Computer Room Air Conditioning

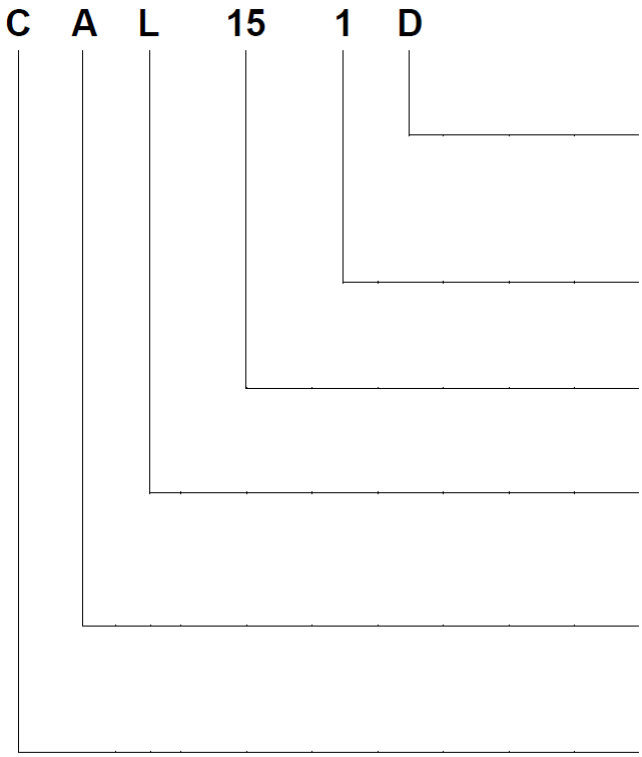
CLIMA PROCESSOR

Close Control Air Conditioners

DIRECT EXPANSION CA / CW

Close Control Air Conditioners
DIRECT EXPANSION CA/CW

UNITS IDENTIFICATION CODE



Direzione Flusso Aria **D=** Verso il basso **U**=Verso l'alto
Ripresa Aria **R=** Retro **B=** Dal Basso
Air Flow Direction ***D=*** *Down-flow* ***U=*** *Up-flow*
Return Air ***R=*** *Rear* ***B=*** *Bottom*

Numero Circuiti **1** o 2
Numbers of Circuit ***1*** *or* ***2***

Potenza Totale Compressori **02.....30**
Total Compressor Power ***01.....30***

Profondità Carpenteria **S**= Piccola **M**= Media **L**= Grande
Frame Width ***S****= Small* ***M****= Medium* ***L****= Large*

Configurazione Unità **A** Condensatore ad Aria Remoto
A *Remote Air Cooled Condenser*
Unit Configuration **W** Condensazione ad Acqua
W *Water Cooled*

Serie **CLIMA PROCESSOR**
CLIMA PROCESSOR *Series*

TECHNICAL SPECIFICATION

CA/W CLIMA PROCESSOR is a direct expansion Close Control air conditioning air or water condensed.
Designed for technical application like computers rooms, data centers, digital telephone exchangers, switch rooms, weather stations, museum, medical laboratories, CAT and MR scanners as well as any other application with sensible heat to be dissipated without effecting on the relative humidity.
Design criteria is to minimize their footprint and assure full frontal access for easy inspection and service.
Available with up or down flow version with a complete range of accessories.
Reduced noise level and fined tuned regulation by using scroll compressors and last generation of the EC plug-in radial fans.
Available with BLDC Inverter compressor.

CA Series

STANDARD VERSION

CASING: painted galvanized steel. External panels and doors painted with epoxy powder anthracite grey colour. Doors are mounted on hingers and equipped with easy to open lock with safety key. Lateral and rear panels removable without special tools

INTERNAL ACOUSTIC AND THERMAL INSULATION polyurethane, class 1 self-extinguishing anti dripping (UL94-HF1), density of 30 Kg/m3 and thermal conductivity of 0,033 W/m°C.Insulation thickness of 20mm on external panels, 15mm on internal panel

AIR-TIGHT GASKETS dual density polyurethane.

CONDENSATE DRY PAN: stainless steel.

DIRECT EXPANSION COIL, copper tubes, aluminium fins with hydrophilic treatment.

COMPRESSOR, Scroll type

BLDC COMPRESSOR (OPTION)

AIR FILTER, G4 efficiency as per EN779, washable manufactured in synthetic fibre, with stainless steel frame,.

FAN "EC"PLUG-IN type, single inlet, backward blades composite impeller, directly coupled to electric motor external rotor type **Electronically Commuted** for low energy consumption and 50/60 Hz application.

AIR FLOW PRESSURE SWITCH

REFRIGERANT DEHIDRATING FILTER

LIQUID SIGH-GLASS with colour change moisture indicator

MECHANICAL EXPANSION VALVE, with external pressure equalizer

ELECTRONIC EXPANSION VALVE (OPTIONAL)

SAFETY OVER PRESSURE VALVE.

LIQUID RECEIVER,
GLOBE VALVES
COPPER PIPING

ELECTRICAL CONTROL PANEL complete with:

- Main interlocking power switch.
- Circuits bracker protections for each single load.
- Fan motor Automatic switch.
- Transformer for auxiliary services.
- Components and wiring in compliance with applicable IEC Norms.

MICROPROCESSOR CONTROL, for unit management, with the following characteristics:

- room air temperature control with an accuracy of +/-0,5°K by the start/stop of the compressor/s or modulating the three-way valve or activating the electric heaters (the latter two are options)
- supply air temperature limit (optional)
- management of all alarm conditions
- remote start-stop
- general alarm
- LAN connection
- Password

USER INTERFACE, to display the unit conditions, status and operating parameters, with the following characteristics:

- room temperature and temperature set-point for supply air
- operating parameters
- control keyboard with two levels of “menù” under “password”
- alarm reset and unit set-up
- clock module
- on/off safety switch
- watchdog function

R410A REFRIGERANT AND OIL CHARGE (anti freeze oil type).

FACTORY TESTS AND INSPECTION

Close Control Air Conditioners
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Down flow unit

WATER COOLED CONDENSER W

Direct expansion packaged water cooled unit, condensing water from cooling tower, spring water or city water. It is recommended to use a water-regulating (differential pressure) valve in case of city or spring water to reduce water consumption.

The unit, as described above, is complete with:

CONDENSER, water cooled plate heat exchanger, braze-welded stainless steel plates

REMOTE AIR COOLED CONDENSER

CN Series

CASING aluminium sheet with a thickness of 1,5mm, coated with an epoxy powder paint RAL 9004.

AXIAL FAN, with aluminium blades statically and dynamically balanced, directly coupled to a 4 or 6 pole electric motor, external rotor type, with internal overload protection and special water-proof gaskets, and maintenance free self-lubricating bearings. Safety grill on air discharge.

CONDENSING COIL, copper tubes mechanically expanded into aluminium fins. Headers in copper, liquid header complete with “Schrader” valves.

GLOBE VALVES for piping connections.

SUPPORTING LEGS for horizontal field assembly and vertical air flow through condenser (CNV).

SAFETY CHARGE of nitrogen.

FACTORY TESTING AND INSPECTION.

ACCESSORIES and OPTIONS

DIFFERENTIAL PRESSURE SWITCH for clogged filter alarm.

WATER LEAKAGE ALARM complete with relays and two sensors to be field installed within the raised floor void.

SMOKE ALARM consisting of an optical sensor Tyndall effect that detects the presence of smoke and an AC/DC converter; it is directly wired to the microprocessor. Cannot be used with Fire Alarm

ADDITIONAL ALARMS OR SIGNALS to be defined at the order entry

FIRE ALARM, consisting of a thermal sensor that detect the presence of fire, an AC/DC converter and is directly wired to the microprocessor. Cannot be used with Smoke Alarm

ELECTRIC REHEATING COIL, one or three stages having heating power suitable to the unit size and manufactured in armoured finned stainless steel elements; complete with contactor, thermal overload protection and safety thermostat. The electric reheat is controlled directly by the microprocessor. Cannot be used with hot water reheating coil

HOT WATER REHEATING COIL with copper tubes mechanically expanded into aluminium fins, rust-proof frame. Available with one row. Cannot be used with electric heater

THREE WAY VALVE, complete with a floating electric actuator, mounted as diverting the return of the hot water. The valve is insulated with a thermal shell vapour proof

STEAM HUMIDIFIER, with immersed electrodes and modulating control, complete with filling solenoid valve and discharge pump, humidity probe mounted on return air and microprocessor control card giving a +/-3% accurancy at 24°C. It include the dehumidification system also.

