

# METROCOOL

Air Conditioner for Industrial Environment

Cooling Capacity: 5.2kW–13.0kW

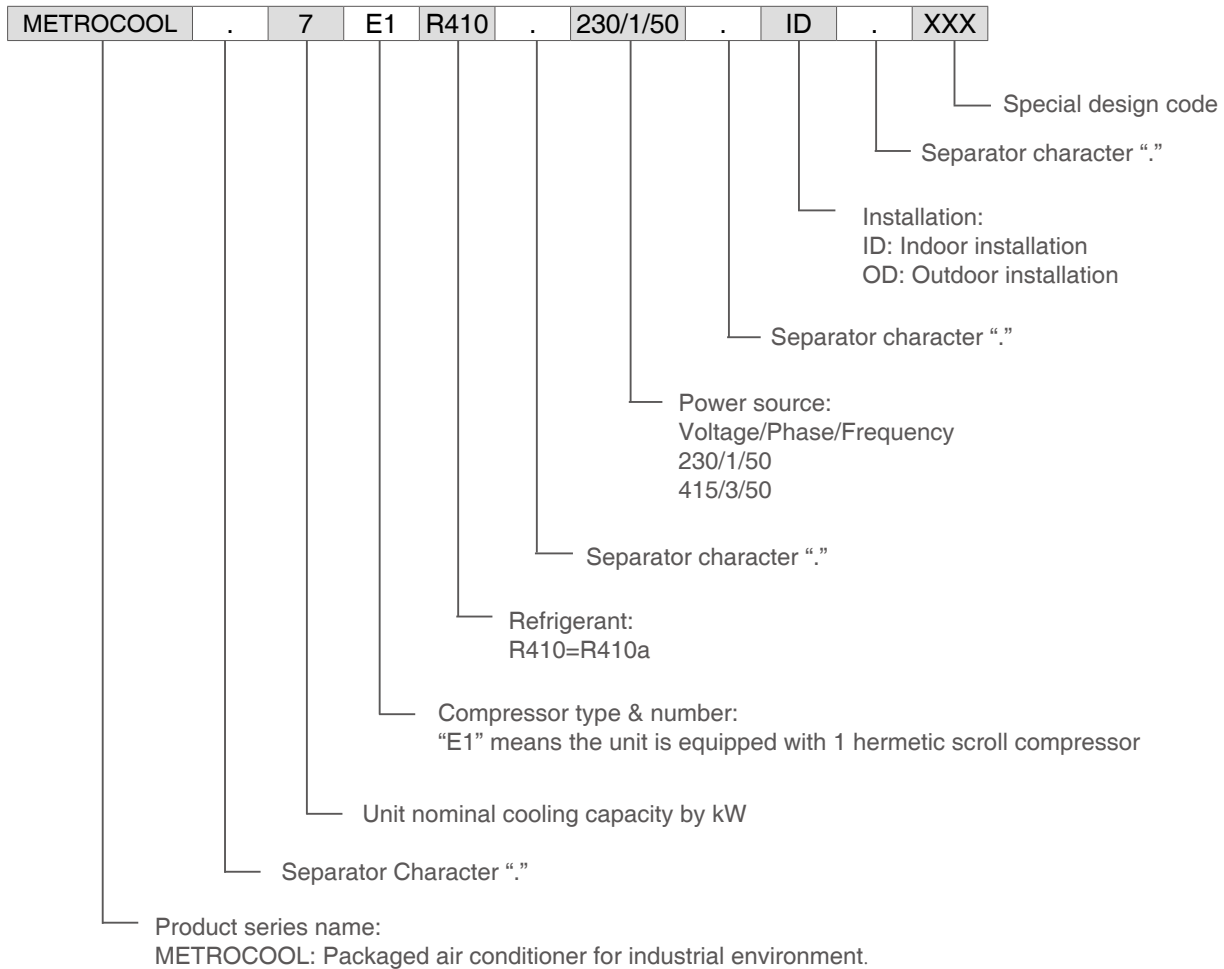


METROCOOL unit is specially designed for industry environment, standing up to high temperature, heavy pollution and continuous working demand and offering high efficiency, strict fire proofing, various power supplies and widely working condition with high reliability.

