



AIRSYS

**BALANCE THE
ENVIRONMENT.**

Datacenter Product Introduction

- DataCool
- CYBERCOOL-MOD
- ChillRow

BU
March 2025

CONTENT

- **Application**
- **Product Series**
- **System & Component**
- **DataCool**
- **CyberCool-MOD**
- **ChillRow**
- **Global Customer**

Application

Datacenter or server room

A computer/server room refers to a specialized space equipped with dedicated devices for communication, networking, computing, experimentation, and other purposes, and it has specific requirements.

These rooms are commonly found in telecommunications, finance, healthcare, scientific research and production, government agencies, and enterprises.

Datacenter

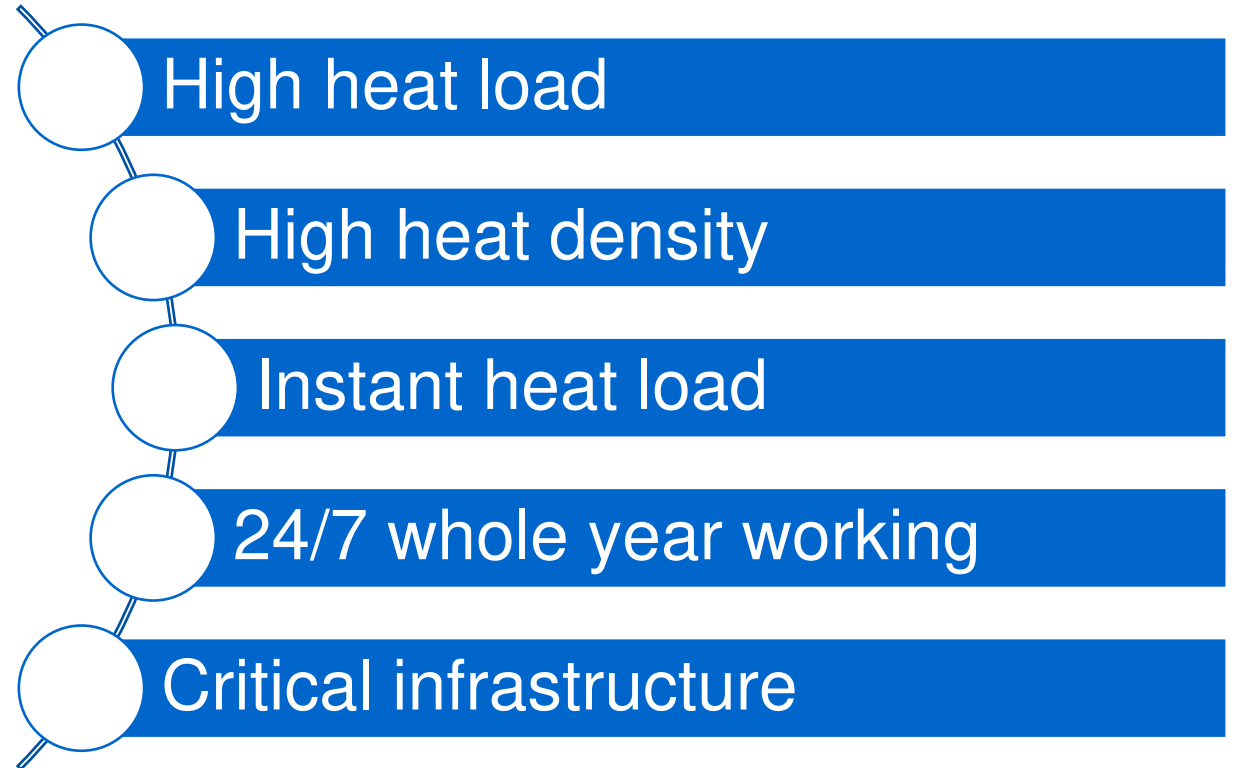


Telecom server room in UK



Application

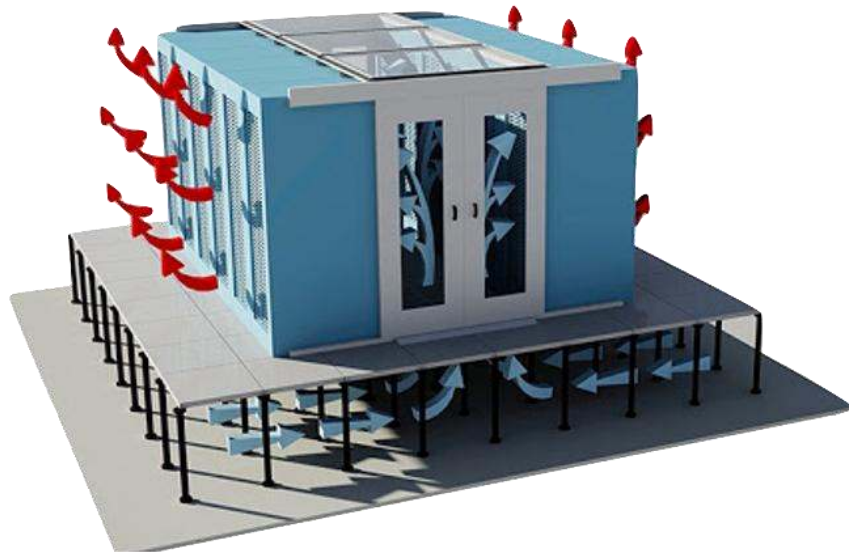
Key feature



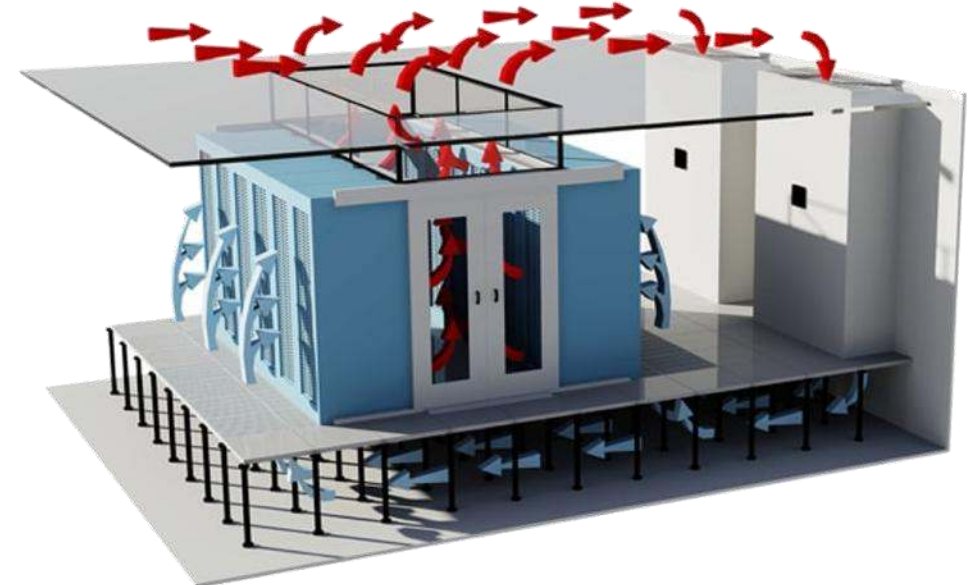
- High Airflow Volume
- Low Delta T
- High Reliability
- Easy maintenance and short maintenance interval
- ...

