CLIMAVENETA

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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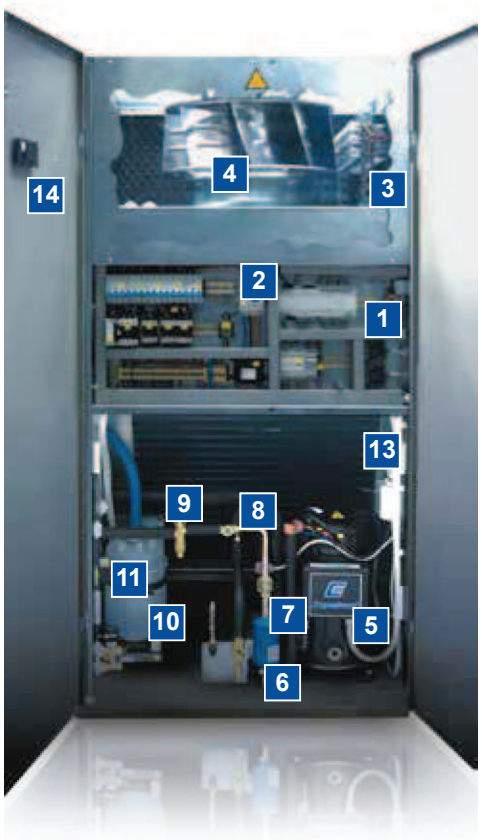
Introduction



1	MAIN BOARD
2	MAIN SWITCH
3	HEATERS
4	INVERTER EC FANS
5	COMPRESSOR
6	DRIER FILTER
7	LIQUID LINE VALVE
8	SIGHT GLASS
9	THERMOSTATIC VALVE
10	HUMIDIFIER
11	DEHUMIDIFICATION VALVE
13	TEMP. & HUMIDITY SENSOR
14	USER TERMINAL

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).

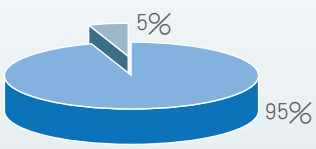
Standard solutions
- SCROLL compressors
- Thermostat valve with internal pressure equalization
- Electronic thermostat (optional)
- Standard centrifugal fans
- High efficiency EC INVERTER ventilation (optional)
- Standard condensation control (DX versions)
- Electric reheat or with hot water
- Immersed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

EXCELLENT SHR PERFORMANCE

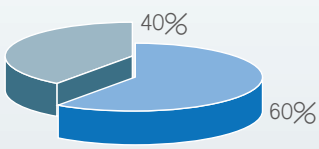
As is known, electronic equipment develops solely SENSIBLE heat loads and therefore needs dedicated air conditioning to deal with this.

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 of1. In order to have the utmost SENSIBLE and not latent type of cooling.



SHR for TECHNOLOGICAL Application



SHR for COMFORT Application

EC INVERTER FANS

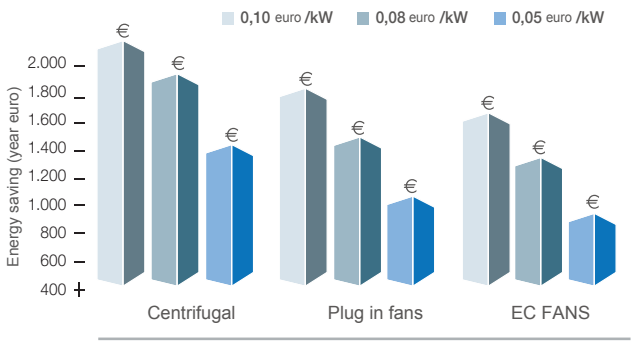
This new technology with electronically commutated motor increases the efficiency of the COOLBLADE system, optimizing running costs through state-of-the-art electronics, which are used to change parameters such as:

- 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

EC INVERTER FANS TECHNOLOGY
The most advanced solution for energy saving



Energy saving by EC INVERTER Fans Vs. standard traditional fans

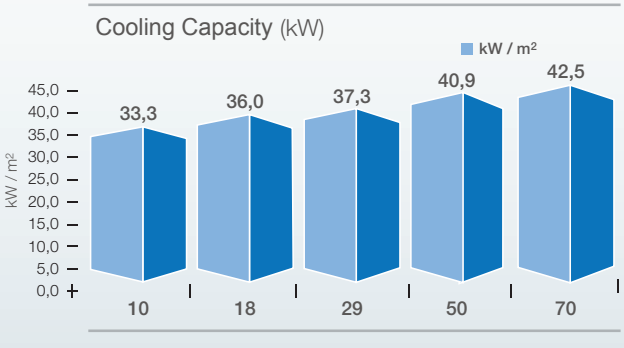
THE MOST COMPACT DESIGN

It is a known fact that the set loads (W/m2) 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.

