



# COOLBLADE



*Climaveneta*

*Europe Company*

# Marketing features

The new high-efficiency air conditioner COOLBLADE adds the finishing touch to the already prominent presence on the world industrial air-conditioning scenario.

It has been designed to satisfy the conditioning requirements of technological rooms, offering features that make it suitable for all the various applications in daily use and from which we demand utmost reliability.



Global efficiency

Outstanding performances

Total versatility

Intelligent control

Total compatibility

## CENTRALLY CONTROLLED SYSTEMS

- Banks
- Hotel
- Airports
- Retail and distribution industry
- Museums and Libraries
- Medium/large companies

## KEY CUSTOMERS

- Railways and motorways
- Internet providers
- Armed Forces
- Public sector
- Radio and TV companies
- TELECOM operators

## FINAL APPLICATIONS

- Data dispatching nodes
- Call Centers
- Data collecting centers
- Internet centers
- Cloud Computing Centers

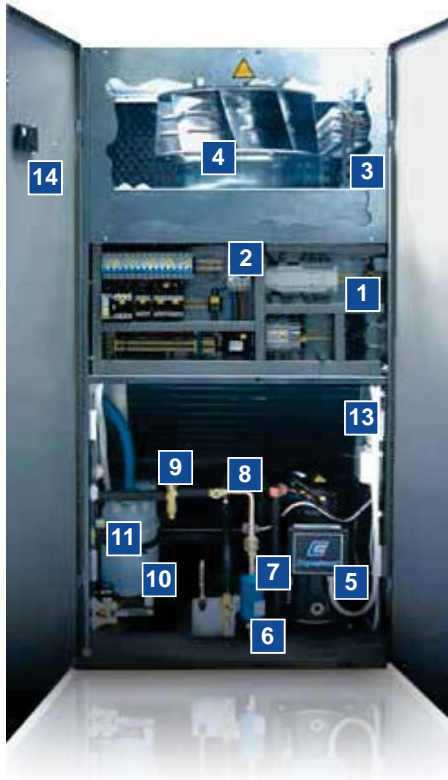
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# Introduction



- 1 MAIN BOARD
- 2 MAIN SWITCH
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- 7 LIQUID LINE VALVE
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- 11 DEHUMIDIFICATION VALVE
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Close air-conditioning means not only compliance with the severest environmental parameters but also with the specific requirements of the site, such as EFFICIENCY, FLEXIBILITY, OPERATING RELIABILITY AND RESPECT FOR THE ENVIRONMENT, which today's products must satisfy. COOLBLADE has been created to meet all these requirements, exploiting the renowned capacity to supply total quality airconditioning systems

## EFFICIENCY MOST OF ALL

Nowadays efficiency is no longer considered as just energy saving in respect of the single unit, but takes into account both the PERFORMANCE of the whole system and its COMPLETE RELIABILITY and MODULARITY over the years.

In offering COOLBLADE as a solution to technological cooling problems, we have been concentrated on the use of known quality parts and integration with BMS (building management systems).

### Standard solutions

- SCROLL compressors
- Thermostat valve with internal pressure equalization
- Electronic thermostat (optional)
- Standard centrifugal fans
- High efficiency EC INVERTER ventilation (optional)
- Standard condensation control (DX versions)
- Electric reheat or with hot water
- Immersed electrode humidifying system
- Intelligent dehumidifying system with constant airflow
- Semi-graphic control display
- Connection to traditional BMS

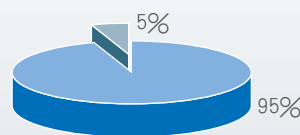
## EXCELLENT SHR PERFORMANCE

As is known, electronic equipment develops solely SENSIBLE heat loads and therefore needs dedicated air conditioning to deal with this.

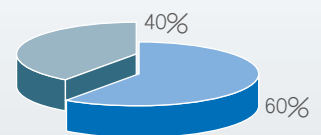
That is why COOLBLADE has been made; to ensure maximum SENSIBLE cooling capacity to the detriment of the LATENT capacity, which would be a sheer waste of energy in these applications.

This is of basic importance for transforming all the supplied energy into a real room temperature control.

The result is a high SHR, minimum of 0.85 and a maximum of 1. In order to have the utmost SENSIBLE and not latent type of cooling.



SHR for TECHNOLOGICAL Application



SHR for COMFORT Application



## EC INVERTER FANS

This new technology with electronically commutated motor increases the efficiency of the COOLBLADE system, optimizing running costs through state-of-the-art electronics, which are used to change parameters such as:

- Flow rate
- cooling capacity
- External pressure
- Noise level

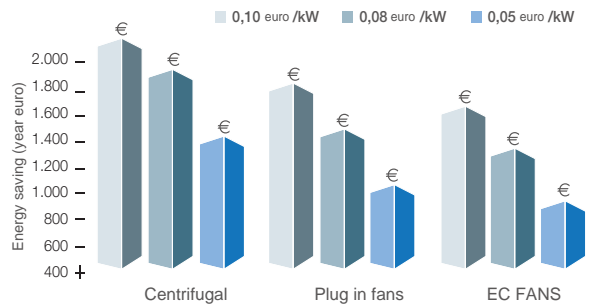
Thereby guaranteeing best operation of the system at any moment, and in particular:

- 1 Continuous adjustment of air flow
- 2 Intelligent and low-noise system of air conveyance throughout the whole appliance
- 3 Up to 45% saving in the chilled water units

## THE MOST COMPACT DESIGN

It is a known fact that the set loads (W/m<sup>2</sup>) in technological applications are continuously increasing. This is mainly due to the increase in data traffic, giving rise to new equipment with an increasingly greater capacity of transmission, which in turn develops a higher heat load to be dispersed.

