AIRSYS

Optima – FC

Precision Air Conditioner Integrated With Free Cooling for Critical Application

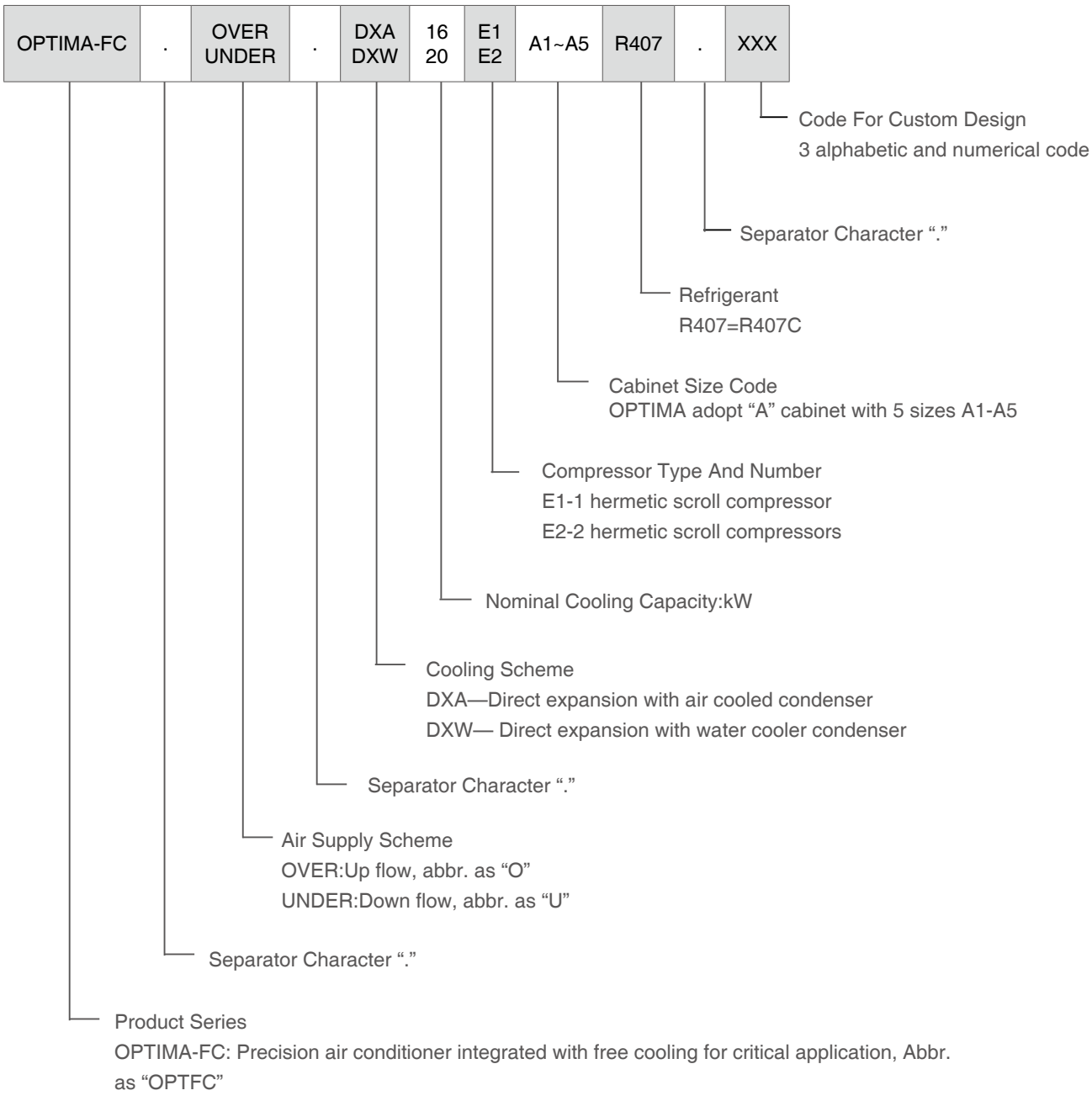
Cooling capacity: 17.6kW~106.7kW

OPTIMA product family is designed for medium to large data center. OPTIMA provide precise temperature and humidity control, outstanding reliability and energy efficiency, 24*7 operation.

OPTIMA–FC precision air conditioner integrated with free cooling offers two kind of cold source: mechanical cooling and free cooling. When outdoor temperature meets the requirements of free cooling operating conditionings, free cooling system starts priority operating, minimize the run time of mechanical cooling, so as to lower the power consumption.

OPTIMA–FC series segmentation is shown as below:
OPTIMA–FC.DXA: air cooled direct expansion integrated with free cooling coil
OPTIMA–FC.DXW: water cooled direct expansion integrated with free cooling coil

Unit Identification



Operating Range and Control Accuracy

OPTIMA–FC.DXA

Operating Range

Outdoor Temperature:

－40℃～＋55℃ （special options are available for extreme temperature condition）

Piping Length:

equivalent length

Total length of 30 meters of gas and liquid refrigeration piping loop (consult Airsys sales representative for specific installation condition)

Piping Vertical Distance:

Condenser above indoor unit: max. 20m

Condenser below indoor unit: max. 5m

(consult Airsys sales representative for specific installation condition)

Control Accuracy

Temperature Range and Accuracy:

Range: 15~35℃, Accuracy: ±1℃;

Humidity Range and Accuracy:

Range: 35~80%, Accuracy: ±5%

OPTIMA–FC.DXW

Operating Range

Water pressure specification:

Higher than the system total pressure drop, lower than 1250kPa

Control Accuracy

Temperature Range and Accuracy:

Range: 15~35℃, Accuracy: ±1℃;

Humidity Range and Accuracy:

Range: 35~80%, Accuracy: ±5%

Application

Computer Room and Data Center

Telecom Equipment Room and Shelter

Other Electronic Equipment Room

Healthcare Equipment Room

Laboratory with precision environment

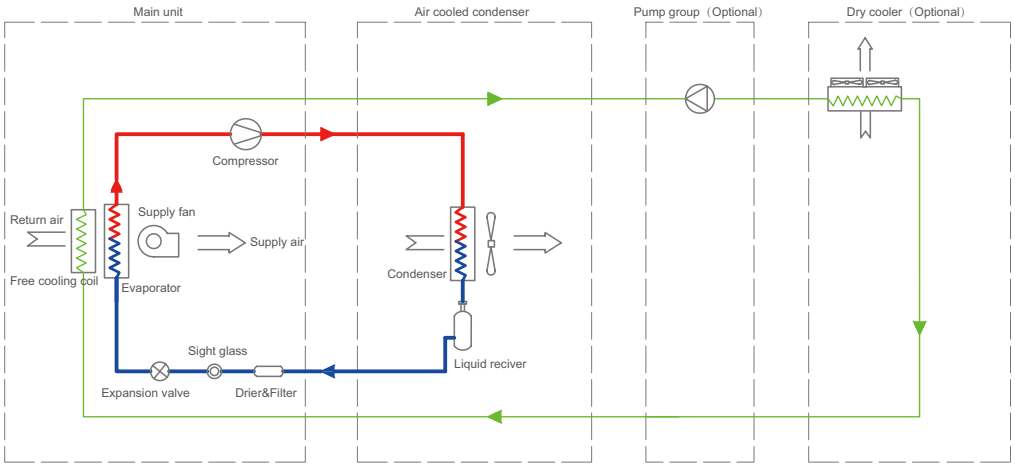
Manufacturing facility requiring precision environment

