HUNTERHEX®

Smart Green Climate and Energy Solutions

HUNTERHEX AB & (Ltd's)

General

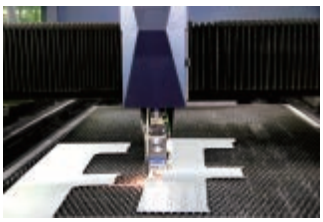
We manufacture highly engineered components and systems for industry equipment climate control (HMS climate control division), and for controlled flow of liquid & gasses like high speed pumps and compressors (Turbo Power division), as well as customized permanent magnetic motor for industry application (EC motor division). HUNTERHEX focus on solving some of the worlds' greatest engineering challenges sparks our passion for innovation and secures our future growth. Our technological expertise creates a more sustainable future for us all.

Our vision

Sustainability is something quite normal for us when we develop new products and technologies. Even during the concept stage we optimize our materials and processes to achieve maximum environmental compatibility, energy balance and recyclability.

We are permanently working on improving technology platforms.



EC Motor Division

EC technology also means that the motors can be controlled, regulated, and are thus able to respond flexibly to the performance requirements actually encountered. And that makes a big difference, for nothing is more economical than a unit that switches self off when it is no longer needed.

Another bonus of the electronics is brushless commutation. This allows our EC motors to operate completely wear-free, so they are much quieter, suffer no dropping in performance and have a much longer service life. So, while our customers reduce their electricity bills day by day, at the same time they also benefit from extended maintenance interval, which means even greater cost savings for parts and labor.

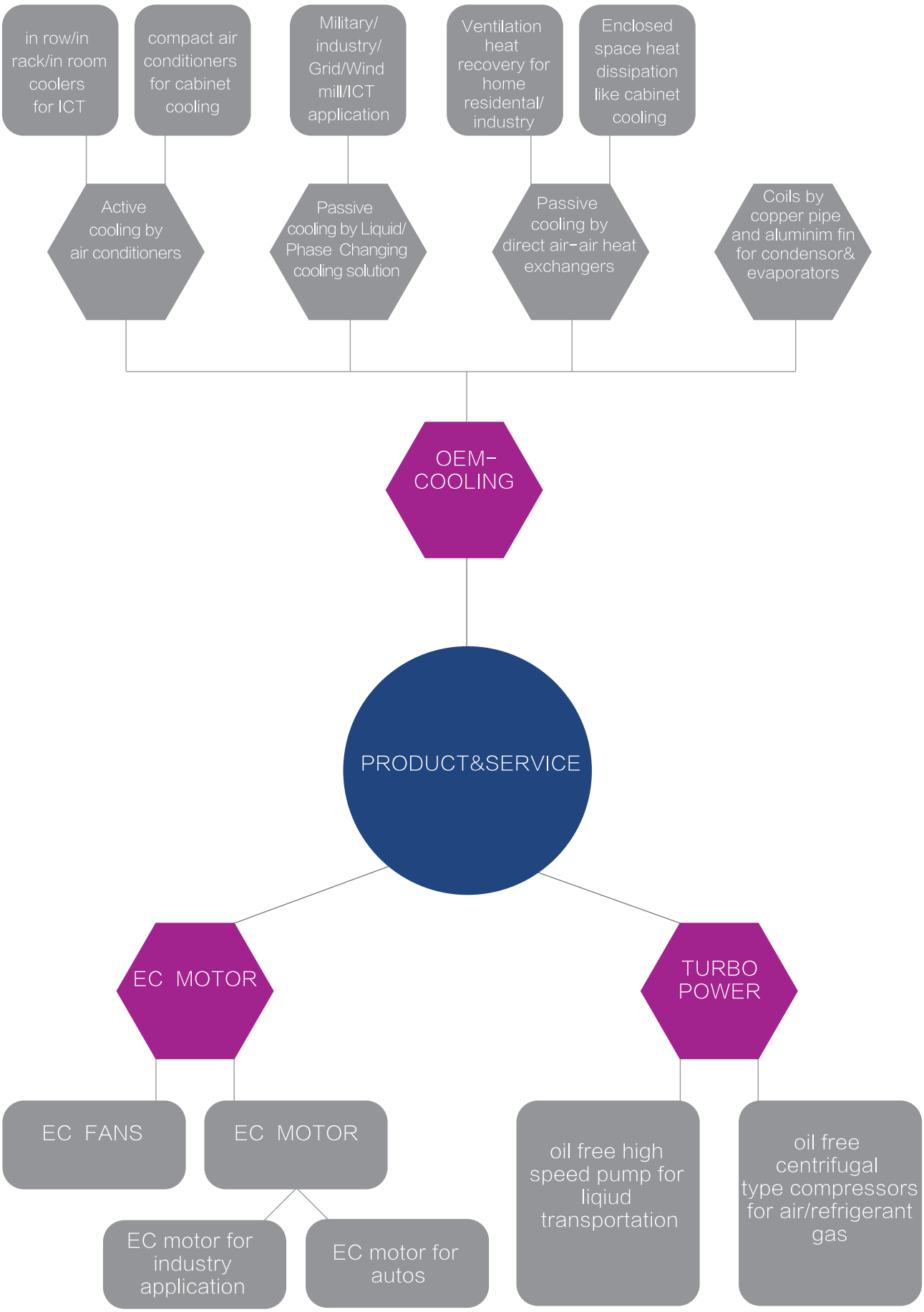
Combined with permanent magnetic motor design, our EC motor division would like to offer all customers with the highest operation efficiency product up to IE5 level to reach ErP2020 regulation.

Turbo Power Division

The core technology for rotating machinery is hydrodynamic lubrication bearing system, which is obtained when two mating surfaces are completely separated by a cohesive film of lubricant. The thickness of the film thus exceeds the combined roughness of the surfaces. The coefficient of friction is lower than with boundary-layer lubrication. Hydrodynamic lubrication prevents wear in moving parts, and metal to metal contact is prevented. Hydrodynamic lubrication requires thin, converging fluid films. These fluids can be liquid or gas, so long as they exhibit viscosity. In computer components, like a hard disk, heads are supported by hydrodynamic lubrication in which the fluid film is the atmosphere. The scale of these films is on the order of micrometers. Their convergence creates pressures normal to the surfaces they contact, forcing them apart. Now this technology is used for industry pumps, centrifugal compressors, expansion machines etc. Also combined with EC motor, HUNTERHEX has developed series rotating machinery with no-oil lubrication, high speed rotating platform which can go up to 200,000+ RPM products.

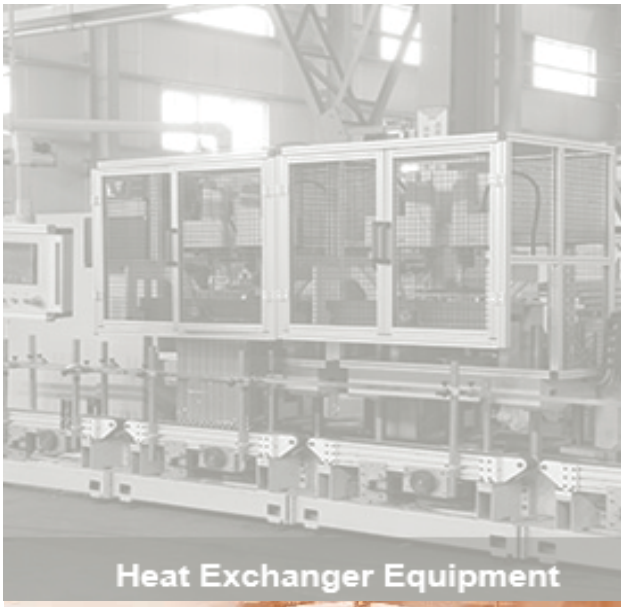
OEM Cooling Division

We focus on electronic cooling for more than 10 years. The cooling solution offer contains active cooling with air conditioning technology, free cooling with heat pipes technology, free cooling with plate type heat exchanger, liquid cooling with phase changing technology etc. All those technologies can be used for IT & telecommunications cabinet cooling, military radar cooling, wind turbine generator cooling etc.


in row/in rack/in room coolers for ICT
compact air conditioners for cabinet cooling
Military/ industry/ Grid/Wind mill/ICT application
Ventilation heat recovery for home residental/ industry
Enclosed space heat dissipation like cabinet cooling
Active cooling by air conditioners
Passive cooling by Liquid/ Phase Changing cooling solution
Passive cooling by direct air-air heat exchangers
Coils by copper pipe and aluminim fin for condensor& evaporators
OEM-COOLING
PRODUCT&SERVICE
EC MOTOR
TURBO POWER
EC FANS
EC MOTOR
oil free high speed pump for liqiud transportation
oil free centrifugal type compressors for air/refrigerant gas
EC motor for industry application
EC motor for autos

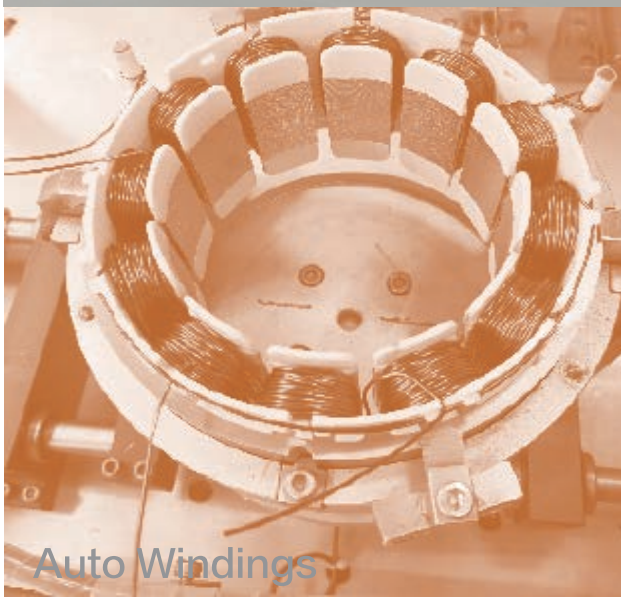
Manufacture Capabilities

metal processing



Heat Exchanger Equipment

heat exchangers



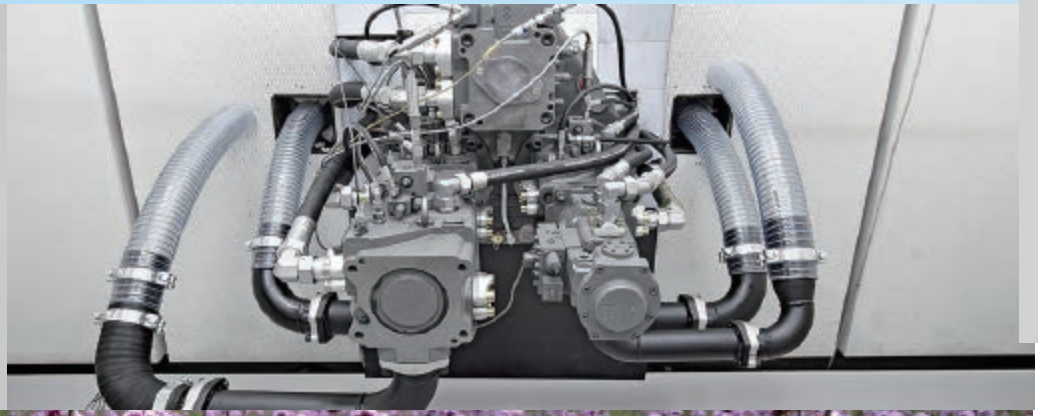
Auto Windings

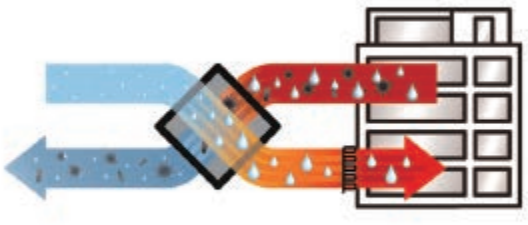
Application

Cooling for ICT & industry & telecom cabinet



EC Motor & Pumps And Compressors For High Speed Pump & Compressor For Fuel Cell Cars

OEM Cooling Division

Product model definition

A	C	Z	A	0 2 5	0 1 5	0 0 9
1	2	3	4	5 6 7	8 9 10	11 12 13

Position 1: Product family group:

A Air Conditioners　　**H** Heat Exchanger　　**C** Combination unit

Position 2: Detailed classification for "A" group product:

C: Cabinet AirCon　　**S:** Split AirCon　　**I:** Industry AirCon
L: In Row AirCon　　**W:** Window AirCon　　**R:** In Rack AirCon

Detailed classification for "H" group product :

C: Plate type core　　**H:** Heat pipes type core

Detailed classification for "C" group product :