### EC INVERTER FANS TECHNOLOGY The most advanced solution for energy saving



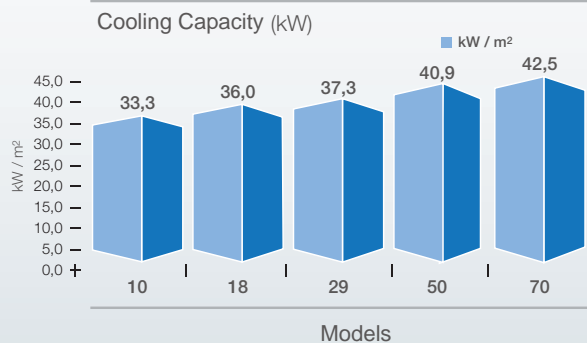
Energy saving by EC INVERTER Fans Vs. standard traditional fans

This requires ever better performance from the air-conditioning system that should, however, take up as little space as possible, leaving it for the transmission equipment.

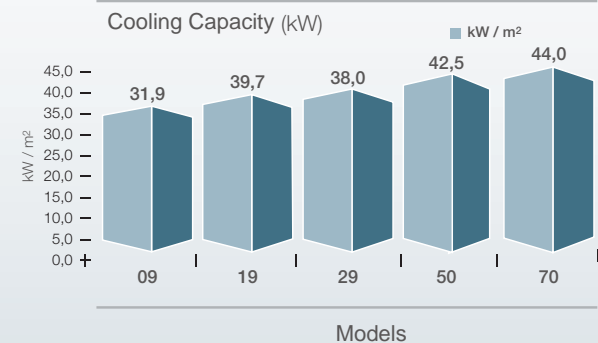
COOLBLADE is the air-conditioner with the best SUPPLIED POWER / FOOT PRINT ratio in the market.

Because space means value.

### DIRECT EXPANSION RANGE



### CHILLED WATER RANGE

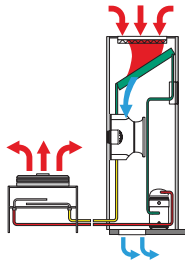




# Total versatility

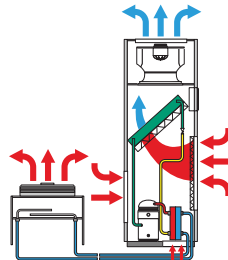
All-round flexibility seen as a service offered for any type of system. COOLBLADE provides customers with the most flexible solutions.

## TYPES OF COOLING



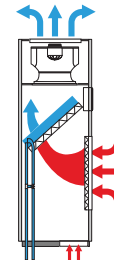
**DIRECT EXPANSION AIR COOLED**  
cooling capacity:8-101kW

Refrigerant for heat transfer is used in these direct expansion units.



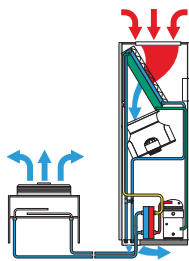
**DIRECT EXPANSION WATER COOLED**  
cooling capacity:8-104kW

The condensation heat is dispersed in an internal plate-type exchanger connected in turn to a water circuit. The water of condensation may come from a well, local water mains or closed circuits such as cooling towers or dry coolers.



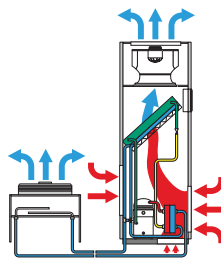
**CHILLED WATER**  
cooling capacity:9-220kW

Water coming generally from a chiller is used in these units to transfer the heat. The flow of liquid through the unit water coil is controlled through an internal 2 or 3-way valve.



**AIR COOLED DUAL FLUID**  
**WATER COOLED DUAL FLUID**  
cooling capacity:24-100kW

A **PRIMARY** circuit, made by a chilled water circuit (CW) generally connected to an external chiller, plus a **SECONDARY** circuit in direct expansion (DX) who is considered as **BACK-UP**. Such units are particularly indicated anywhere **RELIABILITY, SAFETY** and **REDUNDANCY** are required.



**FREE COOLING**  
cooling capacity:25-102kW

A **PRIMARY** direct expansion circuit (DX) plus a **SECONDARY** chilled water circuit (CW) generally connected to an external dry cooler who is considered as "support" to the primary one. Such units are particularly indicated anywhere **EFFICIENCY & ENERGY SAVING** are required.

## AIRFLOW CONFIGURATION

### OVER

The versions called **OVER** with air outflow from the top generally have the air intake at the front, rear or bottom of the unit, according to customer choice, and the outflow from the top is along ducts behind suspended ceilings or front delivery plenums.

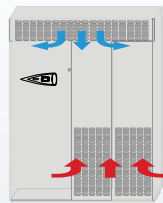
### UNDER

The versions called **UNDER** with air outflow under the floor have the air intake on the top of the unit taking air directly from the environment or through intake ducts or plenums.

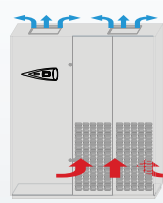
### FRONT

The versions called **FRONT** with air outflow from the upper front part of the unit have the air intake at the front, so there is no necessity to add an additional front outlet plenum.

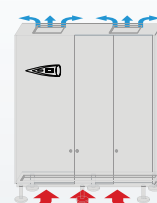
OVER unit with front intake and delivery plenum



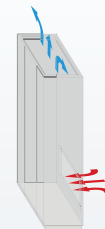
OVER unit with front intake and top delivery



OVER unit with underfloor intake and top delivery



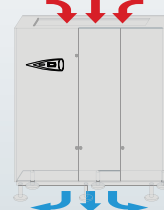
OVER unit with rear intake and top delivery



UNDER unit with top intake and front delivery plenum



OVER unit with top intake and underfloor delivery



FRONT unit with front intake and upper front delivery





COOLBLADE has an intelligent electronic heart that allows it to keep a constant control over all the operating and environmental parameters of the site.