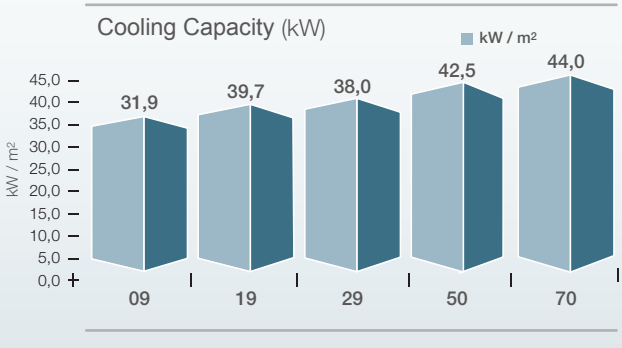
This requires ever better performance from the air-conditioning system that should, however, take up as little space as possible, leaving it for the transmission equipment.

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

DIRECT EXPANSION RANGE



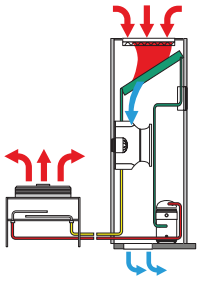
CHILLED WATER RANGE



Total versatility

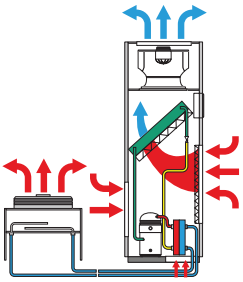
All-round flexibility seen as a service offered for any type of system. COOLBLADE provides customers with the most flexible solutions.

TYPES OF COOLING



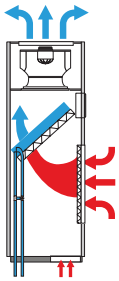
DIRECT EXPANSION AIR COOLED
cooling capacity:8-101kW

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



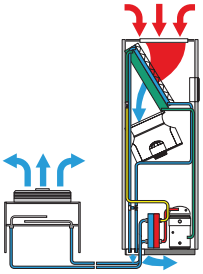
DIRECT EXPANSION WATER COOLED
cooling capacity:8-104kW

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.



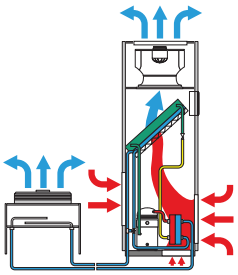
CHILLED WATER
cooling capacity:9-220kW

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
WARET 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 particulary 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 particulary indicated anywhere EFFICIENCY & ENERGY SAVING are required.

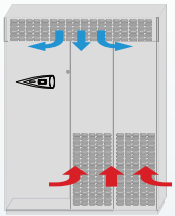
AIRFLOW CONFIGURATION

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.

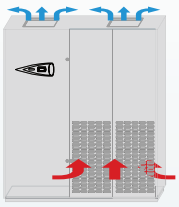
UNDER
The versions called UNDER with air outflow under the floor have the air intake on the top of the unit taking air directly from the environment or through intake ducts or plenums.

FRONT
The versions called FRONT with air outflow from the upper front pare 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

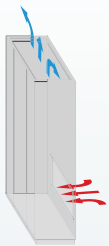


OVER unit with front intake and top delivery

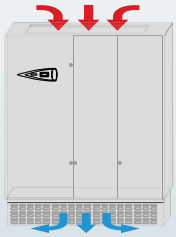


OVER unit with underfloor intake and top delivery

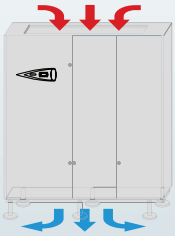
OVER unit with rear intake and top deliver



UNDER unit with top intake and front delivery plenum



OVER unit with top intake and undefloor 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