Storage facility requiring precision environment such as museum, wine cellar

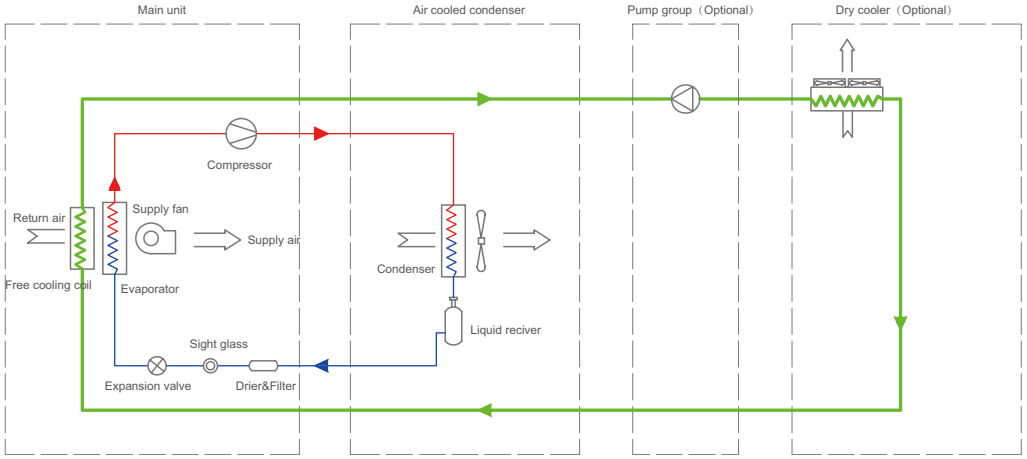
Working Principles

OPTIMA–FC.DXA System Schematics

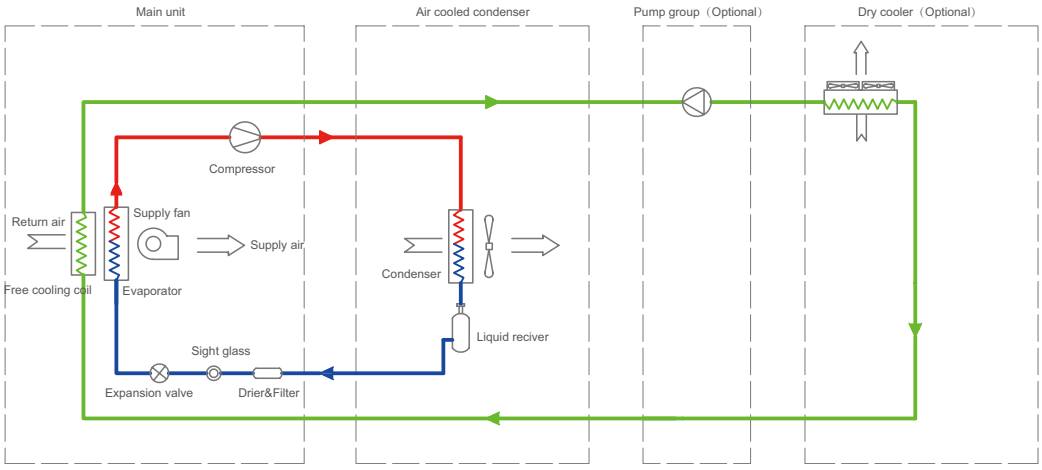
Flow circuit for mechanical cooling



Flow circuit for full free cooling

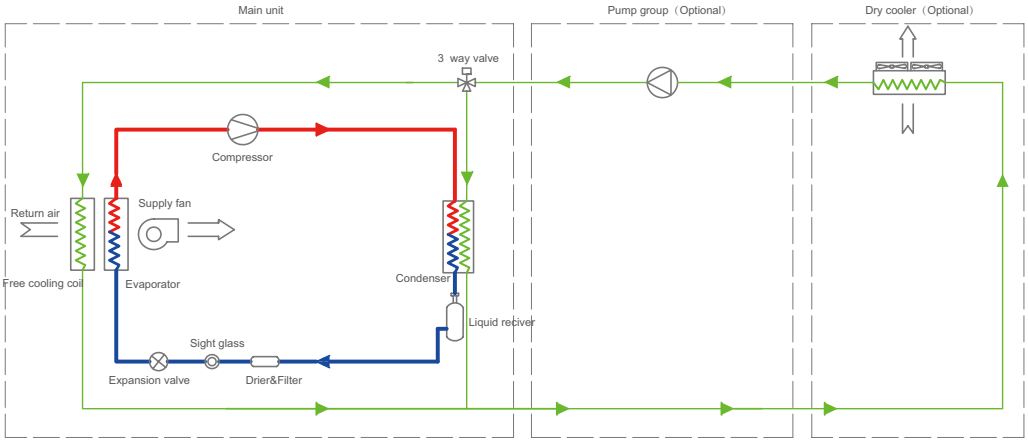


Flow circuit for partial free cooling

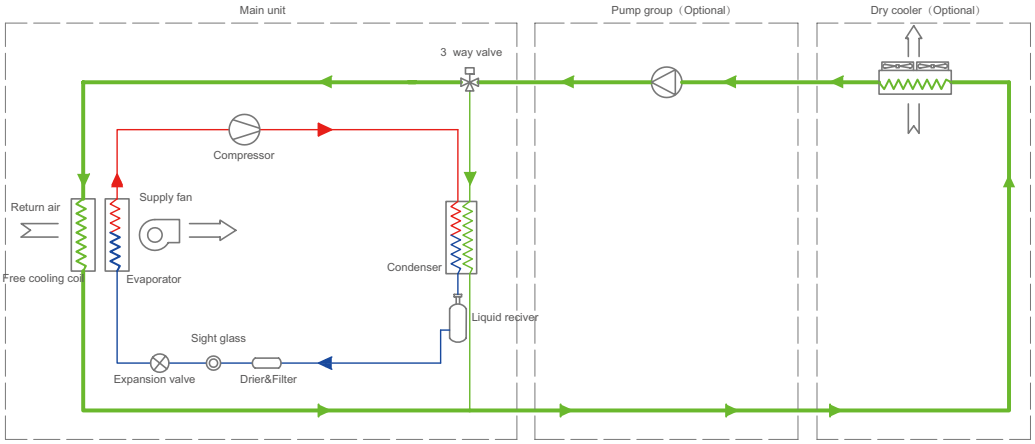


OPTIMA–FC.DXW OPTIMA.––FC.DXW System Schematics

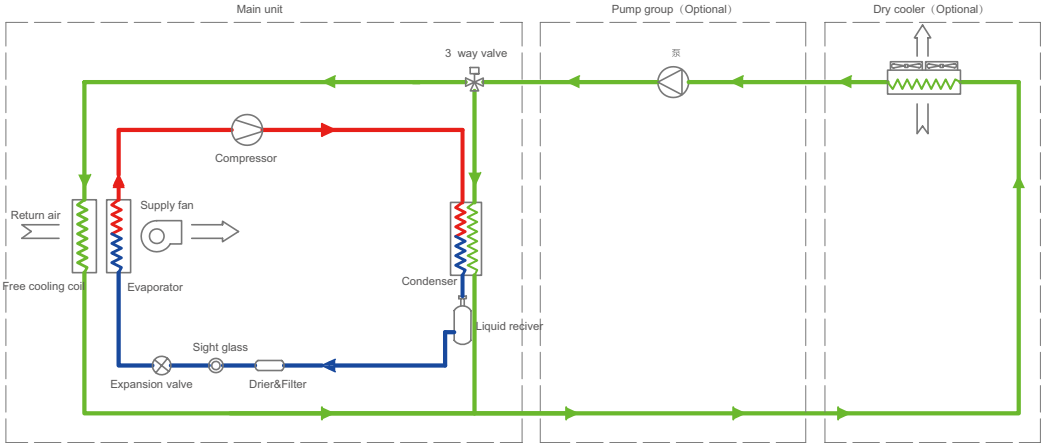
Working circuit for mechanical cooling



Working circuit for full free cooling



Working circuit for partial free cooling



High Lights

Energy–saving operating

Mechanical cooling and free cooling function as standard configuration are integrated in one system, free cooling function is main cooling function.

When outdoor temperature meets the requirements of free cooling operating conditionings, free cooling system starts priority operating, minimize the run time of mechanical cooling, so as to lower the power consumption.

Mechanical cooling system incorporates various energy saving technologies. The average EER of DXA units is above 3.0.

Precise Control

The control accuracy for temperature is ±1℃ and for Relative humidity is ±5%.

Various air supply scheme available

The supply air schemes, include up flow and down flow; The return air schemes, include up return, bottom return, front return and backward return to meet all different requirements of ICT sites.

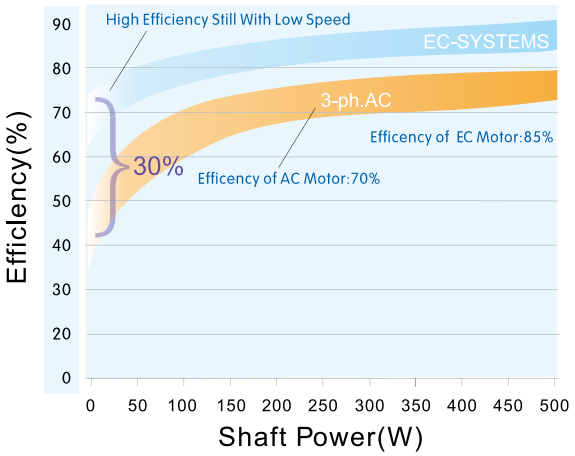
EC fan

EC motor with external rotor, is highly efficient, reliable and compact. Taking advantage of its' speed variation ability, the unit can achieve:

1 Energy–saving by reducing the fan speed when necessary.

2 Adjusting external static pressure and air volume according to the external static pressure change.

EC fan is a standard configuration for OPTIMA–HE, and an option for other OPTIMA unit.



Scroll compressor

DXA, DXW units are equipped with scroll compressor, which has characteristics of less vibration, low noise and high efficiency.

Air filter:

A washable, easy maintainable and endurable G4 class air filter is a standard configuration for OPTIMA family. With optional air pressure switch, a clogged filter alarm can be triggered when the filter is dirty.

Electronic expansion valve（Option）

Electronic expansion valve operates more swiftly and precisely than thermal expansion valve, resulting a better control of the system and energy– efficiency.

Continuous control system for condensing pressure

DXA

The unit is installed with pressure sensor which is used for the fan speed control of outdoor unit and maintains the high pressure of refrigeration system within a proper range and keeps the stable operation of the system.

Comparing with On/Off condensing control. The system increases the energy saving significantly and extends the working life of compressor.

The system makes the unit to be able to startup and work at low temperature ambient, up to –40 ℃ or lower.

DXW

The unit is installed with pressure sensor which is used for the water flow valve control of outdoor unit and maintains the high pressure of refrigeration system within a proper range and keeps the stable operation of the system.

Forced dehumidification system

The dehumidification is realized by decreasing the evaporator coil surface or by reducing the air flow. These features enable faster dehumidification, increase saving energy and more precise humidity control.

Optional energy saving running modes

There are two kinds of running modes can be chosen:

Standard running mode

In this mode the temperature and humidity controlled in narrower range;

Energy saving mode

In this mode, good energy saving can achieve, and the temperature and humidity controlled in a wider range.
The two running modes can be flexibly selected through controller display.

Green Refrigerant(option)

R407C refrigerant is available for DXA and DXW units.

Electrode Humidifier

Electrode humidifier controlled by microprocessor monitor to adjust the humidifying capacity precisely. The Water quality wash extend the maintenance interval prolong the working life.

Electric Heater

It is stainless steel pipe twisted with fins around the pipe and it works with a reduced superficial temperature eliminating ionization, thus avoiding peculiar smell.

Isolated Control Panel

All the electrical and control components are installed on an isolated control panel with orderly wiring and clear labeling, meeting the IEC norm.

Self–diagnosis

All the components connected to microprocessor are continuously monitored and controlled and, in case of malfunction, the unit is shut up and the failure is shown on the display.

Easy maintenance

Technical compartment recessed from the air flow, housing compressor, humidifier, control and safety devices for ordinary service and preventive maintenance during operation.

