AIRSYS
MOBILECOOL-OUTDOOR
V12-2007.09

Packaged Air Conditioner With Free Cooling System

MOBILECOOL/OUTDOOR

Cooling capacity: 5-10kw

AIRSYS®

CONTENT

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FOREWORD

MOBILECOOL/OUTDOOR: Packaged air cooled air conditioning units, with built-in air cooled condenser, designed to be used for telecommunication and Hi Tech facilities, with displacement air delivery for direct air distribution into the room. The units are standard equipped with an automatic free-cooling system to obtain free-cooling when indoor temperature is higher than outdoor temperature.

The MOBILECOOL/OUTDOOR units are divided in three sections:

- Air cooled condensing section equipped with Scroll type hermetic compressors, condensing coil and centrifugal fan directly coupled to electric motor.
- Free-Cooling section equipped with damper directly driven by proportional motor.
- Air handling section equipped with evaporating coil, centrifugal fans directly coupled to electric motor and air filters.

The microprocessor control system supervises the functions of all the mechanical and electrical components transforming the units into an integrated system for the precise control and monitoring of temperature, air flow and air cleanness.

These units just require frontal inspection for the standard maintenance operation.

The small unit footprint allows an easy installation in every condition.

Thanks to the unit design it is possible to set the control and safety devices without unit stop.

Every single unit is undergoes a series of working tests to assure its response to the designed performances and it is fitted with R407c refrigerant charge.

Every unit requires only the electric connections and two holes on the wall for air return and air supply of indoor air circulation/free-cooling system.

The units are designed, manufactured and tested according to ISO 9001 standards to assure their compliance to total quality standards.

Every component is selected to conform to the main China and international safety standards.

HIGHLIGHTS

Corrosion proof cabinet utilizing extruded aluminum or galvanized sheet steel made frame with galvanized sheet steel base painted with epoxy powder.

Electric box fitted in a separate compartment with frontal access. The construction, the components, the labelling and the wiring are made in accord with the IEC - VDE rules.

Completely removable panels. The hinged front panels are fitted with safety opening system.

Refrigerant circuit produced in conformity with the main China & international standards.

High efficiency heat exchangers with copper tubes and aluminum fins.

Centrifugal fans with back curved blades, directly coupled to electric motor with 48VDC power from UPS.

Filtering section made of large surface washable filters.

Automatic free-cooling system to obtain room free cooling with suitable outdoor temperature conditions. The system provides a remarkable reduction of compressor working hours and guarantees high energy saving.

Microprocessor control system fitted with automatic failure search system, trouble-shooting guide and serial outlet for the connection to the most advanced computerized management system.

Automatic restart of the unit in case of power failure.

Smart software to avoid unit cutout due to time limited events.

Total frontal inspectionability: All devices are positioned to be easily inspected in order to grant easy installation.

P**hase order mistake alarm**

- If the phase order of power is mistaken, the control system will send a signal to alarm,and prevent the unit from starting till correct phase connection

Reduced installation time.

- Every unit requires only interconnection to electric and hydraulic systems.

Ready to use.

- All AIR-SYS units are completely tested in the factory, under load conditions.
- Each component and safety system is carefully checked and calibrated, in real working conditions, before shipment.

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WORKING LIMITS

Room working limit air temperature values in cooling mode:

+12.5℃ wet bulb minimum temperature.

+15℃ dry bulb minimum temperature.

+24℃ wet bulb maximum temperature.

+32℃ dry bulb maximum temperature.

Outdoor working limit air temperature values in cooling mode:

-15℃ dry bulb minimum temperature.

+48~+53℃ dry bulb maximum temperature.

Outdoor working limit air temperature values in free-cooling mode:

-30℃dry bulb minimum temperature.

UNITS IDENTIFICATIONS

MOBILECOOL/OUTDOOR	DL	DXA	7	E1	C1	R407c	X

Series identification	Indoor Unit or Outdoor Unit
Air Supply Mode	Displacement air flow
Air Cooled direct Expansion	
Air Cooling Capacity(kW)	5.6.7.9.11.13
Compressor	EI:1 Fully-hermetic Compressor E2:2 Fully-hermetic
Cabinet Size	C1 or C2
Type of Refrigerant	R22 R407c R410A
Free Digit for Special identification	

For example:

MOBILECOOL/OUTDOOR DXA 7 E1 C2 means the unit series is MOBILECOOL/OOTDOOR which is a outdoor installed packaged air conditioner with direct expansion cooling system and free cooling system and the unit uses 1 fully hermetic compressor and is installed in C2 cabinet.