H: Free cooling by heat exchanger type　　**V:** Free cooling by ventilation

Position 3: power supply type

Z: 48VDC　　**Y:** 220VAC 50HZ　　**U:** 220VAC 50HZ+48VDC
W: 110VAC 60HZ　　**V:** 380VAC 50HZ　　**X:** 220VAC 50/60HZ

Position 4: coolant type

A: Air　　**B:** R134a　　**C:**　　**D:** R1234yf
E: Water　　**F:** Ethylene glycol　　**G:** CO_2　　R22

Position 5 6 7 – cooling capacity

For air conditioners, real cooling capacity = 567*100(W)
For heat exchangers capacity = 567(W/K)

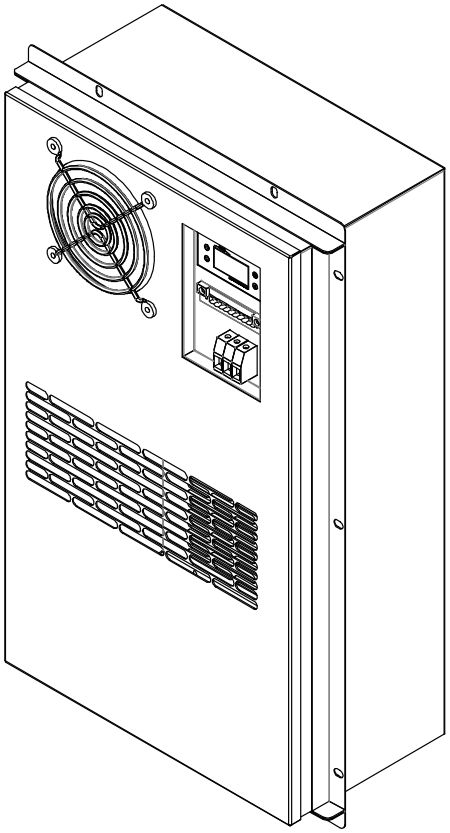
Position 8 9 10 – Heating capacity

Real heating capacity = xxx *100(W)

Position 9 11 12 13 – product ID code

Air Conditioner – for indoor & outdoor cabinet cooling

Power supply is 220-240VAC or 380VAC, used for any industry indoor or outdoor cabinet, shelter etc enclosed space cooling application.

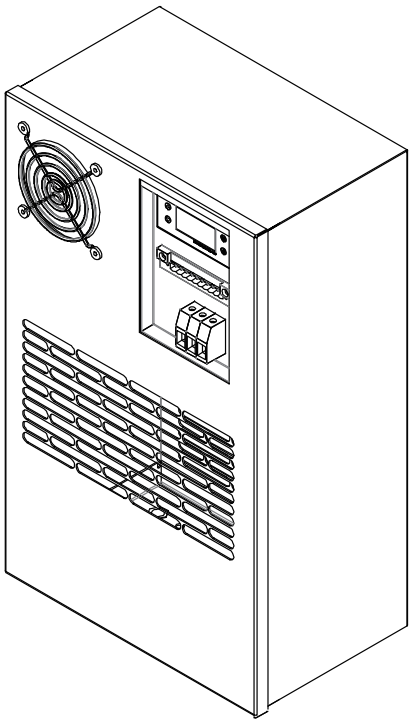


- Using environmental friendly refrigerant R134A.
- Compact product line is a mono-block unit with a plug and play feature ensures immediately set up also with flange design for convenient through-wall (or cabinet door) mounting.
- Closed loop cooling protects equipment from ambient environment, with adjustable indoor temperature set point from 20- 40 degree, ventilation not recommend any more since the system highest efficiency.
- Adaptable for T3 condition which up t0 55 degree tropic area.
- High efficiency operation through inverter technology design.
- Can be tailor made according to customers specification.

Cooling Capacity (inW)	P/N	Product Model	Dimension	Certification
600	73*01*	A**B 006-xxx-01*	546*315*175 fig1 page12	CE、CCC
1000	73*02*	A**B 010-xxx-02*	745*445*200 fig2 page12	CE、CCC
2000	73*03*	A**B 020-xxx-03*	745*445*200 fig2 page12	CE、CCC
3000	73*04*	A**B 030-xxx-04*	1150*485*225 fig3 page13	CE、CCC
5000	73*05*	A**B 050-xxx-05*	1300*600*300 fig4 page13	CE、CCC

48VDC air conditioner – Telecom cabinet cooling

Specially designed for hybrid power base station / cabinet cooling with highest efficiency.

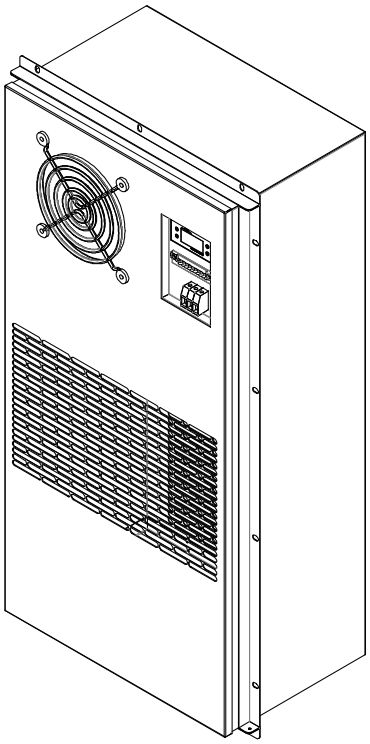


- Using environmental friendly refrigerant R134A.
- Compact product line is a mono-block unit with a plug and play feature ensures immediately set up also with flange design for convenient through-wall (or cabinet door) mounting.
- Closed loop cooling protects equipment from ambient environment, with adjustable indoor temperature set point from 20-40 degree, ventilation not recommend any more since the system highest efficiency.
- Adaptable for T3 high temperatures up to 55°C ambient.

Cooling Capacity (inW)	P/N	Product Model	Dimension	Certification
300	71101*	ACZB 003-xxx-01*	400*240*150 fig5 page14	CE、CCC
600	71102*	ACZB 006-xxx-02*	546*315*175 fig1 page12	CE、CCC
1000	71103*	ACZB 010-xxx-03*	793*381*175 fig6 page14	CE、CCC
2000	71104*	ACZB 020-xxx-04*	1112*412*175 fig7 page15	CE、CCC
3000	71105*	ACZB 030-xxx-05*	1150*485*225 fig3 page13	CE、CCC

Heat Exchanger

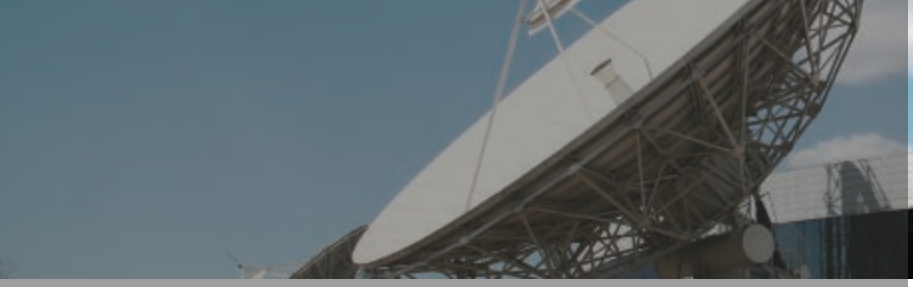
Mainly used for telecommunication outdoor cabinets, battery cabinet etc.



- A reliable, high efficient and long lifetime cooling solution for telecom outdoor cabinet.
- Build with Germany brand high efficiency blowers, fan speed can be regulated with low noise, high efficiency operation.
- Intelligent controller built in for having remote control, alarming output.
- Power supply: 48VDC or 220VAC. Heatinq function is optional, heater working voltaqe: 220VAC

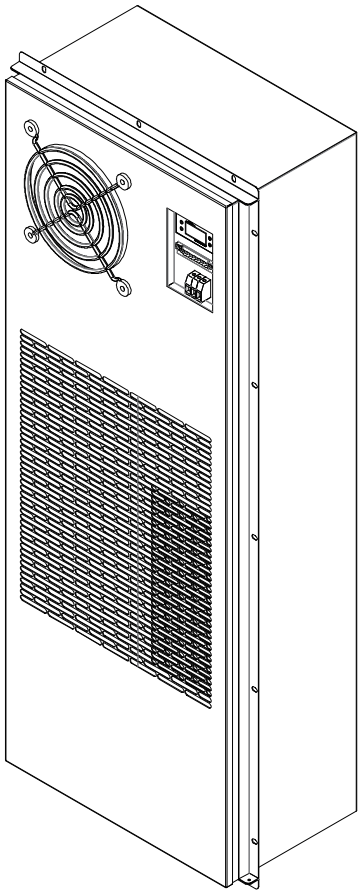
Cooling Capacity(W/K)	P/N	Product Model	Dimension	Certification
50W/K	51*01*	HC*A 050 xxx 01*	618*340*200 fig11 page17	CE
80W/K	51*02*	HC*A 080 xxx 02*	900*400*145 fig12 page17	CE
120W/K	51*03*	HC*A 120 xxx 03*	990*410*190 fig13 page18	CE
180W/K	51*04*	HC*A 180 xxx 04*	1245*518*240 fig14 page18	CE
260W/K	51*05*	HC*A 260 xxx 05*	1300*620*260 fig15 page19	CE

Tailor design is available upon request.



Combined unit of AC&HEX

Active cooling by compressor is 230VAC or 48VDC powered, while heat exchanger cooling is powered by 48VDC, mainly used fortelecommnicaiton field with higher efficiency than pure AC air conditioners. at same provide emergency cooling when main power supply off.



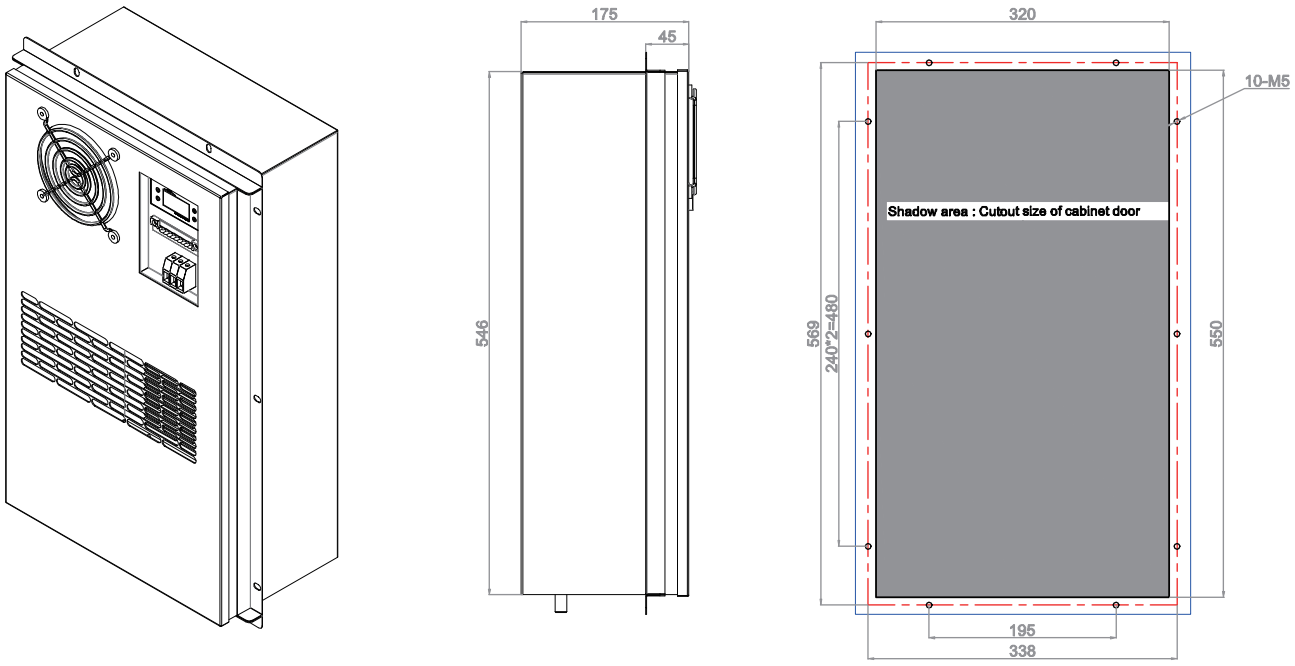
- A reliable, high efficient & long lifetime cooling solution for outdoor cabinet.
- Three working mode: active cooling & heat exchanger & combine cooling.
- Use Germany brand blowers & world known compressor, the motor can beregulated for 48VDC power version to achieve highest efficiency & lower noise.
- Flexible mounting design like side mounting, door mounting selections.
- Intelligent controller built in for having remote control, alarming output, LED display is standard configuration.
- Power supply selection: 220VAC or 48VDC. Heater is an option.