The COOLBLADE electronic unit is open and configurable to specific user requirements both in site and particularly in the factory with dedicated customisation.



## ELECTRONICS

### STANDARD FUNCTIONS

- Semi-graphic display 132 x 64 pixel
- Programmable software
- ICONS Graphic Display
- General alarm
- Automatic reset after blackout
- Compressor FIFO management
- Integral LAN system
- Standby management
- Automatic rotation
- Serious alarms
- Clock card
- Emergency function

### MAIN OPTIONS

- Serial cards for BMS interconnection
- Fire-smoke alarms
- Flooding alarm
- Electronic thermostat control
- SMS alarm

## OPTIONS AND MAIN ACCESSORIES



### STANDARD

#### Structure

- Multi-speed centrifugal fans
- High efficiency Copeland Scroll compressors
- High and low side pressure switches
- Filters EU4
- R-410A Refrigerant
- 3-way valves (CW)
- Intelligent dehumidifier device with constant airflow

#### Electronic unit

- Semi-graphic display 132 x 64pixel
- LAN, integral Local Area Network
- Buffer battery
- Record 100 alarms

### OPTIONALS

#### Structure

- EC INVERTER RADIAL-BLADE fans
- Hot water reheat system
- FILTER F5-F6-F7-F8 (built into the structure)
- Soundproofed plenum
- Electronic thermostat
- Condensing control

#### Electronic unit

- Serial cards for BMS interfacing
- DC INVERTER FAN control software
- Driver for electronic thermostat control



## Total compatibility

### COOLBLADE IS TOTAL COMMUNICATION

In a policy of "total communication" COOLBLADE offers various solutions for interconnection to the most modern BMSs, aimed at satisfying varying needs.

#### GLOBAL SUPERVISION

firmware protocol for total management of all the air-conditioning parameters, including:

- Detection and transmission of alarms from remote
- Change of data from remote
- Recording of data and alarms
- Sending of SMS via GSM modem

all through dedicated serial cards and supervision systems both in LOCAL and REMOTE mode.

#### ADVANCED SUPERVISION

solutions of compatibility for all the most common BMSs available on the market today, such as:

- MODBUS
- METASYS
- BACNET
- TREND
- LONWORKS
- SNMP/TCPIP

to satisfy every single customer requirement and to offer the possibility of communicating with the global network.



### RESPECT FOR THE ENVIRONMENT

COOLBLADE is totally in line with the known policy of full respect for the environment in which we live and for human health and safety. The use of recyclable materials and eco-compatible refrigerants R410A to current standards and legislation, make COOLBLADE a state-of-the-art product in this sense.

#### NOISELESS COLD

Modern telephone applications in residential areas must satisfy increasingly severer requirements in terms of noise pollution. COOLBLADE then propose a large range to satisfy such requests, often customized base on customer requests and site conditions.

Main systems are:

- Centrifugal fans (STD)
- EC INVERTER FANS (OPT) with air flow modulation capability
- Paneling clad in soundproofing material (STD)

#### MAINTENANCE

The design of the new COOLBLADE models was based on the need to simplify routine and extraordinary maintenance work carried out during the lifetime of the product.

The refrigerant circuit area is completely separate from the fan area, thereby allowing routine maintenance to be carried out also with the unit in operation.

All servicing operations, even the most critical ones, can be accomplished by a full front access.

That is why all the front panels are openable and can even be removed thanks to simple hinges.





Type: DIRECT EXPANSION, AIR COOLED,  
upflow or downflow or frontflow version



Evolution

Available Versions

STD Cooling only without condensation control device

MOD Cooling only with condensation control device through external unit fans regulation

## UNIT DESCRIPTION

Cooling capacity per direct expansion air cooled unit is from 7 to 101kW.

Particularly suitable for air-conditioning technological applications, server and CED rooms and all technological applications in general.

## STANDARD UNIT COMPOSITION

- Unit for installing inside or outside the room to be air-conditioned.
- Maximum resistance to rust thanks to galvanized sheet metal structures and panels with powder-coated paint finish.  
The panels are lined with sound-insulating material.
- The reliability and functionality of the compressor and all the other components are guaranteed by partners who are world leaders in their sector.
- Double-inlet centrifugal fan units directly coupled and suspended on vibration-isolation mountings.  
The fans are of the forward-bladed type for maximum efficiency and low noise.
- Condensation control for maximum low noise (optional).
- Standard G4 filtering section, F5-F8 optional, under CEN-EN 779 rule with the separation degree 90,1% ASHRAE.  
The filter is auto extinguishing type.
- The microprocessor controls the compressor activation times with FIFO logic, thereby regulating the cooling capacity; it also controls the operating alarms with the possibility of interfacing to supervisor and remote-servicing systems.
- Electrical box under IEC 204-1/EN60204-1 rules.
- Refrigerant circuit consisting in the standard version of a thermostat with external valve for internal pressure relief, solenoid valve, high/low pressure safety pressure switch, liquid indicator light and dehydrating filter.