The model of the unit can be written by MOBLOD DXA 7 E1 C2.

MAIN COMPONENTS

- Housing and panels in aluminum or in galvanized steel sheet externally covered by PVC film. Panels internally insulated by noise absorption material.
- Electric board technical space on the unit front, with separated inspection panel.
- Control board on the unit front, placed on the electric board inspection panel.
- Air handling section with delivery from the lower part and unit back side.
- Supply fans:

  48VDC no-break supply from UPS:

  Axial fan directly coupled to single phase electric motor.
- Motor for air handling section.
- Cooling coil with copper tubes and aluminum fin.
- Cooling coil containing frame in thick galvanized steel sheet.
- Cell air filters in synthetic washable fibers
- Stainless steel condensate receiver with PVC flexible discharge.
- Free cooling system made by deviating outdoor air damper with proportional servomotor directly driven by microprocessor control. The system is fitted with anti-bird net on fresh air inlet.

  Axial fan directly coupled to single phase electric motor for condensing section.
- Safety fanguard on condenser air discharge.
- Air distribution grille on air delivery and grille on room air suction.
- Condensing coil with copper tubes and aluminum fin.
- Condensing coil containing frame in thick galvanized steel sheet.
- Hermetic Scroll compressors with built-in integral electric protection and rubber anti-vibration holders
- On/off condensing control system acting on condenser fan.
- Mechanical gas molecular riddle filter.
- Low pressure safety switch.
- High pressure safety switch.
- Flexible piping for pressure switches connection.
- Thermostatic expansion valve with external equalizer.
- Differential air pressure switch for clogged filters alarm.
- Copper refrigerating pipe with anti-condensate insulation for suction line.
- Grille on fresh air suction.
- Temperature sensor on room air intake.
- Temperature sensor on room air supply.
- Temperature sensor on fresh air intake.
- R407C refrigerant gas and oil charge.
- Microprocessor control system.
- The electric board includes:

  Magnetothermic main switch.

  Contactors.

  Magnetothermic automatic switches.

  Service relays.

  24V transformer for auxiliaries circuit.

  Double electric feeding system (Power+ UPS).

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OPTIONAL

- RS485 serial port.
- Clock card for date and time of the last 10 intervened alarms, unit working hours, current date and time and weekly programming.
- HMI not installed
- "Remote terminal" kit that includes containing box, multi-connection card and telephone cable for unit connection (length 6m).
- Free cooling system not installed.
- Condensing control system with continuous variation of the condenser fans speed through electronic regulator directly driven by the condensing pressure proportional signal.
- Electric heater by stainless steel pipe with integral finning and 1 working stage, fitted with safety thermostat.
- R22 refrigerant gas and oil charge.
- Hermetic compressors rotary type with built-in integral electric protection and rubber anti-vibration holders
- Automatic dust removal air filter
  Composed with air filter, automatic dust removal unit (include fan and motor, dust brush etc.), can clean the air filter automatically at a preset interval.
- remote control:
  When the unit is working at abnormal condition, a message can be sent to the of service people. The service people can remotely turn on/off the unit by sending message from mobil phone or reset the alarm of the unit.
- Phase order mistaken toleration
  If the phase order of power is mistaken,generally the moving part of the unit (compressor and fans will be fault,But the special control design of the unit can tolerate the mistaken when the power supply is changed.

MICROPROCESSOR FUNCTIONS

INDICATIONS

Room temperature value
Outlet air temperature value
Inlet fresh air temperature value
Working and failure status
On/off and analogical inlet status
On/off and analogical outlet status
Manual drive unit status
Serial outlet speed
Set point values
Maintenance request
Clogged filters indication
Air flow loss indication
Number of starts of each compressor
The last 10 intervened alarms
Alarms type indication
Unit working hours (with watch card)
Current date and time (with watch card)

FUNCTIONS

LCD display with 4x20 characters
Key for temperature set point calibration
Maintenance password
Automatic restart of the program
Compressors starting limiter
Serial baud rate selection
START/STOP status storage
RANDOM starting of the unit
Electronic equipment automatic self-diagnosis
Delay of General Alarm activation
Alarms calibration
Auto set with factory set values