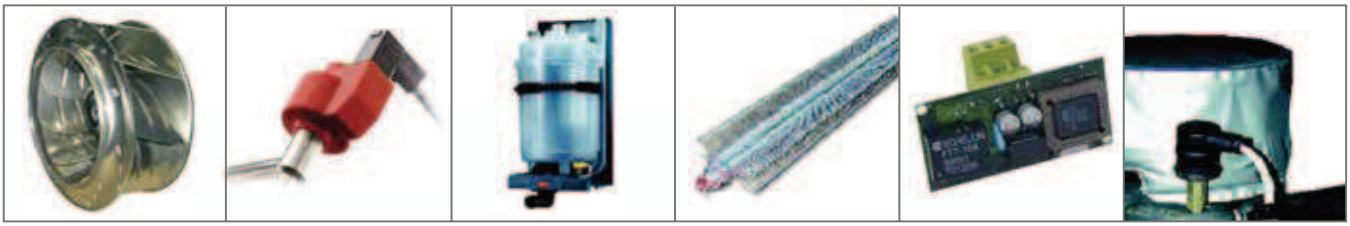
STANDARD FUNCTIONS

- 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 ENVIROMENT

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	8.0	13.2	17.2	20.0	25.0	30.5	35.1	40.5	45.2	35.6	46.4	50.1	56.4	63.5	71.7	80.2	92.2	101.0
Sensible cooling capacity (1) kW	7.4	11.4	15.9	18.1	22.5	30.4	33.5	40.3	45.2	35.3	45.9	48.5	53.2	63.5	70.5	78.4	91.5	98.7
SHR(1)	0.92	0.86	0.92	0.91	0.90	1.00	0.95	0.99	1.00	0.99	0.99	0.97	0.94	1.00	0.98	0.98	0.99	0.98
EER	3.69	3.82	3.80	3.97	3.90	4.01	4.28	4.05	3.7	3.78	3.52	3.53	3.69	3.94	3.92	3.84	3.83	3.53
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	9.61	10.5	12.0	12.0	13.9	15.9	17.9	21.9
Fan																		
Air flow m^3/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	3	3	3	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)	46	42	52	52	51	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℃ 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 airsupply 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 DAU/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								DWU/O								
		008	010	018	020	025	030	035	045	035	045	050	060	065	075	085	095	100
Power supply	V/Ph/Hz	380/3N/50																
Refrigerant		R410A																
Cooling performances																		
Total cooling capacity (1)	kW	8.0	10.6	18.0	20.9	26.4	31.6	36.4	47.4	36.8	47.4	52.7	60.5	65.8	75.7	85.5	95.5	104.7
Sensible cooling capacity (1)	kW	8.0	10.1	18.0	20.0	24.8	30.5	34.6	47.4	36.7	47.4	52.1	56.0	65.7	74.3	81.2	95.4	100.4
SHR (1)		1.00	0.95	1.00	0.96	0.94	0.97	0.95	1.00	1.00	0.99	0.99	0.93	1.00	0.98	0.95	1.00	0.96
EER		4.10	4.43	4.28	4.27	4.41	4.19	4.33	4.39	3.99	3.92	4.35	4.21	3.81	4.01	4.10	4.34	4.14
Compressors																		
Quantity		1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2
Power abs. (1)	kW	1.47	1.91	3.26	3.93	4.28	5.38	6.24	6.91	6.42	8.5	8.53	10.76	10.77	12.38	13.54	15.90	19.15
Plate condenser																		
Quantity		1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2
Water Flow (1)	l/h	1629	2148	3660	4262	5274	6357	7331	9343	2x3718	2x4896	2x5262	2x6130	2x6584	2x7575	2x8514	19161	21304
Total pressure drops (1)	kPa	8	14	5	7	23	30	27	30	24	21	21	30	33	30	26	31	39
Fan																		
Air flow	m^3/h	2750	2890	5390	5580	7150	8800	9180	13500	11550	13500	14850	14850	20900	20900	21740	27500	27500
N° Centrifugal fans		1	1	2	2	1	1	1	2	2	2	2	2	2	2	2	-	-
N° AC fans		-	-	-	-	1	1	1	2	2	2	2	2	3	3	3	3	3
N° EC fans		1	1	2	2	1	1	1	2	2	2	2	2	3	3	3	3	3
Centrifugal fans power abs.	kW	0.48	0.48	0.95	0.95	1.70	2.16	2.17	3.89	2.81	3.58	3.58	3.62	6.50	6.50	7.30	-	-
AC fans power abs.	kW	-	-	-	-	1.58	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	0.30	0.36	0.55	0.62	0.93	1.77	1.86	3.48	2.13	3.6	3.21	3.26	5.14	5.14	5.77	6.09	6.15
ESP	Pa	20～350																
Sound pressure level (2)	dB(A)	50	50	53	53	56	60	60	64	59	64	64	64	67	67	67	67	67
Humidifier																		
Humidifying capacity	kg/h	3	3	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	6	6	6	6	6
Heaters																		
Steps		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	15	15	18	18	18	18	18