FRESH AIR INTAKE KIT, supplied separately as a kit for assembly on site. It is composed of a container with G4 air filter; the container has a circular connection (80mm diam.) for the customer's fresh air duct. Any drilling and all flexible ducting with diameter of 100mm are to be supplied by the contractor. Max available air flow 0,04 m3/sec.

REAR RETURN AIR INTAKE PLENUM, only for up-flow models, h=300 for S and M frames and h=500, made in galvanized steel sheet painted with epoxy powder anthracite gray colour and internally lined with open-cell polyurethane foam to insulate acoustically and thermally, complete with return air grille and filter support and G4 air filters for L frame. Units will be supplied with closed inspection doors.

AIR DELIVERY PLENUM made in galvanized steel sheet painted with epoxy powder anthracite gray colour and internally lined with open-cell polyurethane foam to insulate acoustically and thermally, complete with air deflector and grill with a double row of adjustable vanes. Can be supplied having 300 or 500mm height.

FREE-COOLING PLENUM to utilize the outdoor air made in galvanized steel sheet painted with epoxy powder anthracite gray colour and internally lined with open-cell polyurethane foam to insulate acoustically and thermally, complete with dampers on return and outdoor air and proportional actuators. Temperature probe on outdoor air

BASE FRAME made in sturdy painted steel profiles and equipped with adjustable pedestals (adjustment of 25 mm) and air deflector. The height, has to be indicated by the customer when ordered, and can be between minimum 150 and maximum 700mm.

NON-RETURN DAMPER, gravity type for up-flow models only with aluminium fins fitted on nylon bushings.

INSULATION DAMPER in aluminum sheet, opposite blades type, nylon bushes, complete with on/off electric actuator

"EC HIGH PRESSURE" PLUG-FAN, single inlet, backward blades composite impeller, directly coupled to oversized electric motor external rotor type **Electronically Commuted** for high performances, low energy consumption and 50/60 Hz application

ELECTRONIC ACTUATED EXPANSION VALVE, complete with driver, refrigerant pressure transmitter, superheated gas temperature transmitter. Advanced Microprocessor is mandatory

REMOTE DISPAY, wall mounted, only for advanced microprocessor, complete with two communication connectors. It can be communicate up to 4 units equipped with Advanced Microprocessor. Connection in charge to the mechanical contractor.

ADDITIONAL TEMPERATURE PROBE for supply air limit with Standard Microprocessor or supply air limit and water temperature reading on Advanced Microprocessor. Function has to defined at the order entry.

AIR DIFFERENTIAL PRESSURE TRANSMITTER for supply air fan speed control

HUMIDITY PROBE, for relative humidity value reading only or

mandatory for the activation of dehumidification wit "EC" fans

SERIAL OUTPUT CARD RS 485 for MODBUS communication protocol

SERIAL OUTPUT CARD RS485 for communication protocol **LON FTT10**

SERIAL OUTPUT CARD RS485 for communication protocol **BACnet MSTP**

SERIAL OUTPUT CARD RS485 for communication protocol **BACnet ETHERNET, IP SNMP, FTP e HTTP**

AIR FILTER with F5 or F7 as per EN779 efficiency instead of the standard filters. Made in synthetic fiber with carton frame; the filters are not washable.

SPECIAL COILS with a treated surface against corrosion.

R134a or R407C SPECIAL REFRIGERANT

SPECIAL PAINTING include also the changing of the standard colour only. It has to be preliminarily approved

INTERNAL LININIG in two layers of open-cell polyurethane foam, thickness of 20 mm, with a rubber sheet (weight of 5,8 Kg/m2) between the layers. This lining has the same thermal insulation characteristics of the standard lining and reduces by 4 dB (A) the noise level of the unit.

SANDWICH PANELS with galvanized steel epoxy painted on the outside and plain galvanized steel on the inside. Thermal insulation between the two steel sheets is in polyurethane foam class1, non- flammable. It has the same thermal insulation characteristics of the standard panels and reduces by 4 dB (A) the noise level of the unit. Can be used when high pressure fans are required

MOISTURE EVACUATION PUMP

WOODEN CRATE fumigated

PRESSURE ACTUATED WATER REGULATING VALVE, to control the condensing pressure can be used with water cooled version

MODULATING CONDENSING PRESSURE CONTROL, (low ambient kit) using a continuous variation of the fan motor speed. With this accessory it is possible to operate with outdoor temperatures up to –15°C with a vertical air flow.

VERY LOW OUTDOOR TEMPERATURE CONDENSING PRESSURE CONTROL for operating up to -30°C to be fitted on remote condenser and include: liquid receiver, flooding valve, check valve, safety valve and casing. The fan speed control has to be included and will be fitted on internal unit. Refrigerant charge assembly and refrigerant piping in charge to the mechanical contractor

BLDC COMPRESSORS WITH INVERTER

Close Control Air Conditioners
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TAB 1 ***MAIN TECHNICAL DATA***

SERIE C A/W ***SERIES***	**GRANDEZZA** ***SIZE***		**S011**	**S021**	**M031**	**M041**	**M051**	**M061**	**M071**
VERSIONE **W** ***W VERSION***	POTENZIALITA' FRIGORIFERA TOTALE *TOTAL COOLING CAPACITY* (1)	kW	5,9	8,7	12,7	15,0	18,3	21,4	25,6
	POTENZIALITA' FRIGORIFERA SENSIBILE *TOTAL COOLING CAPACITY* (1)	kW	5,8	8,3	11,6	12,5	17,1	18,4	24,4
	POTENZA ASSORBITA *POWER INPUT* (1)	kW	1,2	2,2	2,5	2,8	3,4	4,0	4,7
VERSIONE **A** ***A VERSION***	POTENZIALITA' FRIGORIFERA TOTALE *TOTAL COOLING CAPACITY* (2)	kW	5,4	8,1	10,8	13,2	15,9	18,8	22,1
	POTENZIALITA' FRIGORIFERA SENSIBILE *TOTAL COOLING CAPACITY* (2)	kW	5,4	8,1	10,8	11,8	15,7	17,3	21,9
	POTENZA ASSORBITA *POWER INPUT* (2)	kW	1,4	2,3	3,2	3,6	4,3	5,2	6,1
VENTILATORE **EC** STANDARD *STANDARDSUPPLY* ***EC*** *FAN*	PORTATA ARIA NOMINALE *NOMINAL AIR FLOW*	m^3/h	2.000	2.300	3.000	3.000	4.500	4.500	6.500
	NUMERO E GRANDEZZA VENTILATORE *FAN NUMBER AND SIZE*	n	1x310	1x310	1x400	1x400	1x400	1x400	1x500
	PREVALENZA STATICA UTILE min/ max *EXTERNAL STATIC PRESSURE min/max*	Pa	20/160	20/160	20/510	20/480	20/320	20/290	20/110
	POTENZA ELETTRICA ASSORBITA min/max *ENGAGED ELECTRIC POWER min/max*	kW	0,2/0,4	0,2/0,4	0,5/1,3	0,5/1,3	0,7/1,3	0,8/1,3	0,6/1,0
BATTERIA EVAPORANTE *COOLING COIL*	SUPERFICIE FRONTALE *FACE AREA*	m^2	0,26	0,38	0,31	0,31	0,47	0,47	0,75
	NUMERO RANGHI *NUMBER OF ROWS*	N	2	2	3	4	3	4	3
	PASSO ALETTE *FIN SPACING*	mm	1,6	1,6	1,6	1,6	1,6	1,6	1,6
COMPRESSORE *COMPRESSOR*	NUMERO COMPRESSORI *NUMBER OF COMPRESSORS*	N	1	1	1	1	1	1	1
	POTENZA NOMINALE COMPRESSORE *NOMINAL COMPRESSOR POWER*	HP	1,8	2,5	3,5	4	5	6	7
CONDENSATORE AD ACQUA *WATER COOLED. CONDEND.*	PORTATA ACQUA *WATER FLOW*	m^3/h	1,22	1,93	2,6	3,7	3,71	4,4	5,22
	PERDITA DI CARICO *WATER PRESSURE DROP*	kPa	4	11	9	8	11	10	11
CONDENSATORE AD ARIA MOD *AIR COOLED CONDENSER MODEL*		CN	008	011	015	022	022	024	031
CARICA OLIO PER CIRCUITO *OIL CHARGE PER CIRCUIT*		L	0,52	1,35	1,7	1,7	1,7	1,7	1,7
CARICA DI REFRIGERANTE *REFRIGERANT. CHARGE.*	VERSIONE **W** ***W VERSION***	kg	0,5	0,6	1	1	1,4	1,7	1,7
	VERSIONE **A** ***A VERSION***	kg	1,4	2,0	3,2	3,2	4,5	5,4	6,3
LIVELLO DI PRESSIONE SONORA *SOUND PRESSURE LEVEL*	ASCENDENTE/*UP-FLOW*	dB(A)	50	51	53	53	55	55	56
	DISCENDENTE/*DOWN-FLOW* (3)		46	47	49	49	51	51	52
DIMENSIONI *DIMENSIONS*	LUNGHEZZA *LENGTH*	mm	650	850	650	650	850	850	1236
	LARGHEZZA *WIDTH*	mm	470		670				
	ALTEZZA *HEIGHT*	mm	1980						
PESO IN FUNZIONAMENTO *OPERATING WEIGHT*	CONDENSAZIONE AD ACQUA *WATER COOLED*	Kg	145	165	190	195	220	240	390
	CONDENSAZIONE AD ARIA REMOTA *REMOTE AIR COOLED*	Kg	140	160	180	185	210	230	370