Cold & Hot Aisle Application

- 1 Save up to **40%** in cooling energy costs
- 2 Eliminate data center hot spots
- 3 Eliminate cool and hot air mixing
- 4 Increase rack quantity
- 5 Boost equipment/data center up-time



Cold Aisle Containment



Hot Aisle Containment

Video : 0:35-1:00

https://airsysglobal.sharepoint.com/sites/MarketingPortalInternal/_layouts/15/viewer.aspx?sourcedoc=ea0ba239-7e40-438e-971e-c8948e139a78&referrer=SharePointFileViewer.Web&referrerScenario=PopOut.mis.mis&nav=eyJwbGF5YmFja09wdGlvbnMiOnsic3RhcnRUaW1ISW5TZWNvbmRzlj0Ny41ODI5NTN9fQ%3D%3D

Current Product Series

Room type



OPTIMA
DXA only



DataCool
DXA only



CYBERCOOL-MOD
DXA & CW

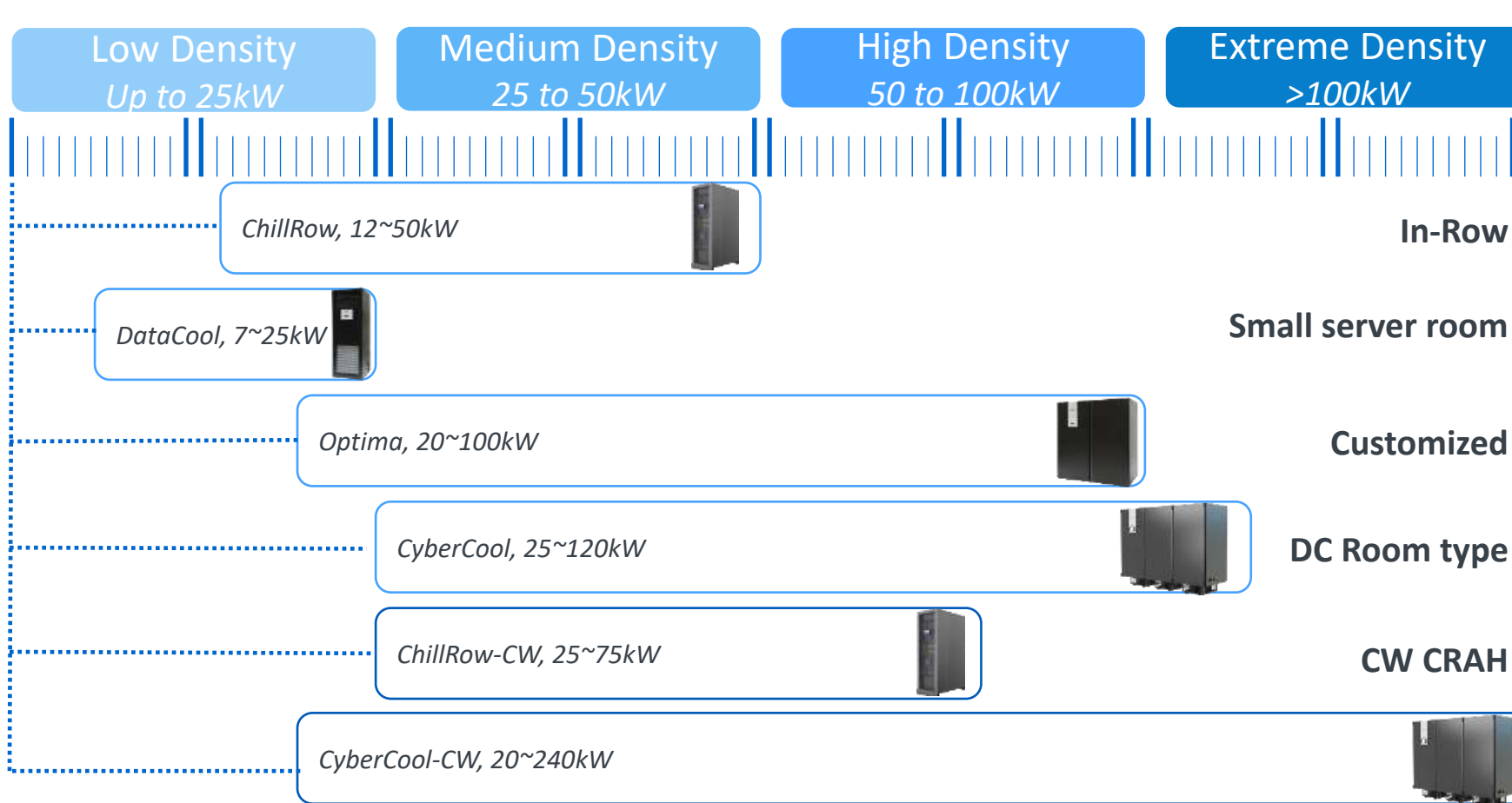
In-row type



ChillRow
DXA & CW

Product Cooling Map in Data Center

- Product Overview & Iteration



The refrigeration system

- Refrigeration system (DX)

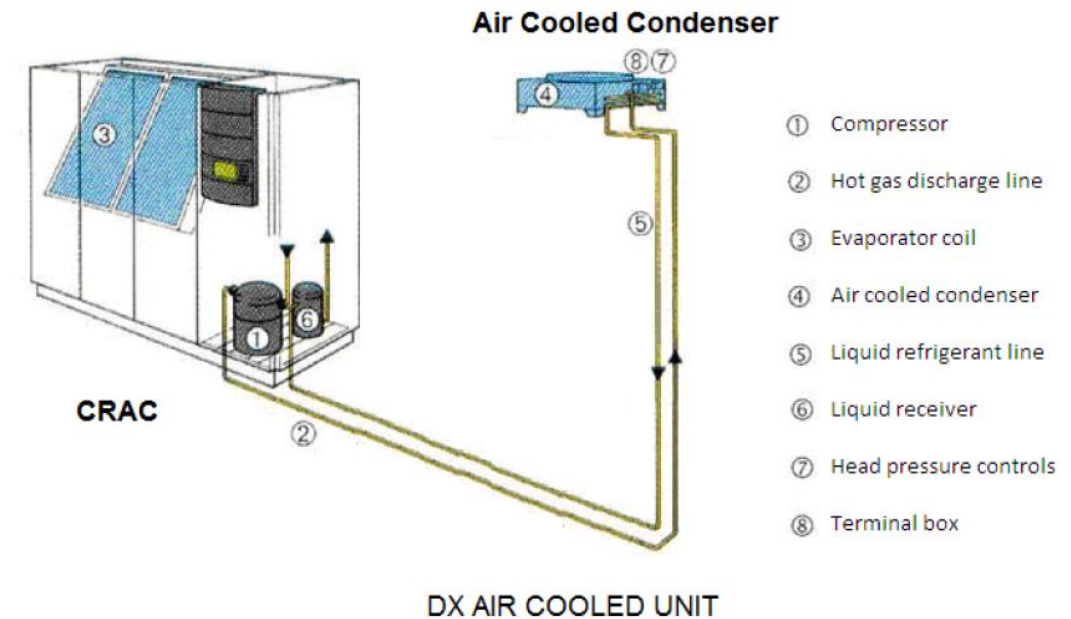
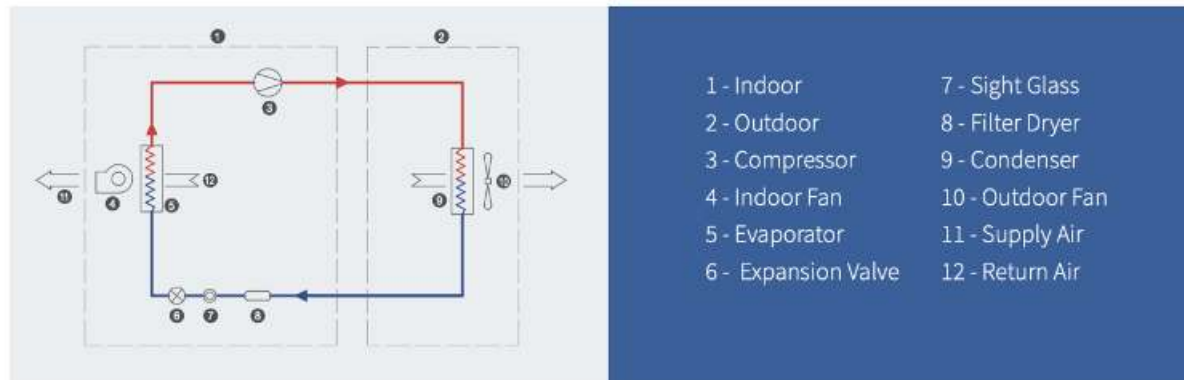
Air cooled direct expansion system(DXA)

Air cooled direct expansion system (DXA) includes throttle, evaporator coil, scroll compressor and refrigeration piping configuration.