ALARMS

Alarms intervention acoustic/optical signaling
Acoustic alarm silencer
Up to 20 different alarms type displaying
External alarm 1
Electric heater thermal protection
Compressor 1 failure
Clogged filters and maintenance request
General Alarm (voltage free contact)
High/low room temperature
Emergency working
Low feeding voltage

OPTIONAL

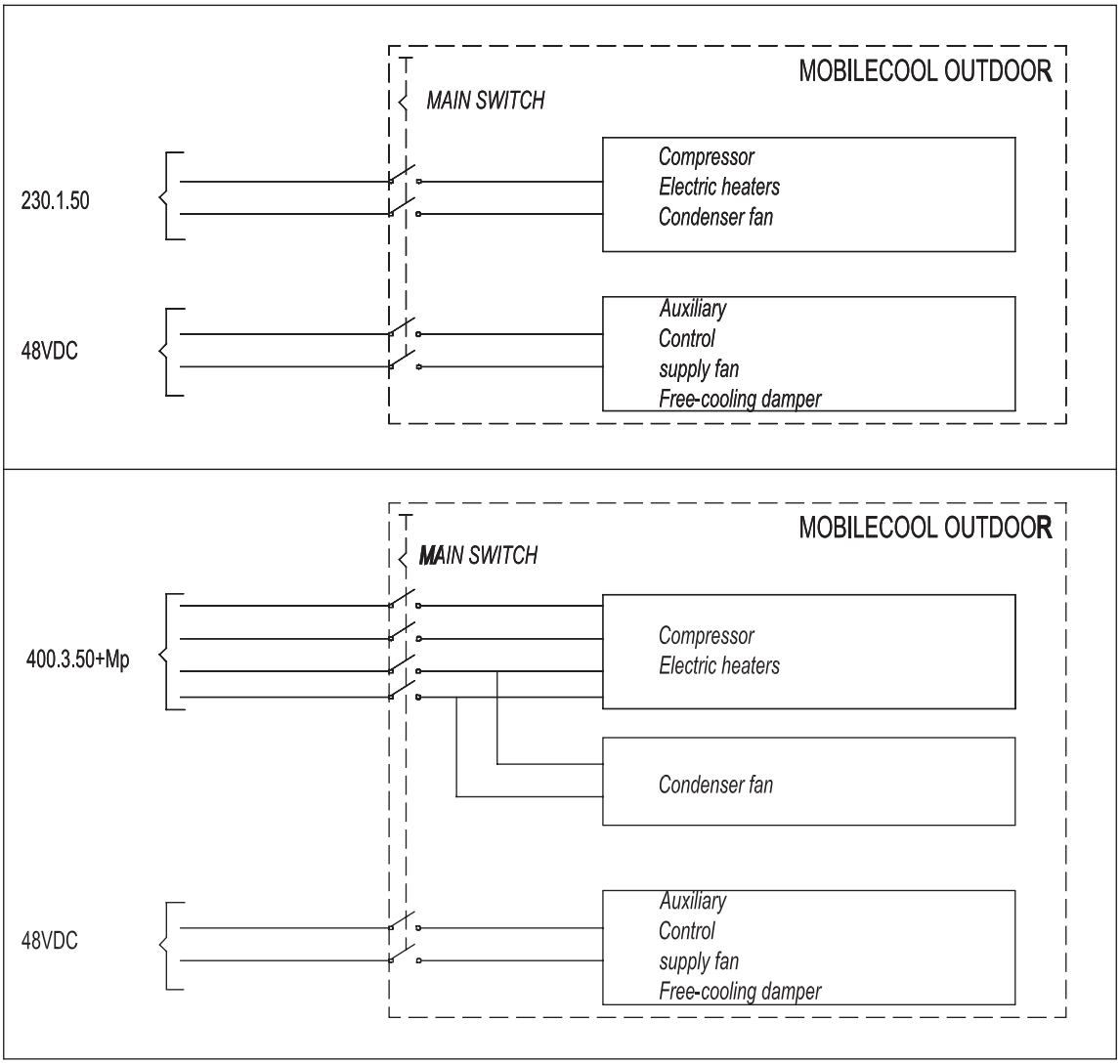
RS422 serial line card

TECHNICAL DATA

	MODEL		5.E1C1	7.E1C2	10.E1C2
	AIR DISCHARE		Downflow		
POWER SUPPLY(1)	MAIN POWER		380V～415V/3Ph/50Hz		
	EMERGENCY POWER		48VDC or230V/1Ph/50Hz		
COOLING CAPACITY(2)	FULL COOL	kW	5.3	7.2	10.2
	SENSIBLE COOL	kW	5.1	6.8	9.4
HEATER	STYLE		ALUMINUM		
	HEAT CAPACITY	kW	2.4		3.6
	ELECTRICITY	A	3.6		5.5
COMPRESSOR	CLASSIFICATION		FULL CLOSED ROTATE		
	QTY×INPUT POWER	kW	1×1.52	1×1.95	1×2.95
	QTY×INPUT ELECTRICITY	A	1×2.8	1×3.6	1×5.4
EVAPORATOR FAN(3)	STYLE		NON COAT		
	QTY	n.	1		
	AC POWER INPUT	kW	0.14	0.23	0.47
	DC POWER INPUT	kW	0.12	0.19	0.31