## Direct Expansion Air Cooled

Model	SAU/O										DAU/O								
	008	013	017	020	025	030	035	040	045	035	045	050	055	060	070	080	090	100	
Power supply	V/Ph/Hz										380/3N/50								
Refrigerant	R410A																		
Cooling performances																			
Total cooling capacity (1)	kW	7.5	12.0	15.0	18.0	25.0	30.5	35.1	40.5	45.2	35.6	48.5	50.1	56.4	63.5	71.7	80.2	92.2	101.0
Sensible cooling capacity (1)	kW	6.9	10.9	13.8	16.4	22.5	30.0	33.5	39.7	44.0	35.3	43.5	48.5	53.2	62.0	70.5	78.0	90.5	98.7
SHR (1)		0.92	0.91	0.92	0.91	0.90	0.98	0.95	0.98	0.97	0.99	0.90	0.97	0.94	0.98	0.98	0.98	0.98	0.98
Compressors																			
Quantity		1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2
Power abs.	kW	1.87	3.0	3.69	4.2	4.91	6.01	6.3	7.66	8.64	7.27	9.62	10.5	12.0	12.0	13.9	15.9	17.9	21.9
Fan																			
Air flow	m³/h	2200	2650	4750	4750	5750	8400	9180	13000	15200	11550	15200	15400	14850	21300	22000	23000	27000	28000
N° Centrifugal fans		--	--	--	--	--	1	1	--	2	2	-	2	2	2	2	2	-	-
N° AC fans		1	1	1	1	1	1	1	--	2	2	2	2	2	2	2	2	3	3
N° EC fans		--	--	--	--	--	1	1	2	2	2	2	2	2	2	2	2	3	3
Centrifugal fans power abs.	kW	--	--	--	--	--	2.16	2.17	--	3.89	2.81	-	3.58	3.62	6.50	6.50	7.30	-	-
AC fans power abs.	kW	0.30	0.46	0.84	0.84	1.50	2.07	2.26	--	3.45	2.39	3.45	3.45	3.82	4.74	5.17	5.72	6.79	6.79
EC fans power abs.	kW	--	--	--	--	--	1.60	1.90	2.35	3.59	2.14	3.62	3.76	3.26	4.07	4.41	4.99	6.2	6.73
ESP	Pa	20-350																	
Sound pressure level (2)	dB(A)	52	53	56	56	57	65	67	62	65	60	65	65	65	56	57	59	64	65
Humidifier																			
Humidifying capacity	kg/h	3	3	5	5	5	5	5	5	5	5	5	5	5	8	8	8	8	8
Power abs.	kW	2.25	2.25	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	6	6	6	6	6
Heaters																			
Steps		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Power abs.	kW	6	6	6	6	6	9	9	15	15	15	15	15	15	18	18	18	18	18

### NOTE

- (1) return air: 24°C relative humidity: 50% ESP 20 Pa
- (2) measured at 1.5m height and 2m front free field
- (3) For the units SA008-025 configure AC fans, have three kinds of air supply way, they are upflow delivery, downflow delivery and front delivery. As the SAO and SAU, the unit with frontflow delivery can be expressed as SAF. And the unit SA025 also can configure EC fans, and the relative technical parameter is not showed in the table, please consult the Climaveneta Factory.
- (4) The humidifying capacity and heating capacity showed in the table is standard data, and we can enlarge the capacity in response to the customer requirement.



## DIMENSION/WEIGHT

### Direct Expansion Air Cooled

Mode	SAU/O										DAU/O								
	008	013	017	020	025	030	035	040	045	035	045	050	055	060	070	080	090	100	
Width	mm	600		800		1000				1550				1990		2490			
Depth	mm	550		700		790				790				890		890			
Height	mm	1980		1980		1980				1980				1980		1980			
Net Weight	kg	130	145	210	215	225	367	385	509	509	449	509	509	529	697	737	757	888	918

### NOTE:

- (1) The dimension of units DAU/O 060 070 080 showed in the table is the situation which the unit configure EC and AC fans, and the units dimension is 2100mm×790mm×1980mm when the units fit out belt-driven fans.
- (2) The dimension of units SAU/O 025 showed in the table is the situation which the unit configure AC fans, and the units dimension is 1000mm×790mm×1980mm when the units fit out belt-driven and EC fans.



Type: DIRECT EXPANSION, WATER COOLED,  
upflow or downflow version



Available Versions

Evolution



## UNIT DESCRIPTION

Cooling capacity per direct expansion water cooled unit is from 8 to 104kW.

Particularly suitable for air-conditioning technological applications, server and CED rooms and all technological applications in general.

## STANDARD UNIT COMPOSITION

- Unit for installing inside or outside the room to be air-conditioned.
- Maximum resistance to rust thanks to galvanized sheet metal structures and panels with powder-coated paint finish.  
The panels are lined with sound-insulating material.
- The reliability and functionality of the compressor and all the other components are guaranteed by partners who are world leaders in their sector.
- Double-inlet centrifugal fan units directly coupled and suspended on vibration-isolation mountings.  
The fans are of the forward-bladed type for maximum efficiency and low noise.
- Condensation control for maximum low noise (optional).
- Standard G4 filtering section, F5-F8 optional, under CEN-EN 779 rule with the separation degree 90,1% ASHRAE.  
The filter is auto extinguishing type.
- The microprocessor controls the compressor activation times with FIFO logic, thereby regulating the cooling capacity; it also controls the operating alarms with the possibility of interfacing to supervisor and remote-servicing systems.
- Electrical box under IEC 204-1/EN60204-1 rules.
- Refrigerant circuit consisting in the standard version of a thermostat with external valve for internal pressure relief, solenoid valve, high/low pressure safety pressure switch, liquid indicator light and dehydrating filter.