Heat from the indoor air is transferred to the refrigerant at the evaporator coil and rejected to the outside air via the air-cooled condenser.

Indoor unit: CYBERCOOL-MOD.DXA

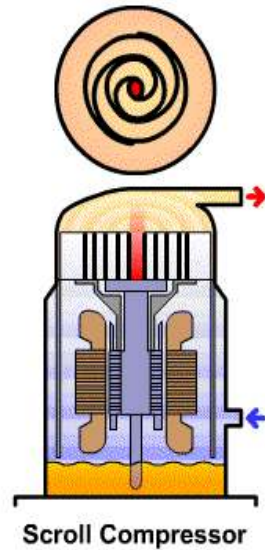
Outdoor unit: CMEG series air-cooled condenser, AMAE series air-cooled condenser.



Only R410A available due to Chinese regulation

Key component

- Scroll compressor and Inverter(INV unit only)



Key Features

1. **High Efficiency:** Continuous compression reduces energy loss.
2. **Quiet Operation:** Low noise and vibration.
3. **Reliability:** Fewer moving parts, lower failure risk.
4. **Compact Design:** Suitable for space-limited applications.

Advantages

- Energy-efficient.
- Low noise.
- Reliable and compact.

Disadvantages

- Higher initial cost.
- Limited to lower pressure ratios.

TXV&EEV



- Low cost and Reliable
- Consistent Performance

- High Flow Control Precision
- Wide Adjustable Range
- Fast Dynamic Response
- Energy Saving

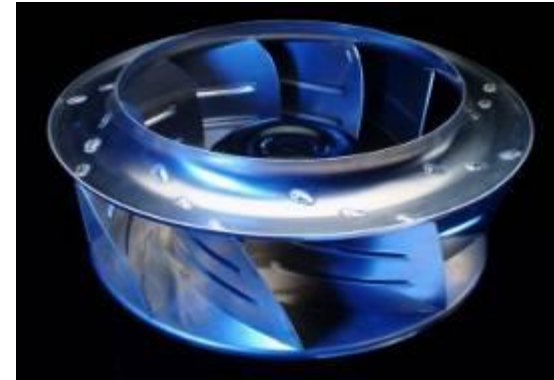
Key component

Fans

The EC motor is a brushless DC external rotor motor with an integrated intelligent control module. It features an RS485 output interface, a 0-10V sensor output interface, a 4-20mA speed control switch output interface, an alarm device output interface, and a master-slave signal output interface. (The term "brushless DC" refers to the power quality and the appearance of the motor, rather than its essence. In fact, an EC motor is essentially a three-phase AC permanent magnet synchronous motor.)

- high intelligence
- high energy efficiency
- high performance
- long service life, low vibration
- low noise
- Reliable

Centrifugal fan



Axial-flow fan

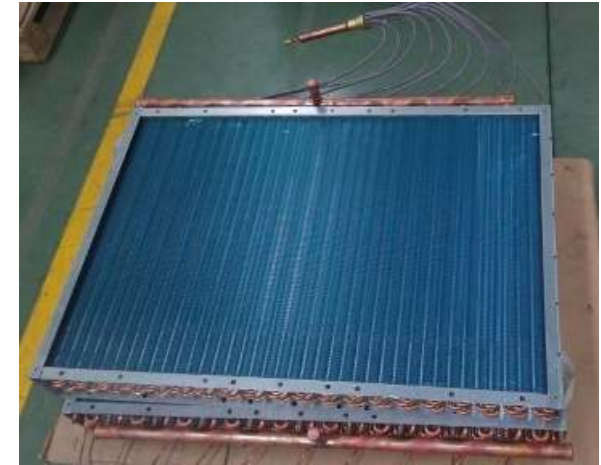


Key component

Heater exchanger/ Coil

Evaporator

The evaporator is a heat exchanger in refrigeration systems that absorbs heat from the surrounding environment to cool air or fluids by allowing refrigerant to evaporate.



Condenser

The condenser is another heat exchanger that releases heat to the external environment by condensing refrigerant vapor back into a liquid, completing the refrigeration cycle.



Key component

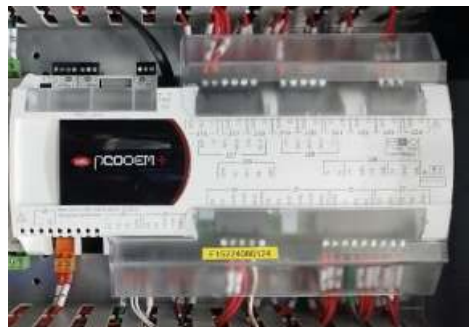
Humidifier controller

- Carel- CPY
- EU



Controller

- Carel -pcoOEM+
- EU



Display

- Carel-6-key/ Touchscreen
- EU-5-key
- Colored Touchscreen



Key component

Air filter



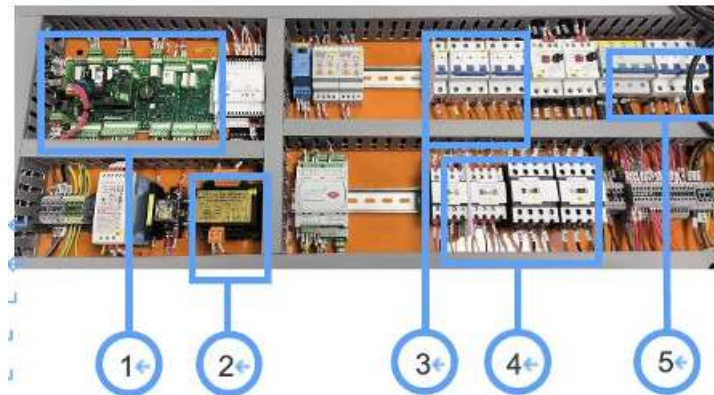
Humidifier system



Electrical heater



Electrical panel



- ① Controller
- ② Transformer for control circuit supply
- ③ Miniature circuit breaker (MCB)
- ④ AC contactor
- ⑤ Isolation Switch

Key component

Water leakage detector



Expansion board



RS485 card



pCOweb card



Filter Alarm



Power supply monitor



Key component

Filter drier



Sight-glass



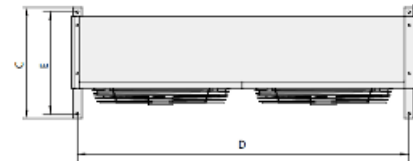
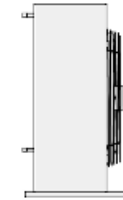
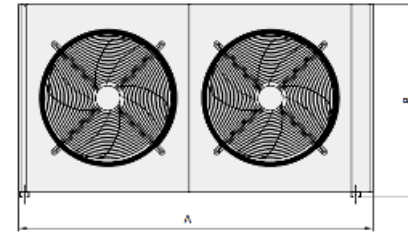
Solenoid valve coil



Outdoor Condenser

Standard Series:

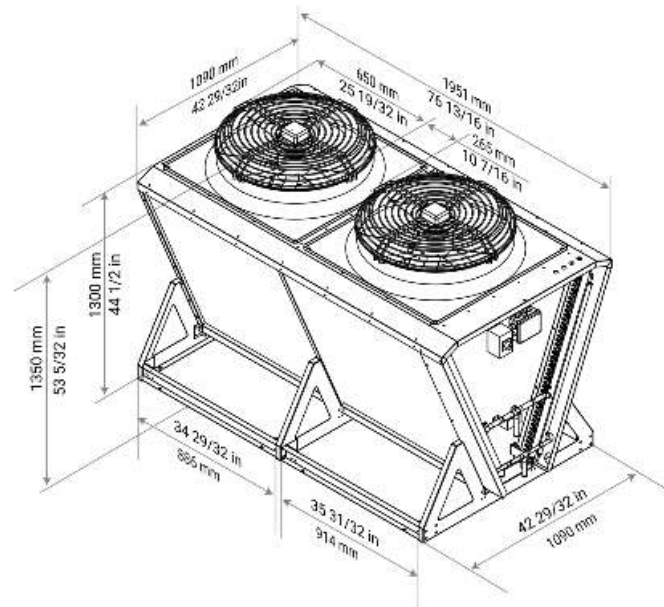
- Vertical installation: CMDG
- Vertical or horizontal installation: AMAE/CMEG
- Energy-saving V-shaped series: VMEG



AMAE/CMDG/CMEG

Additional Options for the Condenser:

- Isolator Fitted to Condenser
- Anti-corrosion Option: Golden Epoxy Fin
- Horizontal Mounting Bracket



VMEG

DataCool

Precision Air Conditioners for Small/Medium Data Centers

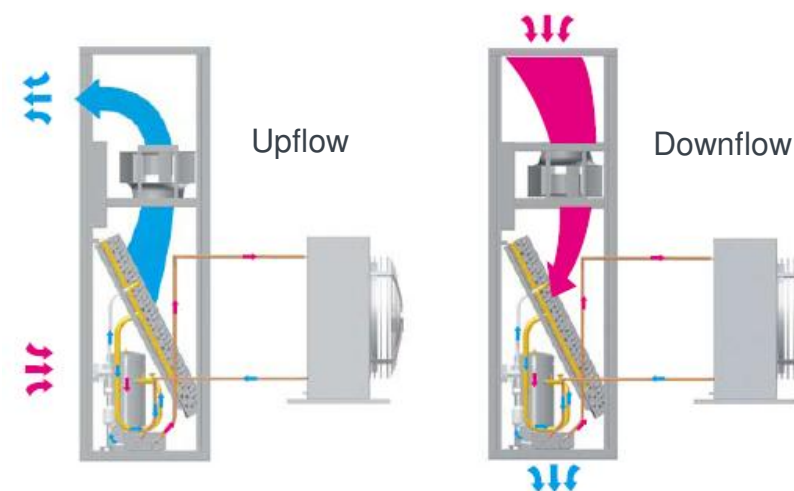
Cooling capacity: 7.4~18.3kW



DataCool

01	02	03	04	05	06	07	08	09	10	11	12	13
DATAcool	-	0	.	DXA	15	E1	C2	R410	.	380/3/50	.	XXX

01	DATAcool	Product Series DATAcool: DATAcool series precision air conditioners for small/medium data centers, abbr. as "DATA".
02	.	Separator Character : "."
03	0	Air Supply Scheme: O: Up-flow with top-front supply U: Down-flow with bottom supply TP: Up-flow with top supply and bottom-front return
04	.	Separator Character : "."
05	DXA	Cooling Scheme: DXA: Direct expansion with air cooled condenser
06	15	Nominal Cooling Capacity: kW
07	E1	Compressor Type and Number E1: 1 hermetic scroll compressor per unit R1: 1 hermetic rotor compressor per unit
08	C2	Cabinet Size Code There are 2 standard cabinets sizes: C0, C2
09	R410	Refrigerant R410=R410A
10	.	Separator Character : "."
11	380/3/50	Power source: Voltage/Phase/Frequency 380/3/50(can be omitted as default) 220/1/50 380/3/60 208~230/3/60 460/3/60 208~230/1/60
12	.	Separator Character : "."
13	XXX	Code For Custom Design 3 digit alphanumeric code



Upside down of
downflow will be TP

7/13/15/18kw Available

DataCool

- Designed for Small/Medium Data Centers
- Cooling capacity: 7.4~18.3kW
- The indoor unit panel is in black, with a design style that is coordinated with the equipment inside the machine room.
- Air-cooled direct-evaporation type
- Multiple air distribution options available
- Precise temperature and humidity control
- Remote monitoring, on/off control, and parameter setting are available.
- Convenient installation, operation, and maintenance
- -15C to +45C; range can be expanded to as low as -40C when equipped with low-ambient enhancement
- Larger size outdoor unit require when ambient temp over 45C.
- Standard RAT control: 15~35C, Accuracy: $\pm 1C$ (High-precision application request a special software and hardware)
- Humidity control range: 35~80%, Accuracy: $\pm 5\%$

Upflow unit



Downflow unit



Standard Configuration

- Steel frames, base & top powder coated in black
- Steel front panel powder coated in black, heat and sound insulated plates
- Rotor compressor (5 & 7kW units)/Scroll compressor (others)
- Double inlet centrifugal AC fan [AIRSYS suggest select EC fan](#)
- Copper tube aluminum finned evaporator
- Thermal expansion valve
- Sight glass(not available for 5R1C0, 7R1C0, 13E1C0)
- Filter dryer
- High pressure transducer (not available for 5R1C0, 7R1C0, 13E1C0)
- Liquid receiver(not available for 5R1C0, 7R1C0, 13E1C0)
- Electrode humidifier, 50Hz unit available with multi-stage humidifier
- Stainless steel fin electrical heater, 50 Hz unit available with multiple capacities
- G4 air filter
- Return air temperature and RH sensor
- Pressure switch/protection
- Micro-controller system [STD:EU](#)
- Phase protection (only available for 3-phase unit)
- Continuous control system for condensing pressure
- Micro PC control system
- Electrical panel for MCBs of compressor, fan motor, heater, humidifier etc.
- Contactors of compressor, fan motor, heater, humidifier etc.
- Transformer(s) for auxiliary circuitry and microcontroller

Options

- Scroll compressor (7kW unit)
- Low-Ambient startup kit for -20 °C or lower
- Back air return and top supply
- EEV
- Dirty filter alarm
- Floor water sensor/alarm kit
- Additional floor water detector
- Speed regulator of outdoor unit
- Installation stands with adjustable legs
- Wooden packaging
- Updated to Carel controller
- RS232 communication card
- RS485 communication card
- pCOweb communication card
- Clock card
- Communication protocol converter

CyberCool - MOD

Precision Air Conditioners for Critical Applications

Cooling capacity: 27.7kW~210.1kW



CyberCool-MOD

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
CYBERCOOL-MOD/ CYBERCOOL-MOD-INV	-	RPU	.	O U	.	DXA	25 ... 100	E1 E2 V1 V2	X0...X3 X1A ... X2A	R410	.	380/3/50	FEA FEC	.	XXX