METROCOOL is a split air conditioning unit with rational structure for convenient maintenance.

Electrical heater is available for this unit as options to satisfy different application requirement.

## Unit Identification



### For example:

METROCOOL.7E1R410.220/1/50.ID: stands for that this is a METROCOOL unit with over air supply and direct expansion cooling. The nominal cooling capacity is 7 kW. The unit is equipped with 1 hermetic scroll compressor, R410a refrigerant, the power supply is 1~ 230V/50Hz, indoor unit.

## Working range and control accuracy

### Indoor side

Temperature range and accuracy: 18°C~35°C±1°C

### Outdoor side

-20°C~55°C

### Storage

Temperature: -40°C~65°C

Humidity: 5~95%

## Applications

Rail transit

Mine workings

Metallurgy industry

Petrochemical industry

Industrial process control center

## Unit main components

### Standard components

#### Unit base and panel

Unit base is made of folded galvanized steel sheet steel coated with epoxy resin powder.

Unit panels are made of folded sheet steel and assembled by bolts or rivets. The surface of panels is coated epoxy resin powder.

#### Indoor Unit

Evaporator: made of high efficiency heat exchanging copper tube with continuously enhanced aluminum fining.

Supply fan: double inlet, centrifugal fan, three-speed adjustable.

Thermodynamic expansion valve

Air filter

High and low pressure meter

#### Electric control

Micro-processor

Fan speed switch

Micro miniature breaker: every load is equipped with a separate micro miniature breaker.

Phase and over-current protector (Only for 3 phases power source)

Control transformer

Voltage transformer: change the voltage from 230V to 24V AC, used for controller

Return air temperature sensor

Evaporator anti-freezing protector

#### Outdoor Unit

Condenser coil: made of high efficiency heat exchanging copper tube with continuously enhanced aluminum fining.

Compressor: scroll compressor

Condenser fan: axial fan

Filter & drier

Refrigerant charge valve

High/Low pressure switch: automatically reset

Fan speed governor

### Optional components

#### Electric heating elements

Relatively matched with control components.

#### Special condenser

Condenser coil coated with phenolic anti-corrosion resin.

The material of the fin is copper.

#### Liquid injection cooling device

Prevent high temperature protection, protect the compressor.

#### Communication Card

Communication card with MODBUS communication protocol

#### Communication protocol conversion card

Change the communication protocol from MODBUS to TCP/IP.

#### Wall mounting kits

Installation accessory for indoor and outdoor unit, including expansion bolts and grill, etc.

#### Various power source

As customer requirement, the below power sources are available.