	AIR FLOW	m3/h	1650	2100	2750
CONDENSER FAN	QTY OF FANS	n.	1		
	AIR FLOW	m3/h	3100	5050	6100
	INPUT POWER	kW	0.15	0.28	0.64
REFRIGRANT	REFRIGRANT		R407C		
	FLOW CONTROLLER		HEV (OPTIONAL)		
	AMOUNT FILLED	kg	2.3	2.8	3.7
AIR FILTER	FRESH AIR FILTER		NYCLON NET		
	INNER CYCLING FILTER		G3 FLAT		
OUTDOOR AMBIENT TEMPERATURE(4)	MAX AMBIENT TEMP	℃	45		43
NOISE(5)	INDOOR SIDE	dB(A)	50	52	55
	OUTDOOR SIDE	dB(A)	52	54	62
DIMENSIONS & WEIGHT	LENGTH	mm	780	930	930
	WIDTH	mm	700	700	700
	HEIGHT	mm	1980	2130	2130
	WEIGHT	kg	210	240	270

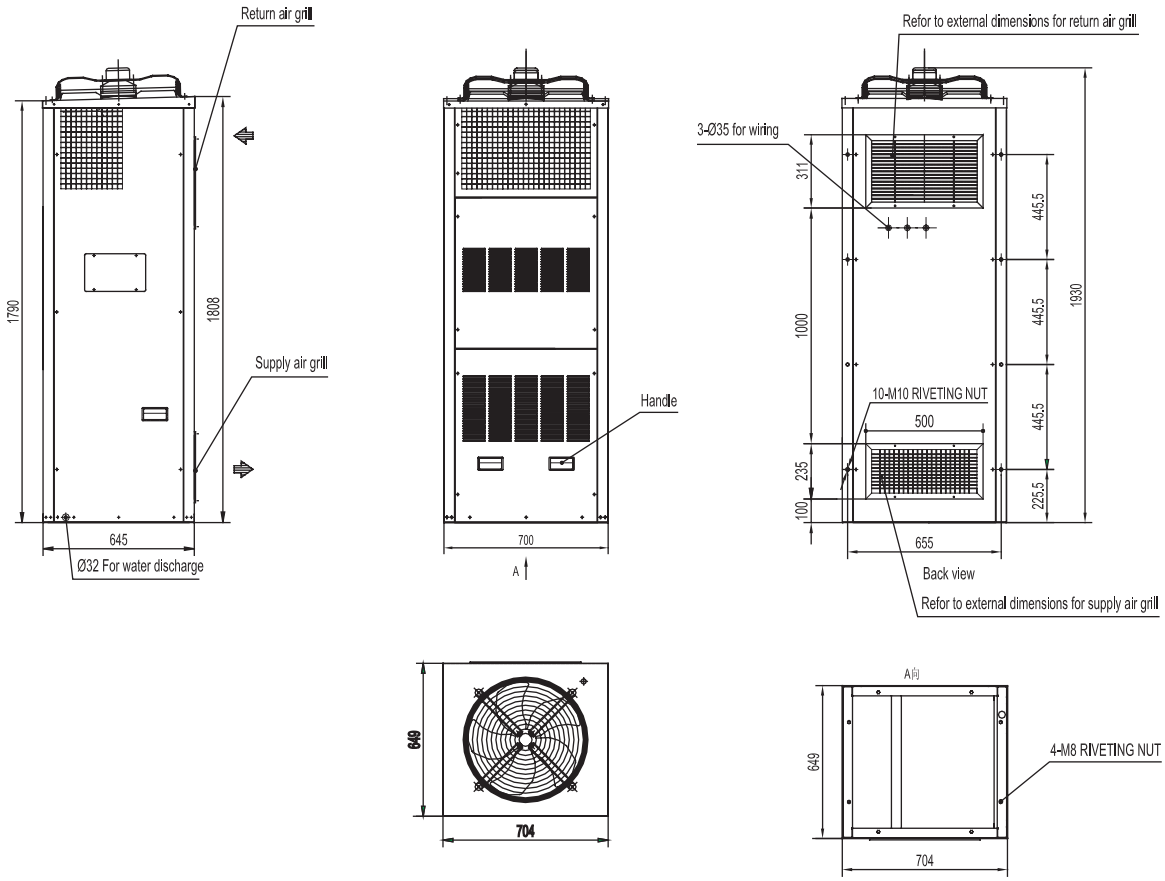
(1) Emergency power is client's shelter standby, DC48V is standard unit power.
Clarify when order if only 230AC power or 230VAC main power is available.
(2) Indoor air returned DB24℃ ,humidity 45%,outdoor DB 35℃.
(3) DC fan is standard, clarify in case AC fan is needed.
(4) Indoor return air temperature ≤24℃, maxium outdoor ambient temperature.
(5) Ambient temperature 35℃, in open air 2 meter away from the unit.