Prestazioni riferite a : *Capacities referred to:*

(1) **Condizioni ambiente** +24°C/ 50%UR — Temperatura acqua al condensatore +30/35°C
Room air conditions *+24°C/ 50%RH* — *Condensing water temperature* *+30/35°C*

(2) **Condizioni ambiente** +24°C/ 50%UR — Temperatura aria esterna +32°C
Room air conditions *+24°C/ 50%RH* — *External air temperature* *+32°C*
Condizioni ambiente +24°C/ 50%UR — Temperatura acqua al raffreddatore +40/45°C
Room air conditions *+24°C/ 50%RH* — *Dry-cooler water temperature* *+40/45°C*

(3) Livelli di pressione sonora misurati a 2 mt dal fronte macchina, ad 1 m da terra, in campo libero, portata ana nominale 20Pa
Sound pressure level measured a 2 mt from the machine, 1 m from the ground, in free field conditions, nominal air flow 20Pa ESP

The fan power input has not been subtracted from the capacities indicated above

Close Control Air Conditioners
DIRECT EXPANSION CA/CW

TAB 1 ***MAIN TECHNICAL DATA***

SERIE C A/W ***SERIES***	**GRANDEZZA** ***SIZE***		**M081**	**M082**	**M101**	**M102**	**M111**	**M121**	**M122**
VERSIONE **W** ***W VERSION***	POTENZIALITA' FRIGORIFERA TOTALE *TOTAL COOLING CAPACITY* (1)	kW	28,5	31,0	31,9	36,4	38,9	40,9	42,8
	POTENZIALITA' FRIGORIFERA SENSIBILE *TOTAL COOLING CAPACITY* (1)	kW	25,1	26,1	31,6	33,7	34,7	39,0	39,8
	POTENZA ASSORBITA *POWER INPUT* (1)	kW	5,3	5,6	6,1	6,8	7,1	7,8	8,1
VERSIONE **A** ***A VERSION***	POTENZIALITA' FRIGORIFERA TOTALE *TOTAL COOLING CAPACITY* (2)	kW	25,7	27,7	29,2	31,5	34,9	35,8	36,4
	POTENZIALITA' FRIGORIFERA SENSIBILE *TOTAL COOLING CAPACITY* (2)	kW	24,0	24,8	29,0	31,2	33,1	35,5	36,1
	POTENZA ASSORBITA *POWER INPUT* (2)	kW	6,7	7,2	7,8	8,6	9,0	9,9	10,3
VENTILATORE **EC** STANDARD *STANDARDSUPPLY* ***EC*** *FAN*	PORTATA ARIA NOMINALE *NOMINAL AIR FLOW*	m^3/h	6300	6300	8800	8800	8800	10400	10400
	NUMERO E GRANDEZZA VENTILATORE *FAN NUMBER AND SIZE*	n	1x500	1x500	2x400	2x400	2x400	2x450	2x450
	PREVALENZA STATICA UTILE min/ max *EXTERNAL STATIC PRESSURE min/max*	Pa	20/130	20/130	20/340	20/340	20/310	20/240	20/240
	POTENZA ELETTRICA ASSORBITA min/max *ENGAGED ELECTRIC POWER min/max*	kW	0,6/1,1	0,6/1,1	1,4/2,8	1,4/2,8	1,4/2,6	1,8/2,8	1,8/2,8
BATTERIA EVAPORANTE *COOLING COIL*	SUPERFICIE FRONTALE *FACE AREA*	m^2	0,75	0,75	0,91	0,91	0,91	1,07	1,07
	NUMERO RANGHI *NUMBER OF ROWS*	N	4	4	3	3	4	3	3
	PASSO ALETTE *FIN SPACING*	mm	1,6	1,6	1,6	1,6	1,6	1,6	1,6
COMPRESSORE *COMPRESSOR*	NUMERO COMPRESSORI *NUMBER OF COMPRESSORS*	N	1	2	1	2	1	1	2
	POTENZA NOMINALE COMPRESSORE *NOMINAL COMPRESSOR POWER*	HP	8	2x4	10	2x5	11	12	2x6
CONDENSATORE AD ACQUA *WATER COOLED. CONDEND.*	PORTATA ACQUA *WATER FLOW*	m^3/h	5,82	6,32	6,7	7,39	7,79	8,29	8,67
	PERDITA DI CARICO *WATER PRESSURE DROP*	kPa	13	8	14	11	15	15	10
CONDENSATORE AD ARIA MOD *AIR COOLED CONDENSER MODEL*		CN	031	2x022	046	2x022	046	046	2x024
CARICA OLIO PER CIRCUITO *OIL CHARGE PER CIRCUIT*		L	2,8	2x1,7	2,8	2x1,7	2,8	2,8	2x1,7
CARICA DI REFRIGERANTE *REFRIGERANT. CHARGE.*	VERSIONE **W** ***W VERSION***	kg	2,2	2,2	2,8	2,8	3,1	3,4	3,4
	VERSIONE **A** ***A VERSION***	kg	7,2	7,2	9,0	9,0	9,9	10,8	10,8
LIVELLO DI PRESSIONE SONORA *SOUND PRESSURE LEVEL*	ASCENDENTE/*UP-FLOW*	dB(A)	56	57	58	60	59	60	61
	DISCENDENTE/*DOWN-FLOW* (3)		52	53	54	56	55	56	57
DIMENSIONI *DIMENSIONS*	LUNGHEZZA *LENGTH*	mm	1236	1236	1436	1436	1436	1636	1636
	LARGHEZZA *WIDTH*	mm	670						
	ALTEZZA *HEIGHT*	mm	1980						
PESO IN FUNZIONAMENTO *OPERATING WEIGHT*	CONDENSAZIONE AD ACQUA *WATER COOLED*	Kg	395	410	430	450	430	475	485
	CONDENSAZIONE AD ARIA REMOTA *REMOTE AIR COOLED*	Kg	375	390	410	430	410	450	460

Prestazioni riferite a : *Capacities referred to:*

(1) **Condizioni ambiente** +24°C/ 50%UR — Temperatura acqua al condensatore +30/35°C
Room air conditions *+24°C/ 50%RH* — *Condensing water temperature* *+30/35°C*

(2) **Condizioni ambiente** +24°C/ 50%UR — Temperatura aria esterna +32°C
Room air conditions *+24°C/ 50%RH* — *External air temperature* *+32°C*
Condizioni ambiente +24°C/ 50%UR — Temperatura acqua al raffreddatore +40/45°C
Room air conditions *+24°C/ 50%RH* — *Dry-cooler water temperature* *+40/45°C*

(3) Livelli di pressione sonora misurati a 2 mt dal fronte macchina, ad 1 m da terra, in campo libero, portata ana nominale 20Pa
Sound pressure level measured a 2 mt from the machine, 1 m from the ground, in free field conditions, nominal air flow 20Pa ESP

The fan power input has not been subtracted from the capacities indicated above

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TAB 1 ***MAIN TECHNICAL DATA***

