,72	2,36	3,44	3,44	5,24	5,16	6,88	6,88
Diameter	mm	350	450	900	500	450	450	500	450	450	630	630	630	630
Sound pressure level														
Sound pressure at 10 m	dB(A)	29	34	34	35	37	37	38	40	40	41	38	39	39
Dimensions														
Length	mm	857	1092	1092	1092	1.792	1.792	1.792	1.792	1.792	3.030	4.232	5.425	5.425
Width	mm	670	670	670	670	670	670	670	670	670	670	670	800	800
Height	mm	555	755	755	755	755	755	755	1.454	1.454	1.230	1.230	1.230	1.230
Length (vertical air flow)	mm	857	1.092	1.092	1.092	1.792	1.792	1.792	1.792	1.792	3.030	4.232	5.425	5.425
Width (vertical air flow)	mm	575	775	775	775	775	775	775	1.474	1.474	1.250	1.250	1.250	1.250
Height (vertical air flow)	mm	795	795	795	795	795	795	795	795	795	1.270	1.270	1.270	1.270
Transport weight	kg	17	31	34	44	56	62	82	115	125	155	225	265	380
IN/OUT connections	Ø	18 / 16					22 / 18			28 / 22	42 / 35	54 / 42	42 / 35	54 / 42
Electrical power supply														
Electrical power supply	V / ph / Hz	230 / 1 / 50 + T												

REMARKS: Selected for external air temperature of 35°C - Sound pressure level measured at 10 m in open field (ISO 3744)

REMOTE CONDENSERS WITH AXIAL FANS FOR R410A

ACR Kc - Technical data - ACR SL (Ultrasilenced) - 1-circuit version

Size		11	14	17	22	29	34	46	55	64	73	92
Heating rejection												
Power	kW	10,7	12,8	16,1	20,3	27,5	32,1	42,8	51,4	60,0	68,5	85,7
Axial fans												
Quantity	n.	1	1	1	2	2	2	4	4	2	2	2
Rotation speed	rpm	720	720	665	720	665	665	720	720	670	670	670
Air flow	m³/h	3'000	2'800	3'700	6'000	6'400	5'800	12'000	11'200	15'600	15'000	14'000
Motor input power	kW	0,12	0,12	0,13	0,24	0,26	0,26	0,48	0,48	0,68	0,68	0,68
Input current	A	0,53	0,53	0,59	1,06	1,18	1,18	2,12	2,12	3,44	3,44	3,44
Diameter	mm	450	450	500	450	500	500	450	450	630	630	630
Sound pressure level												
Sound pressure at 10 m	dB(A)	30	30	29	34	32	32	37	37	36	36	36
Dimensions												
Length	mm	1.092	1.092	1.092	1.792	1.792	1.792	1.792	1.792	3.030	3.030	3.030
Width	mm	670	670	670	670	670	670	670	670	800	800	800
Height	mm	755	755	755	755	755	755	1.454	1.454	1.230	1.230	1.230
Length (vertical air flow)	mm	1.092	1.092	1.092	1.092	1.092	1.092	1.792	1.792	3.030	3.030	3.030
Width (vertical air flow)	mm	775	775	775	775	775	775	1.474	1.474	1.250	1.250	1.250
Height (vertical air flow)	mm	795	795	795	795	795	795	795	795	1.270	1.270	1.270
Transport weight	kg	31	34	44	56	76	82	115	125	140	155	195
IN/OUT connections	Ø	18 / 16				22 / 18			28 / 22		42 / 35	
Electrical power supply												
Electrical power supply	V / ph / Hz	230 / 1 / 50 + T										

REMARKS: Selected for external air temperature of 35°C - Sound pressure level measured at 10 m in open field (ISO 3744)