(W-W/K) Cooling Capacity	P/N	Product Model	Dimension	Certification
1000W-50W/K	31*01*	CH*B 010-xxx-01*	793*381*250 fig8 page15	CE
2000W-80W/K	31*02*	CH*B 020-xxx-02*	1112*412*250 fig9 page16	CE
3000W-120W/K	31*03*	CH*B 030-xxx-03*	1150*485*300 fig10 page16	CE

Dimension for Mounting

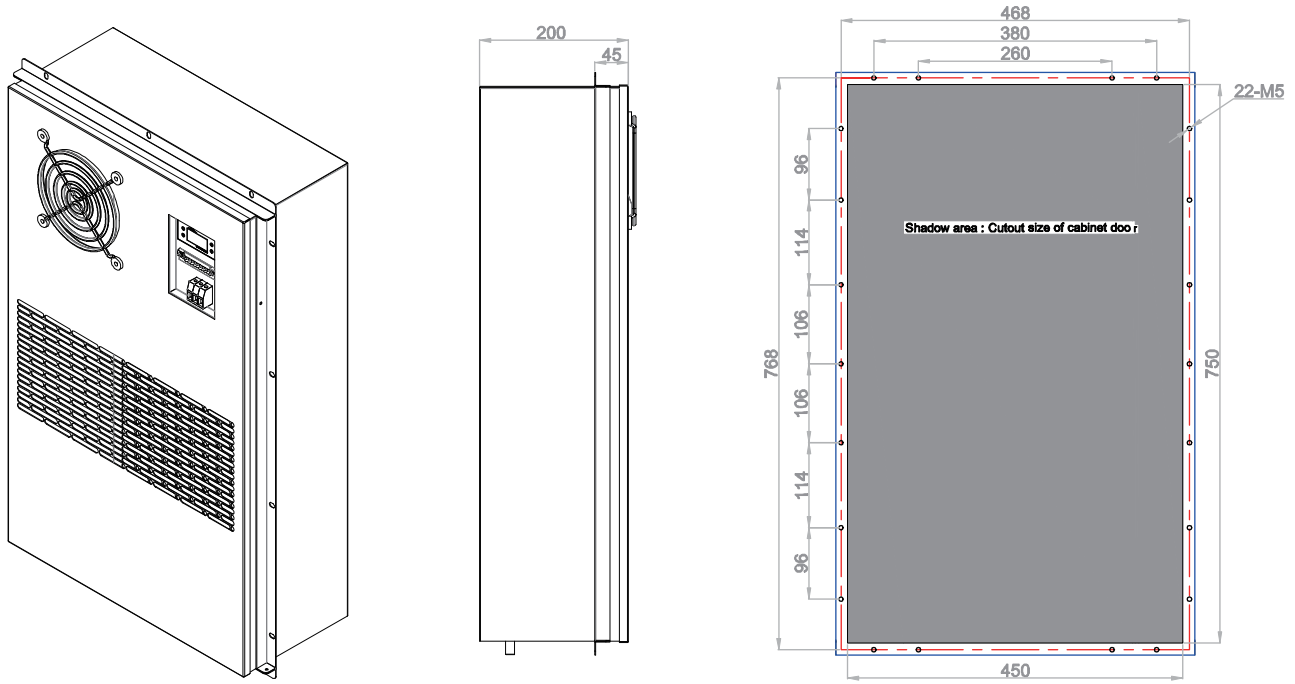
P/N: 73*01*， 71102*

1 Fig 1



P/N: 73*02*， 73*03*

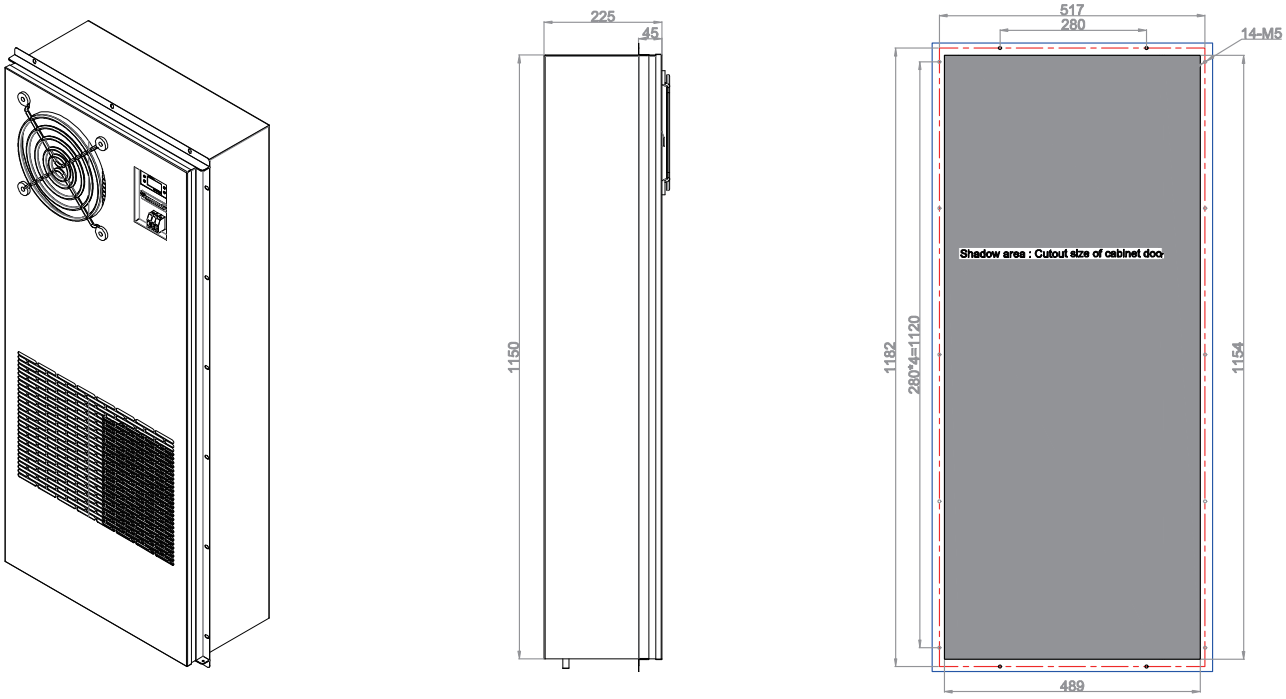
2 Fig 2



Dimension for Mounting

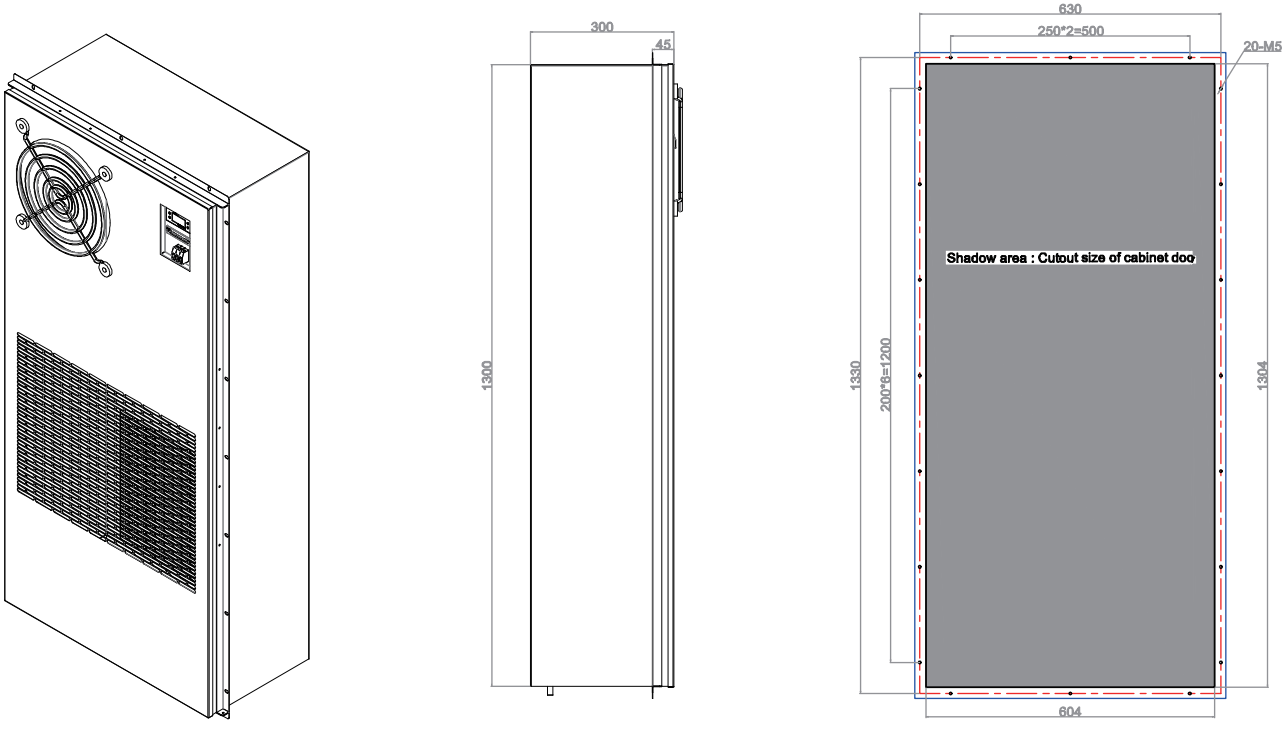
P/N: 73*04*， 71105*

Fig 3



P/N: 73*05*

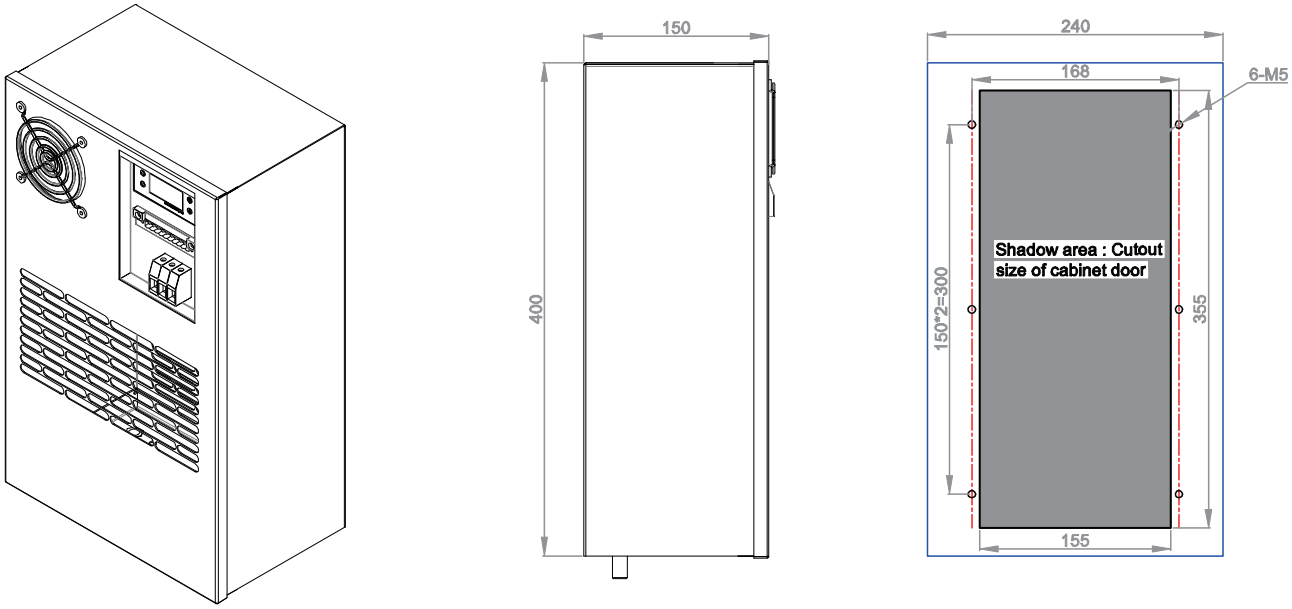
Fig 4



Dimension for Mounting

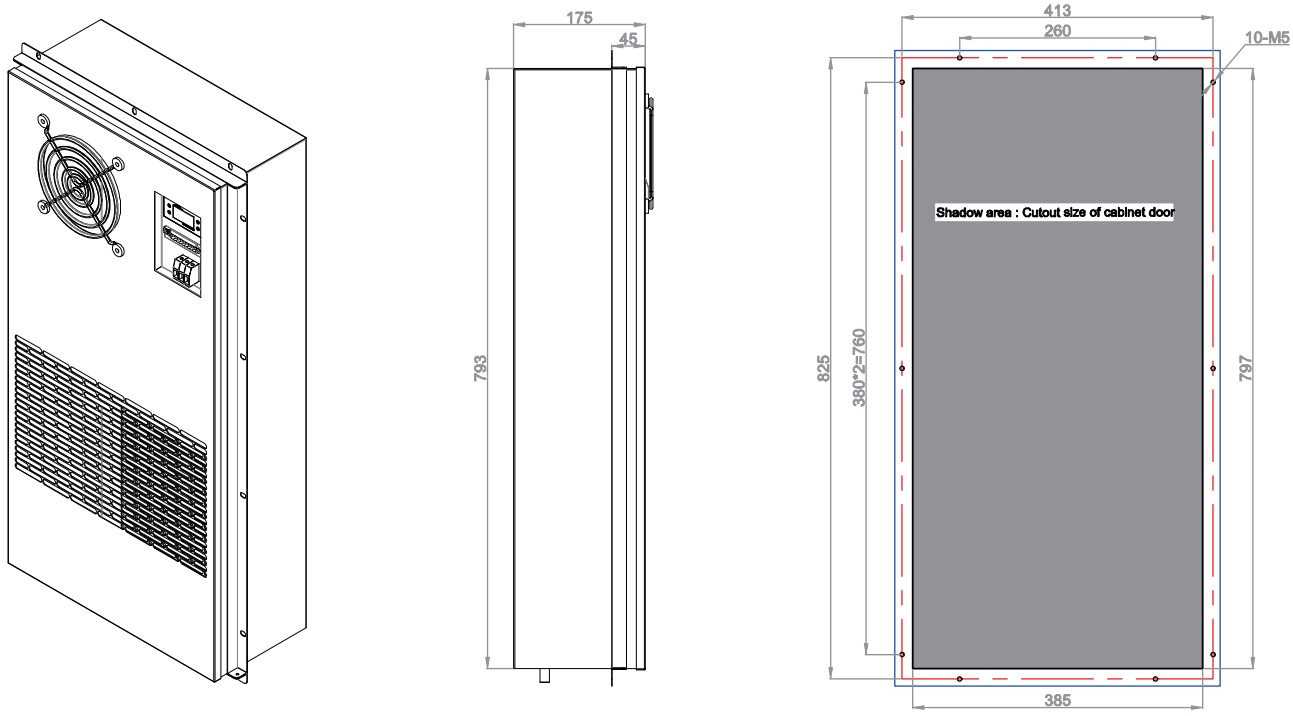
P/N: 71101*

Fig 5



P/N: 71103*

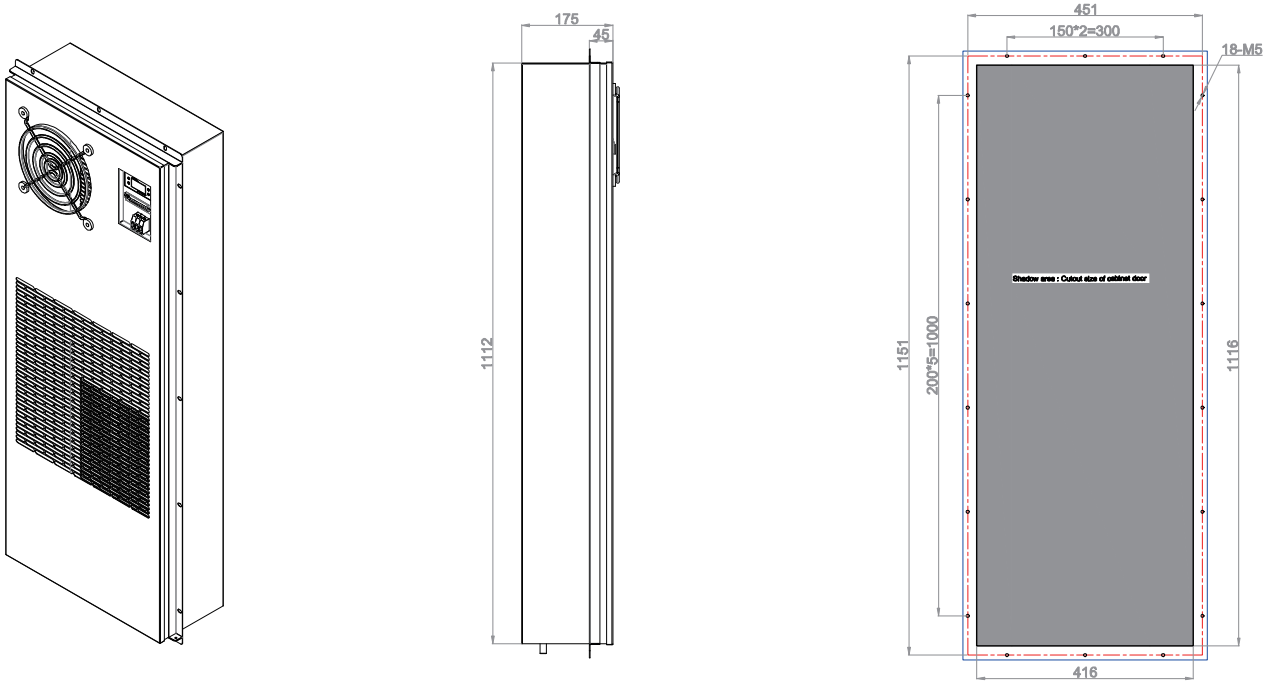
Fig 6



Dimension for Mounting

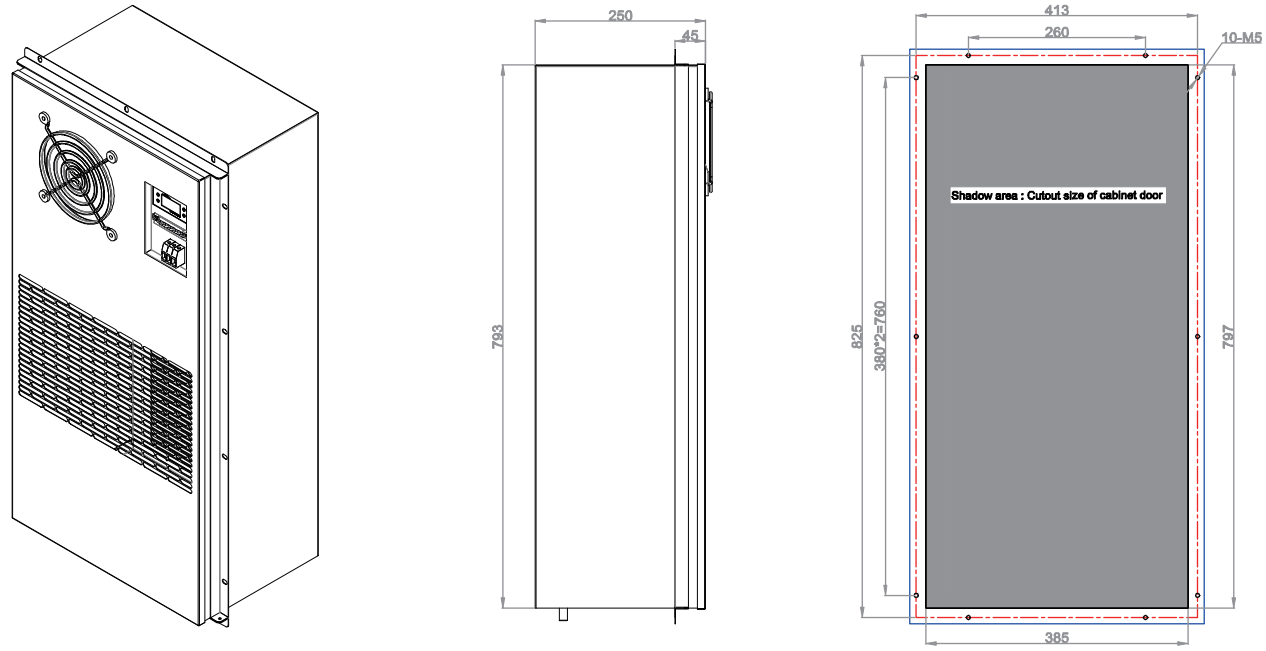
P/N: 71104∗

Fig 7



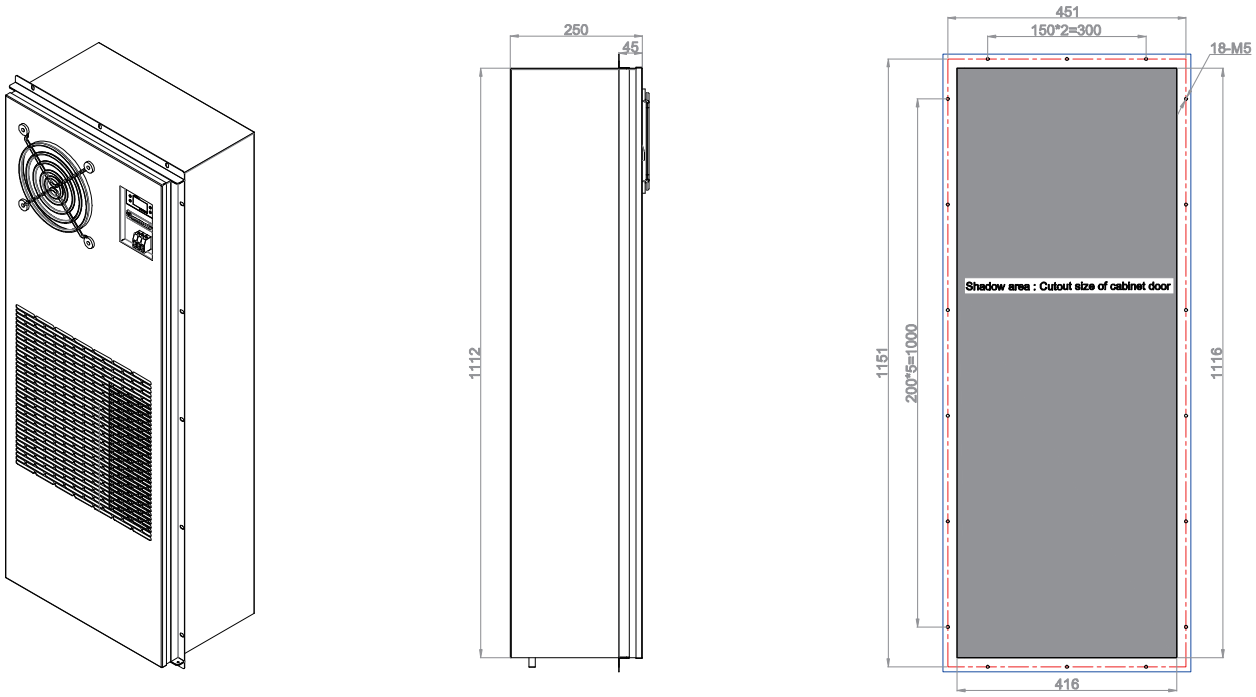
P/N: 31∗01∗

Fig 8

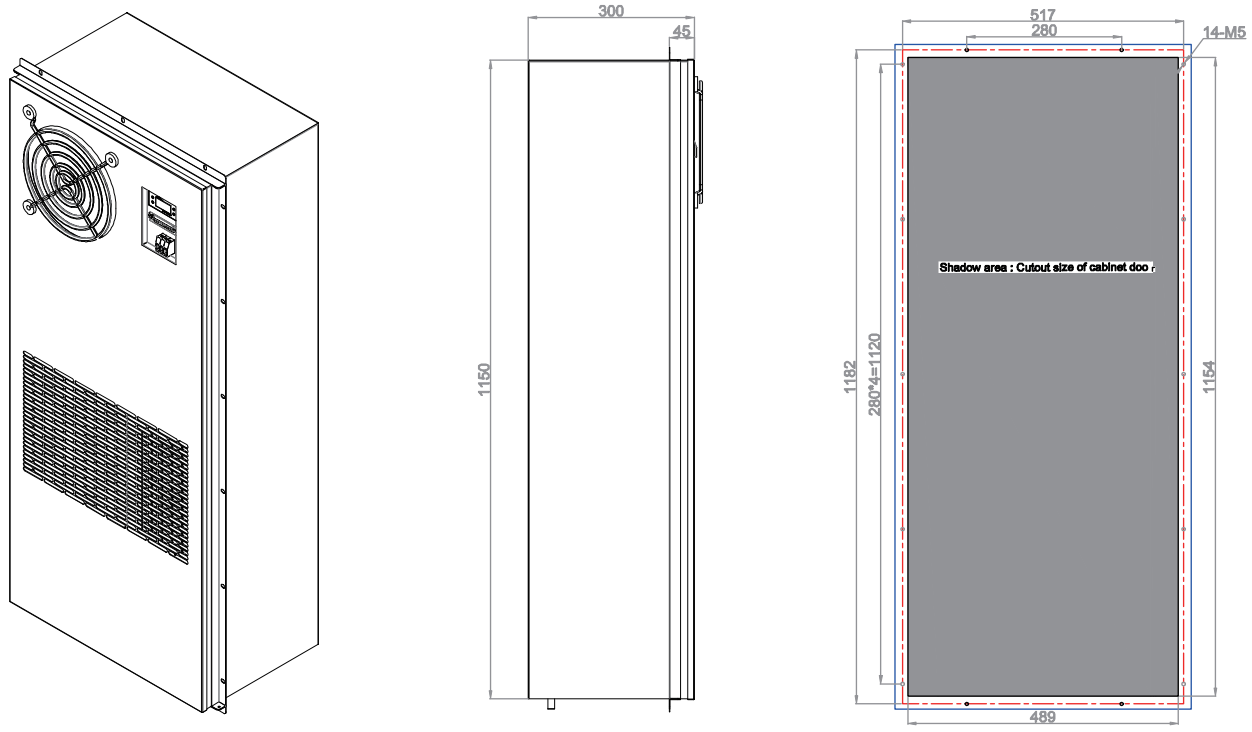


Dimension for Mounting

P/N: 31∗02∗ Fig 9



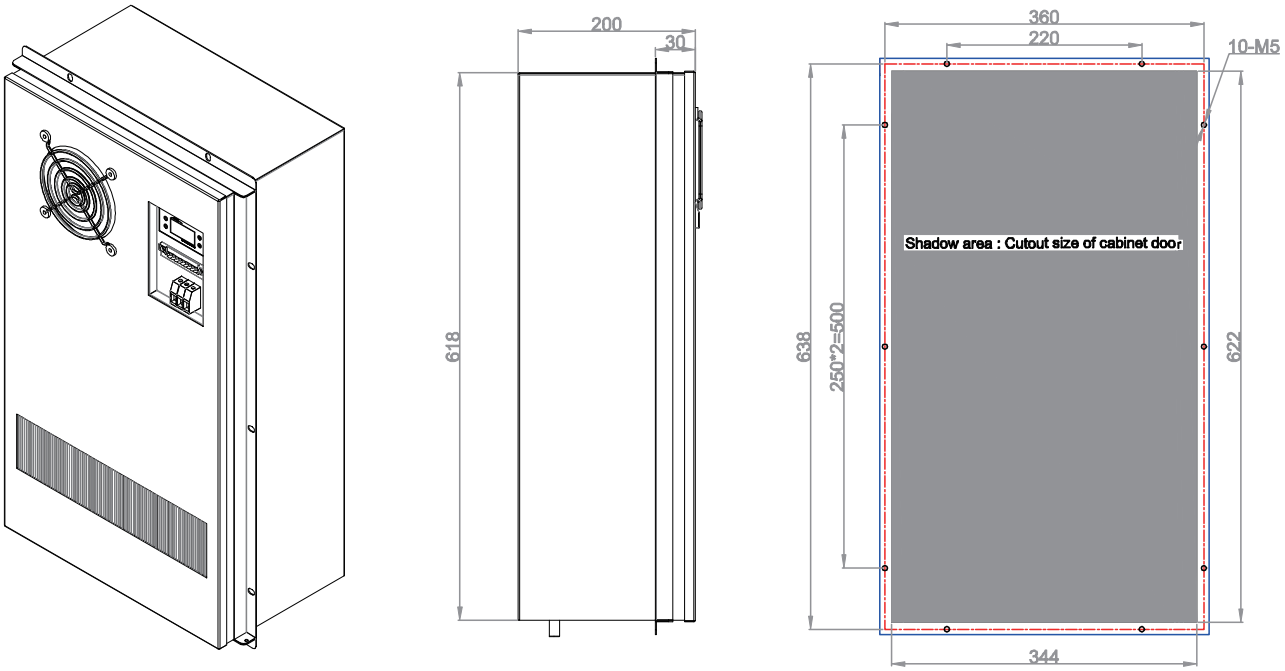
P/N: 31∗03∗ Fig 10



Dimension for Mounting

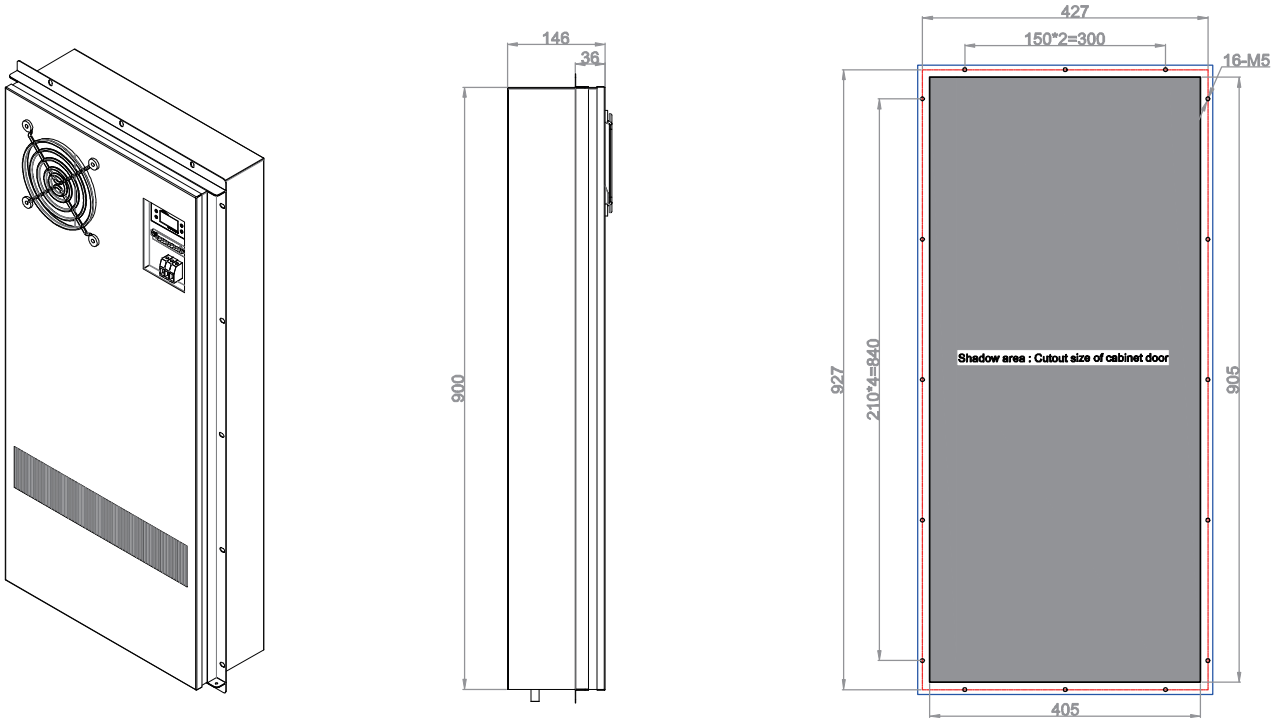
P/N: 51∗01∗

Fig 11



P/N: 51∗02∗

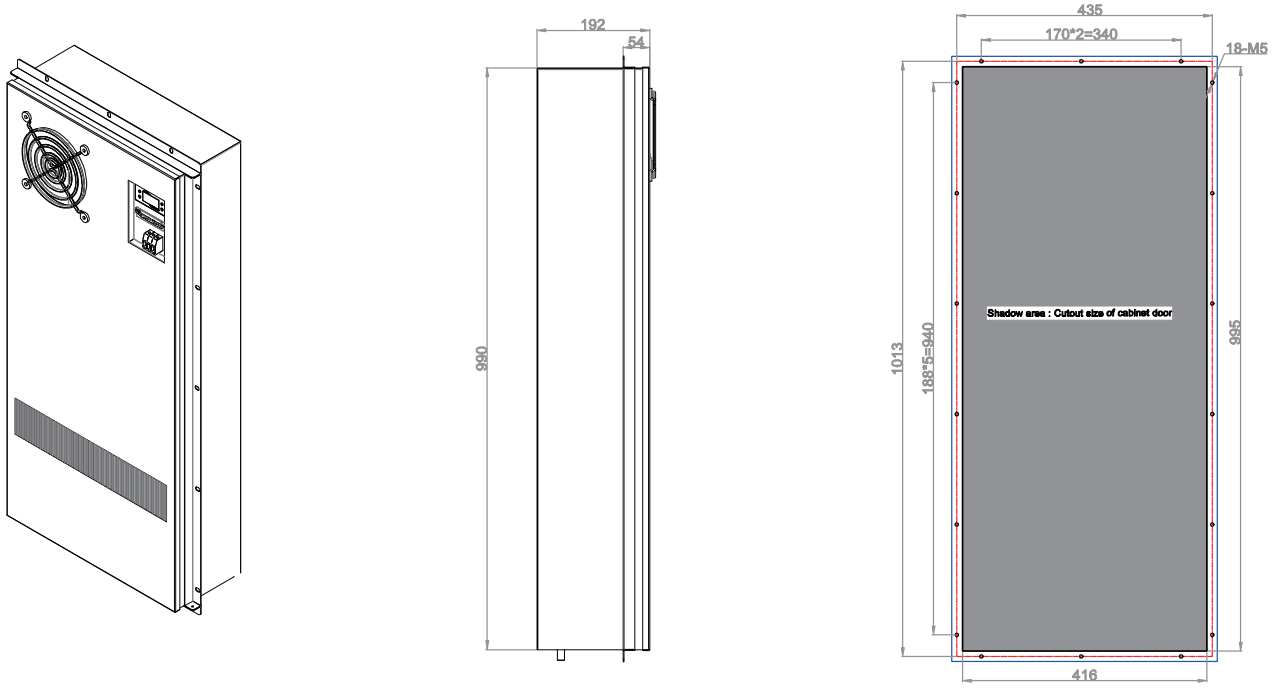
Fig12



Dimension for Mounting

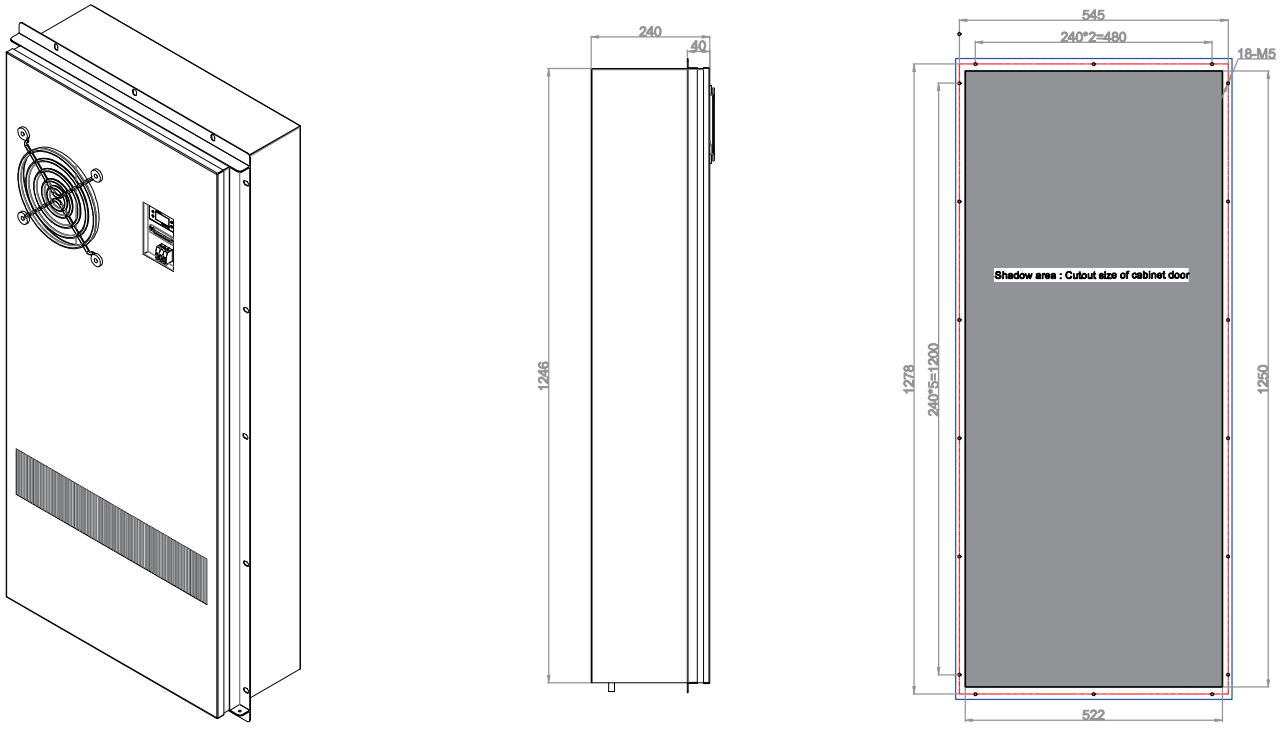
P/N: 51∗03∗

Fig 13



P/N: 51∗04∗

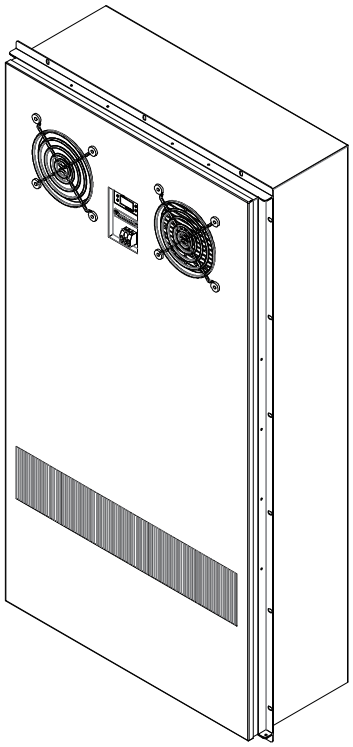