230/1/50

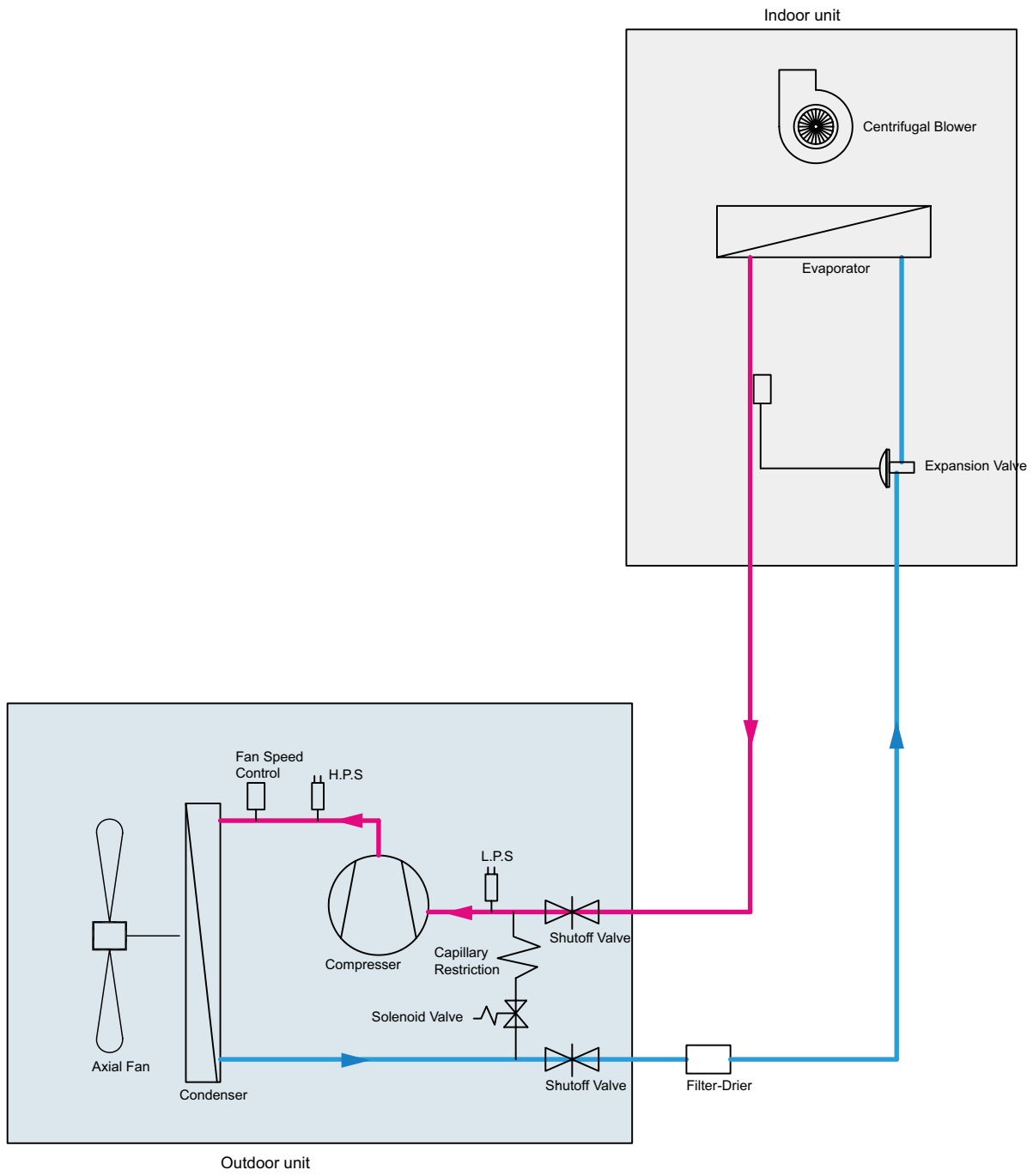
208~230/1/60

415/3/50

208~230/3/60

460/3/60

# Working principle for mechanical compressing refrigeration system



## Unit main features

### High reliability

The unit using industrial class components can continuously work under kinds of severe environment.

### High temperature resistance

The unit can work properly under high temperature up to 55°C.

### Corrosion-proof

The unit framework is provided with corrosion protection treatment. The treatment is sufficient to provide protection for 15 years life cycle for inland installation.

If necessary, the treatment for sea air environment can be supplied as optional.

### Fire-proof

The units are using fire retard material, including CLASS 0 isolation, low smoke cable, etc.

### Good structure design and easy maintenance

The unit is well designed and all main components such as: compressors, fans, motor can be accessed and maintained. The weight of each panel is less than 5kg.

### Control system

The unit includes two control systems:

Micro-processor: UC2 controller controls and monitors components' operation.

Manual operation system: unit ON/OFF switch, fan speed switch

### Alarm

There are a lot of alarms for the complete protection to the unit.

### Remote control and monitoring

Remote control and monitoring as optional, facilitate unit maintenance and monitoring.