NOTE

(1)return air:24℃ relative humidity:50%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

Direct Expansion Water Cooled Unit

Model		SWU/O								DWU/O								
		008	010	018	020	025	030	035	045	035	045	050	060	065	075	085	095	100
Width	mm	600		1000		1000				1550				2100			2490	
Depth	mm	500		500		790				790				790			890	
Height	mm	1980		1980		1980				1980				1980			1980	
Net Weight	kg	161	177	266	280	328	381	399	528	467	528	528	554	725	766	791	888	918

Type: CHILLED WATER
CHILLED WATER(DUAL COIL)
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	26.3	32.1	36.9	44.9	53.6	63.1	73.7	85.4	96.7	107	119	137	153	168	192	200
Sensible cooling capacity (1)	kW	9.1	11.2	16.8	22.7	26.3	32.1	36.9	44.9	53.6	63.1	73.7	85.4	96.7	107	119	137	153	168	192	200
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
EER		26.76	27.32	26.25	30.68	29.22	24.14	19.42	21.90	21.10	29.49	22.27	18.85	21.88	22.29	23.56	29.27	25.46	21.54	23.44	24.33
Water side (CONDITION 1)																					
Water Flow (1)	l/h	1567	1923	2884	3904	4530	5520	6350	7730	9240	10900	12700	14700	16700	18500	20600	23600	26400	28900	33100	34400
Total pressure drops (1)	kPa	31.1	35.4	33.4	69.7	44.4	64.5	75.2	57.5	62	84.5	51.6	82	64.2	78.7	113	127	90.2	94.7	115	107
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
EER		26.18	27.07	25.78	29.46	26.67	22.56	18.53	20.39	20.45	28.04	20.91	18.12	21.16	20.83	23.37	30.12	26.29	22.18	23.81	26.64
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	m^3/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	2	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	5	8	8	8	8	8	8	10	10	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	6	7.5	7.5	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℃,RH:30%, the temperature IN/OUT chilled water :10℃/15℃,ESP:20Pa

CONDITION 2

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

Return air:24℃,relative humidity:50%; the temperature In/Out of chilled water:7℃/12℃;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

Chilled Water Unit(Dual coil)

Model		SCU/O-B											
		020	025	030	040	045	055	060	075	105	120	130	140
Power supply	V/Ph/Hz	380/3N/50											
Cooling performances													
Total cooling capacity(1)	kW	22,5	29,0	41,2	50,5	54,2	66,4	76,6	94,3	104,5	124,7	131,3	148,2
Sensible cooling capacity(1)	kW	22,5	27,7	41,2	47,5	54,2	64,5	76,6	89,9	101,9	111,8	128,2	136,6
SHR(1)		1,00	0,96	1,00	0,94	1,00	0,97	1,00	0,95	0,98	0,90	0,98	0,92
Fan													
Air flow	cbm/h	8000	8000	13500	13500	19000	19000	26000	26000	30000	30000	36000	36000
N° EC fans		1	1	2	2	3	3	3	3	3	3	3	3
EC fans power abs.	kW	1,69	1,69	3,51	3,51	5,11	5,11	6,82	6,82	4,90	4,90	6,70	6,70
Sound pressure level(2)	dB(A)	60	60	64	64	67	67	67	67	69	69	70	70
Water side													
Water flow(1)	l/h	3670	4840	6740	8420	8860	11060	12520	15710	17420	20780	21880	24070
Total pressure drops(1)	kPa	51	72	42	45	38	53	43	52	95	73	55	66
Humidifier													
Humidifying capacity	kg/h	5	5	5	5	8	8	8	8	10	10	15	15
Power abs.	kW	3,75	3,75	3,75	3,75	6	6	6	6	7,5	7,5	11,25	11,25
Heaters													
Steps		3	3	3	3	3	3	3	3	3	3	3	3
Power abs.	kW	9	9	15	15	18	18	18	18	24	24	24	24