Unit configuration

OPTIMA–FC Standard Configuration

Standard Configeration	OPTIMA–FC.DXA	OPTIMA–FC.DXW
Powder painted steel frame	●	●
Powder painted steel panel with inside thermal and acoustic insulation	●	●
Backward curve, single inlet, centrifugal fan with 3 phase EC powered Electronic Commuted motor	●	●
Copper tube aluminum fin coil	●	●
Condensing water tray	●	●
G4 class air filter	●	●
Temperature and RH sensor at return air inlet	●	●
Air Pressure Switch for supply fan protection	●	●
Microprocessor control	●	●
Electrical control panel	●	●
Proportional controlled electrode type humidifier, various capacity available	●	●
Stainless steel electric heater, various capacity available	●	●
Hermetic scroll compressor	●	●
Rubber vibration absorber for compressor	●	●
Plate heat exchanger as water cooled condenser	—	●
External equalizer thermostatic expansion valve	●	●
Sight glass	●	●
Dry filter	●	●
Liquid receiver	●	●
High pressure transducer	●	●
Pressure switch for high/low pressure protection	●	●
Continuous control system for condensing pressure	●	●
Motorized 3–way valve	—	●

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

Options for OPTIMA–FC

Option	OPTIMA–FC.DXA	OPTIMA–FC.DXW
Backward curve, single inlet, centrifugal fan with 3 phase AC powered electronic commuted motor	○	○
Air pressure switch for clogged filter alarm	○	○
Motorized no–return damper for up flow unit	○	○
Supply air plenum for up flow unit	○	○
Supply air plenum for down flow unit	○	○
Backward air return for up flow unit	○	○
Installation support stand with adjustable legs	○	○
Supply air temperature sensor	○	○
Supply air pressure sensor	○	○
Floor water leakage alarm kit.	○	○
Colored touch screen graphical user interface.	○	○
RS232 communication card	○	○
R485 communication card	○	○
Pcoweb card serve as web based server	○	○
Mobile phone short message alarm	○	○
Electronic expansion valve	○	○
Low temperature operation kit for outdoor temperature below–20℃	○	○

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

Electric heater/Humidifier selection sheet

		A1	A2	A3	A4	A5
Heat capacity (kW)	6	●	—	—	—	—
	9	○	●	—	—	—
	12	○	○	—	—	—
	13.5	—	○	●	—	—
	18	—	○	○	●	●
	27	—	—	—	○	○
	36	—	—	—	—	○
Humidification capacity (kg/h)	3	●	—	—	—	—
	5	○	●	—	—	—
	8	○	○	●	●	●
	10	—	—	○	○	○
	13	—	—	○	○	○
	15	—	—	○	○	○

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

Supply Air Plenum (Option) Dimensions And Weight

Cabinet size		A1	A2	A3	A4	A5
Width	mm	875	1480	1750	2490	3095
Depth	mm	470	470	470	470	470
Height	mm	890	890	890	890	890
Weight	kg	32	55	66	87	95

Functions of microprocessor control system

Main indications

Temperature And Humidity

Return air temperature
Return air relative humidity

Working Status

Supply fans
Compressor
Condenser fan
Humidifier water filling and drain valves
Dehumidification activation valve
2 stages electric heater working status
Automatic or manual status
High pressure of refrigeration system

Working Hours Of Every Main Component

Supply fans
Each compressor
humidifier
Heaters

Alarm Display

Display effective alarms, store and track up to 100 historical alarms (including alarm code, date, time and alarm description)

Other control functions

Self–diagnosis

The microprocessor will continuously monitor its own circuit and shut off automatically in case of malfunction.

Pressure Protections For Compressors

Double protection on high pressure by both high pressure transducer and pressure switch.
Protection on low pressure by pressure switch.

Motor Overload Alarm For Compressor, Supply fan, Electric heater and Condenser fan

prevent damages of component motor from voltage unbalance, low voltage and phase loss.

On–off Control Of Compressor

By setting the start–up relay time, minimum working time, minimum on–off interval and number of start–ups per hour to assure the reliability and to prolong the life of the compressor.

Sensor Failure Alarm

The microprocessor will shut down the unit and send out alarm signal in case of any failure of temperature sensor and pressure transducer.

Power Supply Failure Alarm

The microprocessor will shut down the unit and send out alarm signal in case of any failure of the power supply such as phase loss, phase sequence mistake, and voltage out of range.

Unit Random Insertion

The units can start–up automatically after the power recovery. The microprocessor has 2–60 seconds of random insertion to avoid current shock caused by multiple unit start–up at the same time.

Floor Water leakage alarm

When detecting the water on the floor with the water leakage alarm kit, the microprocessor will send out an alarm.

Humidification System Alarm

Microprocessor provides various alarms to the humidification system, such as high/low current, high/low water level, cylinder life, high/low conductivity, to assure the reliability and to prolong the life of the humidifier.

Condenser Pressure Control

Microprocessor monitor the compressor discharge pressure and control the steadily control the pressure by changing the speed of the condenser fan. This feature enable more stable operation, low noise, energy saving and low ambient temperature start–up and operation.

Manual Control

It is able to manually switch on/off all the major components during the commissioning and service of the unit.

Operating Scheduling

This function allows the user to set daily or weekly operating schedule.

Multi–unit Group Control

When multiple units are installed in one room, the operating strategy such as rotation, standby, can be achieved by group networking.

Acoustic And Optical Alarm Signaling

The room temperature, humidity and working status of all the components are displayed on the controller. When a failure occurs, acoustic buzzer is energized and the failure message is displayed on the controller display.

4 Levels Of Password

Unit has 4 password dedicated to different operation and maintenance jobs, this will prevent the unit from wrong or unauthorized operation.

Modifiable Parameters

Basic Running Parameter

Basic Running Parameters can be modified by customers according to the customer need, for example: temperature and humidification setting

Routine Parameter

The default parameters can be modified by service engineer during regularly maintenance, for example: temperature and humidity range, precision adjustment, temperature and humidity dead zone setting, highest and lowest temperature and humidity setting, high pressure alarm setting, start and stop schedule setting.

Advanced Parameter

Advanced Parameter

For example: alarm delay adjustment, backup rotation setting, condensing fan working point setting, the compressor minimum start interval setting

The unit can be initialized if necessary

Note: more details, please refer to the User Manual

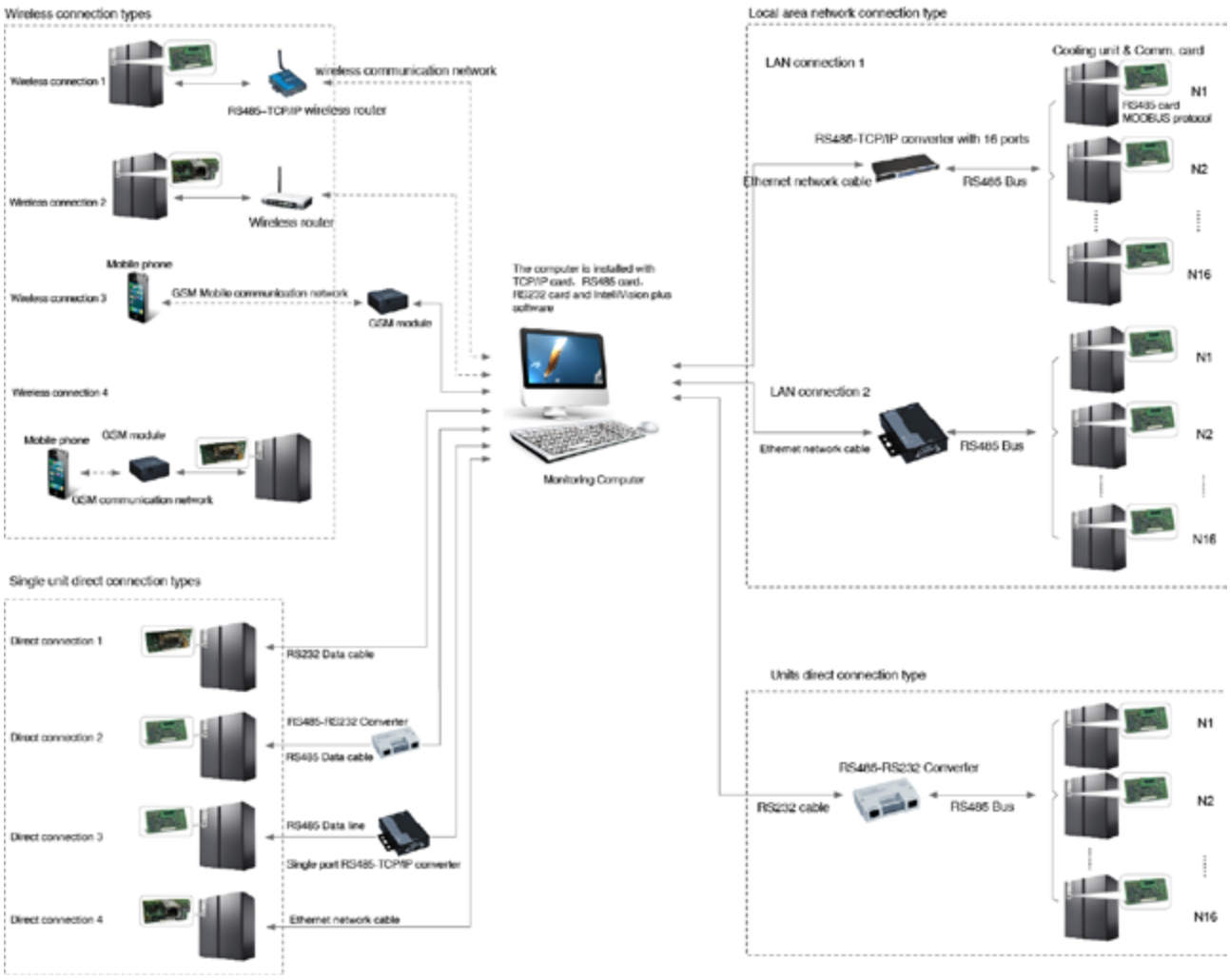
Remote control and monitoring network

The unit can be remote controlled or monitored by many kinds of methods as follows:

3 kinds of local direct cable connection

3 kinds of LAN network connection

4 kinds of wireless network connection



Technical parameters

OPTIMA–FC.DXA

Unit Model		16E1A1	20E1A1	26E1A2	30E1A2	35E1A2	40E2A3	50E2A3	60E2A4	70E2A4	80E2A4	90E2A5	100E2A5
Supply air scheme							O/U						
Cooling capacity													
Total (2)	kW	18.9	22.0	28.5	31.9	37.6	46.6	55.1	65.3	74.5	84.6	90.7	103.4
Sensible(2)	kW	18.3	20.7	26.2	29.3	35.3	44.3	51.1	59.9	71.4	79.4	86.1	97.7
Total (3)	kW	19.5	22.7	29.4	32.9	38.8	48.0	56.8	67.3	76.8	87.2	93.5	106.6
Sensible(3)	kW	18.5	20.9	26.5	29.7	35.7	44.8	51.6	60.5	72.2	80.3	87.0	98.8
Free cooling													
Total (4)	kW	16.5	21.8	30.1	33.6	37.6	42.4	50.3	55.9	67.3	78.5	93.4	104.6
Sensible(4)	kW	15.3	19.8	27.4	30.9	34.2	39.0	45.8	51.4	61.2	71.4	85.9	95.2
Compressor													
Type							Hermetic scroll						
Power input(2)	kW	3.9	4.4	5.8	6.5	7.7	2×5.0	2×5.8	2×6.5	2×7.7	2×8.7	2×9.7	2×11.6
Current(2)	A	7.5	7.9	11.3	12.5	14.3	2×10.1	2×11.6	2×12.7	2×14.5	2×16.3	2×17.8	2×21.6
Power input(3)	kW	4.1	4.6	6.1	6.8	8.0	2×5.2	2×6.1	2×6.8	2×8.0	2×9.0	2×10	2×12
Current(3)	A	7.7	8.1	11.6	12.7	14.8	2×10.5	2×11.9	2×12.9	2×14.8	2×16.7	2×18.2	2×22.3
Supply fan													
Type							Caseless backward centrifugal fan						
Qty. of fan	n.	1	1	1	1	1	2	2	3	3	3	3	3
Air volume	m^3/h	5750	6320	8900	9600	9600	12600	13600	17800	19200	21000	24600	27900
External static (5)	Pa						Standard ESP is 75Pa, adjustment range is 50~300Pa						
Power input	kW	1.0	1.2	1.4	1.7	1.7	2.4	2.8	3.6	3.9	4.0	4.2	5.1
Current	A	1.7	1.9	2.1	2.6	2.6	3.8	4.2	5.7	6	6.3	6.3	7.8
Free cooling coil													
Water flow	m^3/h	3.2	4.2	5.7	6.6	7.3	8.1	9.5	10.8	12.9	13.6	16.2	17.8
Preesure drop	kPa	26.2	46.5	42.1	53.3	37.7	77.2	62.3	76.2	63.5	69.1	100.3	118.1
Air filter							G4 Plate						
Eletric heater(6)													
Type							Stainless steel electric heater						
Heating capacity	kW	6	6	9	9	9	13.5	13.5	18	18	18	18	18
Working steps	n.	2	2	2	2	2	2	2	2	2	2	2	2
Humidifier(6)													
Type							Electrode						
Capacity	kg/h	3	3	5	5	5	8	8	8	8	8	8	8
Power input	kW	2.3	2.3	3.8	3.8	3.8	5.9	5.9	5.9	5.9	5.9	5.9	5.9
Outdoor unit													
Model*Qty(7)		CME5×1	CME8×1	CME10×1	CME10×1	CME15×1	CME8×2	CME10×2	CME10×2	CME15×2	CME15×2	CME20×2	CME20×2
Model*Qty(8)		CME8×1	CME10×1	CME15×1	CME15×1	CME20×1	CME10×2	CME15×2	CME15×2	CME20×2	CME20×2	CME25×2	CME25×2
Model*Qty(9)		AMAE5×1	AMAE6×1	AMAE8×1	AMAE10×1	AMAE12×1	AMAE6×2	AMAE8×2	AMAE10×2	AMAE12×2	AMAE15×2	AMAE18×2	AMAE20×2
Dry cooler													
Model*Qty		CMEH20×1	CMEH30×1	CMEH40×1	CMEH40×1	CMEH50×1	CMEH50×1	CMEH60×1	CMEH60×1	CMEH70×1	CMEH80×1	CMEH50×2	CMEH60×2
Power supply													
Power source							380V/3Ph/50Hz						
Unit max. operating power input(10)	kW	13.4	14.3	19.0	20.3	21.8	25.0	26.0	34.3	35.7	36.9	39.0	43.6
Unit max. operating current(10)	A	24.4	25.1	33.9	37.9	40.1	46.2	50.2	61.8	66.1	70.4	74.8	83.9
Unit piping connection													
Humidifier water supply	in	1/2″	1/2″	1/2″	1/2″	1/2″	1/2″	1/2″	1/2″	1/2″	1/2″	1/2″	1/2″
Condensing water drainage	in	3/4″	3/4″	3/4″	3/4″	3/4″	3/4″	3/4″	3/4″	3/4″	3/4″	3/4″	3/4″
Refrigerant gas	mm	19	19	19	22	22	2×19	2×22	2×22	2×22	2×22	2×22	2×28
Refrigerant liquid	mm	16	16	16	16	16	2×16	2×16	2×16	2×16	2×16	2×19	2×19
Free cooling coil inlet/outlet water	in	1–1/4″	1–1/4″	1–1/4″	1–1/4″	1–1/4″	1–1/2″	1–1/2″	1–1/2″	2″	2″	2″	2″
Unit external dimensions and Weight													
Width	mm	875	875	1480	1480	1480	1750	1750	2490	2490	2490	3095	3095
Depth	mm	890	890	890	890	890	890	890	890	890	890	890	890
Height	mm	1960	1960	1960	1960	1960	1960	1960	1960	1960	1960	2050	2050
Weight	kg	315	366	375	413	420	630	680	940	980	1040	1230	1270

(1) O：Up flow U：Down flow;

(2) Return air dry bulb temperature 24℃、RH50%，Outdoor dry bulb temperature35℃;

(3) Return air dry bulb temperature 28℃、RH40%，Outdoor dry bulb temperature35℃;

(4) Return air dry bulb temperature 24℃、RH50%，Outdoor dry bulb temperature2℃, standard water flow;

(5) For ESP over 300 Pa, Contact manufacturer;

(6) The default capacity option, please refer to "electric heater/ humidifier selection sheet" for other capacity;

(7) Ambient temperature is lower than 40℃, refer to CME catalogue for detailed specification;

(8) Ambient temperature is higher than 40℃, refer to CME catalogue for detailed specification;

(9) Meet the requirements of high ambient temperature(lower than 52℃) safe operation, refer to AMAE catalogue for detailed specification;

(10) Max. operating power input: as above spec sheet, outdoor temperature at 45℃, supply fan works at full speed, for A1~A4 unit under the condition of dehumidification plus 100% electric reheat, for A5 unit under the condition cooling plus 100% humidification。

Technical Parameters

OPTIMA–FC.DXW

Unit Model		16E1A1	20E1A1	26E1A2	30E1A2	35E1A2	40E2A3	50E2A3	60E2A4	70E2A4	80E2A4	90E2A5	100E2A5
Supply air scheme							O/U						
Cooling capacity													
Total (2)	kW	17.6	21.5	27.9	31.2	36.1	45.8	57.2	62.1	72.2	82.3	90.4	106.7
Sensible(2)	kW	15.8	18.9	24.1	27.0	31.2	40.1	49.8	54.6	63.5	71.6	78.6	91.8
Total (3)	kW	18.1	22.2	28.8	32.2	37.2	47.2	59.0	64.0	74.4	84.9	93.2	110.0
Sensible(3)	kW	16.1	19.3	24.9	27.8	32.2	41.3	51.3	56.4	65.5	73.9	81.1	94.7
Free cooling													
Total (4)	kW	16.5	21.8	30.1	33.6	37.6	42.4	50.3	55.9	67.3	78.5	93.4	104.6
Sensible(4)	kW	15.3	19.8	27.4	30.9	34.2	39.0	45.8	51.4	61.2	71.4	85.9	95.2
Compressor													
Type							Hermetic scroll						
Power input(2)	kW	3.5	4.1	5.2	5.8	7.0	9.0	10.4	11.8	13.9	16.2	18.2	22.6
Current(2)	A	6.9	7.6	10.6	11.7	13.4	19.4	21.2	23.6	27.2	31.2	33.4	42.2
Power input(3)	kW	3.7	4.3	5.4	6.1	7.3	9.4	10.9	12.3	14.5	16.9	19.0	23.6
Current(3)	A	7.1	7.8	10.9	12.0	13.7	19.9	21.7	24.2	27.9	32.0	34.2	43.3
Supply fan													
Type							Caseless backward centrifugal fan						
Qty. of fan	n.	1	1	1	1	1	2	2	3	3	3	3	3
Air volume	m^3/h	5750	6320	8900	9600	9600	12600	13600	17800	19200	21000	24600	27900
External static (5)	Pa						Standard ESP is 75Pa, adjustment range is 50~300Pa						
Power input	kW	1.1	1.3	1.5	1.8	1.8	2.6	2.9	3.6	3.9	4.1	4.4	6.3
Current	A	1.8	2.0	2.3	2.7	2.7	4.1	4.4	5.7	6.2	6.5	6.8	8.6
Free cooling coil													
Water flow	m^3/h	3.2	4.2	5.7	6.6	7.3	8.1	9.5	10.8	12.9	13.6	16.2	17.8
Preesure drop	kPa	26.2	46.5	42.1	53.3	37.7	77.2	62.3	76.2	63.5	69.1	100.3	118.1
Water condenser													
Water flow	m^3/h	3.9	4.8	6.2	7.0	7.3	11.0	12.4	14.1	16.0	18.1	20.3	23.7
Pressure drop	kPa	27.0	26.6	28.6	30.7	26.0	46.4	44.3	44.8	46.3	48.4	34.3	36.7
Pressure drop(with valve)	kPa	33.5	36.1	44.6	50.7	47.5	63.4	62.8	58.3	61.3	69.9	51.8	55.2
Water volum	L	1.1	1.4	1.8	1.9	2.2	4.0	4.5	5.2	5.8	6.4	7.3	8.1
Air filter							G4 Plate						
Eletric heater(6)													
Type							Stainless steel electric heater						
Heating capacity	kW	6	6	9	9	9	13.5	13.5	18	18	18	18	18
Working steps	n.	2	2	2	2	2	2	2	2	2	2	2	2
Humidifier(6)													
Type							Electrode						
Capacity	kg/h	3	3	5	5	5	8	8	8	8	8	8	8
Power input	kW	2.3	2.3	3.8	3.8	3.8	5.9	5.9	5.9	5.9	5.9	5.9	5.9
Dry cooler													
odel*Qty		CMEH20×1	CMEH30×1	CMEH40×1	CMEH40×1	CMEH50×1	CMEH60×1	CMEH70×1	CMEH80×1	CMEH50×2	CMEH50×2	CMEH60×2	CMEH70×2
Power supply													
Power source							380V/3Ph/50Hz						
Unit max. operating power input(7)	kW	11.6	12.5	17.1	18.2	19.7	21.8	23.0	29.1	30.8	32.4	34.3	41.0
Unit max. operating current(7)	A	19.1	20.1	28.4	30.1	32.1	36.4	37.8	47.5	50.2	53.0	58.9	69.5
Unit piping connection													
Humidifier water supply	in	1/2″	1/2″	1/2″	1/2″	1/2″	1/2″	1/2″	1/2″	1/2″	1/2″	1/2″	1/2″
Condensing water drainage	in	3/4″	3/4″	3/4″	3/4″	3/4″	3/4″	3/4″	3/4″	3/4″	3/4″	3/4″	3/4″
Inlet/outlet chilling water	in	1–1/4″	1–1/4″	1–1/4″	1–1/4″	1–1/4″	1–1/2″	1–1/2″	1–1/2″	2″	2″	2″	2″
Unit external dimensions and Weight													
Width	mm	875	875	1480	1480	1480	1750	1750	2490	2490	2490	3095	3095
Depth	mm	890	890	890	890	890	890	890	890	890	890	890	890
Height	mm	1960	1960	1960	1960	1960	1960	1960	1960	1960	1960	2050	2050
Weight	kg	348	405	423	464	476	708	770	1037	1085	1157	1338	1392