ACR Kc - Technical data - ACR/2 (Standard) - 2-circuit version

Size		40/2	50/2	70/2	80/2	101/2	120/2	143/2	183/2	229/2
Heating rejection										
Power	kW	37,4	47,1	65,3	74,9	94,2	112,4	133,8	171,2	214
Axial fans										
Quantity	n.	2	2	4	4	4	3	3	4	4
Rotation speed	rpm	1'300	1'300	1'300	1'300	1'300	860	860	860	860
Air flow	m³/h	11'000	10'400	23'600	22'000	20'800	29'400	28'500	39'200	36'800
Motor input power	kW	0,98	0,98	1,96	1,96	1,96	1,8	1,8	2,4	2,4
Input current	A	4,2	4,2	8,4	8,4	8,4	7,86	7,86	10,48	10,48
Diameter	mm	450	450	450	450	450	630	630	630	630
Sound pressure level										
Sound pressure at 10 m	dB(A)	44	44	47	47	47	43	43	44	44
Dimensions										
Length	mm	1.792	1.792	1.792	1.792	1.792	4.232	4.232	5.425	5.425
Width	mm	670	670	670	670	670	800	800	800	800
Height	mm	755	755	1.454	1.454	1.454	1.230	1.230	1.230	1.230
Length (vertical air flow)	mm	1.792	1.792	1.792	1.792	1.792	4.232	4.232	5.425	5.425
Width (vertical air flow)	mm	775	775	1.474	1.474	1.474	1.250	1.250	1.250	1.250
Height (vertical air flow)	mm	795	795	795	795	795	1.270	1.270	1.270	1.270
Transport weight	kg	62	68	115	125	140	225	255	305	380
IN/OUT connections	Ø	2x22 / 2x18					2x42 / 2x35			
Electrical power supply										
Electrical power supply	V / ph / Hz	230 / 1 / 50 + T								

REMARKS: Selected for external air temperature of 35°C - Sound pressure level measured at 10 m in open field (ISO 3744)

ACR Kc - Technical data - ACR LN/2 (Silenced)- 2-circuit version

Size		40/2	60/2	70/2	80/2	101/2	120/2	143/2	183/2
Heating rejection									
Power	kW	37,4	55,6	65,3	74,9	94,2	112,3	133,8	171,2
Axial fans									
Quantity	n.	2	4	4	2	2	3	4	4
Rotation speed	rpm	915	900	900	860	860	670	670	670
Air flow	m³/h	8'200	16'000	14'800	20'200	19'000	22'500	30'000	28'000
Motor input power	kW	0,54	0,76	0,76	1,2	1,2	1,02	1,36	1,36
Input current	A	2,36	3,44	3,44	5,24	5,24	5,16	6,88	6,88
Diameter	mm	500	450	630	630	630	630	630	630
Sound pressure level									
Sound pressure at 10 m	dB(A)	38	40	40	41	41	38	39	39
Dimensions									
Length	mm	1.792	1.792	1.792	3.030	3.030	4.232	5.425	5.425
Width	mm	670	670	670	800	800	800	800	800
Height	mm	755	1.454	1.454	1.230	1.230	1.230	1.230	1.230
Length (vertical air flow)	mm	1.792	1.792	1.792	3.030	3.030	4.232	5.425	5.425
Width (vertical air flow)	mm	775	1.474	1.474	1.250	1.250	1.250	1.250	1.250
Height (vertical air flow)	mm	795	795	795	1.270	1.270	1.270	1.270	1.270
Transport weight	kg	82	115	125	140	175	225	305	380
IN/OUT connections	Ø	2x22 / 2x18					2x42 / 2x35		
Electrical power supply									
Electrical power supply	V / ph / Hz	230 / 1 / 50 + T							

REMARKS: Selected for external air temperature of 35°C - Sound pressure level measured at 10 m in open field (ISO 3744)

ACR Kc - Technical data - ACR SL/2 (Ultrasilenced)- 2-circuit version

Size		40/2	46/2	60/2	70/2	80/2	100/2
Heating rejection							
Power	kW	37,4	42,8	56	65,4	74,9	93,5
Axial fans							
Quantity	n.	1	1	2	2	2	3
Rotation speed	rpm	670	670	670	670	670	670
Air flow	m³/h	7'500	7'000	15'600	15'000	14'400	23'400
Motor input power	kW	0,34	0,34	0,68	0,68	0,68	1,02
Input current	A	1,72	1,72	3,44	3,44	3,44	5,16
Diameter	mm	630	630	630	630	630	630
Sound pressure level							
Sound pressure at 10 m	dB(A)	33	33	36	36	36	38
Dimensions							
Length	mm	1.824	1.824	3.030	3.030	3.030	4.232
Width	mm	800	800	800	800	800	800
Height	mm	1.230	1.230	1.230	1.230	1.230	1.230
Length (vertical air flow)	mm	1.824	1.824	3.030	3.030	3.030	4.232
Width (vertical air flow)	mm	1.250	1.250	1.250	1.250	1.250	1.250
Height (vertical air flow)	mm	1.270	1.270	1.270	1.270	1.270	1.270
Transport weight	kg	88	115	140	155	175	200
IN/OUT connections	Ø	2x22 / 2x18					2x28 / 2x22
Electrical power supply							
Electrical power supply	V / ph / Hz	230 / 1 / 50 + T					

REMARKS: Selected for external air temperature of 35°C - Sound pressure level measured at 10 m in open field (ISO 3744)

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