NOTE

(1) Return air:24℃,relative humidity:50%; the temperature In/Out of chilled water:7℃/12℃;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(Dual coil)

Model		SCU/O-B											
		020	025	030	040	045	055	060	075	105	120	130	140
Width	mm	1000		1550		2100		2650		2650		3200	
Depth	mm	790		790		790		790		890		890	
Height	mm	1980		1980		1980		1980		2180		2180	

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	43	37.31	48.33	54.15	63.2	74.79	88	97.41
Direct expansion SHR (1)		0.96	0,98	0.98	1.00	1.00	1.00	0.97	1,00	0,97	1,00	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
EER		4.15	3.94	3.92	3.82	4.04	3.64	3.64	3.83	3.73	3.70	3.65
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	m^3/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℃,relative humidity:50%; the temperature In/Out of chilled water:7℃/12℃;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

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	330	381	399	453	513	508	533	746	766	884	914

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	25.21	30.05	32.72	47.55	38.57	50.25	53.64	70.33	75.16	92.78	99.75
Direct expansion SHR (1)		1.00	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
SHR		4.86	4.44	4.26	4.64	4.55	4.24	3.89	4.27	4.27	4.22	4.05
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 dropin 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	m^3/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℃,relative humidity:50%; the temperature In/Out of chilled water:7℃/12℃;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

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	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	330	381	399	453	513	508	533	746	766	884	914

Type:FREECOOLING, WATER COOLED,
upflow or downflow version

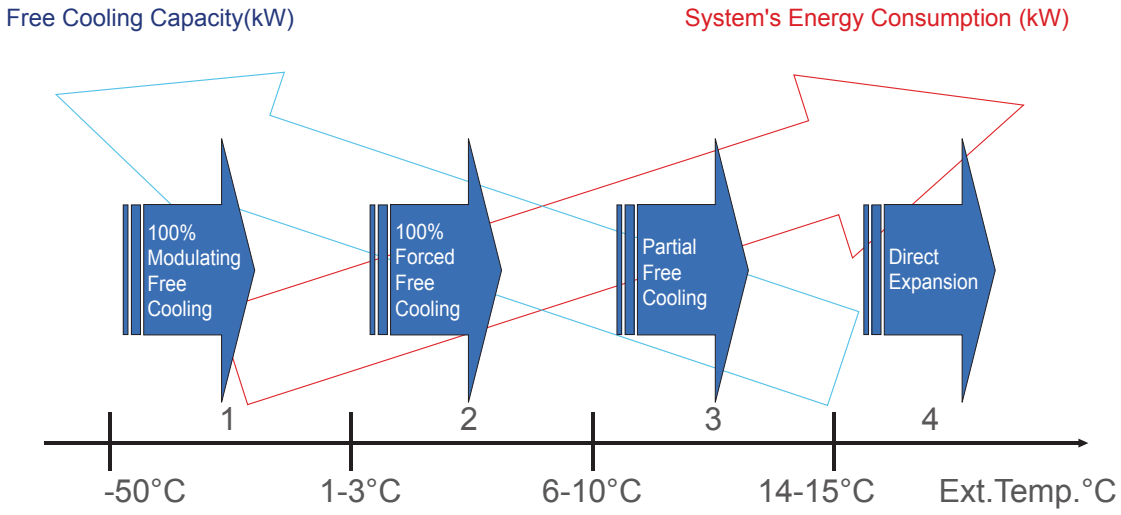
Available Versions

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	25.21	30.05	32.72	47.55	38.57	50.25	53.64	70.33	75.16	92.78	99.75
Direct expansion SHR(1)		1.00	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
EER		4.77	4.44	4.26	4.20	4.55	4.31	3.78	4.27	4.19	4.22	4.05
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	2	2
Water Flow(1)	l/h	4900	6330	7002	8430	7380	9610	12313	14360	16133	18120	20830
Water pressure dropin 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	m^3/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℃,relative humidity:50%; the temperature In of chilled water:7℃;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

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	330	381	399	453	513	508	533	746	766	884	914