(1) O：Up flow U：Down flow

(2) Return air dry bulb temperature 24℃、RH50%，inlet chilling water temperature 30℃, standard chilling water flow；

(3) Return air dry bulb temperature 28℃、RH40%，inlet chilling water temperature 30℃，standard chilling water flow；

(4) Return air dry bulb temperature 24℃、RH50%，Outdoor dry bulb temperature2℃, standard water flow；

(4) For ESP over 300 Pa, Contact manufacturer；

(6) The default capacity, please refer to "electric heater/ humidifier selection sheet" for other capacity；

(7) Max. operating power input: as above spec sheet, inlet chilling water temperature 40℃，for A1~A4 unit under the condition of dehumidification plus 100% electric reheat, for A5 unit under the condition cooling plus 100% humidification。

Outdoor unit

Air Cooled Condenser

Unit model		CME5	CME8	CME10	CME15	CME20	CME25
Capacity (1)	kW	20.5	29.6	35.4	47.6	67.4	73.1
Fan Qty.	No.	1	1	1	2	2	2
Air flow rate	m^3/h	5600	10100	9700	11600	20100	19100
Input power	kW	0.37	0.63	0.63	0.74	1.26	1.26
Input current	A	1.7	3.0	3.0	3.4	6.0	6.0
Connection tube size							
Gas pipe	mm	19	22	22	22	28	35
Liquid pipe	mm	12	16	16	19	19	22
Dimensions							
Length	mm	1140	1340	1340	1540	2400	2400
Width	mm	475	620	620	620	630	630
Height	mm	770	1070	1070	1070	1135	1135
Weight	kg	47	95	110	130	155	185

(1) The capacity is rated at entering air temperature 35℃and condensing temperature 50℃ condition.

Air Cooled Condenser

Unit model		AMAE5	AMAE6	AMAE8	AMAE10	AMAE12	AMAE15	AMAE18	AMAE20
Capacity (1)	kW	24.2	29.7	36.2	41.3	50.7	57.2	62.4	74.3
Fan Qty.	No.	1	1	1	1	2	2	2	2
Air flow rate	m^3/h	12500	11600	11800	11500	23500	22000	23400	22600
Input power	kW	0.63	0.63	0.63	0.63	1.26	1.26	1.26	1.26
Input current	A	2.8	2.8	2.8	2.8	5.6	5.6	5.6	5.6
Connection tube size									
Gas pipe	mm	19	19	19	22	22	22	22	28
Liquid pipe	mm	16	16	16	16	16	16	19	19
Dimensions									
Length	mm	1365	1365	1650	1650	1985	1985	2790	2790
Width	mm	620	620	620	620	620	620	620	620
Height	mm	1080	1080	1080	1080	1080	1080	1080	1080
Weight	kg	103	116	135	152	173	182	206	220

(1) The capacity is rated at entering air temperature 35℃and condensing temperature 50℃ condition.

CMEH Dry Cooler

Unit model		CMEH20	CMEH30	CMEH40	CMEH50	CMEH60	CMEH70	CMEH80
Capacity (1)	kW	23.2	31.2	45.3	56.7	61.5	75.2	83.1
Air flow rate	m^3/h	12100	11200	22800	23200	21800	33600	32400
Water flow	m^3/h	3.5	5.2	6.2	9.3	10.2	10.6	11.8
Pressure drop	kpa	71.1	68.2	58.7	57.6	69.1	72.3	78.5
Fan Qty.	n.	1	1	2	2	2	3	3
Input power	kW	0.75	0.75	1.5	1.5	1.5	2.3	2.3
Input current	A	3.3	3.3	6.6	6.6	6.6	10.1	10.1
Connection tube size								
Gas pipe	in	1−1/4″	1−1/4″	1−1/2″	1−1/2″	1−1/2″	2″	2″
Liquid pipe	in	1−1/4″	1−1/4″	1−1/2″	1−1/2″	1−1/2″	2″	2″
Dimensions								
Length	mm	1350	1350	1980	2700	2700	3580	3580
Width	mm	620	620	620	620	620	620	620
Height	mm	1070	1070	1120	1120	1120	1120	1120
Weight	kg	95	115	145	175	195	235	255

(1) The capacity is rated at entering air temperature 35℃ and inlet water temperature 45C condition.

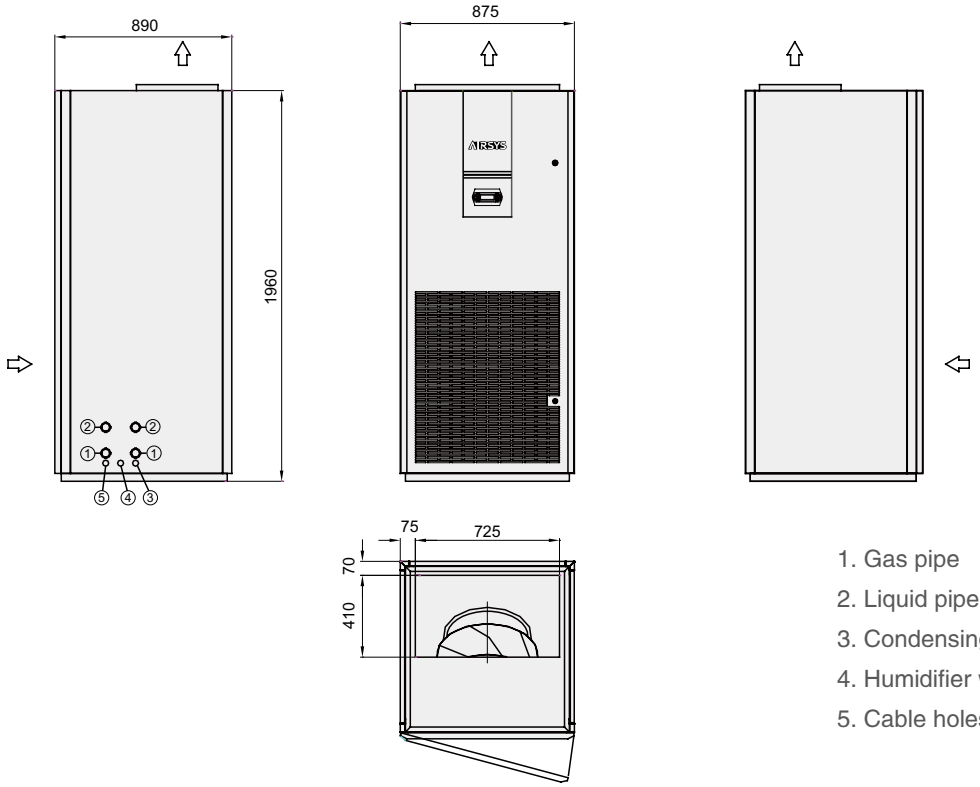
PUG Pump Group Box

Unit model		PUG5	PUG10	PUG15	PUG20	PUG25
Water flow	m^3/h	5.6	9.5	15.2	20.2	25.3
Pressure	m	26	27	28	26	26
Pump Qty.	n.	2	2	2	2	2
Input power	kW	1.1	1.5	2.4	3	4
Input current	A	2.2	3.0	4.8	6.0	7.9
Connection tube size						
Gas pipe	in	1−1/2″	1−1/2″	2″	2″	2″
Liquid pipe	in	1−1/2″	1−1/2″	2″	2″	2″
Dimensions						
Length	mm	1390	1390	1390	1390	1390
Width	mm	750	750	750	750	750
Height	mm	1050	1050	1050	1050	1050
Weight	kg	115	120	150	163	180

(1) Each unit is equipped with two pumps, use one and the other one stand by. Above parameters is rated at signal pump works.