SERIE C A/W *SERIES*	**GRANDEZZA** *SIZE*		**L142**	**L151**	**L162**	**L202**	**L222**	**L242**	**L302**
VERSIONE **W** *W VERSION*	POTENZIALITA' FRIGORIFERA TOTALE *TOTAL COOLING CAPACITY* (1)	kW	49,9	56,1	55,5	64,2	72,1	79,6	107,8
	POTENZIALITA' FRIGORIFERA SENSIBILE *TOTAL COOLING CAPACITY* (1)	kW	46,1	48,6	48,3	55,3	58,6	64,8	80,2
	POTENZA ASSORBITA *POWER INPUT* (1)	kW	9,5	10,2	10,6	12,3	14,1	15,5	20,3
VERSIONE **A** *A VERSION*	POTENZIALITA' FRIGORIFERA TOTALE *TOTAL COOLING CAPACITY* (2)	kW	42,6	48,6	50,2	58,9	65,2	72,2	95,2
	POTENZIALITA' FRIGORIFERA SENSIBILE *TOTAL COOLING CAPACITY* (2)	kW	42,3	45,6	46,2	53,2	55,7	61,8	74,8
	POTENZA ASSORBITA *POWER INPUT* (2)	kW	12,1	12,5	13,4	15,6	17,9	19,7	25,0
VENTILATORE **EC** STANDARD *STANDARDSUPPLY* ***EC*** *FAN*	PORTATA ARIA NOMINALE *NOMINAL AIR FLOW*	m^3/h	12.000	12.000	12.000	13.600	13.600	15.100	16.700
	NUMERO E GRANDEZZA VENTILATORE *FAN NUMBER AND SIZE*	n	2x500	2x500	2x500	2x560	2x560	2x560	2x560
	PREVALENZA STATICA UTILE min/ max *EXTERNAL STATIC PRESSURE min/max*	Pa	20/110	20/110	20/90	20/130	20/130	20/70	20
	POTENZA ELETTRICA ASSORBITA min/max *ENGAGED ELECTRIC POWER min/max*	kW	1,6/2,2	1,6/2,2	1,8/2,2	2,2/3,0	2,2/3,0	2,6/3,0	3,0
BATTERIA EVAPORANTE *COOLING COIL*	SUPERFICIE FRONTALE *FACE AREA*	m^2	1,24	1,24	1,24	1,4	1,4	1,56	1,72
	NUMERO RANGHI *NUMBER OF ROWS*	N	3	3	4	4	4	4	5
	PASSO ALETTE *FIN SPACING*	mm	1,6	1,6	1,6	1,6	1,6	1,6	1,6
COMPRESSORE *COMPRESSOR*	NUMERO COMPRESSORI *NUMBER OF COMPRESSORS*	N	2	1	2	2	2	2	2
	POTENZA NOMINALE COMPRESSORE *NOMINAL COMPRESSOR POWER*	HP	7	15	8	10	11	12	15
CONDENSATORE AD ACQUA *WATER COOLED. CONDEND.*	PORTATA ACQUA *-WATER FLOW*	m^3/s	10,16	11,25	11,45	13,24	14,84	16,54	22,46
	PERDITA DI CARICO *WATER PRESSURE DROP*	kPa	10	20	13	13	14	15	19
CONDENSATORE AD ARIA MOD *AIR COOLED CONDENSER MODEL*		CN	2x031	070	2x031	2x046	2x046	2x046	2x070
CARICA OLIO PER CIRCUITO *OIL CHARGE PER CIRCUIT*		L	2x1,7	3,5	2x2,8	2x2,8	2x2,8	2x2,8	2x3,5
CARICA DI REFRIGERANTE *REFRIGERANT. CHARGE.*	VERSIONE **W** ***W*** *VERSION*	kg	3,6	3,8	4	5	5,6	6	7,6
	VERSIONE **A** ***A*** *VERSION*	kg	11,2	12	12,8	16	17,6	19,2	24
LIVELLO DI PRESSIONE SONORA *SOUND PRESSURE LEVEL*	ASCENDENTE/*UP-FLOW*	dB(A)	63	63	64	66	67	67	69
	DISCENDENTE/*DOWN-FLOW* (3)		59	59	60	62	63	63	65
DIMENSIONI *DIMENSIONS*	LUNGHEZZA *LENGTH*	mm	1856	1856	1856	2056	2056	2256	2456
	LARGHEZZA *WIDTH*	mm	870						
	ALTEZZA *HEIGHT*	mm	1980						
PESO IN FUNZIONAMENTO *OPERATING WEIGHT*	CONDENSAZIONE AD ACQUA *WATER COOLED*	Kg	670	665	690	810	830	960	1040
	CONDENSAZIONE AD ARIA REMOTA *REMOTE AIR COOLED*	Kg	650	645	670	780	800	930	990

Prestazioni riferite a : *Capacities referred to:*

(1) **Condizioni ambiente** +24°C/ 50%UR — Temperatura acqua al condensatore +35/40°C
Room air conditions *+24°C/ 50%RH* — *Condensing water temperature* *+35/40°C*

(2) **Condizioni ambiente** +24°C/ 50%UR — Temperatura aria esterna +32°C
Room air conditions *+24°C/ 50%RH* — *External air temperature* *+32°C*
Condizioni ambiente +24°C/ 50%UR — Temperatura acqua al raffreddatore +40/45°C
Room air conditions *+24°C/ 50%RH* — *Dry-cooler water temperature* *+40/45°C*

(3) Livelli di pressione sonora misurati a 2 mt dal fronte macchina, ad 1 m da terra, in campo libero, portata ana nominale 20Pa
Sound pressure level measured a 2 mt from the machine, 1 m from the ground, in free field conditions, nominal air flow 20Pa ESP

The fan power input has not been subtracted from the capacities indicated above

Close Control Air Conditioners
DIRECT EXPANSION CA/CW

TAB 2 ***ACCESSORIES TECHNICAL DATA***

SERIE C A/W ***SERIES***	**GRANDEZZA** ***SIZE***		**S011**	**S021**	**M031**	**M041**	**M051**	**M061**	**M071**
ALIMENTAZIONE ELETTRICA		V-Ph-Hz	400 -3 +N -50						
POWER SUPPLY	**LRA** SOLO FREDDO ***LRA** COOLING ONLY*	A	61	103	63	63	63	66	76
	FLA SOLO FREDDO ***FLA** COOLING ONLY*	A	9,1	15,1	8,7	10,2	10,4	11,9	13,4
	FLA FREDDO, CALDO, UMIDITA' (4) ***FLA** COOLING HEATING HUMIDITY*)	A	13	21,1	18,5	20	20,2	21,7	32,9
	CONNESSIONI ELETTRICHE *ELECTRICAL CONNECTIONS*	Nxmm2	5x8		5x10				5x16
VENTILATORE **EC** ALTA PREVALENZA *HIGH PRESSURE **EC** FAN*	NUMERO GRANDEZZA VENTILATORE *FAN NUMBER AND SIZE*	n	1x350	1x350	1x450	1x450	1x450	1x450	1x500
	PREVALENZA STATICA UTILE max (5) *EXTERNAL STATIC PRESSURE max*	Pa	760	790	860	830	730	700	560
	POTENZA ELETTRICA ASSORBITA (5) *POWER INPUT max*	kW	1,1	1,1	2,2	2,1	2,4	2,45	2,6
BATTERIA RISCALDANTE AD ACQUA CALDA *HOT WATER HEATING COIL*	POTENZIALITA RISCALDANTE (6) *HEATING CAPACITY*	kW	6,2	8,9	9,7	9,7	14,6	14,6	24,3
	PORTATA ACQUA (6) *WATER FLOW*	m3/h	0,36	0,52	0,57	0,57	0,86	0,86	1,43
	PERDITA DI CARICO TOTALE (6) *TOTAL PRESSURE DROP*	kPa	21,3	45,1	54,5	54,5	26	26	49,8
	POTENZIALITA RISCALDANTE (7) *HEATING CAPACITY*	kW	4,1	5,8	6,5	6,5	9,7	9,7	16
	PORTATA ACQUA (7) *WATER FLOW*	m3/h	0,36	0,51	0,57	0,57	0,85	0,85	1,4
	PERDITA DI CARICO TOTALE (7) *TOTAL PRESSURE DROP*	kPa	21,3	44	54,5	54,5	25	25	47,7
	SUPERFICIE FRONTALE *FACE AREA*	m2	0,10	0,16	0,15	0,15	0,25	0,25	0,42
	NUMERO RANGHI *NUMBER OF ROWS*	*nr*	1	1	1	1	1	1	1
	PASSO ALETTE *FIN SPACING*	mm	2,5	2,5	2,5	2,5	2,5	2,5	2,5
FILTRI NUMERO E DIMENSIONI *AIR FILTERS NUMBER AND SIZE*	MANDATA VERSO IL BASSO *DOWN FLOW*	N	2x470x 320x48	2x670x 320x48	2x420x420x48		2x620x420x48		2x980x 420x48
	MANDATA VERSO L'ALTO ***UP FLOW***	N			2x420x420x48		2x620x420x48		
POTENZA TERMICA BATTERIA ELETTRICA STANDARD *STANDARD HEATING CAPACITY ELECTRIC HEATER*		kW	1,5	3,0	4,5	4,5	4,5	4,5	9
UMIDIFICATORE *HUMIDIFIER*	PRODUZIONE MAX VAPORE *MAX STEAM PRODUCTION*	Kg/h	1,5	1,5	3	3	3	3	3
	POTENZA ASSORBITA *POWER INPUT*	kW	1,2	1,2	2,3	2,3	2,3	2,3	2,3
CONNESSIONI FRIGORIFERE *REFRIGERANT CONNECTIONS*	TUBAZIONE GAS CALDO *HOT GAS PIPE*	mm	12	12	16	16	16	16	22
	TUBAZIONE DEL LIQUIDO *LIQUID PIPE2*	mm	10	10	12	12	12	12	16
CONNESSIONI IDRICHE *HYDRAULIC CONNECTIONS*	ATTACCHI CONDENSATORE *WATER COOLED CONDENSER*	"	1/2	1/2	3/4	3/4	1	1	1 1/4
	ACQUA CALDA *HOT WATER*	"	1/2	1/2	1/2	1/2	1/2	1/2	3/4
	UMIDIFICATORE IN *STEAM HUMIDIFIER* *OUT*	" mm	3/4 32	3/4 32	3/4 32	3/4 32	3/4 32	3/4 32	3/4 32
	SCARICO CONDENSA *DRY PAN CONNECTION*	mm	20	20	20	20	20	20	20