Fig 14

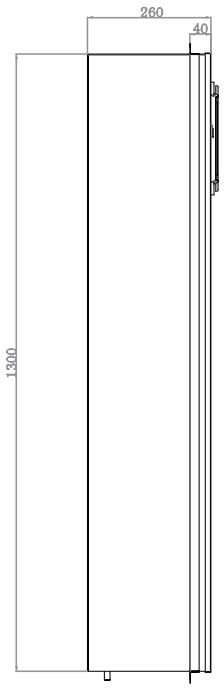


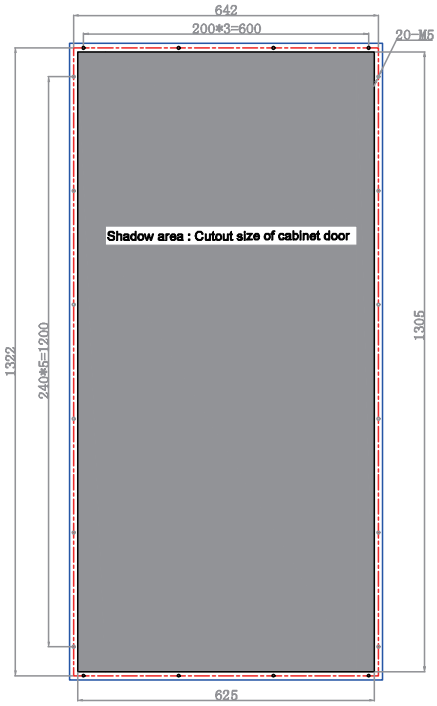
Dimension for Mounting

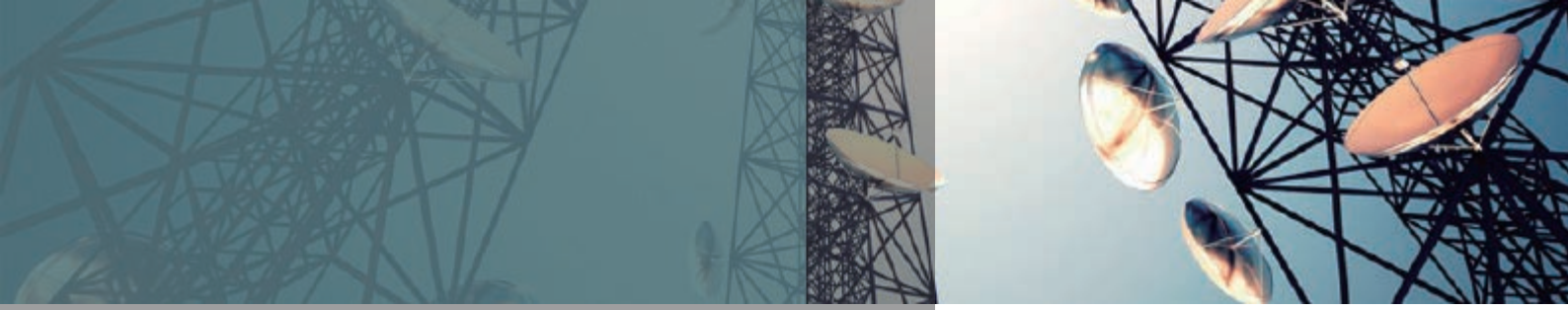
P/N: 51∗05∗

Fig 15









Air Conditioner –
Base station cooling – Window type & split type

Design Feature:

› Specially designed for base station device cooling application;

› Split design model got indoor unit and outdoor unit

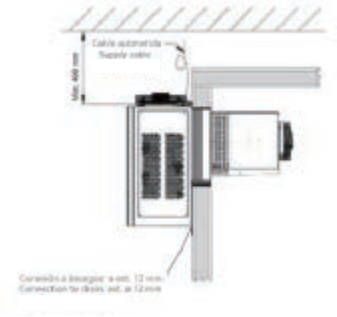
* Outdoor unit is exactly same with home appliance product

* Indoor unit can be handing on the celling or be mounted on wall.

› Flexible power supply by DC or AC power source. For HYBRID application, a 48VDC battery bank source, with wide voltage input range from 40 – 60V, is perfect mate for off grid application

Product Model	Unit	Window Type	Split Type
			 
Model:		71106*	72101*
Cooling capacity@L35/L35	W	4000	4000
Inner air circulation	m^3/h	900	700
Refrigerant type		R134A	
Power Supply		48VDC	
Power consumption@L35/L35	W	1000	1000
Current @ L35/L35	Amps	21	21
Max. Current	Amps	30	30
Connection pipe – liquid			1/4”
Connection pipe – gas			1/2”
Size	mm		Indoor unit:438x266x800 Outdoor unit:763x530x285
Weight	kg	65kg	60kg

Installation Sample



Precision Air Conditioner –
For edge computing micro data center infrastructure cooling

Design Feature:

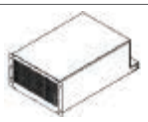
› Specially designed for micro data center cabinet level cooling;

› Split design model got indoor unit and outdoor unit;

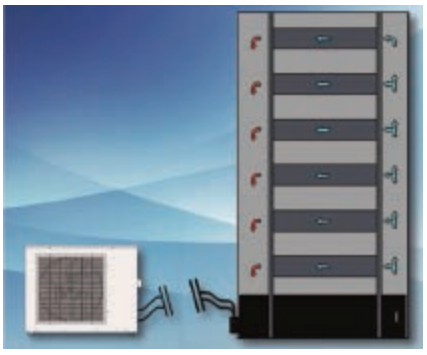
* Outdoor unit is exactly same with home appliance product.

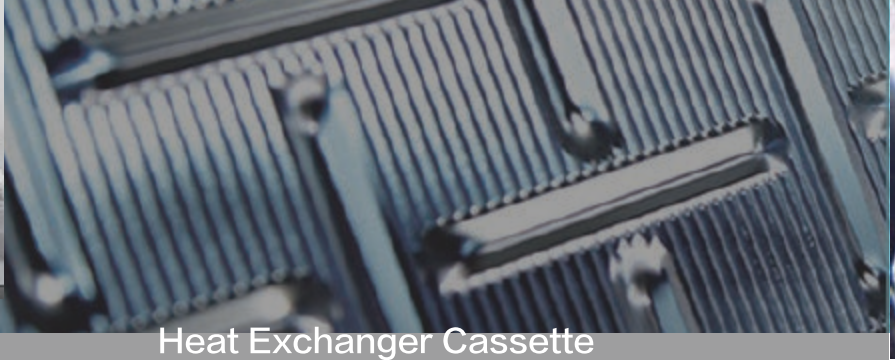
* Indoor unit can be put into cabinet rack directly.

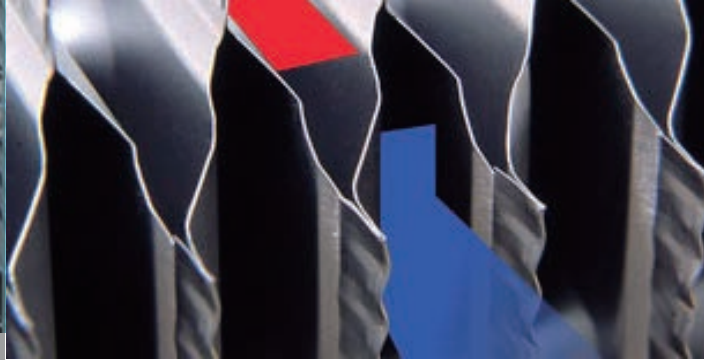
› Lowest power consumption with EER up to 5, SEER up to 8, up to 50% power saving than normal air conditioners.

Product Model	Unit	Split Type	
			
P/N:		72201*	72202*
Cooling capacity@L35/L35	W	3500	4500
Inner air circulation	m^3/h	700	1000
Refrigerant type		R410A	
Power Supply		230VAC 50Hz	
Power consumption@L35/L35	W	1350	1750
Current @ L35/L35	Amps	6.0	8.0
Max. Current	Amps	10.0	13.0
Connection pipe – liquid		1/4"	1/4"
Connection pipe – gas		1/2"	1/2"
Size	mm	Indoor unit: 438x266x800 Outdoor unit: 763x530x285	Indoor unit: 438x266x800 Outdoor unit: 763x530x285
Weight	kg	Indoor:15kg Outdoor:45kg	Indoor:15kg Outdoor:45kg

Installation Sample







Heat Exchanger Cassette

Plate heat exchangers designed for air flows up to 10,000 m³/h (60,00 CFM), achieve higher efficiency conforming to the European Ecodesign 2016 and 2018 standard.

Design Feature:

› Low pressure drop sheet profile