01	CYBERCOOL-MOD/ CYBERCOOL-MOD-INV	CYBERCOOL-MOD: CYBERCOOL-MOD precision air conditioner, abbr. as CYBER-MOD CYBERCOOL-MOD-INV precision air conditioner
02	-	Separator Character "."
03	RPU	RPU: Refrigerant Pump Unit Blank: Standard unit
04	-	Separator Character "."
05	O U	Air Supply Scheme: O – Upflow U – Downflow
06	.	Separator Character "."
07	DXA	Heat Rejection: DXA—Direct expansion with air cooled condenser
08	25 ... 100	Nominal Cooling Capacity: kW
09	E1 E2 V1 V2	Compressor Type and Number: E1- Fix speed, 1 compressor E2- Fix speed, 2 compressors V1- Inverter, 1 compressor V2- Inverter, 2 compressors
10	X1A ... X2A X0...X3	Cabinet Size Code: CYBERCOOL-MOD adopt "X" cabinet with 6 sizes X1A,X2A X0.X1.X2.X3
11	R410	Refrigerant: CYBERCOOL-MOD:R410=R410A

Overflow unit

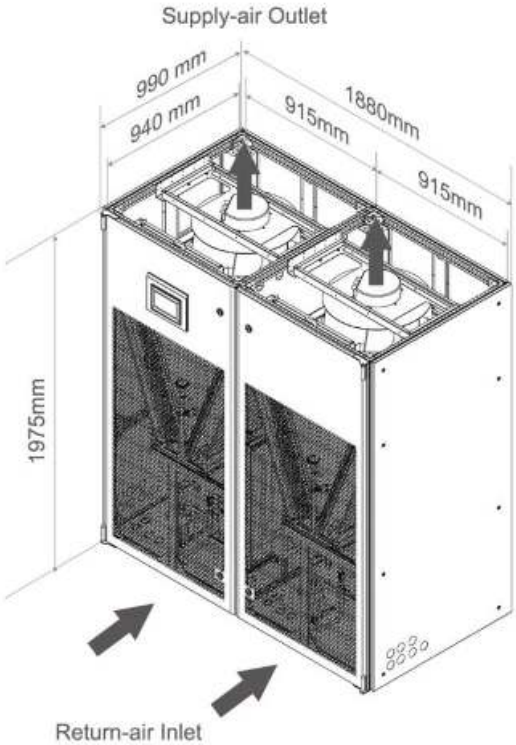


Figure 2-9 X2A Over Flow Dimensioned Drawing

Underflow unit

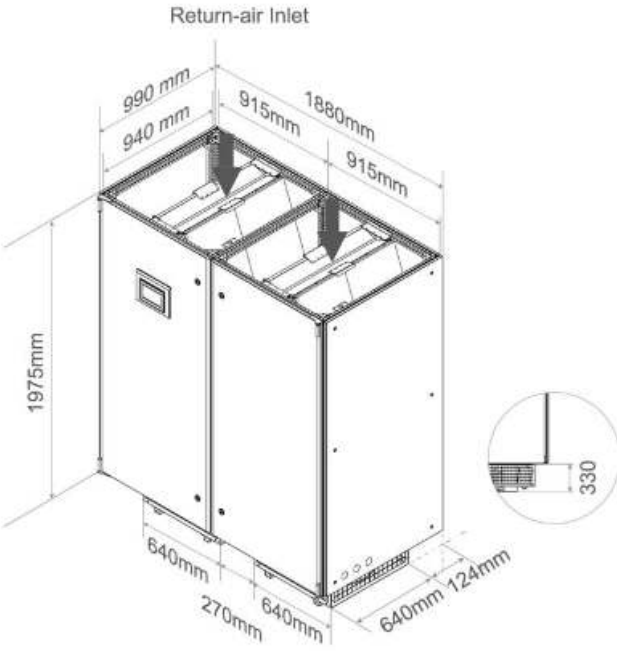
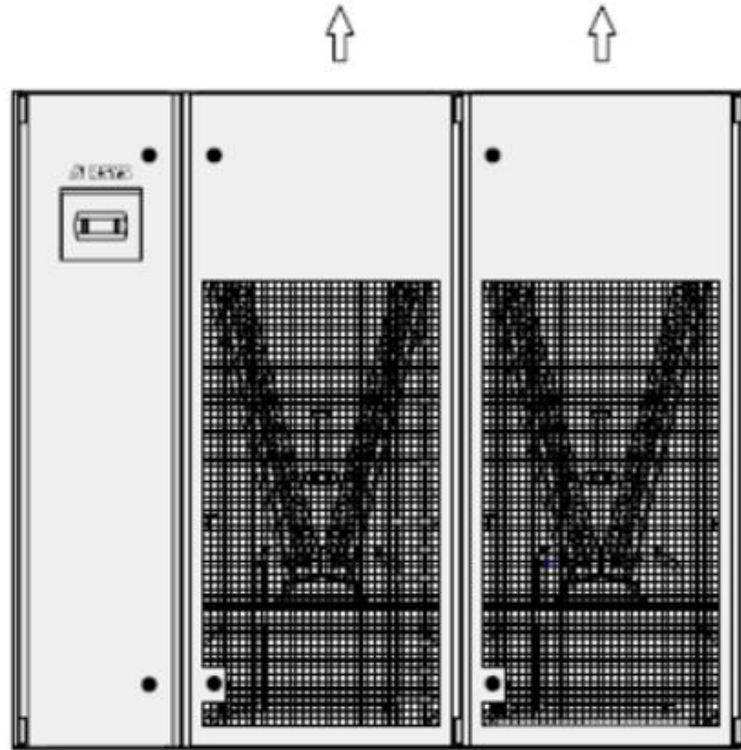
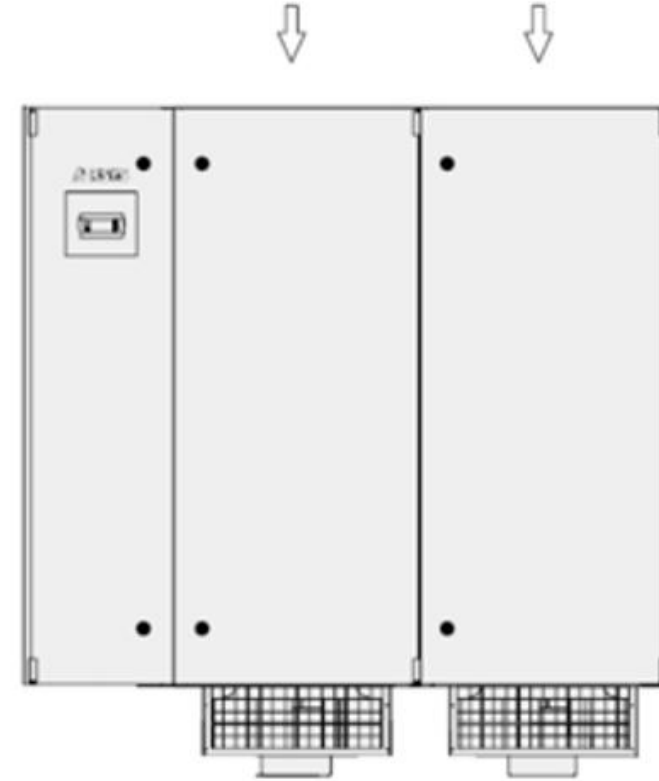