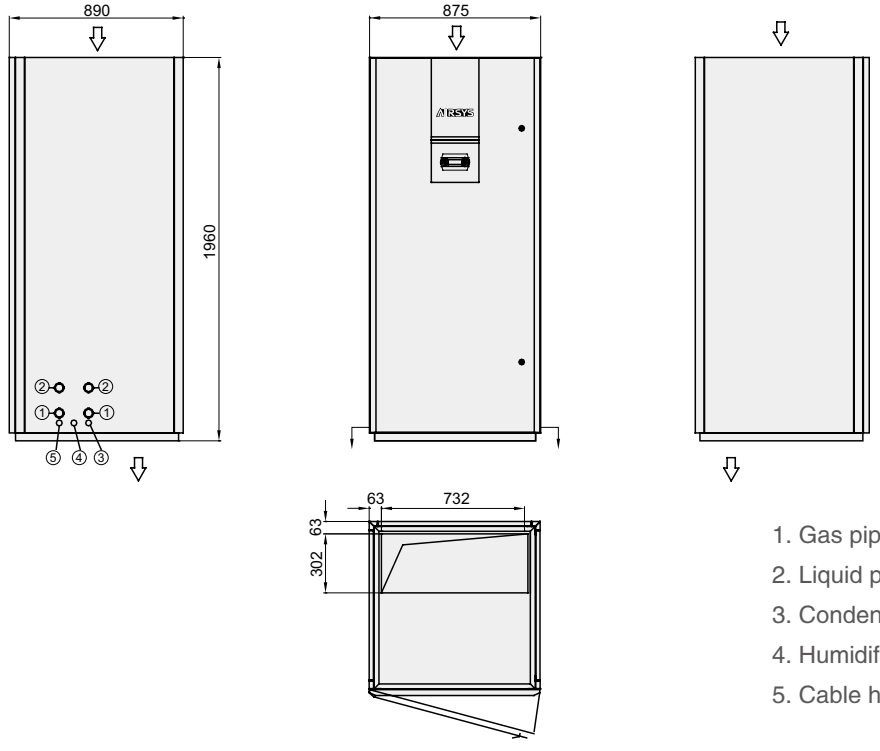
Unit Dimension Drawing

A1 Unit Cabinet Dimension Drawing For Up Flow Unit



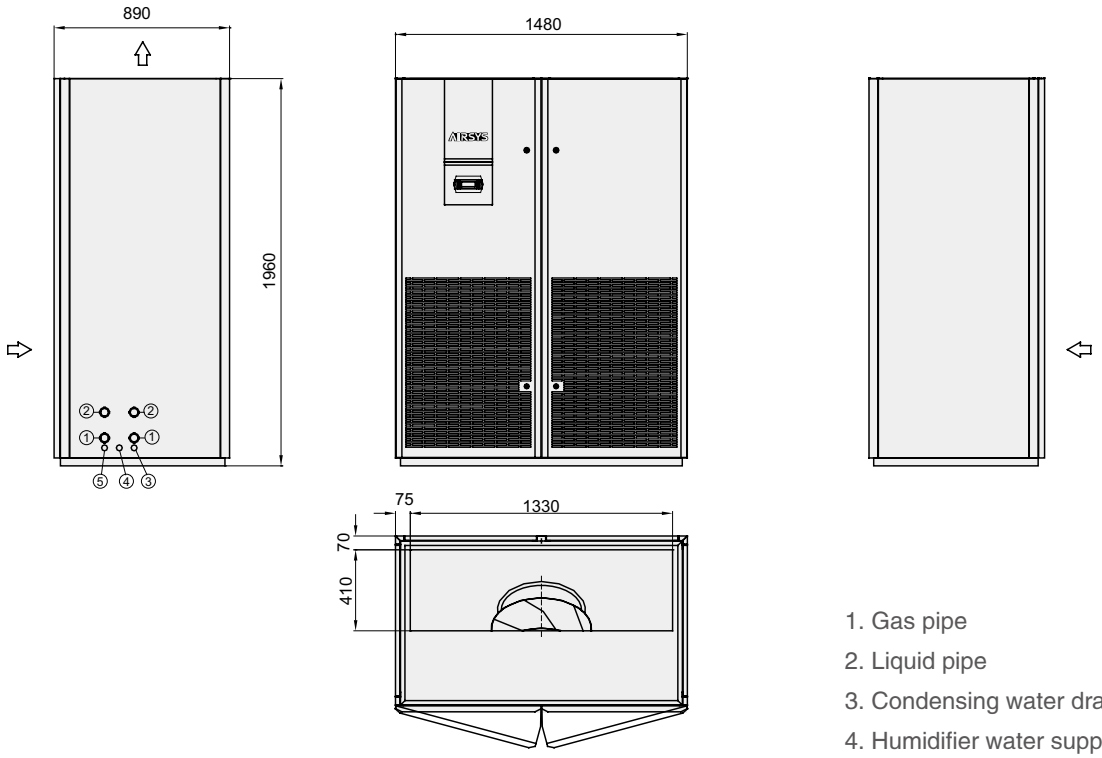
1. Gas pipe
2. Liquid pipe
3. Condensing water drainage
4. Humidifier water supply
5. Cable holes

A1 Unit Cabinet Dimension Drawing For Under Flow Unit



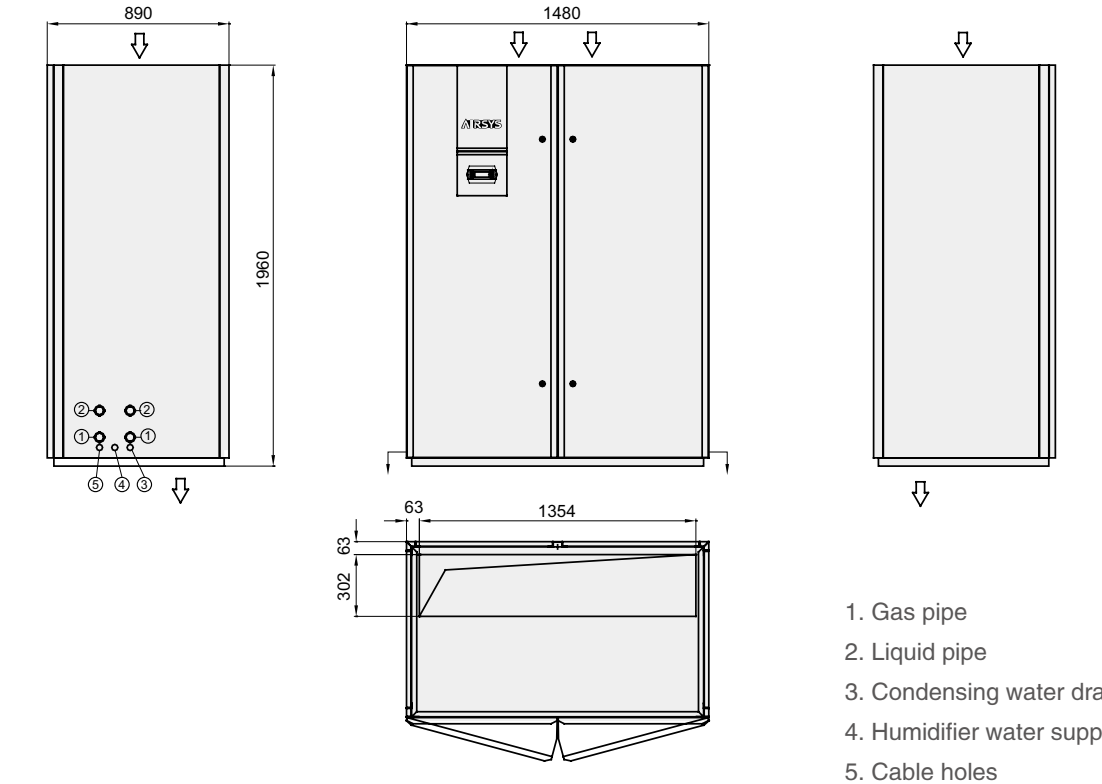
1. Gas pipe
2. Liquid pipe
3. Condensing water drainage
4. Humidifier water supply
5. Cable holes

A2 Unit Cabinet Dimension Drawing For Up Flow Unit



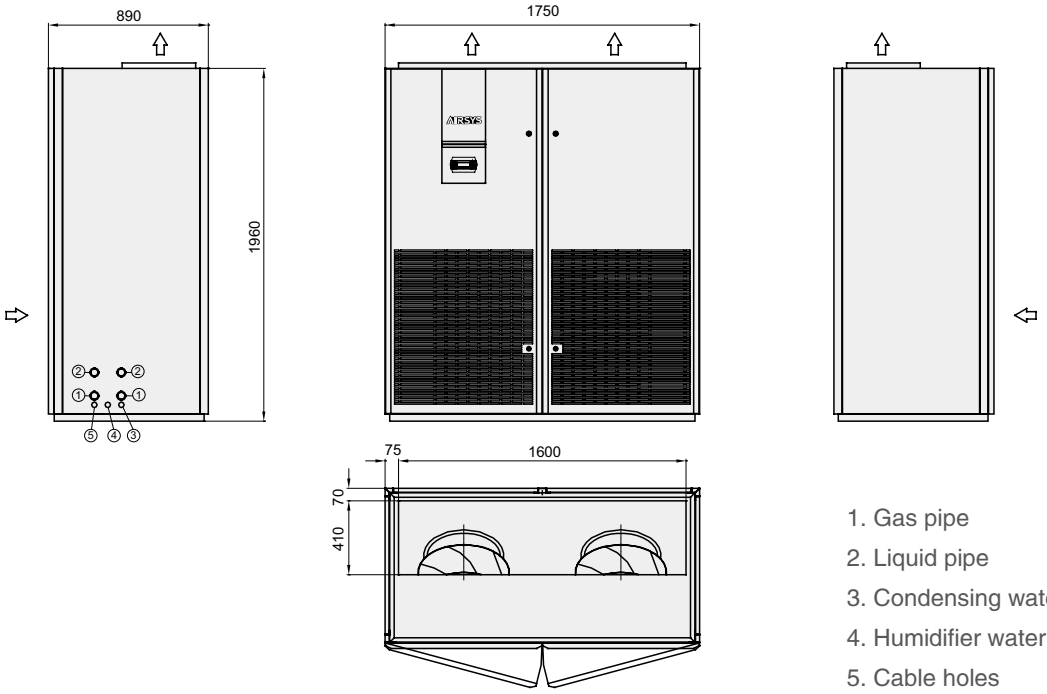
1. Gas pipe
2. Liquid pipe
3. Condensing water drainage
4. Humidifier water supply
5. Cable holes