## The control functions

### Parameters display

Current control temperature set

Return Air Temperature

Supply Air Temperature

Software Version

### Working status display

Compressor working status

Main Fan Hours Run

Main Fan Minimum Speed Hours Run

Compressor working status

Compressor Hours Run

Compressor startup times

Heater working status

Heater working hours

Heater startup times

### Alarm display

Controller fail alarm

High pressure

Low pressure

Supply fan failure

Low temperature

High temperature

Temperature sensor failure

## Unit Specification

220-230V/1Ph/50Hz

Unit Model		METROCOOL.5	METROCOOL.7	METROCOOL.10	METROCOOL.13
Power supply		1~ 220-230V 50Hz			
Compressor		R410a			
Cooling capacity(1)	kW	5.2	7.3	10.0	13.0
Power input(1)	kW	1.8	2.6	3.4	4.0
Current(1)	A	9.0	12.7	20.0	22.8
Unit max. operating power input	kW	3.4	4.0	5.5	6.5
Unit max. operating current	A	14.7	18.9	27.0	24.6
<b>Indoor unit</b>					
Type		Double inlet centrifugal fan			
Air volume(H)	m <sup>3</sup> /h	1400	1400	1600	2000
Air volume(M)	m <sup>3</sup> /h	1200	1200	1450	1800
Air volume(L)	m <sup>3</sup> /h	1000	1000	1300	1500
Electrical heater capacity (2)	kW	3	3	4.5	4.5
Width	mm	1295	1295	1295	1295
Depth	mm	280	280	310	310
Height	mm	680	680	870	870
Weight	kg	52	54	64	67
<b>Outdoor unit</b>					
Compressor type		Hermetic scroll			
Fan type		Axial fan			
Qty. of fan		1	1	1	2
Width	mm	1260	1260	1440	1305
Depth	mm	590	590	590	590
Height	mm	880	880	1125	1500
Weight	kg	91	95	123	145
<b>Pipe connection</b>					
Condensing water drainage	mm	16	16	16	16
Refrigerant liquid	in	1/2"	1/2"	1/2"	1/2"
Refrigerant gas	in	5/8"	5/8"	3/4"	3/4"

(1) Return air dry bulb temperature 27°C, wet bulb temperature 19°C, Outdoor dry bulb temperature 35°C, wet bulb temperature 24°C;

(2) Option.

380-415V/3Ph/50Hz

Unit Model		METROCOOL.5	METROCOOL.7	METROCOOL.10	METROCOOL.13
Power supply		3~ 380-415V 50Hz			
Compressor		R410a			
Cooling capacity(1)	kW	5.2	7.3	10.0	13.0
Power input(1)	kW	2.0	2.5	3.0	3.9
Current(1)	A	6.5	7.0	7.4	10.3
Unit max. operating power input	kW	3.2	3.9	5.3	6.5
Unit max. operating current	A	8.0	9.5	12.2	16.5
<b>Indoor unit</b>					
Type		Double inlet centrifugal fan			
Air volume(H)	m <sup>3</sup> /h	1400	1400	1600	2000
Air volume(M)	m <sup>3</sup> /h	1200	1200	1450	1800
Air volume(L)	m <sup>3</sup> /h	1000	1000	1300	1500
Electrical heater capacity (2)	kW	3	3	4.5	4.5
Width	mm	1295	1295	1295	1295
Depth	mm	280	280	310	310
Height	mm	680	680	870	870
Weight	kg	52	54	64	67
<b>Outdoor unit</b>					
Compressor type		Hermetic scroll			
Fan type		Axial fan			
Qty. of fan		1	1	1	2
Width	mm	1260	1260	1440	1305
Depth	mm	590	590	590	590
Height	mm	880	880	1125	1500
Weight	kg	91	95	123	145
<b>Pipe connection</b>					
Condensing water drainage	mm	16	16	16	16
Refrigerant liquid	in	3/8"	1/2"	1/2"	1/2"
Refrigerant gas	in	1/2"	5/8"	3/4"	3/4"

(1) Return air dry bulb temperature 27°C, wet bulb temperature 19°C, Outdoor dry bulb temperature 35°C, wet bulb temperature 24°C;

(2) Option.