(4) Con Accessori standard — *With Standard Accessories*

(5) Alla Portata Aria Nominale — *At nominal Air Flow*

(6) Temperatura ambiente *Room temperature* **20°C** — Temperatura acqua calda *Hot Water Temperature in /out* **80/65°C**

(7) Temperatura ambiente *Room temperature* **20°C** — Temperatura acqua calda *Hot Water Temperature in /out* **60/50°C**

Close Control Air Conditioners
DIRECT EXPANSION CA/CW

TAB 2 ***ACCESSORIES TECHNICAL DATA***

SERIE C A/W ***SERIES***	**GRANDEZZA** ***SIZE***		**M081**	**M082**	**M101**	**M102**	**M111**	**M121**	**M122**
ALIMENTAZIONE ELETTRICA *POWER SUPPLY*		V-Ph-Hz	400-3+N-50						
	LRA SOLO FREDDO ***LRA** COOLING ONLY*	A	96	70,8	96	71	96	96	75,7
	FLA SOLO FREDDO ***FLA** COOLING ONLY*	A	14,9	17,7	19,3	20,8	21,3	22,8	24
	FLA FREDDO, CALDO, UMIDITA' (4) ***FLA** COOLING HEATING HUMIDITY*)	A	34,4	37,2	41	42,5	43	44,5	45,7
	CONNESSIONI ELETTRICHE *ELECTRICAL CONNECTIONS*	Nxmm2	5x16						
VENTILATORE **EC** ALTA PREVALENZA *HIGH PRESSURE **EC** FAN*	NUMERO GRANDEZZA VENTILATORE *FAN NUMBER AND SIZE*	n	1x500	1x500	2x450	2x450	2x450	2x450	2x450
	PREVALENZA STATICA UTILE max (5) *EXTERNAL STATIC PRESSURE max*	Pa	570	570	740	740	720	630	630
	POTENZA ELETTRICA ASSORBITA (5) *POWER INPUT max*	kW	2,6	2,6	4,6	4,6	4,6	4,8	4,8
BATTERIA RISCALDANTE AD ACQUA CALDA *HOT WATER HEATING COIL*	POTENZIALITA RISCALDANTE (6) *HEATING CAPACITY*	kW	23,8	23,8	29,9	29,9	29,9	36,5	36,5
	PORTATA ACQUA (6) *WATER FLOW*	m3/h	1,4	1,4	1,75	1,75	1,75	2,14	2,14
	PERDITA DI CARICO TOTALE (6) *TOTAL PRESSURE DROP*	kPa	47,9	47,9	17,7	17,7	17,7	26,7	26,7
	POTENZIALITA RISCALDANTE (7) *HEATING CAPACITY*	kW	15,7	15,7	19,7	19,7	19,7	23,9	23,9
	PORTATA ACQUA (7) *WATER FLOW*	m3/h	1,37	1,37	1,72	1,72	1,72	2,09	2,09
	PERDITA DI CARICO TOTALE (7) *TOTAL PRESSURE DROP*	kPa	45,8	45,8	17,3	17,3	17,3	25,4	25,4
	SUPERFICIE FRONTALE *FACE AREA*	m2	0,42	0,42	0,52	0,52	0,52	0,62	0,62
	NUMERO RANGHI *NUMBER OF ROWS*	nr	1	1	1	1	1	1	1
	PASSO ALETTE *FIN SPACING*	mm	2,5	2,5	2,5	2,5	2,5	2,5	2,5
FILTRI NUMERO E DIMENSIONI *AIR FILTERS NUMBER AND SIZE*	MANDATA VERSO IL BASSO *DOWN FLOW*	N	2x980x420x48		2x1180x420x48			2x1380x420x48	
	MANDATA VERSO L'ALTO ***UP FLOW***	N	2x980x420x48		2x1180x420x48			2x1380x420x48	
POTENZA TERMICA BATTERIA ELETTRICA STANDARD *STANDARD HEATING CAPACITY ELECTRIC HEATER*		kW	9	9	9	9	9	9	9
UMIDIFICATORE *HUMIDIFIER*	PRODUZIONE MAX VAPORE *MAX STEAM PRODUCTION*	Kg/h	3	3	8	8	8	8	8
	POTENZA ASSORBITA *POWER INPUT*	kW	2,3	2,3	6	6	6	6	6
CONNESSIONI FRIGORIFERE *REFRIGERANT CONNECTIONS*	TUBAZIONE GAS CALDO *HOT GAS PIPE*	mm	22	2x16	22	2x16	22	22	2x16
	TUBAZIONE DEL LIQUIDO *LIQUID PIPE2*	mm	16	2x12	16	2x12	16	16	2x12
CONNESSIONI IDRICHE	ATTACCHI CONDENSATORE *WATER COOLED CONDENSER*	"	1 1/4	2x1	1 1/2	2x1	1 1/2	1 1/2	2x1
	ACQUA CALDA *HOT WATER*	"	3/4	3/4	1	1	1	1	1
HYDRAULIC CONNECTIONS	UMIDIFICATORE IN *STEAM HUMIDIFIER* *OUT*	mm	3/4 32	3/4 32	3/4 32	3/4 32	3/4 32	3/4 32	3/4 32
	SCARICO CONDENSA *DRY PAN CONNECTION*	mm	20	20	20	20	20	20	20

(4) Con Accessori standard — *With Standard Accessories*

(5) Alla Portata Aria Nominale — *At nominal Air Flow*

(6) Temperatura ambiente *Room temperature* **20°C** — Temperatura acqua calda *Hot Water Temperature in /out* **80/65°C**

(7) Temperatura ambiente *Room temperature* **20°C** — Temperatura acqua calda *Hot Water Temperature in /out* **60/50°C**