Figure 2-8 X2A Under Flow Dimensioned Drawing

CyberCool-MOD



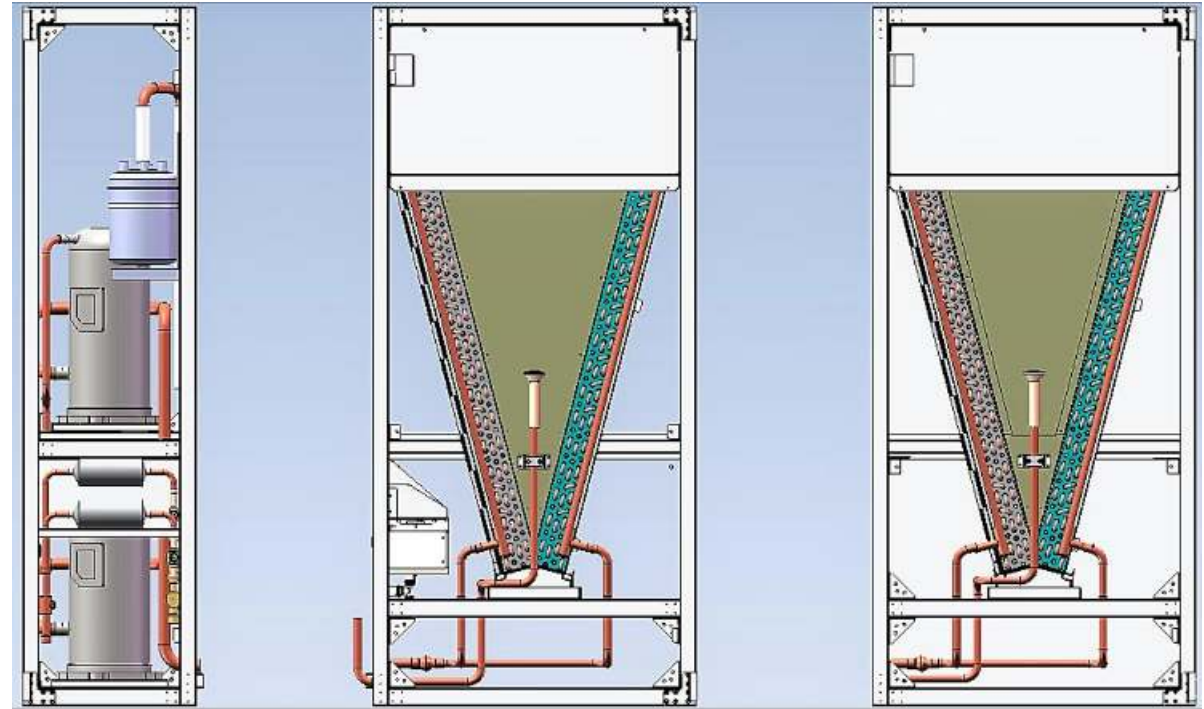
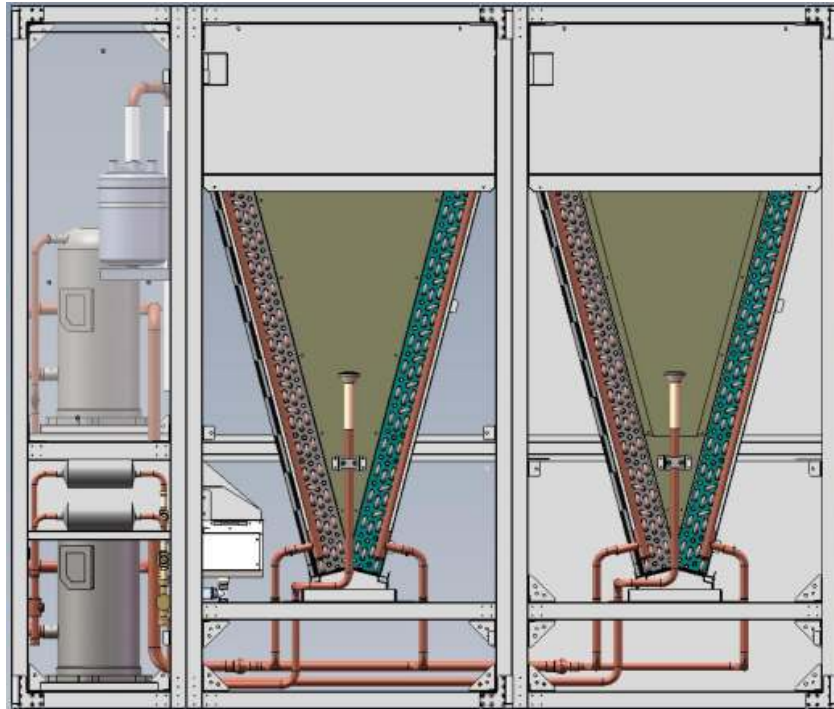
X3 Upflow unit



X3 Downflow unit

CyberCool-MOD

Modular design

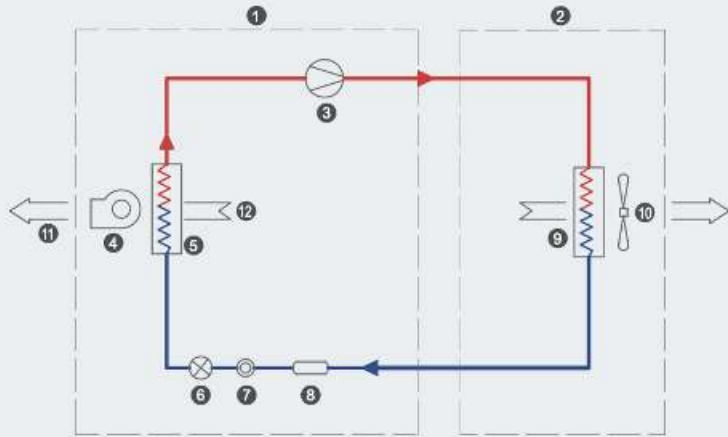


3D View:

<https://apps.martech3d.com/airsys/>

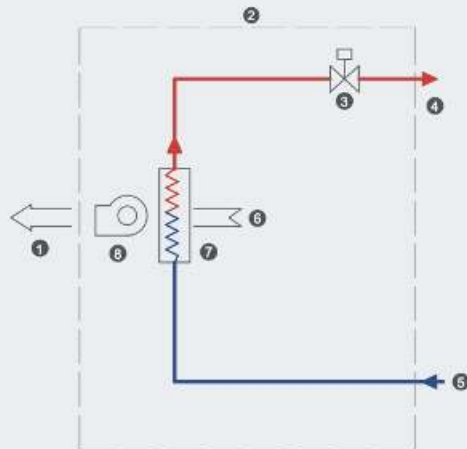
CyberCool-MOD

DXA



- | | |
|---------------------|------------------|
| 1 - Indoor | 7 - Sight Glass |
| 2 - Outdoor | 8 - Filter Dryer |
| 3 - Compressor | 9 - Condenser |
| 4 - Indoor Fan | 10 - Outdoor Fan |
| 5 - Evaporator | 11 - Supply Air |
| 6 - Expansion Valve | 12 - Return Air |

CW



- | | |
|--------------------|------------------------|
| 1 - Supply air | 5 - Water inlet |
| 2 - Indoor | 6 - Return air |
| 3 - Electric valve | 7 - Chilled water coil |
| 4 - Water outlet | 8 - Supply fan |

CyberCool-MOD application

- Outdoor Temperature: $-20^{\circ}\text{C} \sim +55^{\circ}\text{C}$ below 20°C request low ambient kit option
- Piping Length: Total length of 30 meters of gas and liquid refrigeration piping loop
- Condenser above indoor unit: max. 20m
- Condenser below indoor unit: max. 5m
- Standard RAT control: $15 \sim 35^{\circ}\text{C}$, Accuracy: $\pm 1^{\circ}\text{C}$ (High-precision application request a special software and hardware)
- Humidity control range: 35~80%, Accuracy: $\pm 5\%$
- V-type Air-cooled direct-expansion type coil bigger heat exchanger area
- Multiple air distribution options available (fan cap or adjustable stand)
- Remote monitoring, on/off control, and parameter setting are available.
- Front maintenance