› In aluminum, acrylic protected aluminum or stainless steel

› Cross flow type mainly for ventilation, heat recovery, Counter flow type mainly for cabinet level cooling application

› Low installation and running costs, minimal maintenance

APPLICATION:

› Swimming pool and Hospital and industry ventilation

› Air replacement with recovery

› Data Center non-contact evaporative cooling

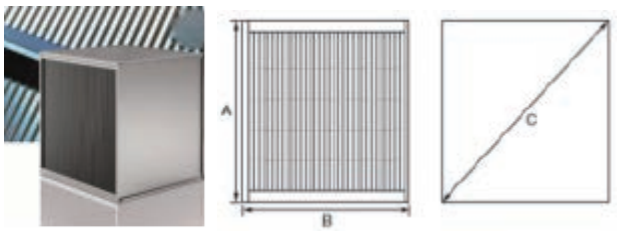
› Heat recovery in very low energy consumption houses

› Pre-heating and pre-cooling in the air handling units

› Heatsink into Shelters and Cabinets of the telecom industry

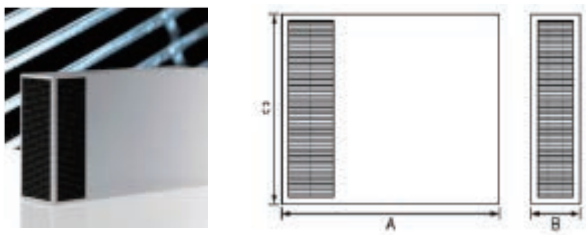
Cross Flow Type

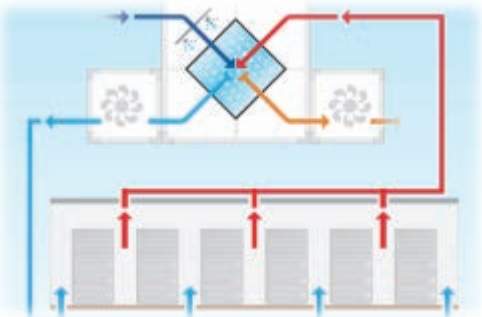
Model	A(mm)	B(mm)	C(45 angle mm)	Plate distance(mm)
200	200	max.600	282	2.0/2.5/3.0
300	300	max.800	424	2.0/2.5/3.0/4.0
400	400	max.800	565	3.0/4.0/5.0/6.0
600	600	max.1000	850	3.0/4.0/5.0/6.0
For further option please contact DBS				

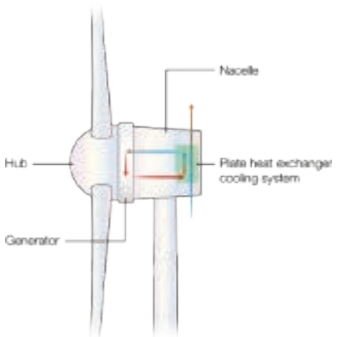


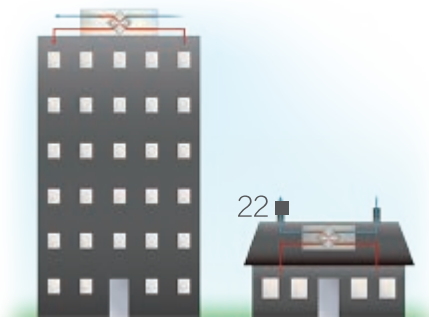
Counter Flow Type

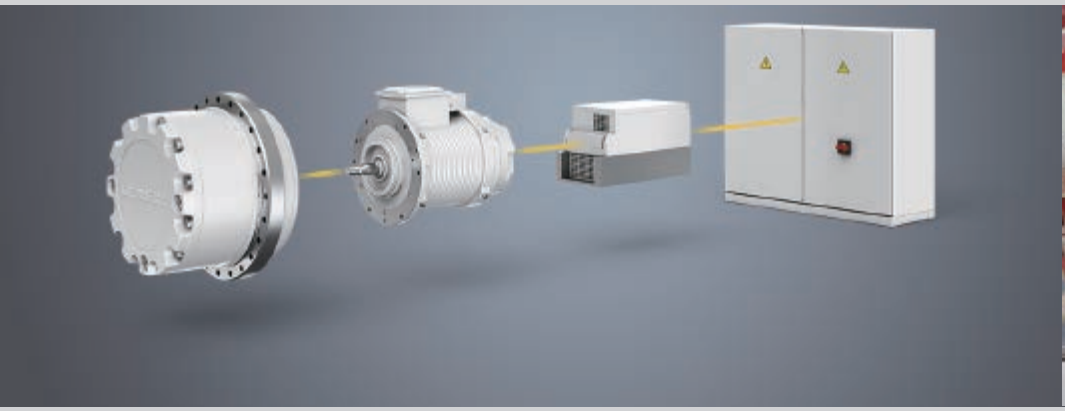
Model	A(mm)	B(mm)	C(mm)	Plate distance(mm)
300	300	100/140	200-600	2.0/2.5/3.0
400	400	100/140		2.0/2.5/3.0/4.0
460	460	190		3.0/4.0/5.0/6.0
500	500	140		3.0/4.0/5.0/6.0
600	600	140/190/235		3.0/4.0/5.0/6.0
For further option please contact DBS				