Close Control Air Conditioners
DIRECT EXPANSION CA/CW

TAB 2 ***ACCESSORIES TECHNICAL DATA***

SERIE C A/W ***SERIES***	**GRANDEZZA** ***SIZE***		**L142**	**L151**	**L162**	**L202**	**L222**	**L242**	**L302**
ALIMENTAZIONE ELETTRICA		V-Ph-Hz	400- 3+N-50						
POWER SUPPLY	**LRA** SOLO FREDDO ***LRA** COOLING ONLY*	A	87,3	159	18,8	110,5	112,5	113,8	182,3
	FLA SOLO FREDDO ***FLA** COOLING ONLY*	A	26,8	27,5	30	34,2	38,2	40,8	51,8
	FLA FREDDO, CALDO, UMIDITA' (4) ***FLA** COOLING HEATING HUMIDITY*)	A	57,2	57,9	60,2	64,6	68,6	77,8	88,8
	CONNESSIONI ELETTRICHE *ELECTRICAL CONNECTIONS*	Nxmm2	5x25					5x35	
VENTILATORE **EC** ALTA PREVALENZA *HIGH PRESSURE **EC** FAN*	NUMERO GRANDEZZA VENTILATORE *FAN NUMBER AND SIZE*	n	2x500	2x500	2x500	2x560	2x560	2x560	2x560
	PREVALENZA STATICA UTILE max (5) *EXTERNAL STATIC PRESSURE max*	Pa	550	550	530	540	530	480	430
	POTENZA ELETTRICA ASSORBITA (5) *POWER INPUT max*	kW	5,2	5,2	5,2	5,8	5,8	6,0	6,0
BATTERIA RISCALDANTE AD ACQUA CALDA *HOT WATER HEATING COIL*	POTENZIALITA RISCALDANTE (6) *HEATING CAPACITY*	kW	49,0	49,0	49,0	56,4	56,4	63,5	70,8
	PORTATA ACQUA (6) *WATER FLOW*	m3/h	2,88	2,88	2,88	3,31	3,31	3,73	4,16
	PERDITA DI CARICO TOTALE (6) *TOTAL PRESSURE DROP*	kPa	18,7	18,7	18,7	25,2	25,2	25,8	32,7
	POTENZIALITA RISCALDANTE (7) *HEATING CAPACITY*	kW	32,2	32,2	32,2	37,1	37,1	41,9	46,8
	PORTATA ACQUA (7) *WATER FLOW*	m3/h	2,82	2,82	2,82	3,24	3,24	3,67	4,0,9
	PERDITA DI CARICO TOTALE (7) *TOTAL PRESSURE DROP*	kPa	18,3	18,3	18,3	24,7	24,7	24,9	31,6
	SUPERFICIE FRONTALE *FACE AREA*	m2	1,02	1,02	1,02	1,16	1,16	1,3	1,44
	NUMERO RANGHI *NUMBER OF ROWS*	nr	1	1	1	1	1	1	1
	PASSO ALETTE *FIN SPACING*	mm	2,5	2,5	2,5	2,5	2,5	2,5	2,5
FILTRI NUMERO E DIMENSIONI *AIR FILTERS NUMBER AND SIZE*	MANDATA VERSO IL BASSO *DOWN FLOW*	N	4x780x420x48			4x880x420x48		4x980x 420x48	4x1080x 420x48
	MANDATA VERSO L'ALTO ***UP FLOW***	N	4x780x420x48			4x880x420x48			
POTENZA TERMICA BATTERIA ELETTRICA STANDARD *STANDARD HEATING CAPACITY ELECTRIC HEATER*		kW	15	15	15	15	15	18	18
UMIDIFICATORE *HUMIDIFIER*	PRODUZIONE MAX VAPORE *MAX STEAM PRODUCTION*	Kg/h	8	8	8	8	8	8	8
	POTENZA ASSORBITA *POWER INPUT*	kW	6	6	6	6	6	6	6
CONNESSIONI FRIGORIFERE *REFRIGERANT CONNECTIONS*	TUBAZIONE GAS CALDO *HOT GAS PIPE*	Kg	2x22	28	2x22				2x28
	TUBAZIONE DEL LIQUIDO *LIQUID PIPE2*	Kg	2x16	22	2x16				2x22
CONNESSIONI IDRICHE *HYDRAULIC CONNECTIONS*	ATTACCHI CONDENSATORE *WATER COOLED CONDENSER*	"	2x1	2	2x1 1/4	2x1 1/4	2x1 1/4	2x1 1/2	2x2
	ACQUA CALDA *HOT WATER*	"	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/2	1 1/2
	UMIDIFICATORE IN *STEAM HUMIDIFIER* *OUT*	mm	3/4 32	3/4 32	3/4 32	3/4 32	3/4 32	3/4 32	3/4 32
	SCARICO CONDENSA *DRY PAN CONNECTION*	mm	20	20	20	20	20	20	20

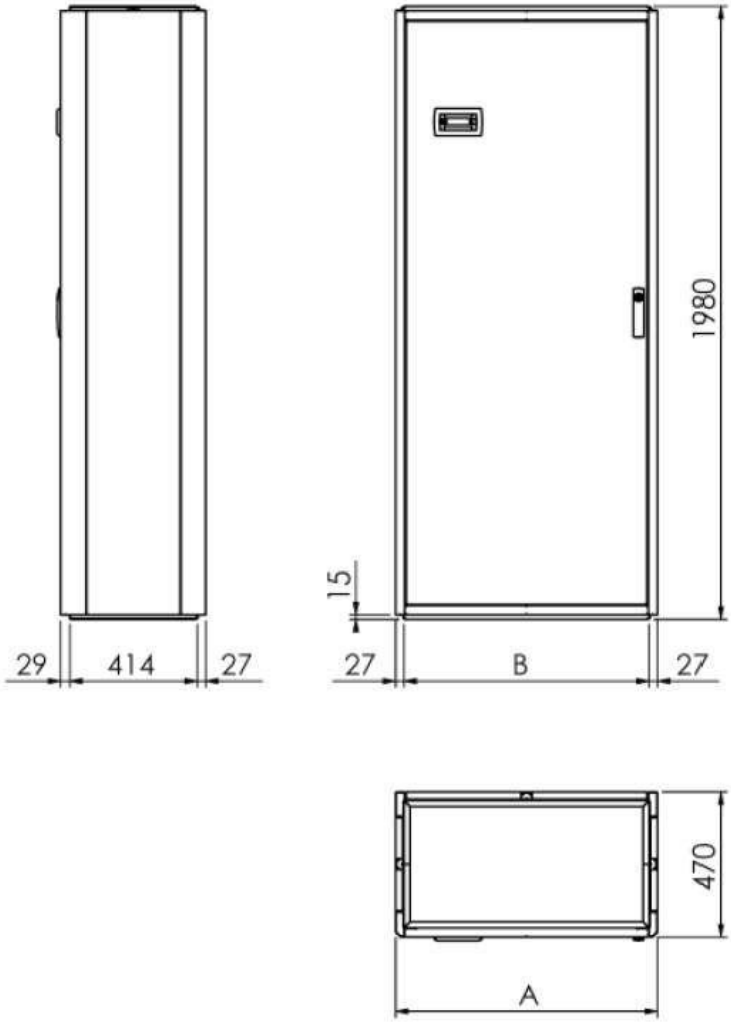
(4) Con Accessori standard — *With Standard Accessories*

(5) Alla Portata Aria Nominale — *At nominal Air Flow*

(6) Temperatura ambiente *Room temperature* **20°C** — Temperatura acqua calda *Hot Water Temperature in /out* **80/65°C**