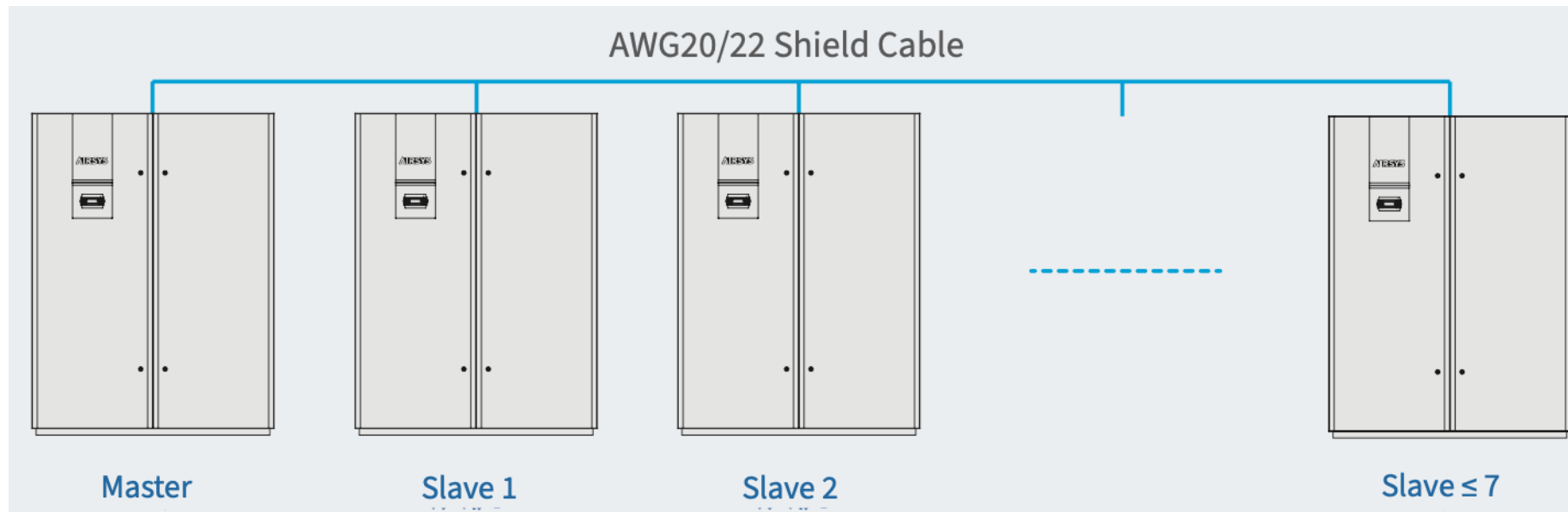


Group control

Master unit control

And unit rotation for balance the whole system operation time(hot backup)

Cold backup available



CyberCool-MOD Configuration

CyberCool-MOD Standard Configuration

Standard Configurations	CYBERCOOL-MOD	CYBERCOOL-MOD
	DXA	CW
Galvanized steel frame	•	•
Galvanized steel panel with internal thermal and acoustic insulation	•	•
Copper tube aluminum fin coil	•	•
Condensate water tray	•	•
G4 class air filter	•	•
Temperature and RH sensor at return air inlet	•	•
Microprocessor control	•	•
Electrical control panel	•	•
Stainless steel electric heater, various capacities available	•	•
Stainless steel electric heater	•	•
Integrated RS485 communication and clock function	•	•
Electrical controls and refrigeration systems contained within independent module units	•	—
Hermetic fixed frequency scroll compressor	•	—
Rubber vibration absorber for compressor	•	—
External equalizer thermostatic expansion valve	•	—
Sight glass	•	—
Dry filter	•	—
High pressure transducer	•	—
Pressure switch for high/low pressure protection	•	—
Continuous control system for condensing pressure	•	—
EC centrifugal fan	•	•
Floor water leakage alarm kit	○	•
Motorized 2-way valve	—	•
Touch Screen	•	•
Return air temperature and humidity sensor	•	•

Note: "•" standard configuration, "○" optional configuration, "—" no option available.

CyberCool-MOD Options

CyberCool-MOD Options

Option	CYBERCOOL-MOD.DXA	CYBERCOOL-MOD.CW
Air pressure switch for dirty filter alarm	○	○
Motorized non-return damper for up flow unit	○	○
Motorised non-return damper for down flow unit	○	○
Supply air plenum for up flow unit	○	○
Supply air plenum for down flow unit	○	○
Installation support stand with adjustable legs	○	○
Supply air temperature sensor	○	○
Colored touch screen graphical user	○	○
Supply air static pressure sensor	○	○
Floor water leakage alarm kit	○	○
Electronic expansion valve	○	—
Motorized 3-way valve	—	○
Motorised 2 way pressure independent valve	—	○
Low temperature operation kit for outdoor temperature below -20°C	○	—
PCOweb card	○	○
Energy monitoring	○	○
Fan air volume monitoring 6 Amp aux power supply (For condensate pump)	○	○
Expansion board	○	○

Note: “●” standard configuration, “○” optional configuration, “—” no option available.

ChillRow

Row Based Cooling Precision Air Conditioner

Cooling capacity: 13.2kW~62.5kW



ChillRow

01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
CHILLROW	.	F	.	DXA	24	V1	C1	R410	.	400/3/50	.	B	.	XXX

Standard Power Supply: 380/400V-3ph-50/60Hz
220/230V-1ph-60Hz only Available for CW25C1

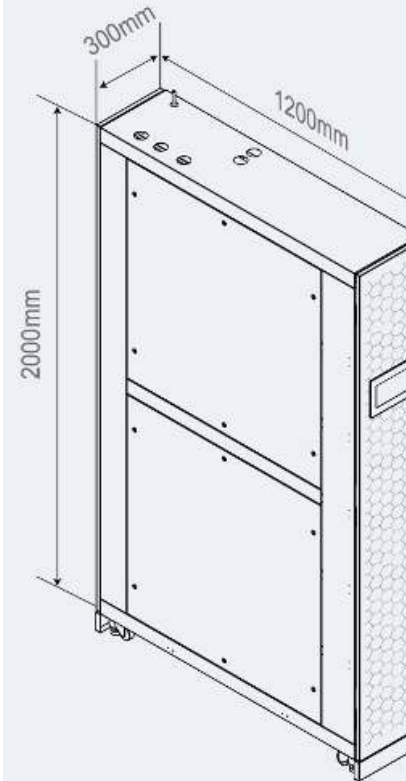
01	CHILLROW	Product Series: CHILLROW; Abbr. as CRW
02	.	Separator Character “.”
03	F	Air Supply Scheme: FRONT – Horizontal flow with front supply, abbr. as “F”.
04	.	Separator Character “.”
05	DXA	Cooling scheme: DXA—Direct expansion with air cooled condenser
06	24	Nominal Cooling Capacity: kW
07	V1	Compressor type and quantity: V1: one Hermetic DC Inverter compressor
08	C1	Cabinet Size Code: There are 2 standard cabinet sizes: C1 & C3.
09	R410	Refrigerant: R410=R410A