ELECTRIC CONNECTION DIAGRAM

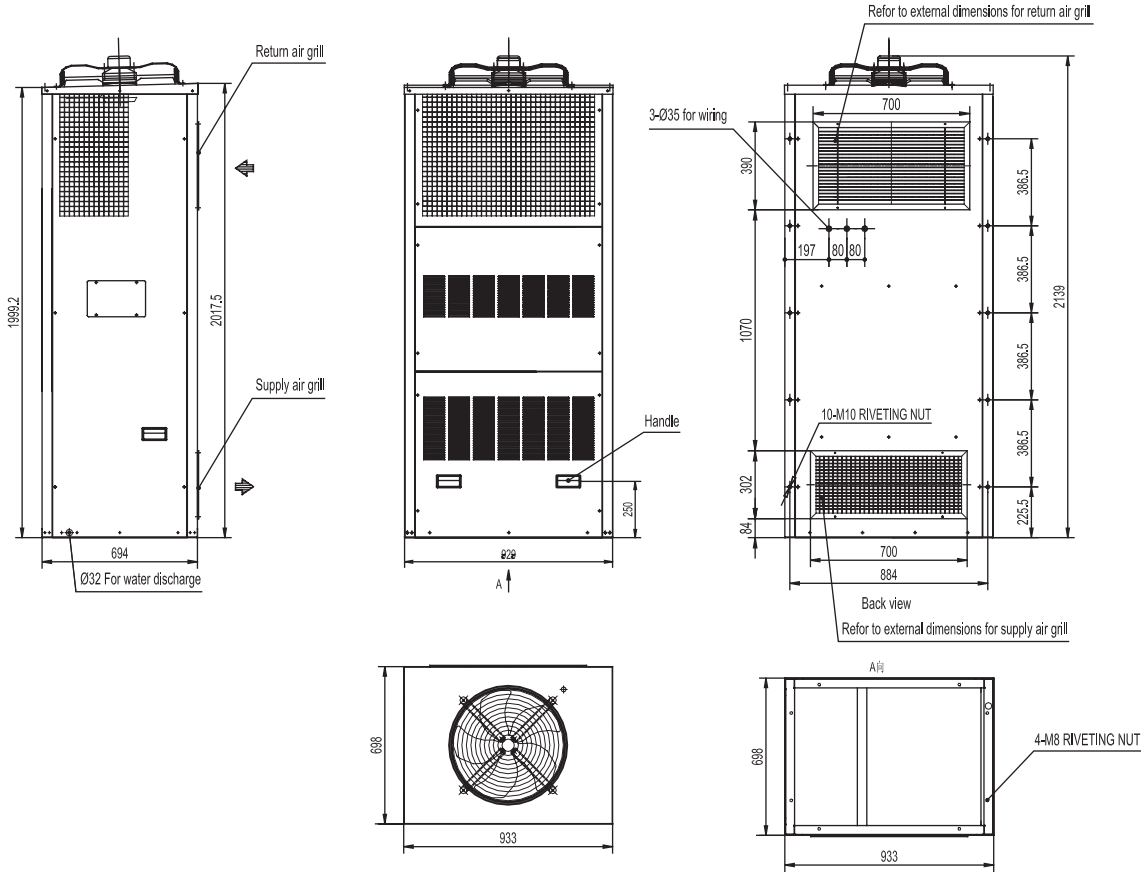


EXTERNAL DIMENSIONS

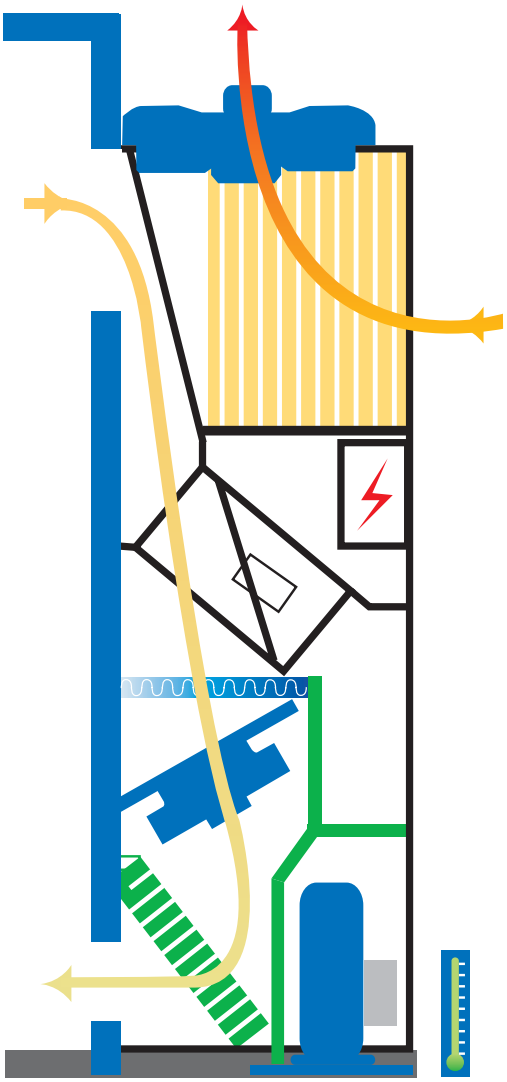
MOBILECOOL/OUTDOOR C1



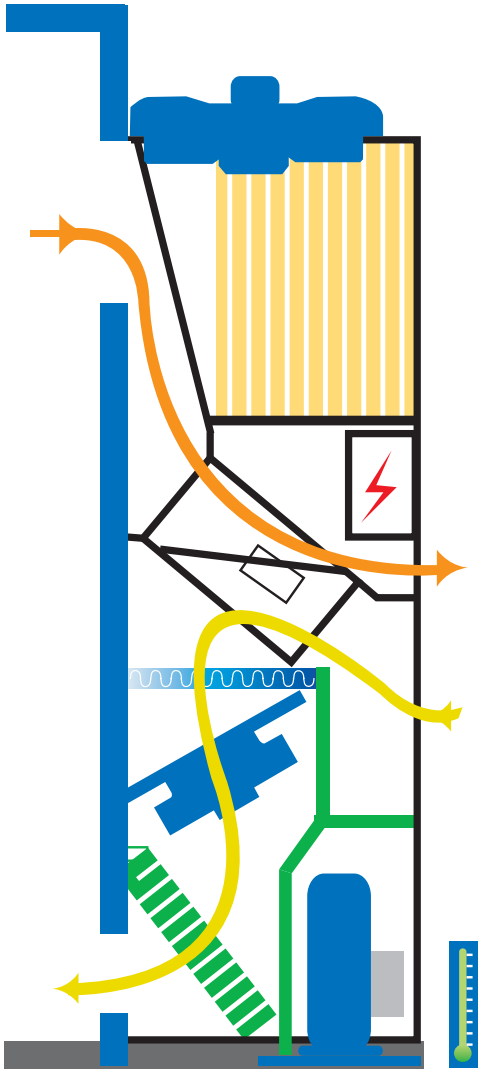
MOBILECOOL/OUTDOOR C2



INSTALLATION



MECHANICAL COOLING



FREE COOLING

Distributor:

All the technical clata is subject to change without notice.

AIRSYS®

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