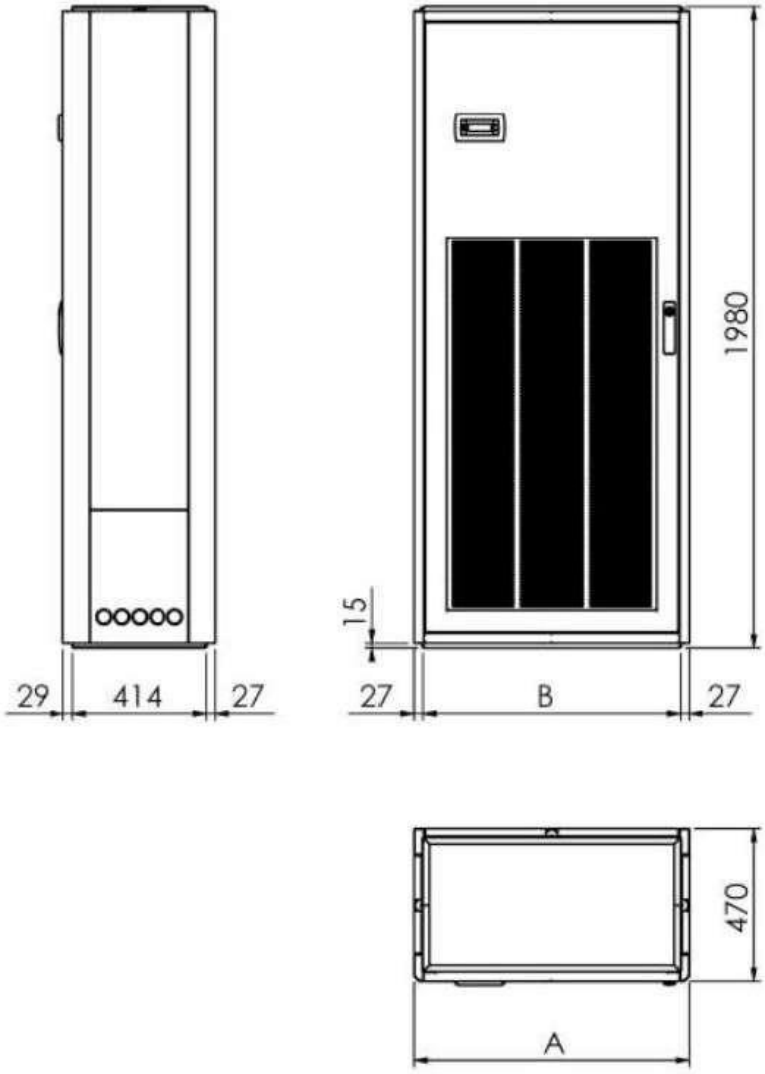
(7) Temperatura ambiente *Room temperature* **20°C** — Temperatura acqua calda *Hot Water Temperature in /out* **60/50°C**

Close Control Air Conditioners
DIRECT EXPANSION CA/CW



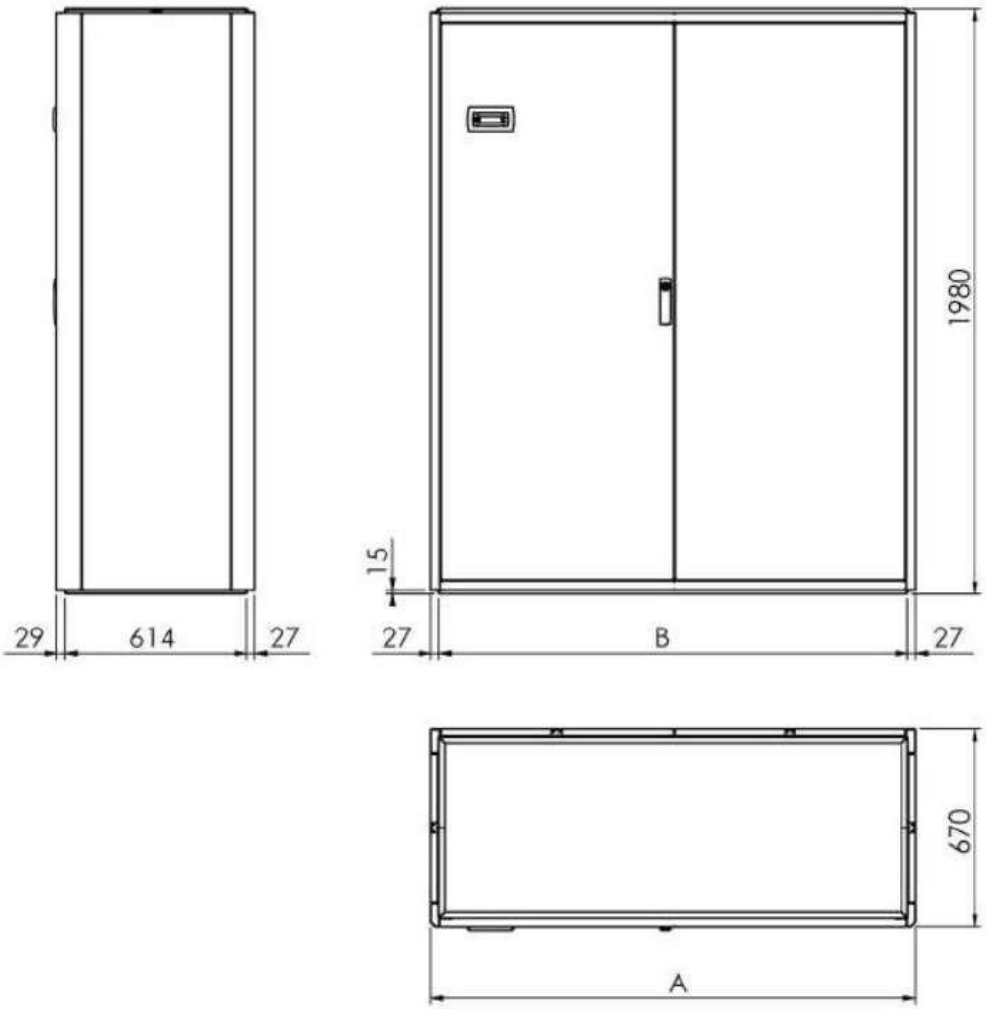
OVERALL DIMENSIONS Series "S" Up-Flow			
Model	Dimension		Number of doors
	"A"	"B"	
S1	650	596	1
S2	850	796	1

Close Control Air Conditioners
DIRECT EXPANSION CA/CW



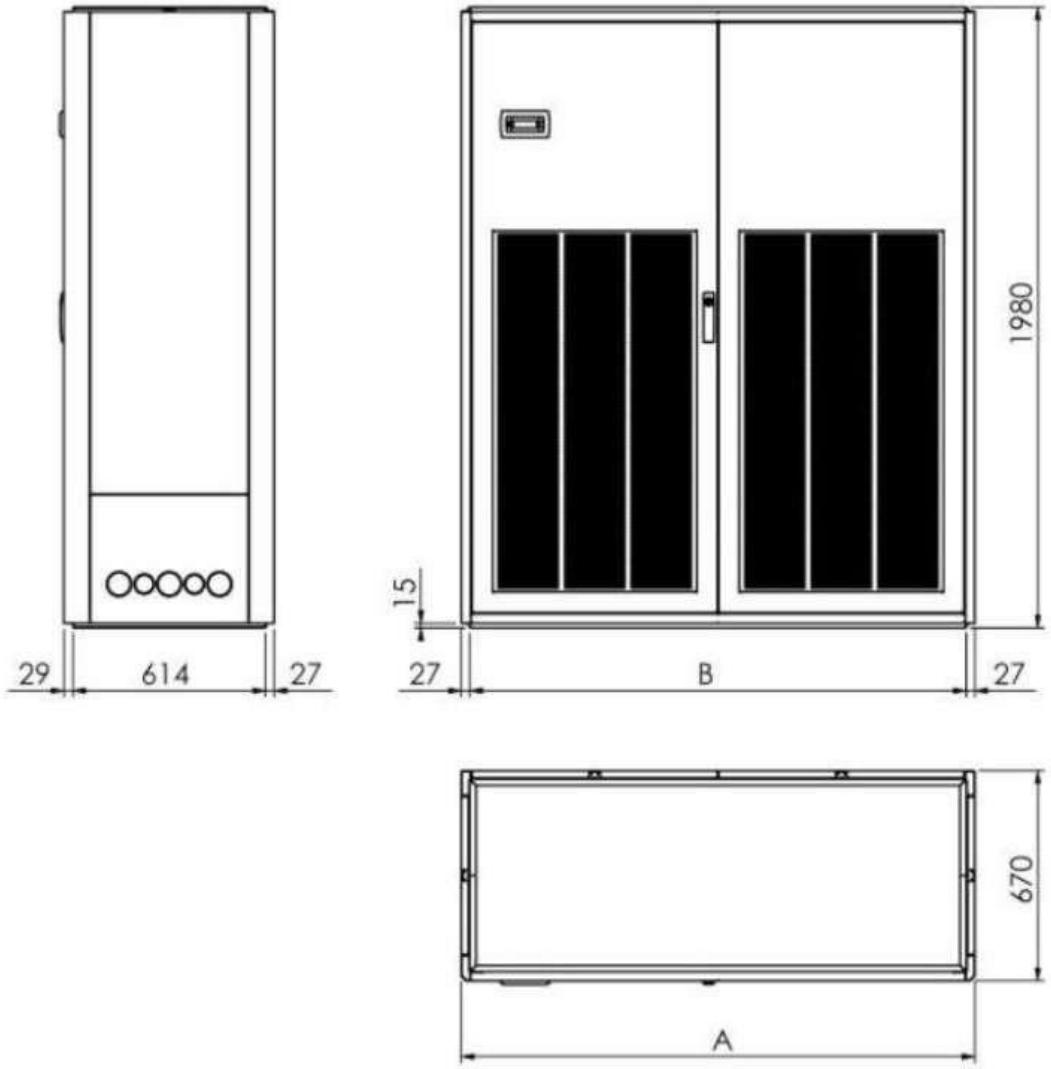
OVERALL DIMENSIONS Series "S" Up-Flow			
Model	Dimension		Number of doors
	"A"	"B"	
S1	650	596	1
S2	850	796	1