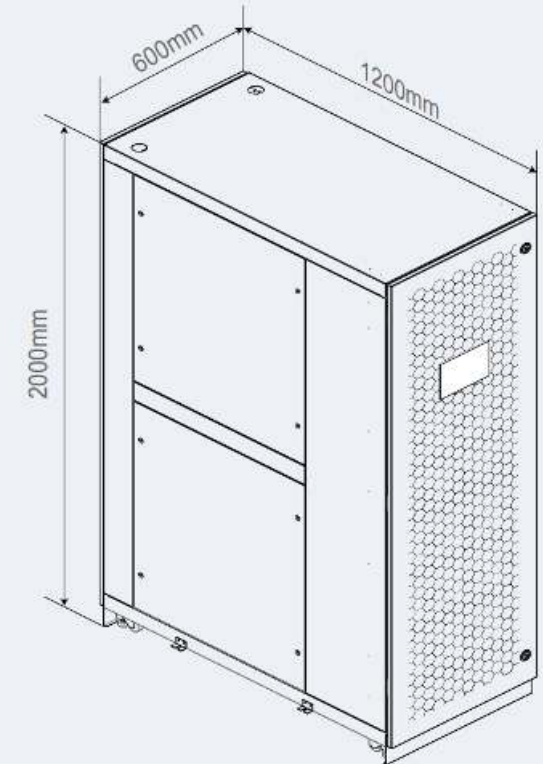
ChillRow

- **High Cooling Efficiency:** Positioned near heat sources, it improves cooling effectiveness by 30-45% compared to traditional systems.
- **Multiple Heat Rejection Options:** Available in DXA (refrigerated) and CW (chilled water) configurations for adaptability.
- **Eco-friendly Refrigerant:** Uses R410A with zero ozone depletion potential.
- **Compact & Flexible Design:** Small dimensions and horizontal air supply allow flexible placement in new or existing data centers.
- **Easy Installation:** Features castors for mobility and height-adjustable legs for stability.
- **Scalability:** Can be expanded easily to meet increasing cooling demands.
- **Efficient Supply Air Arrangement:** Short horizontal airflow reduces fan power requirements, enhancing efficiency.
- **Double-layer Water Tray:** Stainless steel with a secondary tray to prevent leakage.
- **Optional Electrical Heater & Humidifier:** Enhances environmental control as per requirements.
- **Optional Condensate Water Pump:** Enables upward drainage with integrated check valves.
- **Convenient Maintenance:** Front and rear access allows servicing without disrupting operations.

300mm Width:
12~28kW

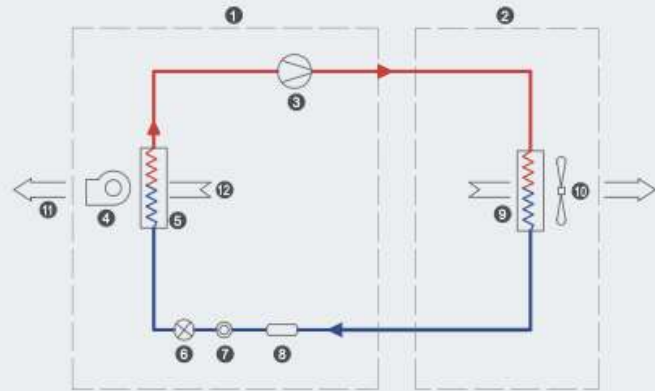


600mm Width:
38~65kW



ChillRow

DXA

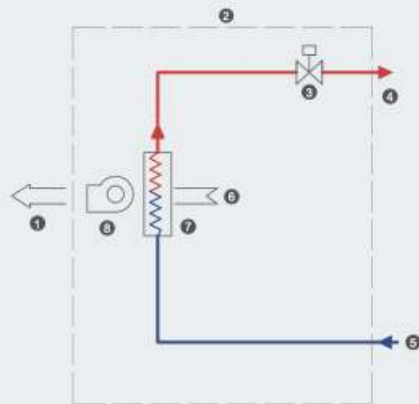


- | | |
|---------------------|------------------|
| 1 - Indoor | 7 - Sight Glass |
| 2 - Outdoor | 8 - Filter Dryer |
| 3 - Compressor | 9 - Condenser |
| 4 - Indoor Fan | 10 - Outdoor Fan |
| 5 - Evaporator | 11 - Supply Air |
| 6 - Expansion Valve | 12 - Return Air |

12/24/38kW Currently Available

50kW in Development

CW



- | | |
|--------------------|------------------------|
| 1 - Supply air | 5 - Water inlet |
| 2 - Indoor | 6 - Return air |
| 3 - Electric valve | 7 - Chilled water coil |
| 4 - Water outlet | 8 - Supply fan |

25/50/65kW Currently Available

75kW in Development

ChillRow

Standard Configuration

Standard Configuration	DXA	CW
Powder painted steel frame	•	•
Powder painted steel panel with inside thermal and acoustic insulation	•	•
Front and back caster covering baffle	•	•
AC powered EC centrifugal fan	•	•
Compressor inverter	•	—
Hermetic DC inverter scroll compressor	•	—
Copper tube aluminum fin coil	•	•
Electronic expansion valve	•	—
Sight glass	•	—
Dry filter	•	—
High pressure transducer	•	—
Pressure switch for high/low pressure protection	•	—
Condensing water tray	•	•
Washable G4 air filter	•	•
Motorized 2-way valve	—	•
Temperature sensor at supply air inlet	•	•
Temperature sensor at return air inlet	•	•
Installation support stand with adjustable legs	•	•
Composite castor	•	•
Colored touch screen graphical user interface	•	•
Microprocessor control	•	•
RS485 Communication	•	•
Clock function	•	•
Phase sequence protection for power supply	•	•
Electrical control panel	•	•
Condenser fan speed controller	•	—

Standard Sensors:

- Return air temperature & humidity sensor
- Supply air remote temperature & humidity sensor

Supply/Return Air Control Mode Selection Recommendation :

- Return air control for enclosed hot aisle installations.
- Supply air control for enclosed cold aisle installations.

Note: “•” standard configuration, “—” no option available.

Options

Optional Configuration	DXA12V1C1	DXA24V1C1.B	DXA38V1C3	DXA24V1C1	CW25C1	CW50C3	CW65C3
Air pressure switch for clogged filter alarm	o	o	o	o	o	o	o
Floor water leakage alarm kit	o	o	o	o	o	o	o
Humidifier	o	—	o	o	o	o	o
Electric heater	o	o	o	o	o	o	o
Condensate pump	o	o	o	o	o	o	o
Fan hot-plugging	o	o	—	o	o	—	—
RS485-RS232 converter	o	o	o	o	o	o	o
RS485-TCP/IP converter	o	o	o	o	o	o	o
Motorized 3-way valve	—	—	—	—	o	o	o
Automatic transfer switch (ATS)	o	o	o	o	o	o	o
Wooden Package	o	o	o	o	o	o	o

Note: “o” available option, “—” no option available.

→ Hot-plugging option is only available for 48VDC fans.

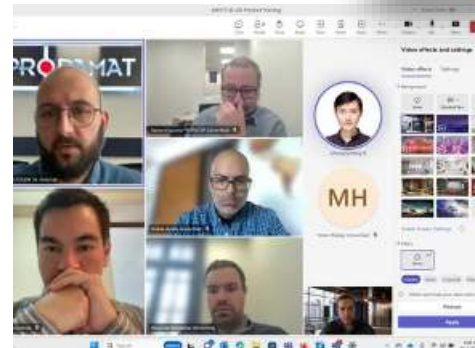
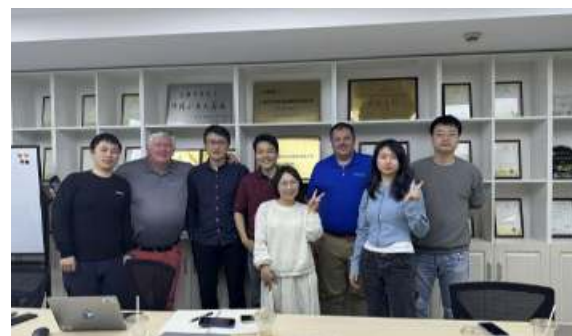
Outdated hardware, seldom in use currently.

Please confirm which protocol available on site,
AIRSYS will recommend the corresponding options:

- Update to Carel controller
- RS232 communication card
- RS485 communication card
- pCOweb communication card
- Communication protocol converter

SUs Support

Global Customer



THANK YOU!



AIRSYS

Balance the Environment