## Direct Expansion Water Cooled Unit

Model	SWU/O/F					SWU/O					DWU/O								
	008	013	017	020	025	030	035	040	045	035	045	050	055	060	070	080	090	100	
Power supply	V/Ph/Hz																		
Refrigerant	R410A																		
Cooling performances																			
Total cooling capacity (1)	kW	7.5	12.0	15.0	18.0	25.0	30.5	35.1	40.5	45.2	35.6	48.5	50.1	56.4	63.5	71.7	80.2	92.2	101.0
Sensible cooling capacity (1)	kW	6.9	10.9	13.8	16.4	22.5	30.0	33.5	39.7	44.0	35.3	43.5	48.5	53.2	62.0	70.5	78.0	90.5	98.7
SHR (1)		0.92	0.91	0.92	0.91	0.90	0.98	0.95	0.98	0.97	0.99	0.90	0.97	0.94	0.98	0.98	0.98	0.98	0.98
Compressors																			
Quantity		1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2
Power abs. (1)	kW	1.87	3.0	3.69	4.2	4.91	6.01	6.3	7.66	8.64	7.27	9.62	10.5	12.0	12.0	13.9	15.9	17.9	21.9
Plate condenser																			
Quantity		1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2
Water Flow (1)	l/h	1611	2580	3214	3818	5144	6279	7120	8282	9259	7372	9995	10421	11763	12984	14721	16526	18934	21135
Total pressure drops (1)	kPa	15	21	18	20	23	30	27	27	30	24	21	21	30	33	30	26	31	39
Fan																			
Air flow	m <sup>3</sup> /h	2200	2850	4750	4750	5750	8400	9180	13000	15200	11550	15200	15400	14850	21300	22000	23000	27000	28000
N° AC fans		1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3
N° EC fans		--	--	--	--	--	1	1	2	2	2	2	2	2	2	2	2	3	3
AC fans power abs.	kW	0.30	0.46	0.84	0.84	1.50	2.07	2.26	3.30	3.45	2.39	3.45	3.45	3.82	4.74	5.17	5.72	6.79	6.79
EC fans power abs.	kW	--	--	--	--	--	1.60	1.90	2.35	3.59	2.14	3.62	3.76	3.26	4.07	4.41	4.99	6.2	6.73
ESP	Pa	20-350																	
Sound pressure level (2)	dB(A)	52	53	56	56	57	65	67	62	65	60	65	65	65	56	57	59	64	65
Humidifier																			
Humidifying capacity	kg/h	3	3	5	5	5	5	5	5	5	5	5	5	5	8	8	8	8	8
Power abs	kW	2.25	2.25	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	6	6	6	6	6
Heaters																			
Steps		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Power abs.	kW	6	6	6	6	6	9	9	15	15	15	15	15	15	18	18	18	18	18
cooling water connection																			
connection specification		F1"		F1 "1/4			F1 "1/2						F2"						

### NOTE

- (1)-return air: 24°C, relative humidity: 50%, cooling water condition 30/35°C, ESP: 20Pa
- (2)-measured at 1.5m height and 2m front free field
- (3)-for the units of SW008-025, they have three kinds of air supply way, they are upflow delivery, downflow delivery, and front delivery. The unit with frontflow delivery can be expressed as SWF
- (4)-The humidifying capacity and heating capacity showed in the table is standard data, and we can enlarge the capacity in response to customer requirements



## DIMENSION/WEIGHT

### Direct Expansion Water Cooled Unit

Model	SWU/O/F					SWU/O					DWU/O								
	008	013	017	020	025	030	035	040	045	035	045	050	055	060	070	080	090	100	
Width	mm	600		800			1000			1550			1990			2490			
Depth	mm	550		700			790			790			890			890			
Height	mm	1980			1980			1980			1980			1980			1980		
Net Weight	kg	135	150	217	222	240	328	381	528	528	473	539	539	539	731	771	795	926	952



Type: CHILLED WATER  
up flow or downflow version



Available Versions

STD Cooling only,  
with 3-way valve

## UNIT DESCRIPTION

Cooling capacity per chilled water unit is from 9 to 220kW.

## STANDARD UNIT COMPOSITION

- Unit for installing inside or outside the room to be air-conditioned.
- Maximum resistance to rust thanks to galvanized sheet metal structures and panels with powder-coated paint finish.  
The panels are lined with sound-insulating material.
- EC inverter radial-blade fans.  
The fans are of the backward-blade type for maximum efficiency and low noise.
- Standard G4 filtering section, F5-F8 optional, under CEN-EN 779 rule with the separation degree 90,1% ASHRAE.  
The filter is auto extinguishing type.
- The microprocessor controls the operating alarms with the possibility of interfacing to supervisor and remote-servicing systems.
- Electrical box under IEC 204-1/EN60204-1 rules.