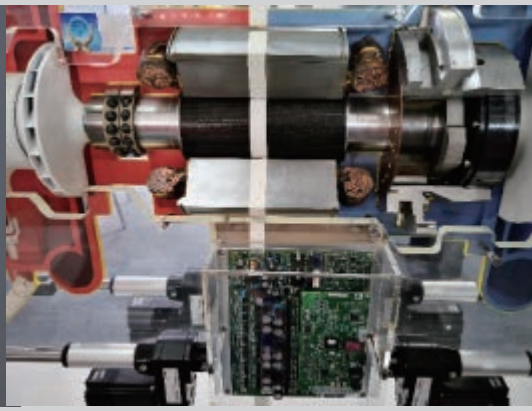




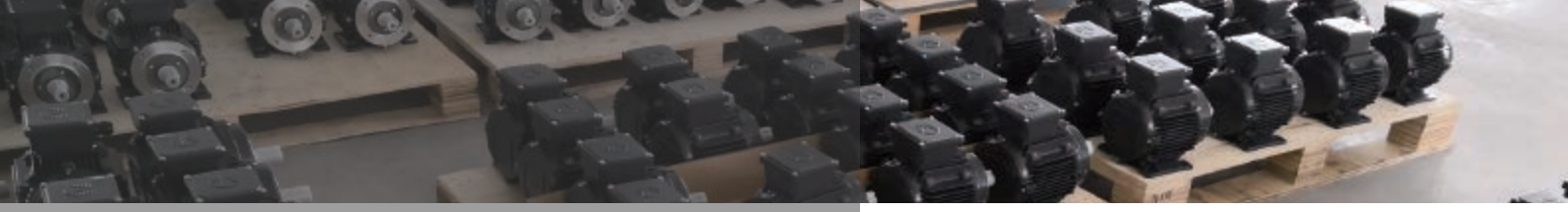








EC Moter Division



Product Brief

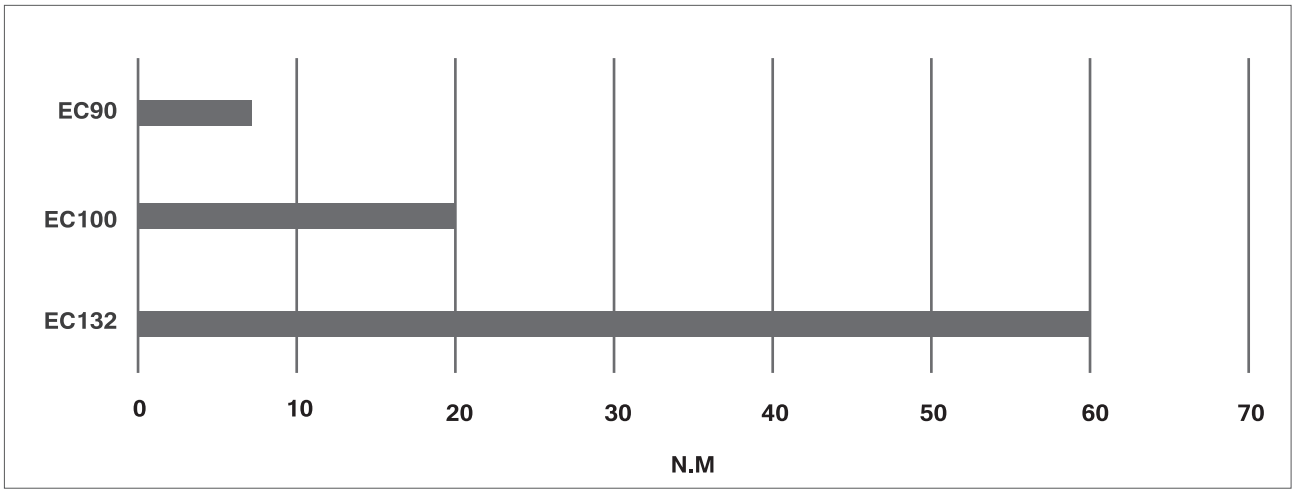
E-MAX motor is the special designed permanent magnet synchronous motor based on the IEC norm. E-MAX PMSM will be used for next generation which need more energy saving product. Exceed IE4 variable speed AC motor (IEC60034-30-2-2016).

Model List

Model	Frame size	Rated torque(Nm)**	Output @1500rpm(kW)	Output @3000rpm(kW)	Maximum speed(rpm)
T71EC01X36	71	1.2	0.2	0.41	3600
T71EC02X36	71	2.4	0.41	0.82	3600
T71EC03X36	71	3.2	0.55	1.1	3600
T90EC03X36	90	3.2	0.55	1.1	3600
T90EC05X36	90	4.8	0.75	1.5	3600
T90EC07X36	90	7	1.1	2.2	3600
T100EC10X36	100	9.5	1.5	3	3600
T100EC14X36	100	14	2.2	4	3600
T100EC19X30	100	19.1	3	5.5	3000
T132EC26X30	132	25.5	4	7.5	3000
T132EC35X30	132	35	5.5	11	3000
T132EC48X30	132	47.7	7.5	15	3000
T132EC59X30	132	58.9	9.2	18.5	3000
T132EC70X30	132	70	11	22	3000

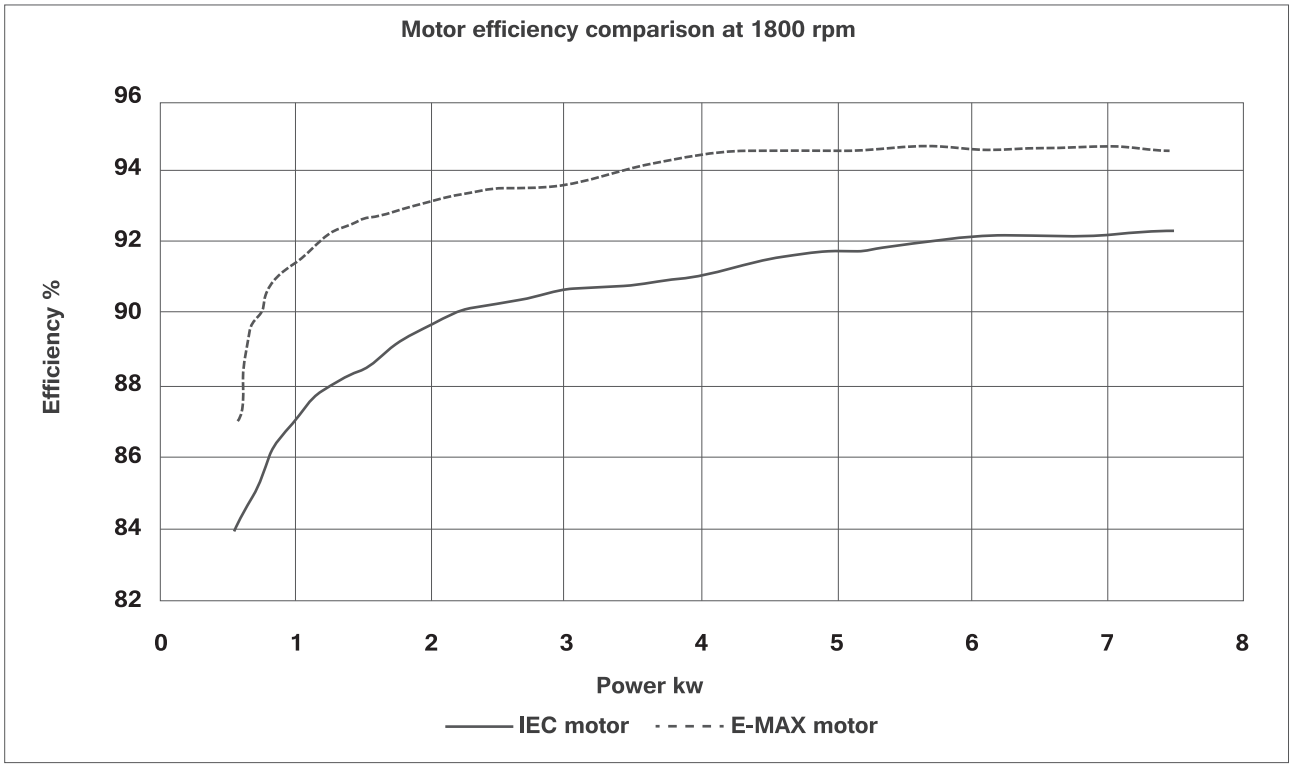
** The rated torque is based on the cooling method. The detail torque see data sheet.

Product range



Efficiency class

E-MAX motor has ultra-high efficiency both at full load and light load. The flat efficiency curve can save more energy when the motor drive the fan or pump in HVAC field.



Model Number Definition

T 90 EC 03 V 36 C2 B14 P
1 2 3 4 5 6 7 8 9

Position	Character	Description
1	"T"	Product platform
2	"90"	Frame size: IEC 90#
3	"EC"	E-MAX permanent magnet motor
4	"03"	Rated torque
5	"V"	Cooling method:
		G = General purposes, with fan and fan hood. IC411
		V = Ventilation applications, without fan and fan hood.
6	"36"	Maximum speed: 3600 rpm
7	C2	Power line connection method:
		T1 = Terminal box on top
		T2 = Terminal box on NDE
		C1 = No terminal box, power line from housing
		C2 = No terminal box, power line from NDE
8	B14	Mounting method:
		B3, B14, B5, B34, B35
9	P	P = Slid rail

VSD Consideration

PMSM must drive by the VSD. The motor cannot connect to the normal AC power directly. The VSD can be the commercial drive with vector control or PM motor control mode. VSD need to be set up the correct motor parameter (see below table). The detail parameters can be find in the model data sheet.

Motor parameters for VSD:

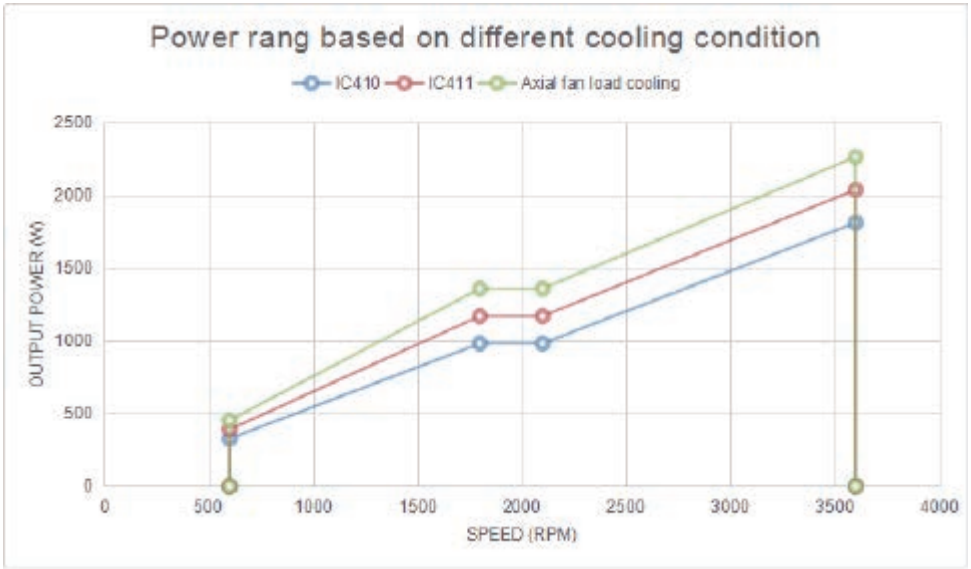
Items	Y	△	Unit	Note
VSD input voltage:	360-440	360-440	V	
Max speed:	1800	3600	rpm	
Max frequency:	150	300	Hz	
VSD output voltage:	360	360	V	
Rated current:	2.65	4.8	A	
Resistance:	1.45	0.49	Ohm	Phase
Ld:	9.5	3.1	mH	Phase
Lq:	9.5	3.1	mH	Phase
Back EMF value:	167	90	Vrms per 1000 rpm	

Power choose consideration

The power and torque in above model list is the rated power or torque when the motor has not any cooling method (IC410). If the motor cooled by the wheel or the load the motor power can be larger. The detail running range please see detail model data sheet. Below chart is a sample to decide the power at different cooling condition.