A2 Unit Cabinet Dimension Drawing For Under Flow Unit

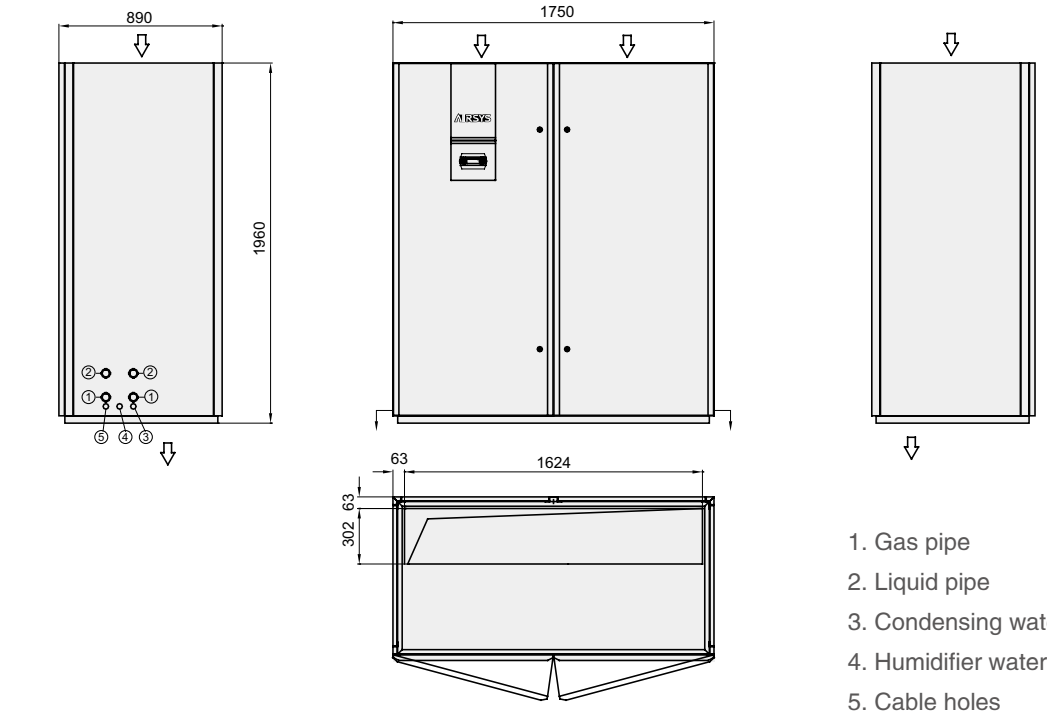


1. Gas pipe
2. Liquid pipe
3. Condensing water drainage
4. Humidifier water supply
5. Cable holes

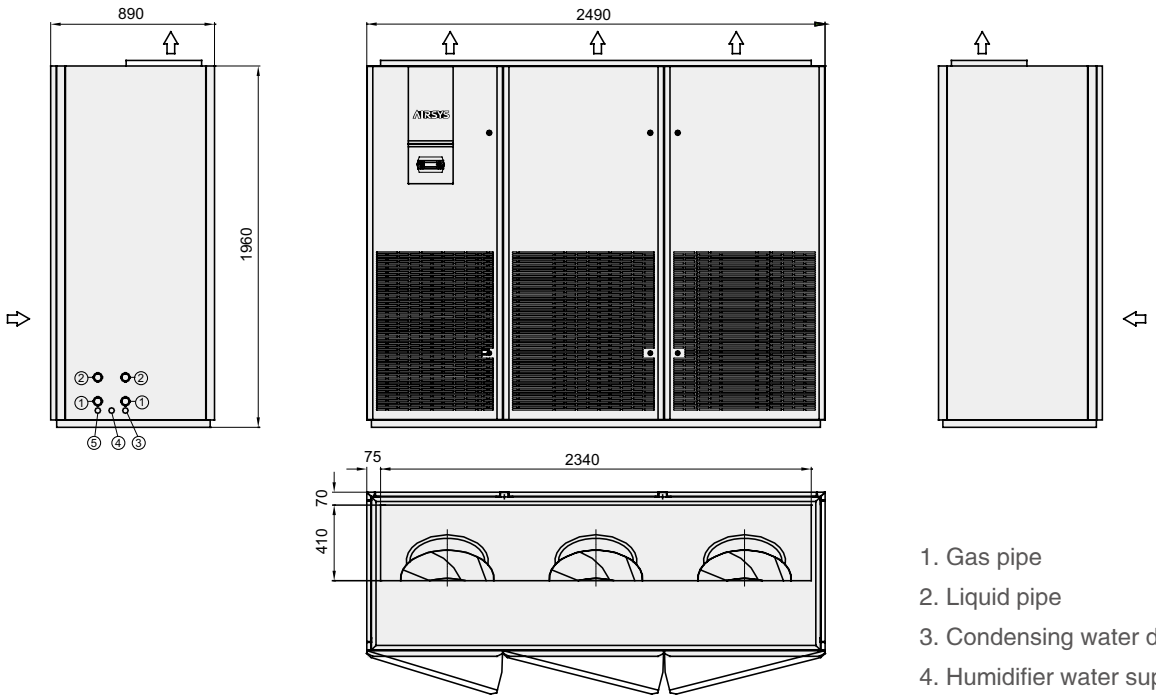
A3 Unit Cabinet Dimension Drawing For Up Flow Unit



A3 Unit Cabinet Dimension Drawing For Under Flow Unit

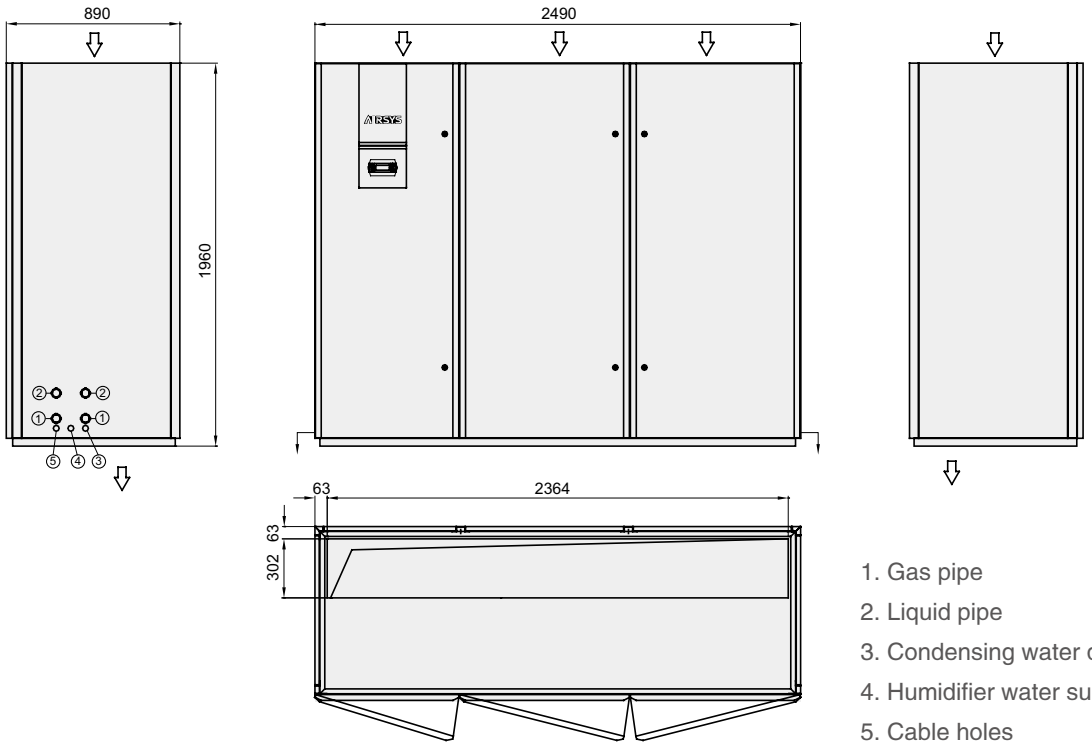


A4 Unit Cabinet Dimension Drawing For Up Flow Unit



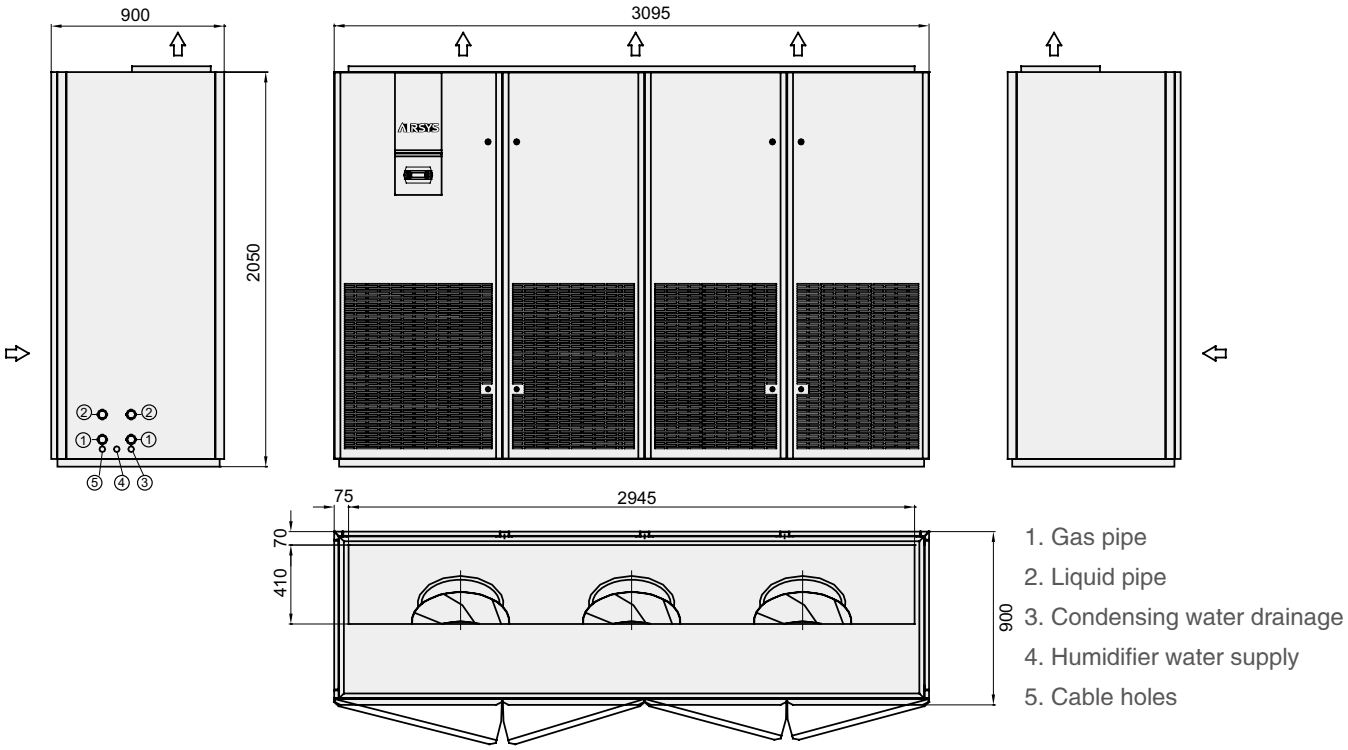
1. Gas pipe
2. Liquid pipe
3. Condensing water drainage
4. Humidifier water supply
5. Cable holes