## Chilled Water Unit

Model		SCU/O																			
		009	011	016	020	025	030	035	040	050	060	070	080	090	100	120	140	160	180	200	220
Power supply	V/Ph/Hz	220/1N/50			380/3N/50																
Cooling performances(CONDITION 1)																					
Total cooling capacity (1)	kW	9.1	11.2	16.8	22.7	28.5	33.8	38.3	46.0	54.7	65.2	75.1	88.9	100.6	111.3	124.3	140.2	157.8	171.8	200.2	216
Sensible cooling capacity (1)	kW	9.1	11.2	16.8	22.7	28.5	33.8	38.3	46.0	54.7	65.2	75.1	88.9	100.6	111.3	124.3	140.2	157.8	171.8	200.2	216
SHR (1)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Water side (CONDITION 1)																					
Water Flow (1)	l/h	1567	1923	2884	3904	4890	5820	6580	7900	9410	11200	12900	15280	17300	19130	21360	24100	27130	29520	34420	37130
Total pressure drops (1)	kPa	31.1	35.4	33.4	69.7	43	64	75	54	62	90	50	91	65	90	117	133	99	99	122	124
Cooling performances(CONDITION 2)																					
Total cooling capacity(2)	kW	8.9	11.1	16.5	21.8	24.0	30.0	35.2	41.8	51.9	60.0	69.2	82.1	91.4	100.0	118.0	141.0	158.0	173.0	195.0	219
Sensible cooling capacity(2)	kW	8.9	10.6	16.5	20.6	21.2	26.2	30.4	36.9	44.3	52.0	60.7	70.2	79.2	87.9	98.2	114.0	127.0	140.0	159.0	173
SHR(2)		1.00	0.95	1.00	0.94	0.88	0.87	0.86	0.88	0.85	0.87	0.88	0.86	0.87	0.88	0.83	0.81	0.80	0.81	0.82	0.79
Water side(CONDITION 2)																					
Water flow(2)	l/h	1529	1898	2836	3732	4140	5160	6070	7190	8930	10300	11900	14100	15700	17200	20400	24200	27100	29800	33600	37800
Total pressure drops(2)	kPa	30	34.7	32.6	64.3	37.5	56.7	69	50.2	58.2	76.5	45.7	76.1	57.5	68.6	110	134	95	100	118	128
Fan																					
Air flow	m³/h	2750	2890	5390	5580	6000	7000	7600	10200	10800	13200	15680	18000	20550	23500	23600	26200	29500	32200	38000	38000
N° EC fans		1	1	2	2	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3
EC fans power abs.	kW	0.34	0.41	0.64	0.74	0.90	1.33	1.90	2.05	2.54	2.14	3.31	4.53	4.32	4.80	5.05	4.68	6.01	7.80	8.19	8.22
ESP	Pa	20-350																			
Sound pressure level (2)	dB(A)	50	50	53	53	57	61	62	59	62	63	66	62	63	59	59	62	64	65	63	63
Humidifier																					
Humidifying capacity	kg/h	3	3	5	5	5	5	5	5	5	8	8	8	8	8	8	10	10	15	15	15
Power abs.	kW	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	7.5	7.5	11.25	11.25	11.25
Heaters																					
Steps		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Power abs.	kW	4	4	8	8	9	9	9	15	15	15	18	18	18	18	18	18	24	24	24	24

### NOTE

#### (1) CONDITION 1

Return air:30°C ,RH:30%, the temperature IN/OUT chilled water :10°C/15°C ,ESP:20Pa

#### CONDITION 2

Return air:24°C ,RH:50%, the temperature IN/OUT chilled water :7°C/12°C ,ESP:20Pa

Return air:24°C ,relative humidity:50%; the temperature In/Out of chilled water:7°C/12°C ;ESP 20 Pa

#### (2) Measured at 1.5m height and 2m front free field

#### (3) The humidifying capacity and heating capacity showed in the table is standard data, and we can enlarge the capacity in response to the customer requirement.



## DIMENSION/WEIGHT

### Chilled Water Unit

Model		SCU/O																				
		009	011	016	020	025	030	035	040	050	060	070	080	090	100	120	140	160	180	200	220	
Width	mm	600			1000			800			1550			1990			2490			2990		
Depth	mm	500			500			700			790			890			890			890		
Height	mm	1980			1980			1980			1980			1980			1980			1980		
Net Weight	kg	120	130	200	210	245	260	290	330	369	379	385	396	476	495	516	610	650	680	720	760	

## TECHNICAL FEATURES:

SAU/O-D DAU/O-D | 025-100

SWU/O-D DWU/O-D | 025-100



Type: DUAL FLUID, AIR COOLED,  
DUAL FLUID, WATER COOLED  
upflow or downflow version



### Available Versions

- |     |   |
|-----|---|
| STD | Cooling only without condensation control device                                    |
| MOD | Cooling only with condensation control device through external unit fans regulation |

## UNIT DESCRIPTION

Cooling capacity per direct expansion air cooled unit is from 24 to 100kW. Dual fluid unit has two different types dual fluid air cooled and dual fluid water cooled. EC fan is used in dual fluid unit with highest efficiency. Unit will be always running under chilled water mode but it will also automatically change to direct expansion mode while failure of chilled water system happens. So dual fluid unit is the most reliable cooling solution to choose for all the customers.

## STANDARD UNIT COMPOSITION

- Unit for installing inside or outside the room to be air-conditioned.
- Maximum resistance to rust thanks to galvanized sheet metal structures and panels with powder-coated paint finish.  
The panels are lined with sound-insulating material.
- The reliability and functionality of the compressor and all the other components are guaranteed by partners who are world leaders in their sector.
- EC inverter radial-blade fans.  
The fans are of the backward-blade type for maximum efficiency and low noise.
- Condensation control for maximum low noise (optional).
- Standard G4 filtering section, F5-F8 optional, under CEN-EN 779 rule with the separation degree 90,1% ASHRAE. The filter is auto extinguishing type.
- The microprocessor controls the compressor activation times with FIFO logic, thereby regulating the cooling capacity; it also controls the operating alarms with the possibility of interfacing to supervisor and remote-servicing systems.
- Electrical box under IEC 204-1/EN60204-1 rules.
- Refrigerant circuit consisting in the standard version of a thermostat with external valve for internal pressure relief, solenoid valve, high/low pressure safety pressure switch, liquid indicator light and dehydrating filter.