Close Control Air Conditioners
DIRECT EXPANSION CA/CW



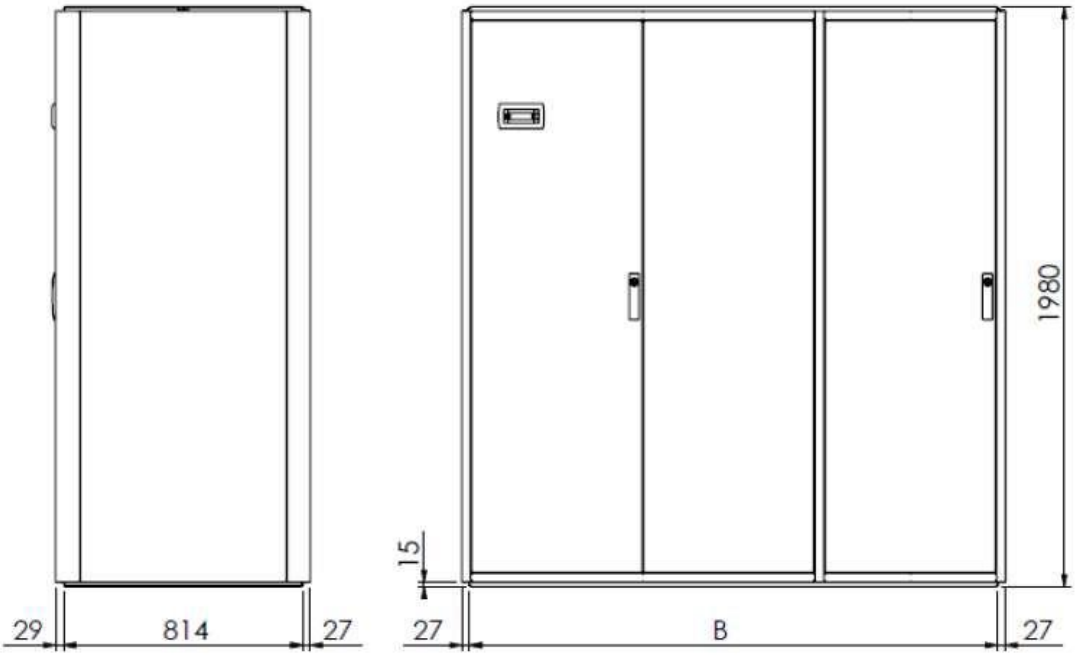
OVERALL DIMENSIONS Series "M" Up-Flow			
Model	Dimension		Number of doors
	"A"	"B"	
M1	650	596	1
M2	850	796	1
M3	1236	1182	2
M4	1436	1382	2
M5	1636	1582	2

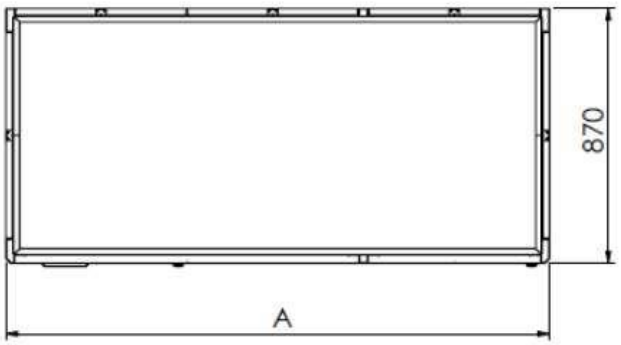
Close Control Air Conditioners
DIRECT EXPANSION CA/CW



OVERALL DIMENSIONS Series "M" Up-Flow			
Model	Dimension		Number of doors
	"A"	"B"	
M1	650	596	1
M2	850	796	1
M3	1236	1182	2
M4	1436	1382	2
M5	1636	1582	2

Close Control Air Conditioners
DIRECT EXPANSION CA/CW

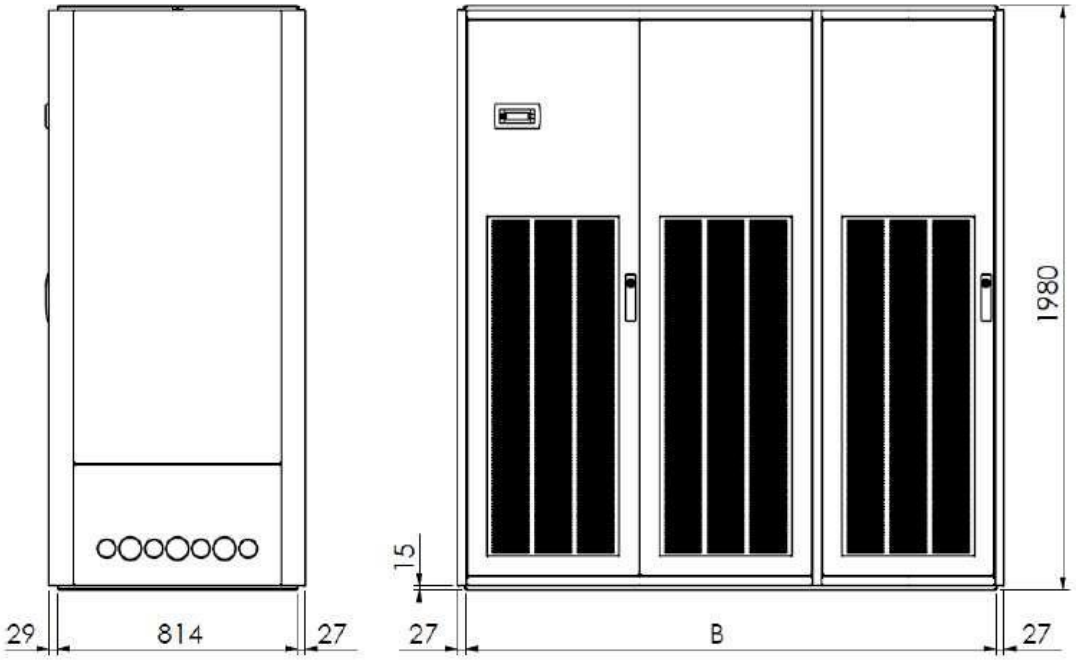


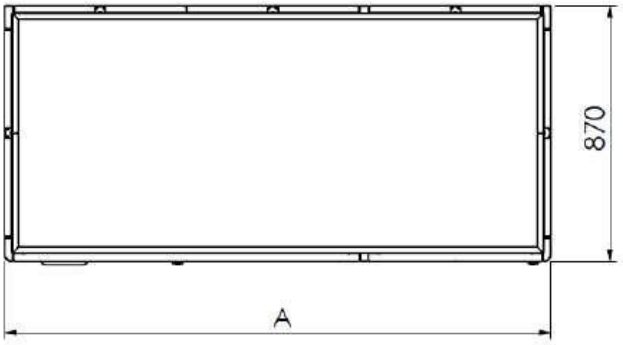


OVERALL DIMENSIONS
Series "L" Down-Flow

Model	Dimension		Number of doors
	"A"	"B"	
L2	850	796	1
L3	1236	1182	2
L4	1436	1382	2
L5	1636	1582	2
L6	1856	1802	3
L7	2056	2002	3
L8	2256	2202	3
L9	2456	2402	3

Close Control Air Conditioners
DIRECT EXPANSION CA/CW





OVERALL DIMENSIONS
Series "L" Up-Flow

Model	Dimension		Number of doors
	"A"	"B"	
L2	850	796	1
L3	1236	1182	2
L4	1436	1382	2
L5	1636	1582	2
L6	1856	1802	3
L7	2056	2002	3
L8	2256	2202	3
L9	2456	2402	3

Close Control Air Conditioners
DIRECT EXPANSION CA/CW

Free-cooling plenum

CLIMA PROCESSOR

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