208-230V/1Ph/60Hz

Unit Model		METROCOOL.5	METROCOOL.7	METROCOOL.10	METROCOOL.13
Power supply		1~208-230V 60Hz			
Compressor		R410a			
Cooling capacity(1)	kW	5.0	6.8	10.7	13.0
Power input(1)	kW	2.0	2.6	3.6	4.1
Current(1)	A	9.2	11.9	17.6	21.2
Unit max. operating power input	kW	2.9	3.8	5.3	6.8
Unit max. operating current	A	13.1	16.6	24.8	31.2
<b>Indoor unit</b>					
Type		Double inlet centrifugal fan			
Air volume	m <sup>3</sup> /h	1400	1400	1600	2000
Air volume	m <sup>3</sup> /h	1200	1200	1450	1800
Air volume	m <sup>3</sup> /h	980	980	1300	1500
Electrical heater capacity	kW	3	3	4.5	4.5
Width	mm	1295	1295	1295	1295
Depth	mm	280	280	310	310
Height	mm	680	680	870	870
Weight	kg	52	54	64	67
<b>Outdoor unit</b>					
Compressor type		Hermetic scroll			
Fan type		Axial fan			
Qty. of fan		1	1	1	2
Width	mm	1260	1260	1440	1305
Depth	mm	590	590	590	590
Height	mm	880	880	1125	1500
Weight	kg	91	95	123	145
<b>Pipe connection</b>					
Condensing water drainage	mm	16	16	16	16
Refrigerant liquid	in	1/2"	1/2"	1/2"	1/2"
Refrigerant gas	in	5/8"	5/8"	3/4"	3/4"

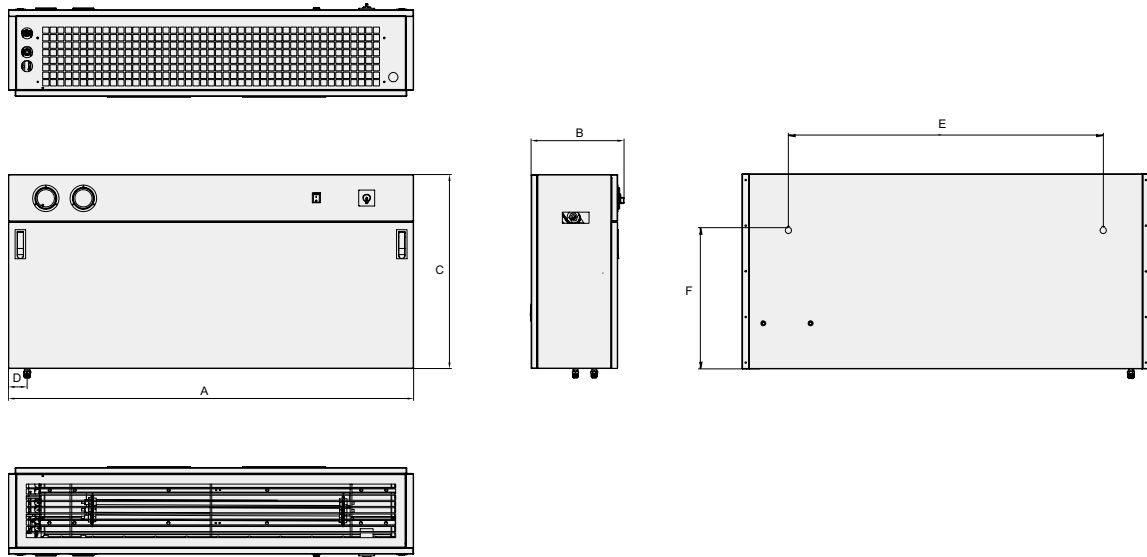
(1) Return air dry bulb temperature 27°C, wet bulb temperature 19°C, Outdoor dry bulb temperature 35°C, wet bulb temperature 24°C;

(2) Option.