## Air Cooled Dual Fluid

Model	SAU/O-D				DAU/O-D							
	025	030	035	045	035	050	055	060	080	090	100	
Power supply	V/Ph/Hz	400/3N/50										
Refrigerant		R410A										
Cooling performances												
Direct expansion total cooling capacity (1)	kW	24.15	29.98	33.55	43	37.32	48.33	55.84	63.21	76.77	88	100.33
Direct expansion sensible cooling capacity (1)	kW	23.17	29.28	33.04	40.35	37.08	48.12	54.15	61.49	74.79	87.72	97.41
Direct expansion SHR (1)		0.96	0.98	0.98	0.94	0.99	0.99	0.97	0.97	0.97	0.99	0.97
Chilled water total cooling capacity (1)	kW	25.46	30.09	33.56	53.55	42.85	53.55	55.03	69.34	72.02	97.47	99.35
Chilled water sensible cooling capacity (1)	kW	24.06	29.16	32.81	51.2	40.82	51.2	52.86	67.95	71.12	93.89	96.04
Chilled water SHR		0.95	0.97	0.98	0.93	0.95	0.96	0.96	0.98	0.99	0.96	0.97
Compressors												
Quantity		1	1	1	1	2	2	2	2	2	2	2
Power abs. (1)	kW	4,93	6,01	6,75	7,87	7,15	9,87	11,70	12,02	15,40	17,68	21,36
Fan												
Air flow	m³/h	6600	8250	8800	14300	11000	14300	14850	19800	20900	26400	27120
N° EC fans		1	1	1	2	2	2	2	3	3	3	3
EC fans power abs.	kW	0,89	1,60	1,80	3,40	2,09	3,40	3,65	4,50	5,20	6,1	6,1
Sound pressure level (2)	dB(A)	56	60	60	64	59	64	64	67	67	67	67
Humidifier												
Humidifying capacity	kg/h	5	5	5	5	5	5	5	8	8	8	8
Power abs.	kW	3,75	3,75	3,75	3,75	3,75	3,75	3,75	6	6	6	6
Heaters												
Steps		3	3	3	3	3	3	3	3	3	3	3
Power abs.	kW	9	9	9	15	15	15	15	18	18	18	18

### NOTE

(1) Return air:24°C,relative humidity: 50%; outdoor temperature: 35°C; chilled water in/out temperature: 7/12°C;ESP 20Pa

(2) Measured at 1.5m height and 2m front free field

(3) The humidifying capacity and heating capacity showed in the table is standard data, and we can enlarge the capacity in response to the customer requirement.



## DIMENSION/WEIGHT

### Air Cooled Dual Fluid

Model	SAU/O-D				DAU/O-D							
	025	030	035	045	035	050	055	060	080	090	100	
Width	mm	1000	1000	1000	1550	1550	1550	1550	2100	2100	2650	2650
Depth	mm	790	790	790	790	790	790	790	790	790	790	790
Height	mm	1980	1980	1980	1980	1980	1980	1980	1980	1980	1980	1980
Net Weight	kg	312	359	377	516	428	511	536	774	794	993	1023



TECHNICAL FEATURES:

SAU/O-D DAU/O-D | 025-100  
 SWU/O-D DWU/O-D | 025-100

Water Cooled Dual Fluid

Model	SWU/O-D				DWU/O-D							
	025	030	035	045	035	050	055	070	080	090	100	
Power supply	V/Ph/Hz				400/3N/50							
Refrigerant	R410A											
Cooling performances												
Direct expansion water cooled total cooling capacity (1)	kW	25.21	31.1	33.69	47.98	38.78	50.96	55.19	71.57	77.58	93.31	102.9
Direct expansion water cooled sensible cooling capacity (1)	kW	23.99	30.05	32.72	47.55	38.57	50.25	53.64	70.33	75.16	92.78	99.75
Direct expansion SHR (1)		0.93	0.97	0.97	0.99	0.99	0.99	0.97	0.98	0.97	0.99	0.97
Chilled water total cooling capacity (1)	kW	25.46	30.09	33.56	53.55	42.85	53.55	55.03	69.34	72.02	97.47	99.35
Chilled water sensible cooling capacity (1)	kW	24.06	29.16	32.51	51.2	40.82	51.2	52.86	67.95	71.12	93.89	96.04
Chilled water SHR		0.95	0.97	0.97	0.96	0.95	0.96	0.96	0.98	0.99	0.96	0.97
Compressors												
Quantity		1	1	1	1	2	2	2	2	2	2	2
Power abs. (1)	kW	4,30	5,40	6,11	6,94	6,44	8,61	10,55	12,28	13,30	16,03	19,33
Plate condenser												
Quantity		1	1	1	1	2	2	2	2	2	1	1
Water Flow(1)	l/h	4900	6330	7002	8430	7380	9810	11954	14360	16132	18120	20830
Water pressure drop in DX mode	kPa	24	32	28	31	27	21	32	30	28	33	41
Total pressure drops	kPa	26	35	35	46	30	46	46	26	26	53	53
Fan												
Air flow	m³/h	6600	8250	8800	14300	11000	14300	14850	19800	20900	26400	27120
N° EC fans		1	1	1	2	2	2	2	3	3	3	3
EC fans power abs.	kW	0,89	1,60	1,80	3,40	2,09	3,40	3,65	4,50	5,20	6,1	6,1
ESP	Pa	20-350										
Sound pressure level (2)	dB(A)	56	60	60	64	59	64	64	67	67	67	67
Humidifier												
Humidifying capacity	kg/h	5	5	5	5	5	5	5	8	8	8	8
Power abs.	kW	3,75	3,75	3,75	3,75	3,75	3,75	3,75	6	6	6	6
Heaters												
Steps		3	3	3	3	3	3	3	3	3	3	3
Power abs.	kW	9	9	9	15	15	15	15	18	18	18	18

NOTE

(1) Return air:24°C,relative humidity: 50%; chilled water in/out temperature: 7/12°C; cooling water in/out temperature:30/35°C;ESP 20Pa

(2) Measured at 1.5m height and 2m front free field

(3) The humidifying capacity and heating capacity showed in the table is standard data, and we can enlarge the capacity in response to the customer requirement.