A4 Unit Cabinet Dimension Drawing For Under Flow Unit

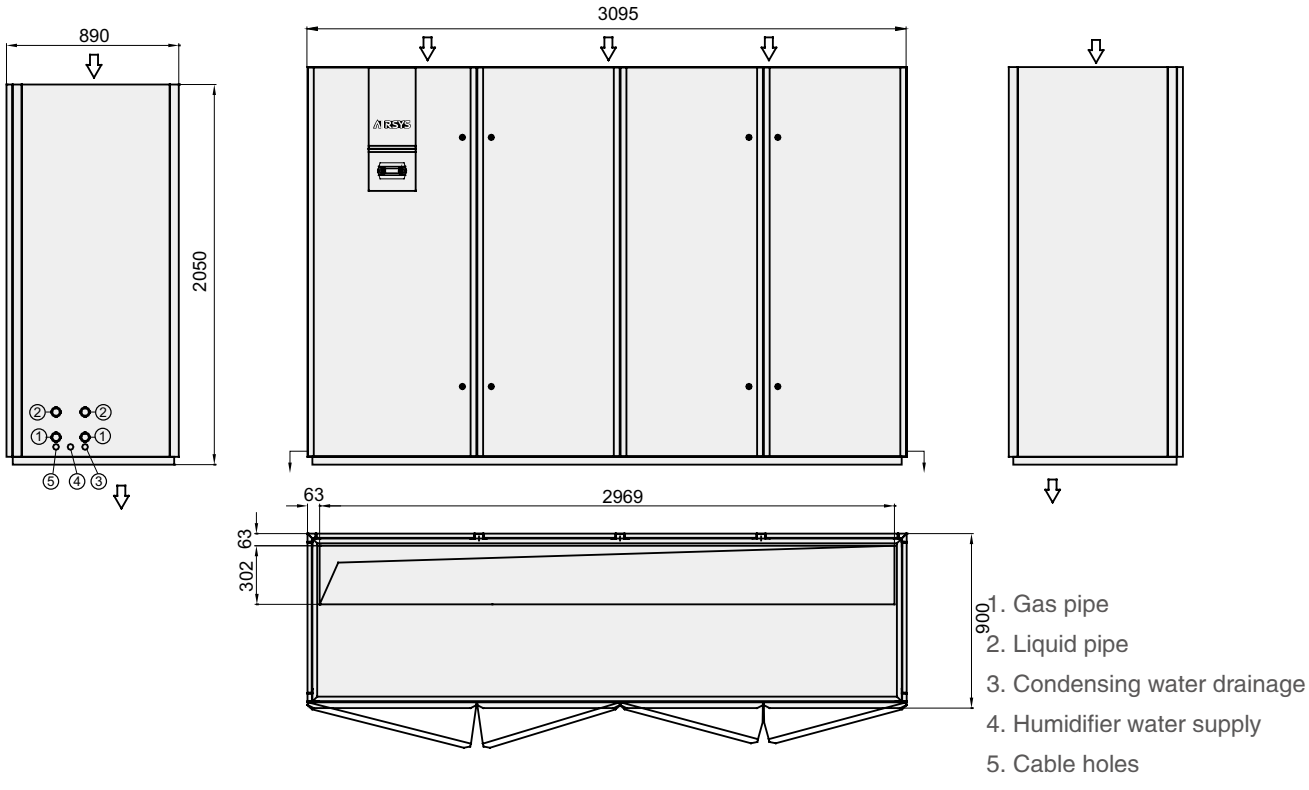


1. Gas pipe
2. Liquid pipe
3. Condensing water drainage
4. Humidifier water supply
5. Cable holes

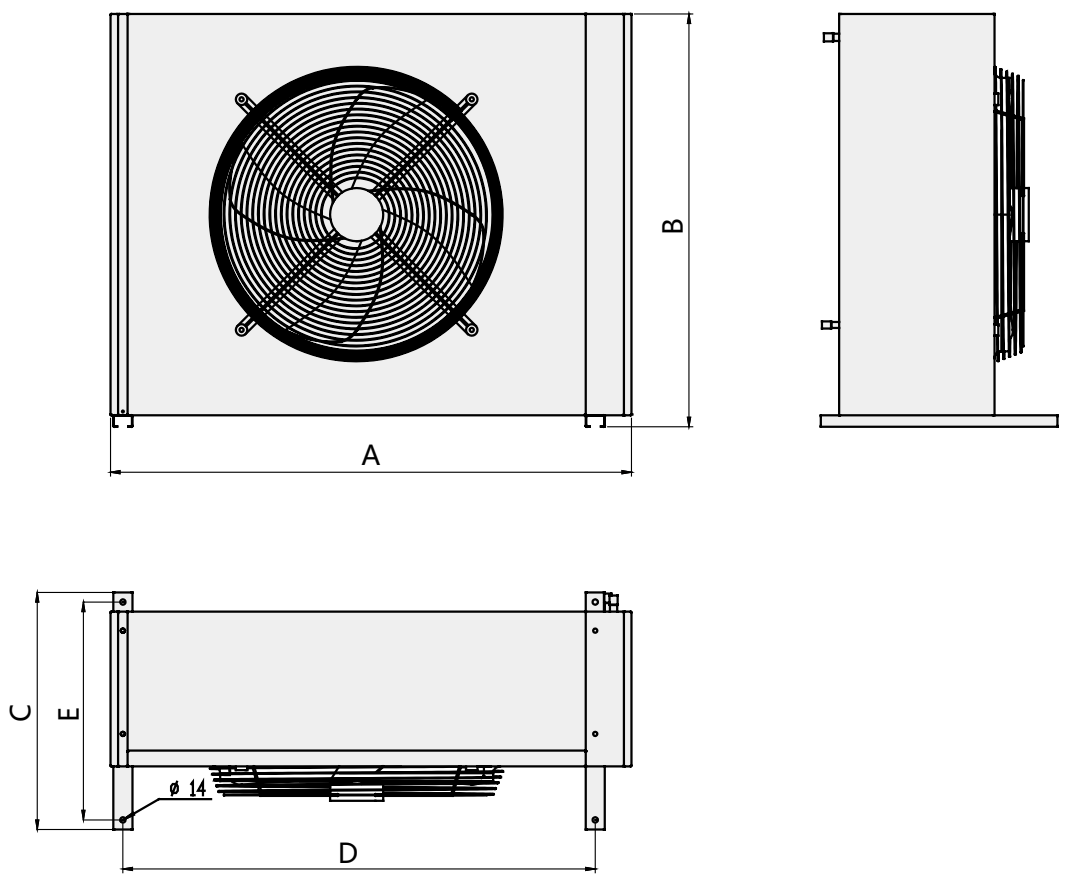
A5 Unit Cabinet Dimension Drawing For Up Flow Unit



A5 Unit Cabinet Dimension Drawing For Under Flow Unit

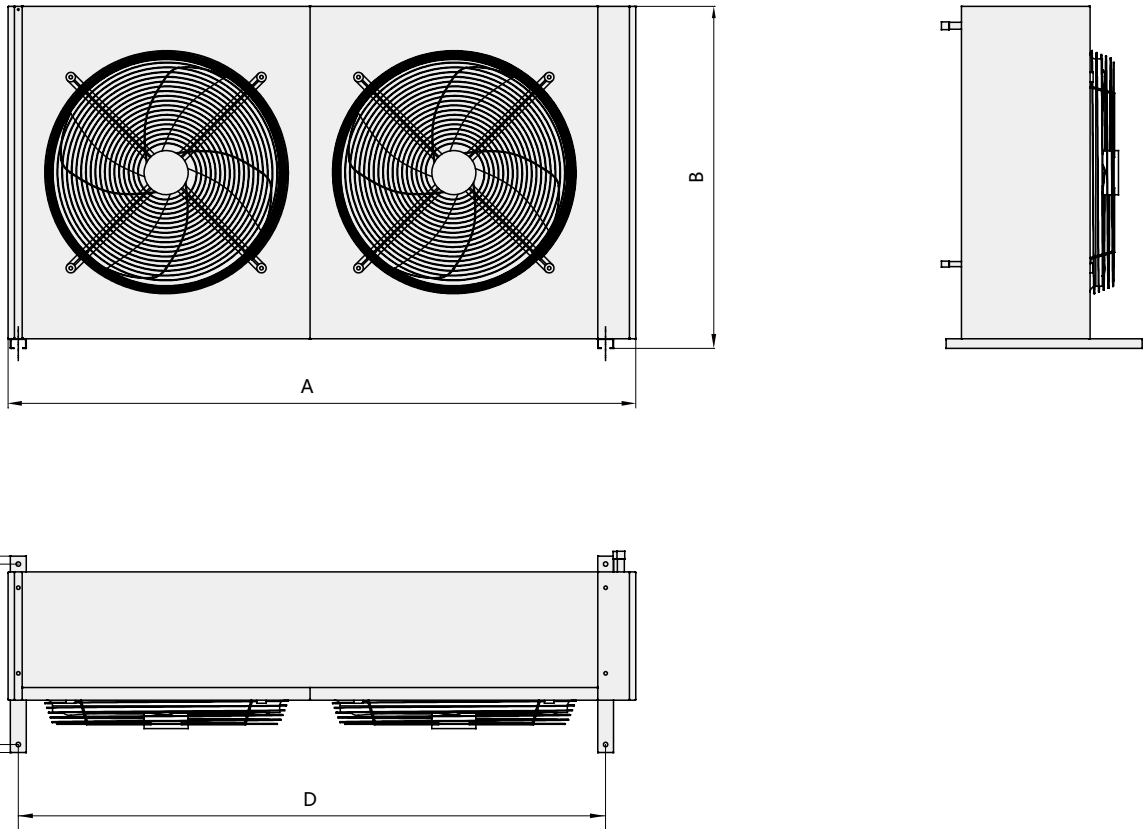


CME Dimension Drawing



	CME5	CME8	CME10	AMAE5	AMAE6	AMAE8
A	1140	1340	1340	1365	1365	1665
B	770	1070	1070	1080	1080	1080
C	475	620	620	620	620	620
D	1037	1237	1237	1237	1237	1537
E	425	570	570	570	570	570

AMAE Dimension Drawing



	CME15	CME20	CME25	AMAE10	AMAE12	AMAE15	AMAE18	AMAE20
A	1540	2400	2400	1985	1985	1985	2785	2785
B	1070	1135	1135	1080	1080	1080	1080	1080
C	620	630	630	620	620	620	620	620
D	1437	2160	2160	1857	1857	1857	2657	2657
E	570	580	580	570	570	570	570	570

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