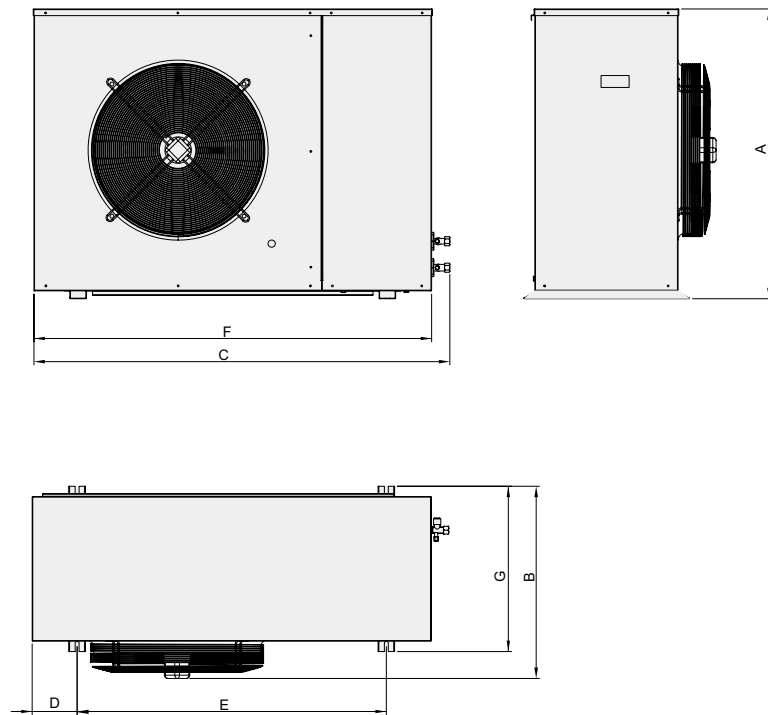
Dimensions drawing

METROCOOL indoor unit dimensions drawing



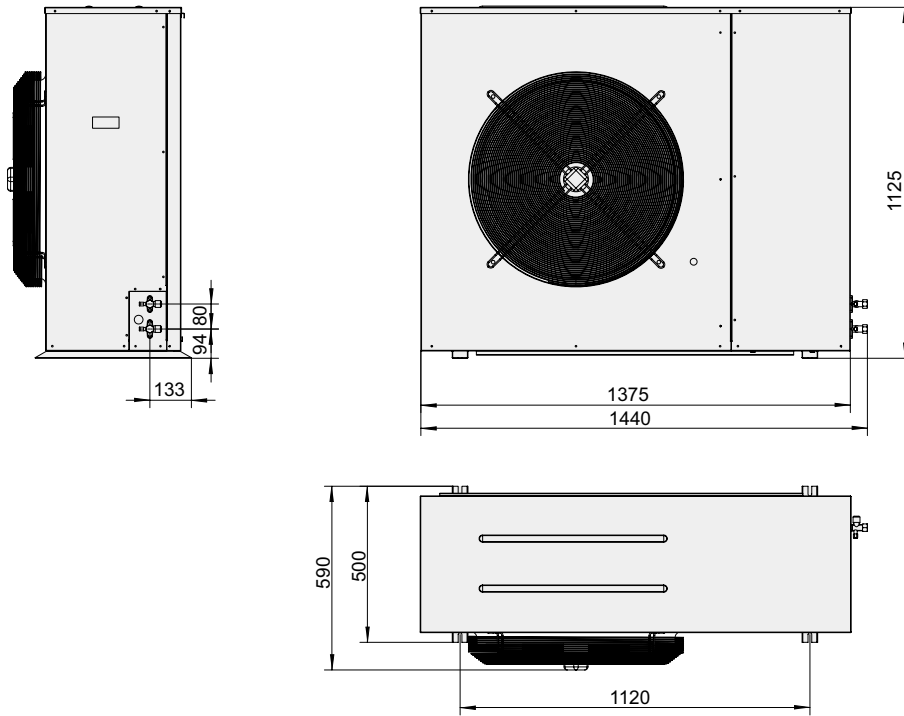
Unit Model		METROCOOL.5	METROCOOL.7	METROCOOL.10	METROCOOL.13
A	mm	1295	1295	1295	1295
B	mm	280	280	310	310
C	mm	680	680	870	870
D	mm	60	60	60	60
E	mm	1000	1000	1000	1000
F	mm	450	450	630	630