DIMENSION/WEIGHT

Water Cooled Dual Fluid

Model	SWU/O-D				DWU/O-D							
	025	030	035	045	035	050	055	070	080	090	100	
Width	mm	1000	1000	1000	1550	1550	1550	2100	2100	2650	2650	
Depth	mm	790	790	790	790	790	790	790	790	790	790	
Height	mm	1980	1980	1980	1980	1980	1980	1980	1980	1980	1980	
Net Weight	kg	348	399	417	556	468	511	576	811	831	981	1061



Type:FREECOOLING, WATER COOLED,  
upflow or downflow version



Available Versions

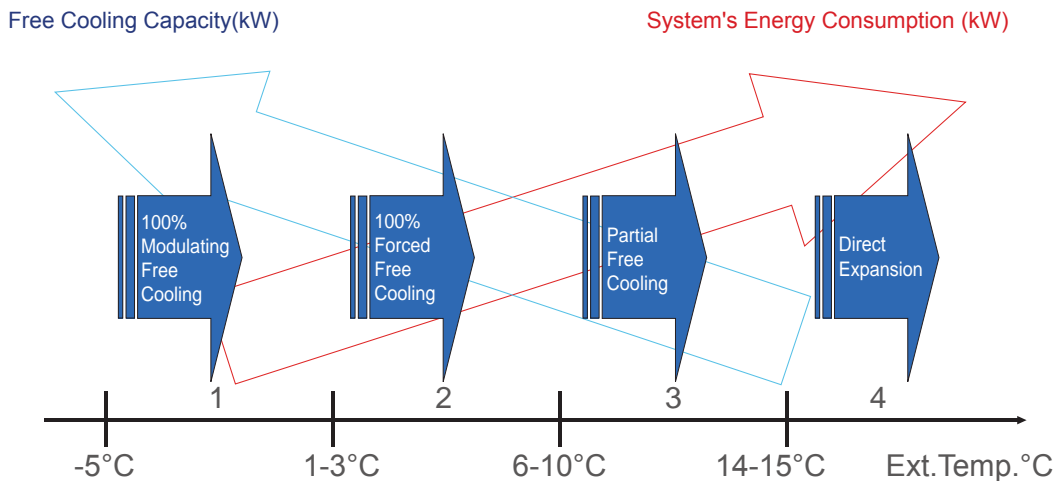
STD      Cooling with 3-way valve



## UNIT DESCRIPTION

Cooling capacity per free cooling unit is from 25 to 102kW. Free cooling units fit out EC fans normally. Free cooling unit consists of two coils direct expansion water cooled coil and free cooling coil. Unit can automatically switch working mode according to real outdoor temperature.

## FREE COOLING CAPACITY



Direct Expansion Water Cooling

Model	SWU/O-F				DWU/O-F							
	025	030	035	045	035	050	055	070	080	090	100	
Power supply	V/Ph/Hz	380/3N/50										
Refrigerant		R410A										
Cooling performances												
Direct expansion mode total cooling capacity(1)	kW	25.21	31.1	33.69	47.88	38.78	50.96	55.19	71.57	77.58	93.31	102.9
Direct expansion mode sensible cooling capacity(1)	kW	23.99	30.05	32.72	47.55	38.57	50.25	53.64	70.33	75.16	92.78	99.75
Direct expansion SHR(1)		0.93	0.97	0.97	0.99	0.99	0.99	0.97	0.98	0.97	0.99	0.97
Freecooling mode total cooling capacity(1)	kW	24.9	30.6	32.3	47.3	38.1	50	54.5	70.3	76.7	91.8	102
Freecooling mode sensible cooling capacity(1)	kW	22.9	28.1	30	45.1	36.4	46.8	50.2	65.5	70	86.3	92.5
Freecooling mode SHR(1)		0.92	0.92	0.93	0.96	0.95	0.94	0.92	0.93	0.91	0.94	0.91
Compressors												
Quantity		1	1	1	1	2	2	2	2	2	2	2
Power abs.(1)	kW	4,40	5,40	6,11	8,00	6,44	8,41	10,96	12,28	13,30	16,03	19,33
Plate condenser												
Quantity		1	1	1	1	2	2	2	2	2	1	1
Water Flow(1)	l/h	4900	6330	7002	8430	7380	9610	12313	14360	16133	18120	20830
Water pressure drop in DX mode	kPa	47	70	46	66	49	58	57	65	70	55	68
Freecooling mode water pressuredrop	kPa	60	97	69	89	64	84	95	85	91	80	99
Fan												
Air flow	m³/h	6600	8250	8800	14300	11000	14300	14850	19800	20900	26400	27120
N° fans		1	1	1	2	2	2	2	3	3	3	3
fans power abs.	kW	0,89	1,60	1,80	3,40	2,09	3,40	3,65	4,50	5,20	6,1	6,1
ESP	Pa	20-350										
Sound pressure level(2)	dB(A)	56	60	60	64	59	64	64	67	67	67	67
Humidifier												
Humidifying capacity	kg/h	5	5	5	5	5	5	5	8	8	8	8
Power abs.	kW	3,75	3,75	3,75	3,75	3,75	3,75	3,75	3,75	3,75	3,75	3,75
Heaters												
Steps		3	3	3	3	3	3	3	3	3	3	3
Power abs.	kW	9	9	9	9	9	9	9	18	18	18	18

NOTE

- (1) Return air:24°C,relative humidity: 50%; freecooling water in temperature: 7°C; cooling water in/out temperature:30/35°C, ESP:20Pa
- (2) Measured at 1.5m height and 2m front free field
- (3) The humidifying capacity and heating capacity showed in the table is standard data, and we can enlarge the capacity in response to the customer requirement.



DIMENSION/WEIGHT

Direct Expansion Water Cooling	SWU/O-F				DWU/O-F							
	025	030	035	045	035	050	055	070	080	090	100	
Width	mm	1000	1000	1000	1550	1550	1550	1550	2100	2100	2650	2650
Depth	mm	790	790	790	790	790	790	790	790	790	790	790
Height	mm	1980	1980	1980	1980	1980	1980	1980	1980	1980	1980	1980
Net Weight	kg	362	413	433	489	577	580	605	846	871	993	1123

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