Duty cycle: **S1**

Cooling condition: **IC410, IC411, Cooling by axial fan load**

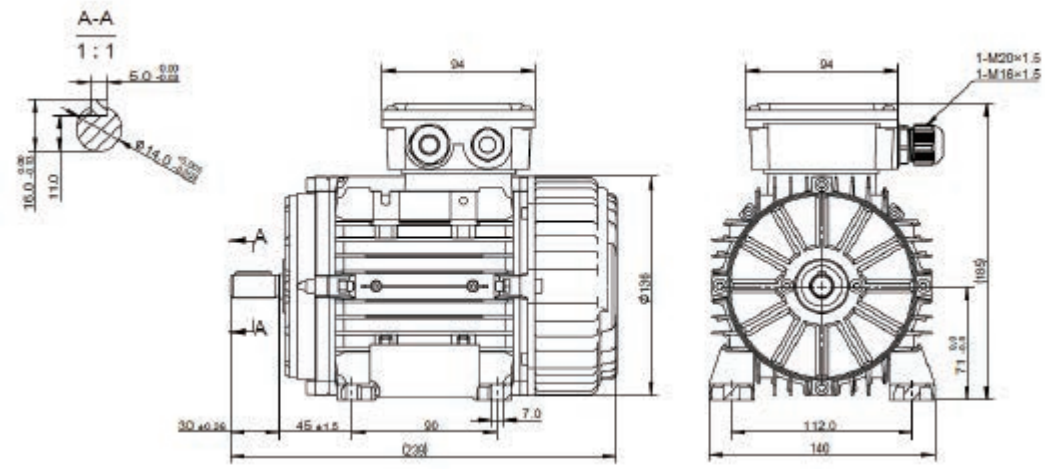


IC410

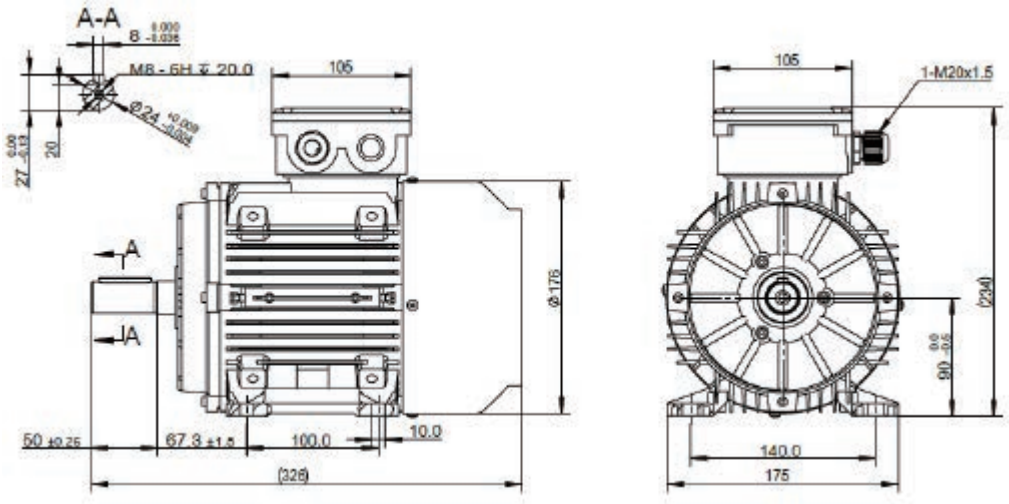
IC411

Axial fan load cooling

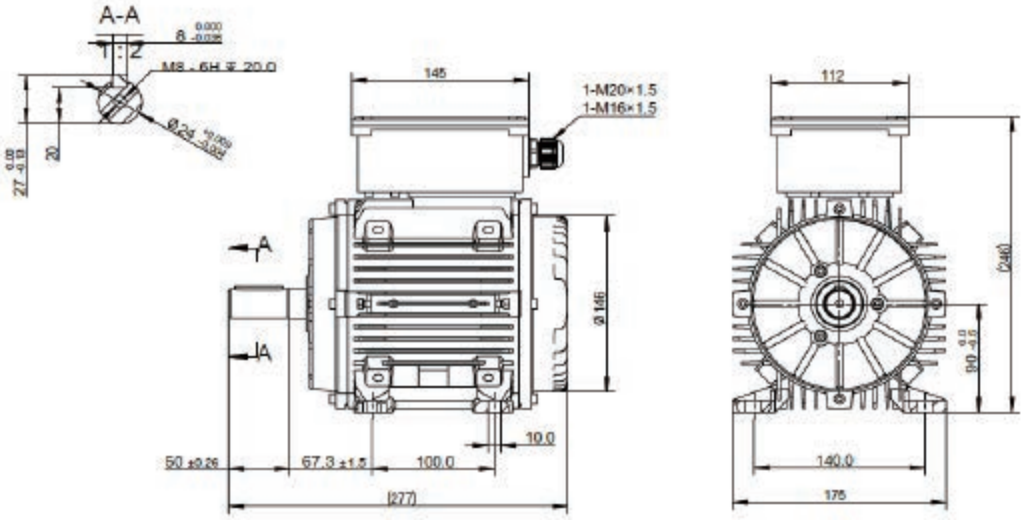
T71EC series motor with integrated drive (B3)



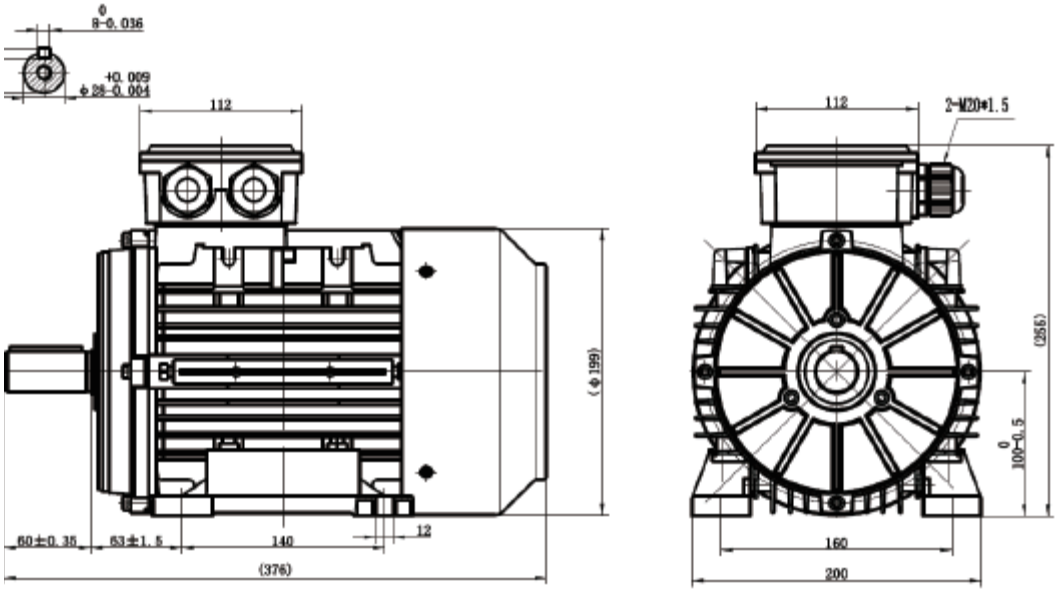
T90EC series motor (B3)



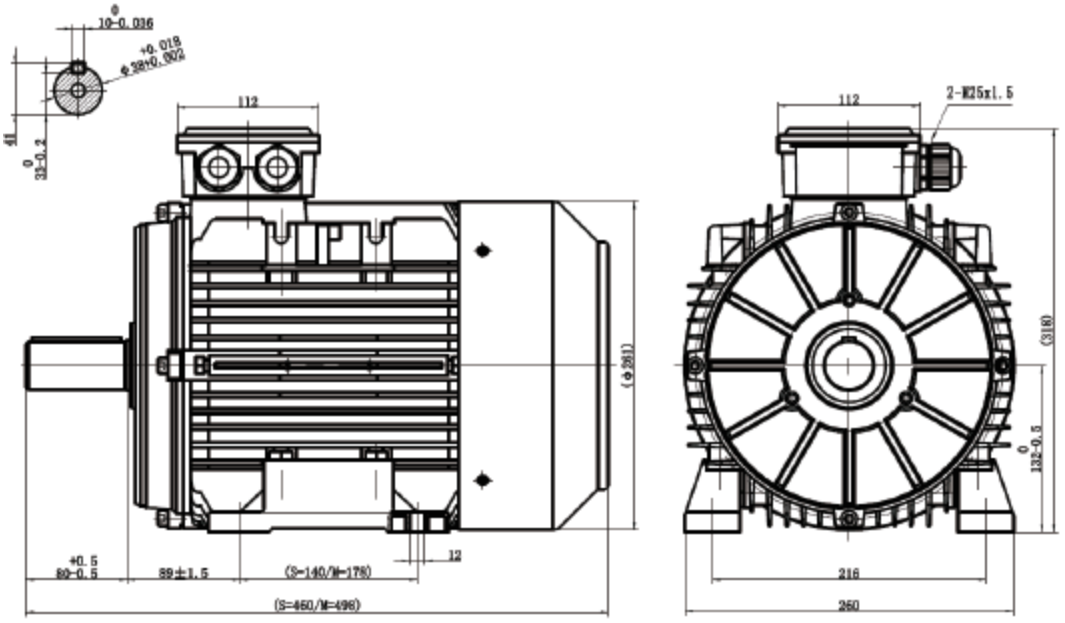
T90EC series motor with integrated drive (B3)



T100EC series motor (B3)



T132EC series motor (B3)

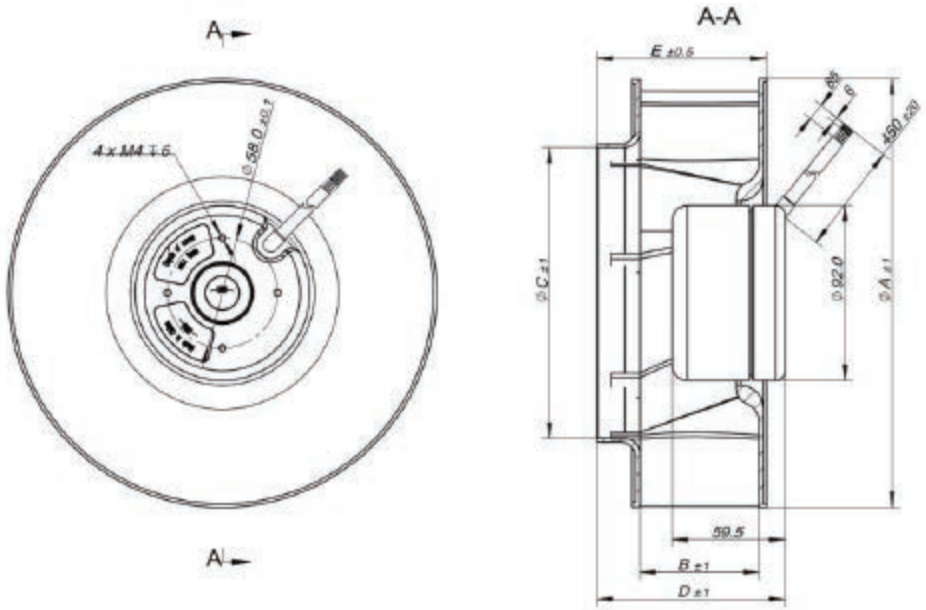


DC Centrifugal Fan And DC Motor

- High efficiency throughout the entire motor speed range.
- Variable speed control with integrated inverter.
- Aluminum housing take better cooling.
- Low cogging torque PM motor design.
- High reliability with sensorless control.
- PWM or DC voltage control the speed.
- Output signal feedback the speed.

Motor type	Voltage range (V)	Power range (W)	Fan type and size (mm)
 DC Centrifugal Fan	24, 48	10-150	Centrifugal fan 190-310

Model number	Unit	DC190A	DC225A	DC250A	DC310A
A	mm	190	225	250	310
B	mm	44.3	63	56	69.5
C	mm	131	153	172	220
D	mm	68.5	99	106.5	120
E	mm	62.8	89.2	84.4	110.5
Rated speed	rpm	3200	2600	2700	1600
Air flow	m^3/h	550	1155	1605	1910
Back pressure	Pa	0	0	0	0



Motor type	Voltage range (V)	Speed rang (rpm)	Power range (W)	Motor Efficiency	Fan type
 DC motor	24, 48	100-1500	10-150	80%@800rpm 82%@1000rpm 83%@1500rpm	Axial fan or cross flow fan

Typical application

Innovation & Intelligent production · Leading Technologies · Rooted in Quality Orientation

Your Trustable Global Business Partner

HUNTERHEX®

Smart Green Climate and Energy Solutions

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