METROCOOL.5/7 outdoor unit dimensions drawing

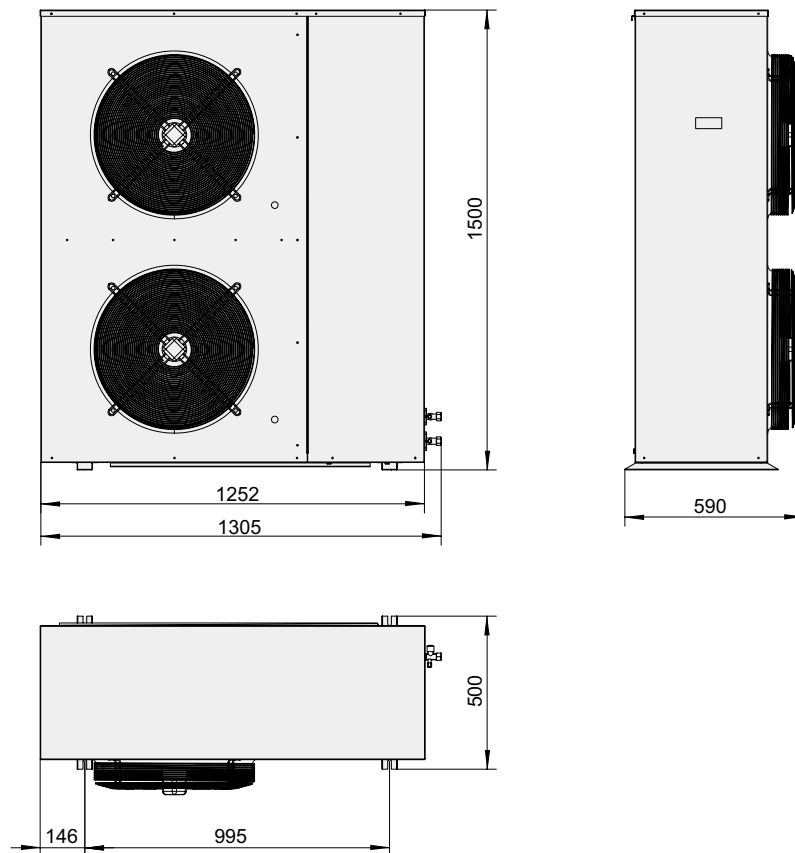


Unit Model		METROCOOL.5	METROCOOL.7
A	mm	880	880
B	mm	590	590
C	mm	1260	1260
D	mm	136	136
E	mm	935	935
F	mm	1202	1202
G	mm	500	500

METROCOOL.10 outdoor unit dimensions drawing



METROCOOL.13 outdoor unit dimensions drawing



AIRSYS is a cooling product and solution provider for ICT (Information & Communication Technology) industry.

The products include:

Air conditioner and Chiller for IT room and large data center

Intelligent Control system (BAS) for IT room and data center

Air conditioning equipments for telecom shelters

Intelligent control system for shelter cooling.

Air conditioner and heat exchanger for telecom cabinets.

The solution include:

Cooling system design

System integration

Installation and Commissioning

Operation and Maintenance

AIRSYS is also a global leader in providing cooling solution for Medical Imaging System.



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